How ICUs in England were stretched to cope with the pandemic

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There has been much discussion recently about how governments handled the COVID pandemic during 2020 and 2021. In particular, debate has centered on the costs and benefits of the various social

restrictions, including lockdowns.

The rationale for implementing social restrictions and other non-pharmacological measures in the U.K. was to protect the health of the population and to prevent health services from becoming overwhelmed.

Amid wider criticism of pandemic restrictions, some have questioned whether intensive care units (ICUs) in the U.K. truly exceeded their ordinary capacity during the pandemic. There have been claims that ICU beds sat empty in preparation for a wave of patients that never came.

So it's worth looking at at key data that highlights COVID's impact on ICUs in England. This data shows a health system stretched to its limits. While social restrictions do have adverse consequences, without public health interventions to reduce the spread of the virus, the impact on healthcare provision would have been much worse.

On February 28 2020, the NHS in England had 4,122 adult intensive care beds, 80% of which were occupied. ICU bed numbers had remained stable over the preceding two years.

Almost overnight, in April 2020, English hospitals created more than 1,500 extra ad hoc ICU beds in preparation for the coming surge. By January 2021, amid England's largest COVID wave in terms of hospital admissions, a total of 5,702 beds were occupied.

Staff, staff, staff

The main challenge in creating extra ICU beds was staffing. Providing intensive care requires large numbers of specialist staff including nurses, physiotherapists, pharmacists, occupational therapists, dietitians, clinical psychologists, critical care doctors and many others.

With longstanding workforce vacancies and years needed to train for these specialist roles, increasing the workforce to match bed expansion was impossible.

The challenge was exacerbated by high infection rates. COVID cases among healthcare workers were several times higher than in the community. Staffing levels were further reduced by shielding, as well as the need to separate patients with COVID from those without it, effectively necessitating the creation of parallel ICU services.

To mitigate some of the staffing shortfall, redeployment (and makeshift training) of non-specialist staff from other areas of the NHS—mainly operating theaters, but also hospital wards, community healthcare services and returning retired staff—was required. However, this moved staff away from their usual roles, disrupting other hospital services—and has been the principal cause of the current NHS elective care backlog.

In spring of 2020, more than three-quarters of patients admitted to ICU with COVID underwent mechanical ventilation. Each patient receiving mechanical ventilation generally requires one ICU nurse.

During 2020, national guidance allowed this to be stretched as far as one ICU nurse for every six mechanically ventilated patients. The normal standards for the provision of intensive care were rarely achieved during much of 2020 and 2021, with specialist staff spread more thinly than is usually considered safe.

Did we need really need extra ICU beds?

The data for England as a whole appear to suggest that during much of 2020–21 there was available ICU capacity. But things are more complex than they seem. The burden of COVID was not equitably distributed across hospitals or regions, and neither are ICU beds. Most hospitals had

periods of time where the number of patients requiring intensive care exceeded the available capacity.

Transferring critically ill patients to available ICU beds in other hospitals became a necessity. Transfers represent an added risk for patients and require specialist staff to accompany the patient, removing them from the ICU and exacerbating staffing issues. Moving patients also separates them from their loved ones, sometimes by hundreds of miles.

For these reasons, every effort is usually made to avoid "capacity transfers." Before the pandemic, between December 2019 and February 2020, only 68 capacity transfers took place. During COVID, between December 2020 and February 2021, 2,151 were necessary.

The data also fails to show that, in many hospitals, treatments such as continuous positive airway pressure (CPAP) that are usually provided only in ICU for safety reasons had to be provided by other teams on regular hospital wards.

How the pandemic has affected ICU staff

Cases admitted to ICU with COVID are complex and patients are very ill. In 2020–21, more than one in three patients admitted to ICU with COVID died there.

Throughout the pandemic, NHS have staff held fears for their safety and that of their patients. They have had to endure long hours wearing personal protective equipment, extra shifts, canceled leave, and the challenges of supporting families who were not allowed to visit their sick and dying loved ones. The net result has been significant harm to the well-being of ICU staff.

A survey of ICU staff undertaken in the summer of 2020 found staff

reported high levels of mental health problems including severe depression, anxiety and harmful alcohol use. Further studies carried out during winter 2020–21 showed that as strain on ICUs increased, so too did the proportion of staff reporting poor mental health.

During the COVID pandemic, ICUs and many other services across the NHS have been forced to work far beyond the limits they were designed or resourced for. Notably, the cost of the extra demands placed on staff is now being felt with increased rates of long-term sickness and reduced staff retention, both of which will further exacerbate the backlog of elective care.

As the NHS prepares for what is likely to be another challenging winter, caring for staff as well as patients must be a priority.

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