## Original Article

**Author for correspondence:**
Alison Beck, E-mail: alison.beck@slam.nhs.uk

# The effect of rapidly discharging psychiatric inpatients from Mental Health Act section during COVID-19: a cohort study

J. Payne-Gill [ID], C. Whitfield and A. Beck

Corporate Psychology & Psychotherapy, South London and Maudsley NHS Mental Health Trust, London, UK

## Abstract

**Aims.** In March 2020, the UK government ordered mental health services to free up bed space to help manage the COVID-19 pandemic. This meant service users detained under the Mental Health Act were discharged at a higher rate than normal. We analysed whether this decision compromised the safety of this vulnerable group of service users.

**Methods.** We utilised a cohort study design and allocated service users to either the pre-rapid discharge, rapid discharge or post-rapid discharge group. We conducted a recurrent event analysis to assess group differences in the risk of experiencing negative outcomes during the 61 days post-discharge. We defined negative outcomes as crisis service use, re-admission to a psychiatric ward, community incidents of violence or self-harm and death by suicide.

**Results.** The pre-rapid discharge cohort included 258 service users, the rapid discharge cohort 127 and the post-rapid discharge cohort 76. We found no statistical association between being in the rapid discharge cohort and the risk of experiencing negative outcomes (HR: 1.14, 95% CI: 0.72–1.8, $p = 0.58$) but a trend towards statistical significance for service users in the post-rapid discharge cohort (HR: 1.61, 95% CI: 0.91–2.83, $p = 0.1$).

**Conclusions.** We did not find evidence that service users rapidly discharged from section experienced poorer outcomes. This raises the possibility that the Mental Health Act is applied in an overly restrictive manner, meaning that sections for some formally detained service users could be ended earlier without compromising safety.

## Introduction

To help prevent the Coronavirus Disease-2019 (COVID-19) pandemic from overwhelming health services, National Health Service England (NHSE) asked mental health service providers to free up inpatient capacity in March 2020 (NHSE, 2020). There were 2441 more discharges from psychiatric hospitals in March 2020 than February 2020 (Mind, 2020). Many psychiatric inpatients are formally detained under the Mental Health Act (MHA) and, while changes to the MHA were proposed during COVID-19, these were never enacted. This means that discharging so many service users required de facto changes in the application of the MHA despite no changes being made to the law. This paper explores whether service users rapidly discharged from formal detention experienced adverse outcomes because of this change of practice and discusses what this might mean for our understanding of how the MHA is applied in routine practice.

People can only be detained under the MHA if they need urgent treatment for a mental disorder which places them at risk of harm to themselves or others. Two commonly used provisions in the act are section 2, which allows involuntary admission to hospital for an assessment, and section 3, which allows for involuntary treatment in hospital. In 2018/2019, 49,988 new detentions under the MHA were recorded in England (NHS Digital, 2019). Between 2005/2006 to 2015/2016, detentions under the MHA increased by 40% (CQC, 2018). Possible reasons for this increase include a reduction in the capacity of community mental health services and the reduced availability of mental health beds resulting from austerity (Smith *et al.*, 2020), with the number of mental health beds available falling by 39% from 1998 to 2012 (Green and Griffiths, 2014). Despite this increase, a review by the Care Quality Commission (CQC) did not find any evidence that mental health professionals were using the MHA to admit people who did not meet the criteria for detention (CQC, 2018).

The precipitous discharge of service users from section raises the question of whether the MHA and discharge planning guidelines were applied appropriately. If the service users who were discharged precipitously following the government edict experienced poorer outcomes, then arguably their safety was put at risk. On the other hand, if they did not experience poorer outcomes, this warrants further investigation into whether the MHA has been applied in an overly restrictive manner in the past, such that people detained under the MHA could be discharged earlier and cared for in community settings. Therefore, we tested the hypothesis that

