Critical Care Beds in Sussex and East Surrey

What does normal look like?

##### Author: Rich Tyler, Public Health Analyst, West Sussex County Council

##### Date: 01/04/2020

## Introduction

This briefing describes the count all adult critical care (ITU, HDU or other) beds that are funded and available for critical care patients (adults, Levels 2 and 3) as part of the NHS England SitRep returns.

The definitions of critical care levels are:

* Level 1 – Patients at risk of their condition deteriorating or those recently relocated from higher levels of care, whose needs can be met on an acute ward with additional advice and support from the critical care team (**these patients are NOT included in SitRep returns**).
* Level 2 – Patients requiring more detailed observation or intervention including support for a single failing organ system or post-operative care and those stepping down from higher levels of care. Also known as High Dependency.
* Level 3 – Patients requiring advanced respiratory support alone or basic respiratory support together with support of at least two organ systems. This level includes all complex patients requiring support for multi-organ failure. Also known as Intensive Care.

This is the number of actual beds rather than the planned number of beds with beds funded but not available due to staff vacancies excluded unless the vacancies have been filled by bank or agency staff. It does include beds which are not funded but are occupied. As a snapshot of the occupancy at midnight of the reporting period, it does not account for beds that are occupied and then available for more than one patient over the course of the day.

This briefing describes two datasets. A monthly situation report is a snapshot at midnight on the last Thursday of each month provided by NHS England as part of a monthly situation report (monthly sitrep). Data in this monthly collection are available from April 2010 to January 2020. During the winter period data on bed occupancy are recorded more frequently, with data available for each day usually between December and February. In previous years there are some data from November to March.

It should be noted that at national levels the monthly and daily sitreps vary considerably and so it is not possible to add values from daily returns to the monthly returns (e.g. using the last Thursday in February to supplement the monthly time series) even though the daily series is more recent.

* The daily SitRep returns generally show fewer open beds than the monthly returns (3,654 open beds as at 30/01/2020 in the daily returns and 4,123 in monthly returns as at 30/01/2020). The England value is an aggregated total of all rows in the dataset.
* There were 145 Trusts included in the monthly SitRep data for December 2019, whilst the winter daily SitRep contains data for just 133 Trusts. This may explain the lower national figures in the winter daily SitRep. Of note, the Queen Victoria Hospital NHS Foundation Trust does not have a record in the winter daily SitRep.

Percentages of beds are rounded to the nearest single decimal place (e.g. 74.1%) whilst averages and rates are rounded to the nearest whole number to make interpreting the analysis easier (as it is not possible to have half a bed).

## Critical care beds available in January 2020 (Monthly SitReps)

The latest monthly data for critical care bed occupancy is for January-2020 and this indicates that nationally as at midnight on the 30/01/2020 there were 4,123 open critical care beds (adult beds). Of these, 3,423 were occupied (83%). In January 2019, the occupancy rate was 85.3% with 3,532 beds out of 4,140 occupied.

* Across England at midnight on 30/01/2020 there were 700 beds available for new patients.

There are 19 NHS organisations providing critical care beds in the South East Commissioning Region. Across the commissioning region, at midnight on 30/01/2020 there were 522 open critical care beds (adult beds) with 423 occupied (81%). This occupancy rate is lower than in England overall in the latest available data.

* Across the South East Commissioning Region at midnight on 30/01/2020 there were 99 beds available for new patients.

More locally, the Sussex and East Surrey Sustainability and Transformation Partnership (STP) comprises five acute hospital trusts which provide data on critical care beds in the monthly returns (Brighton and Sussex University Hospitals NHS Trust, East Sussex Healthcare NHS Trust, Queen Victoria Hospital NHS Foundation Trust, Surrey and Sussex Healthcare NHS Trust, and Western Sussex Hospitals NHS Foundation Trust). The January 2020 data indicates that across the STP, hospital trusts have 113 open critical care beds (adult beds) with 93 occupied (82.3%). This occupancy rate is marginally lower than in England overall in the latest available data and higher than in the South East Commissioning region.

* Across the Sussex and East Surrey STP at midnight on 30/01/2020 there were 20 beds available for new patients.

## Capacity and occupancy over time: peaks and average occupancy

Compared with January 2019, the number of open critical care beds fell in England by 17 (less than half a percentage point) from 4,140 to 4,123, whilst the number of open beds in South East Commissioning Region rose by five. The number of open beds in the STP trusts was the same in January 2019 and January 2020 (113 open beds). In all three areas, occupancy as a proportion of open beds was lower in January 2020 compared with the same period in 2019.

