



¹ NIHR Centre for Engagement and Dissemination, Twickenham, UK

² University of Edinburgh, Edinburgh, UK

Correspondence to H Saul
NIHRAlerts@nihr.ac.uk

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NIHR ALERTS

One in two people admitted to hospital with covid-19 develop complications and may need support

Helen Saul,¹ Deniz Gursul,¹ Samantha Cassidy,¹ Ewen Harrison²

THE STUDY

Drake TM, Riad AM, Fairfield CJ, et al. Characterisation of in-hospital complications associated with covid-19 using the ISARIC WHO Clinical Characterisation Protocol UK: a prospective, multicentre cohort study. *Lancet* 2021;398:10296.

To read the full NIHR Alert, go to: <https://evidence.nihr.ac.uk/alert/one-in-two-people-hospitalised-with-covid-19-develop-complications-may-need-support/>

Why was the study needed?

As of February 2022, more than 18 million people in the UK had been infected with SARS-CoV-2. More than 717 000 people had been admitted to hospital with covid-19 as a result.

People who have complications from covid-19 tend to need help to look after themselves once they have left hospital. Research into the longer term health issues associated with covid-19 will inform policymakers about extra health resources that might be needed.

Understanding someone's chances of developing a complication will inform treatment decisions and long term planning. It will help people manage their expectations about recovery.

This study describes the complications in people admitted to hospital with covid-19. It looks at factors that might increase the risk, such as age, sex, ethnicity, and pre-existing illness.

What did the study do?

In early 2020, the researchers looked at data from 73 197 adults with confirmed or strongly suspected covid-19. The study covered 302 hospitals in the UK. Just over half (56%) the participants were men; most (81%) had at least one other illness.

The researchers followed people until discharge from hospital, or for 28 days if they were not discharged.

What did it find?

The researchers found that half of all patients admitted to hospital with covid-19 developed complications.

Overall, the most common complications were:

- - Renal—in one in four people (24%)
- - Respiratory (related to lungs but not typical of covid-19)—in almost one in five (18%)
- - Systemic—in one in six (16.3%).

Other complications were slightly less common. Cardiovascular complications affected 12%, gastrointestinal complications 11%, and neurological complications 4% of people.

Different groups of people had different rates. Complications were seen in:

- - 58% black people versus 49% white people
- - 55% men over 60 versus 48% women over 60
- - 49% men under 60 versus 37% women under 60.

Other conditions increased the risk. Complication rates were increased among:

- - People with obesity
- - People with pre-existing conditions, which could be made worse with covid-19 (those with heart disease, for example, were more likely than others to develop a heart complication)
- - People with more than one pre-existing condition.

People who received respiratory or critical care support while in hospital were also at increased risk. Overall, people in their 60s who had two or more other conditions were some of the most likely to develop complications (58%). People aged 19-29 with no other illness had the lowest rate, and only one in five (21%) developed complications.

Of those with a complication, one in four needed more support to care for themselves when they returned home than they had before going into hospital. This was particularly so for:

- - People under 50
- - Men
- - People who received critical care support while in hospital
- - People who developed neurological complications (such as seizures or strokes).

Almost one in three people in this study died (32%). Complications were more common in those who died, especially among younger people. Cardiovascular and respiratory complications were associated with the largest increases in death across all age groups.

Why is this important?

Complications were common in all age groups. Covid-19 and its complications place a burden on patients and on the healthcare system. This study will help healthcare services plan to provide resources

for hospitals, plus the extra support that many people need after they are discharged.

The researchers found that commonly used hospital scores (such as NEWS2, qSOFA, and the 4C Mortality score) correlated with complications. These scores might therefore help clinicians to predict the groups of people most at risk of developing long term complications. The next step is to design interventions to prevent complications.

The research suggests that earlier treatments and improved monitoring would be useful.

What's next?

This study was carried out when covid-19 first hit the UK, before testing was commonplace and vaccinations had been rolled out.

The researchers would like to explore the complications in more detail to find ways of preventing or treating them. They would like to explore the longer term outcomes for these patients to see whether they eventually return to health. This would help people to manage their expectations around their own recovery. It would also inform the allocation of healthcare resources.

Competing interests: *The BMJ* has judged that there are no disqualifying financial ties to commercial companies. The authors declare the following other interests: none.

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1 Docherty AB, Harrison EM, Green CA, et al. Features of 20133 UK patients in hospital with covid-19 using the ISARIC WHO Clinical Characterisation Protocol: prospective observational cohort study. *BMJ* 2020;369:m1985.