**CAMBRIDGE**
UNIVERSITY PRESS
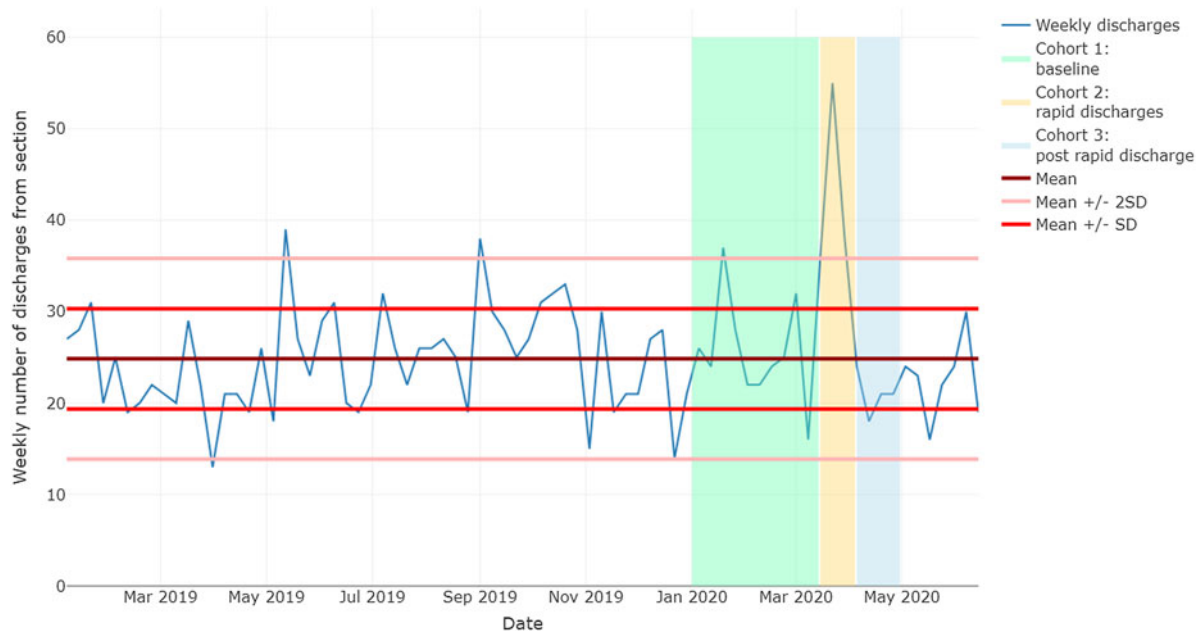
**Fig. 1.** Weekly run chart of service users discharged from section.

service users discharged from section to free up capacity would experience more crisis events following discharge.

## Methods

### Aims

We tested the hypothesis that the cohort of service users discharged from section during the rapid discharge process would experience negative outcomes at a higher rate than service users discharged before or after.

### Design, setting and data

We used a cohort study design. We sourced service use data and data on administration of the MHA from the Trust's clinical information system ePJS (electronic service user journey system) using Online Analytical Processing cubes, and data on deaths, violence and self-harm from the Trust's incident reporting system, DatixWeb.

We extracted data on outcomes for the period 1st January 2020 to 30th June 2020. Our outcome measures were readmission to any ward, accepted referrals to community crisis services (defined as Psychiatric Liaison teams, Crisis & Resolution Home Treatment teams, Place of Safety referrals and Crisis Assessment Units), community incidents of violence, self-harm and death by suicide.

### Sample

We defined a service user as being discharged from section if their MHA section 2 or 3 ended or was converted to a Community Treatment Order (CTO) within the three days prior to their discharge date. We identified service users who met this definition and were discharged from the Trust's acute adult wards and Psychiatric Intensive Care Units (PICUs) across the period 6th January 2019 to 14th June 2020. To characterise the trend in

discharges from section, we plotted weekly discharges from section into a run chart, presented in Fig. 1. To establish a baseline of pre-COVID-19 activity, we calculated the mean and standard deviation of weekly discharges from 6th January 2019 to 29th February 2020 and plotted the mean and one and two standard deviations above and below the mean.