In the last five years since Janural 2015, the highest capacity (number of open beds) for critical care beds in England was 4,157 in February 2019. The peak number of open critical care beds in the commissioning region is more recently in December 2019, with 523 open beds whilst the peak in the Sussex and East Surrey STP trusts was July 2015 when 117 critical care beds were open.

The figure overleaf shows the national, regional, and Sussex and East Surrey STP occupancy rates between January 2015 and January 2020.

A close up of a map

Description automatically generated

Since January 2015, there have been on average 726 available critical care beds nationally, 80 beds in the South East Commissioning region and 21 beds within the STP trusts. In the 12 months leading to January 2020, these averages have increased in England to 805 available beds, and to 102 in the South East Commissioning region. In the Sussex and East Surrey STP, the average number of beds available for new patients increased slightly to 22.

Peak availability over the last five years was in December 2018 for the STP and England overall (32 beds and 1,003 beds respectively) and December 2019 for the South East Commissioning Region (127 available beds).

## Capacity recommendations

A critical care capacity research study conducted in 2018 by The Faculty of Intensive Care Medicine reports that the highest rate recommended for safe and efficient patient care is 85%[[1]](#footnote-1). Operating above this capacity means providers can struggle to cope with variation, respond to crises, and this leads to cancelling operations, or needing to transfer very ill patients to other hospitals.

In the past 12 months (February 2019 - January 2020), occupancy of critical care beds did not exceed 85% in England overall or in South East Commissioning Region. However, in Sussex and East Surrey STP, the occupancy exceeded the safe level once, in May 2019 when occupancy reached 91.2% (103 out of 113 beds).

The figure below shows the number of critical care beds open across the STP’s Trusts since January 2015 coloured by availability status with the yellow bars at the top representing the number of beds that are available to new patients on the last Thursday of each reporting period.

A screenshot of a cell phone

Description automatically generated

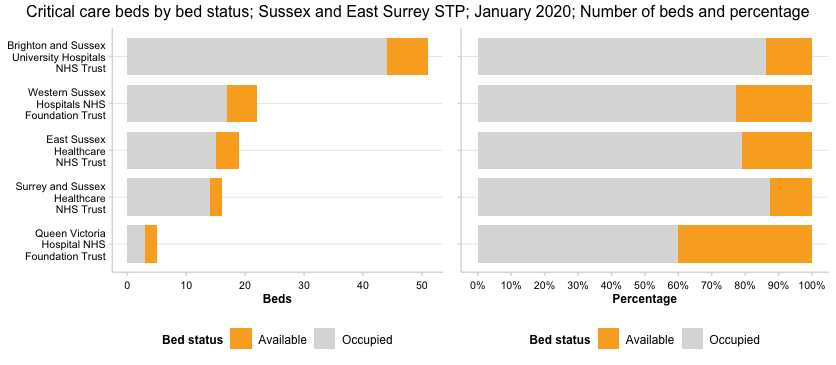
There appeared to be some fluctuation in 2015 with bed capacity, although this becomes fairly stable (around 110 beds) from the beginning of 2016 onwards.

## Variation at Trust level

There are differences in the capacity and occupancy of critical care beds across the five hospital trusts in the Sussex and East Surrey STP who provide critical care beds.

The numbers of beds within individual Trusts, particularly if the trust has just one specialist hospital site, can be small and slight changes in bed occupancy can have a large impact on rates and percentages. This section first explores the capacity among each trust, looking at the latest figures and peak capacity in the last five years, before looking at changes in occupancy over time.

The figure below shows the latest capacity and occupancy data for critical care beds in the STP.



Brighton and Sussex University Hospitals NHS Trust had the most critical care beds (51) open in January 2020. With seven beds available to new patients, the latest occupancy rate for this Trust is 86.3%, which is up from 84.3% in January 2019.

Western Sussex Hospitals NHS Foundation Trust had 22 open beds as at January 2020, with an occupancy rate of 77.3% (17 beds occupied), again up from January 2019 (72.3%, 16 beds occupied).

East Sussex Healthcare NHS Trust had 19 open critical care beds in January 2020, with an occupancy rate of 78.9% (15 beds occupied). In January 2019, the occupancy rate was more than 10% higher at 89.5%, although this was only due to just two extra patients in beds, illustrating the impact of small numbers on these rates. Surrey and Sussex Healthcare NHS Trust had 16 open critical care beds in January 2020, with an occupancy rate of 87.5% (14 beds occupied). In the same period in 2019, all beds were occupied. The smallest number of critical care beds open was in Queen Victoria Hospital NHS Foundation Trust. With just five critical care beds open in January 2020, each bed occupied is 20% of the capacity of the Trust.