The mean weekly rate of discharges from section for this period was 24.9 (s.d. = 5.5). Figure 1 shows there was a peak of discharges from section in the weeks beginning 15th March, 22nd March and 29th March, during which the weekly number of discharges was more than two standard deviations from the mean weekly rate.

Based on these data, we defined three cohorts of service users. A baseline cohort of 258 service users discharged between 1st January 2020 and 14th March, a rapid discharge cohort of 127 service users across the three weeks commencing 15th March, 22nd March and 29th March, and a post-rapid discharge cohort of 76 service users discharged between 5th April and 30th April. The second cohort therefore covers the period where the government requested discharges from inpatient wards (NHS England, 2020).

### Statistical analysis

We conducted an Andersen−Gill recurrent event analysis using the R package 'survival' (Therneau, 2020) to assess whether there was an association between being discharged in each cohort and having community crisis events, community violence and self-harm incidents and readmission. The Andersen−Gill model is an extension of the Cox proportional hazard model, which accounts for dependence amongst events from the same individual by calculating robust standard errors using a robust sandwich covariance matrix (Amorim and Cai, 2015). We predicted outcomes based on a service user's cohort. This calculates the relative hazard or hazard ratio of experiencing a day with a negative outcome due to being in the rapid discharge cohort or the post-rapid discharge cohort, relative to our baseline cohort.

**Table 1.** Demographic information for discharged service users

| | Overall (N = 447) |
|---|---|
| **Ethnic group** | |
| Asian | 17 (3.8%) |
| Black | 194 (43.4%) |
| Mixed | 17 (3.8%) |
| Not stated | 71 (15.9%) |
| 'Other' ethnicity | 27 (6.0%) |
| White | 121 (27.1%) |
| **ICD10 block** | |
| F10–19 Mental disorders due to substance use | 14 (3.1%) |
| F20–29 Schizophrenia, schizotypal and delusional disorders | 299 (66.9%) |
| F30–39 Mood (affective) disorders | 70 (15.7%) |
| F40–48 Neurotic, stress-related and somatoform disorders | 14 (3.1%) |
| F60–69 Disorders of adult personality and behaviour | 29 (6.5%) |
| Other diagnosis | 21 (4.7%) |
| **Gender** | |
| Female | 207 (46.3%) |
| Male | 240 (53.7%) |

Outcome data were measured until 30th June 2020, over the same window of time for each service user. Since the latest discharge in our sample occurred on 30th April 2020, this window of time was 61 days. We calculated the gap of time between each new event after discharge, beginning on day zero (discharge), until day 61. We employed a crossover design, meaning that service users moved from an earlier cohort to a later cohort if they had multiple discharges over the sampling period used to define cohorts. This means we measured their outcomes between their first and second discharge, at which point they crossed over into the latter cohort and outcomes were measured from their second discharge. The Andersen–Gill model cannot accommodate multiple incidents occurring at the same time point. This means if multiple events occurred on a single day, only one is counted. Since a service user re-admitted to a ward is not at risk of community-based outcomes, we used a discontinuous risk interval, meaning service users were not counted during their admission.

## Results

### Description of cohort and events

There were 461 discharges from section over the period 1st January–30th April 2020, involving 447 unique service users. Fourteen service users had two discharges over this period. This resulted in 258 service users being in the baseline cohort, 127 service users in the rapid discharge cohort and 76 service users in the post-rapid discharge cohort.

Demographic data for the 447 unique service users are presented in Table 1. Chi-squared tests showed that the demographic breakdown of service users did not differ statistically across the cohorts.

Table 2 provides a breakdown of the average, minimum and maximum number of events by event type and by cohort. The highest number of average events in the 61 days post-discharge occurred in the post-rapid discharge cohort, with an average of 0.71 (S.D. = 1.57) events per service user, while there was an average of 0.42 (S.D. = 0.98) events in the baseline cohort and 0.47 (S.D. = 0.96) events in the rapid discharge cohort.

The distribution of number of events experienced by service users in each cohort is presented in Fig. 2. This shows the percentage of service users who experienced each number of events. We can see that most service users did not experience any events over the follow-up period. However, a greater proportion of service users in the rapid discharge cohort and post-rapid discharge cohort experienced at least one event. While 80% of service users experienced no events in the baseline cohort, this drops to nearly 70% in both the rapid discharge and post rapid discharge cohorts. This is consistent with the averages presented in Table 2, which show the largest average number of events occurred in the post-rapid discharge cohort.

### Recurrent event analysis

The results of the Andersen–Gill Cox proportional hazards regression analysis are presented in Table 3. The results suggest there is no statistical association between being in the rapid discharge cohort and the risk of experiencing negative outcomes, which suggests that service users rapidly discharged from section did not experience poorer outcomes relative to the baseline group.

There does seem to be a trend towards statistical significance for service users in the post-rapid discharge group, who experienced 61% higher hazard of experiencing negative outcomes [HR = 1.61, 95% CI: 0.91–2.83, $p = 0.1$] than the baseline group. This provides weak statistical evidence that the post-rapid discharge cohort of service users may have experienced poorer outcomes than the baseline group of service users.

## Discussion

This study did not find evidence that service users rapidly discharged from section experienced poorer outcomes relative to the baseline group, as measured by community crisis events, re-admission, community incidents of violence and self-harm and death by suicide. There appeared to be a trend towards the post-rapid discharge cohort experiencing poorer outcomes, with this cohort experiencing the largest number of events on average and a greater proportion of service users experiencing at least one event. The most common form of negative outcomes were community crisis events, followed by re-admissions.

This study has several limitations. Not everyone discharged from section in the period we used to define the rapid discharge cohort was necessarily discharged earlier than planned. Discharges from section peaked at around double the average, so perhaps only half of the service users in the rapid discharge cohort were discharged earlier than would have occurred otherwise. This means the effect of cohort is somewhat diluted. However, this is unlikely to be an issue for our interpretation since we did not detect even an upward trend in the hazard ratio for the rapid discharge cohort. Measurement of incidents of violence and self-harm in the community is imperfect because