For all but Brighton and Sussex University Trust, the capacity (number of open critical care beds) for the STP Trusts has remained stable since January 2015, with just one or two critical care beds closed and unavailable in some of the reporting periods. Brighton and Sussex University Hospital NHS Trust however has fluctuated from having 48 open critical care beds to 58 critical care beds.

Occupancy over time for the five trusts is displayed on the next page, with dots coloured according to whether the occupancy was above 85% in a particular time period.

In the last 12 months Brighton and Sussex University Hospitals NHS Trust had an average occupancy rate of 84% and exceeded the 85% capacity value four times (March 2019, May 2019, September 2019 and in January 2020). East Sussex Healthcare NHS Trust had an average occupancy rate of 74.1% and exceeded the 85% capacity level once in May 2019.

Queen Victoria Hospital NHS Foundation Trust had on average 50% of their critical care beds occupied and did not exceed the 85% level in the last 12 months. This Trust has the most fluctuation with occupancy rate as seen on the figure, although this is likely because of the very small number of beds open in the Trust (five).

Surrey and Sussex Healthcare NHS Trust had an average occupancy rate of 90.6% and exceeded the 85% level in all but one month (December 2019, when occupancy was at 75%). This Trust has consistently operated above the 85% level over the last five years as illustrated in the figure.

Western Sussex Hospitals NHS Foundation Trust has a 12-month average occupancy of 76.9% and exceeded the 85% occupancy level four times (February, May, July and October 2019).

In the last 12 months (February 2019-January 2020) the average number of beds available was eight in Brighton and Sussex University Hospitals NHS Trust, five in East Sussex Healthcare NHS Trust and Western Sussex Hospitals NHS Foundation Trust, three in Queen Victoria Hospital NHS Foundation Trust and two in Surrey and Sussex Healthcare NHS Trust. These averages are the same in the last 12 months as they are over the last five years since January 2015.

## A close up of a map Description automatically generated

## Beds per capita

There will naturally be a higher demand for critical care beds in areas which serve a larger population (and particularly populations with certain demographics). A crude method to account for differences in populations served is to standardise the value and look at the number of beds per capita (per head in the population).

A common standardised rate is the number of beds per 100,000 population. For this analysis the hospital trust catchment population for 2018 for emergency admissions has been used[[2]](#footnote-2).

The figure below compares the latest data (January 2020) for the number of critical care beds by occupancy status with beds per 100,000 catchment population.

A screenshot of a cell phone

Description automatically generated

Brighton and Sussex University Hospitals NHS Trust has 10 beds per 100,000 population, whilst the other four Trusts have around four beds per 100,000 population.

Surrey and Sussex Healthcare NHS Trust have the lowest number of open beds per 100,000 and the lowest number of available critical care beds per 100,000 and as discussed earlier, consistently operates with the highest occupancy rate of the STP trusts.

## Critical care beds daily trends winter 2020

As noted in the introduction, a daily SitRep data series is available to explore trends in bed capacity and occupancy in more detail over winter months[[3]](#footnote-3).

A close up of text on a white background

Description automatically generated

1. <https://www.ficm.ac.uk/sites/default/files/ficm_critical_capacity_-_a_short_research_survey_on_critical_care_bed_capacity.pdf> [↑](#footnote-ref-1)
2. Hospital provider trusts do not have geographically defined boundaries for their population, nor do they have complete lists of registered patients. However, modelled estimates of the catchment populations for hospital provider trusts in England are provided by Public Health England (PHE). These experimental statistics estimates the number of people who are using each hospital trust or have the potential to do so. Individual acute trusts sometimes use varying methods to define the population they serve, such as patient flow, CCG derived or travel time-based estimates. PHE published modelled estimates use the patient flow method and the latest available catchment population is for 2018. It should be noted that some patients who are not emergency patients (elective admissions) may also require critical care beds as a result of planned surgeries. [↑](#footnote-ref-2)
3. This data set does not include all Trusts in England and notably, Queen Victoria Hospital NHS Foundation Trust in the Sussex and East Surrey STP are absent from these daily returns. The national, regional, and STP values therefore only include aggregated values from some Trusts and as such are not included for comparison here. [↑](#footnote-ref-3)