**Table 2.** Breakdown of the average number of events by cohort

| | Baseline cohort (*N* = 258) | Rapid discharge cohort (*N* = 127) | Post-rapid discharge cohort (*N* = 76) | Overall (*N* = 461) |
|---|---|---|---|---|
| **All events** | | | | |
| Mean (s.d.) | 0.415 (0.980) | 0.465 (0.958) | 0.711 (1.57) | 0.477 (1.10) |
| Median [min, max] | 0 [0, 6.00] | 0 [0, 5.00] | 0 [0, 9.00] | 0 [0, 9.00] |
| **Admissions** | | | | |
| Mean (s.d.) | 0.132 (0.339) | 0.118 (0.348) | 0.158 (0.402) | 0.132 (0.352) |
| Median [min, max] | 0 [0, 1.00] | 0 [0, 2.00] | 0 [0, 2.00] | 0 [0, 2.00] |
| **Community crisis event** | | | | |
| Mean (s.d.) | 0.267 (0.718) | 0.315 (0.742) | 0.500 (1.11) | 0.319 (0.805) |
| Median [min, max] | 0 [0, 5.00] | 0 [0, 5.00] | 0 [0, 5.00] | 0 [0, 5.00] |
| **Violent event** | | | | |
| Mean (s.d.) | 0.0116 (0.107) | 0.0315 (0.175) | 0.0263 (0.229) | 0.0195 (0.153) |
| Median [min, max] | 0 [0, 1.00] | 0 [0, 1.00] | 0 [0, 2.00] | 0 [0, 2.00] |
| **Self-harm event** | | | | |
| Mean (s.d.) | 0 (0) | 0 (0) | 0.0263 (0.161) | 0.00434 (0.0658) |
| Median [min, max] | 0 [0, 0] | 0 [0, 0] | 0 [0, 1.00] | 0 [0, 1.00] |
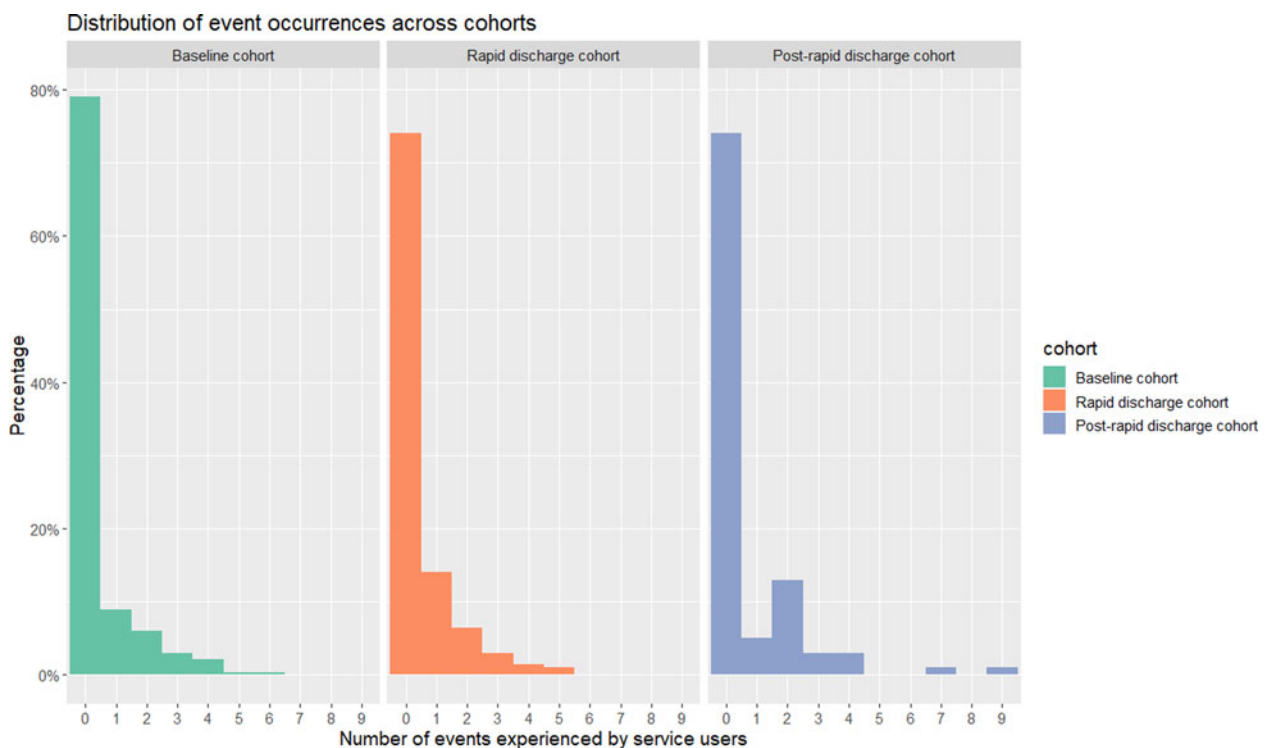


**Fig. 2.** Breakdown of the distribution of the number of events occurring across service users, broken down by cohort.

services might not be informed of all such incidents. This could explain why there were so few incidents of violence and self-harm relative to our other outcome measurements. Furthermore, one study found that reports of self-harm incidents to primary care services dropped significantly following the first national UK lockdown (Carr *et al.*, 2021). If this reflects a general hesitancy for people to inform health services about self-harm incidents during lockdown, then the number of self-harm incidents might be undercounted. Regarding the statistical analysis, our modelling approach treats outcomes as composite endpoints so does not

**Table 3.** Results of Andersen−Gill Cox proportional hazards analysis

| | Dependent variable | | |
|---|---|---|---|
| Predictors | Hazard ratio | 95% Confidence interval | p |
| Baseline cohort | | Reference group | |
| Rapid discharge cohort | 1.14 | 0.72–1.80 | 0.58 |
| Post rapid discharge cohort | 1.61 | 0.91–2.83 | 0.10 |

account for the potential dependency between events, such as the fact that community crisis events can make readmission more likely. Our modelling approach also does not accommodate days with multiple events, counting only one event in such cases. This means our results are interpretable as changes in the risk of having a day with a crisis event. However, days in which multiple events occurred were balanced across cohorts, so this is unlikely to have affected our results. Finally, the sample size of the post-rapid discharge cohort was small relative to the baseline and rapid discharge cohorts so the trend towards significance should be treated with caution.

The lack of an increase in negative outcomes for the rapid discharge cohort suggests their safety was not compromised. It is possible that service users were discharged with enhanced support from home treatment teams (Garriga *et al.*, 2020), which prevented adverse outcomes. However, our hypothesis that the rapid discharge cohort of service users would experience negative outcomes at a higher rate than service users discharged before or after, is refuted.

In fact, the cohort which displayed the highest rate of negative events was the post-rapid discharge group. One reason for this could be that, if those in the post-rapid discharge cohort were in hospital during the period in which rapid discharges occurred, presumably their illness was deemed too severe to be discharged despite organisational pressures to do so. This could create a selection effect such that service users in this cohort had more severe illnesses on average than the previous two cohorts. Another reason may be because the functioning of community teams was reduced due to high staff sickness rates in April 2020 (NHS Digital, 2020) and changes in practice arising from the pandemic, such as an increase in remote contacts (Johnson *et al.*, 2021). However, that would also have been the case for the rapid discharge cohort and an analysis of community mental health team contacts did not find a reduction in contacts over the period (Stewart, Martin and Broadbent, 2020). It may only have been possible to discharge a certain number of service users before the ability of community teams to follow up on further discharges was compromised. Increasingly stringent COVID-19 restrictions may have had a disproportionate impact on this group (Sukut and Ayhan Balik, 2020); they may have experienced reduced access to medication as their supporting clinicians were less available. Related to the functioning of community teams, an interesting consideration of future work could be to understand whether the rapid discharges had a negative knock-on effect on the outcomes of service users already under community care. Existing community service users might have received less input to accommodate the newly discharged service users.

Given that there was no increase in adverse outcomes for the rapid discharge group, it could be argued that clinicians may previously have been overly restrictive in their decision-making when it comes to the continued formal detention of inpatients. This would suggest that a review needs to be conducted to determine if earlier discharges from section might be appropriate for some service users. The generalisability of this could be determined by replicating this study in other contexts, given that rapid discharges were a national phenomenon. It would be particularly beneficial to replicate this study in areas with different demographic profiles. The Mental Health Trust analysed in the current study serves an ethnically diverse population. Research has demonstrated that people from Black and Minority Ethnic backgrounds are more likely to be formally detained under the MHA (Barnett *et al.*, 2019). We might therefore expect the restrictiveness of the application of the MHA to be different in areas with different population demographics.

There were of course exceptional circumstances during the pandemic which enabled rapid discharges from hospital, such as an increased availability of government funds for alternative accommodation such as hotel and hostel provision. The lack of such provision is not, of course grounds to detain service users against their will; however, it is likely that the lack of suitable accommodation or community-based support is an important reason why people are detained in hospital. The increase in discharges which took place in March 2020 could also have been enabled by the political context in which they occurred. It is conceivable that medics making the decision to discharge did so on the basis that they believed that their decision, however risky, was in the greater public interest and, as such, would be supported by their organisation and the wider system if a risk event occurred. Whether accurate or not, the belief that they would be supported by the wider system may have given medics who were previously risk averse the ability to take braver decisions. It is interesting that their 'riskier' decisions do not appear, at least according to our results, to have resulted in an increase in negative outcomes. If this risk-willing approach to discharge is going to continue, it may be the case that medics will require greater assurances of support by their organisation and the wider system.

To conclude, our study showed that service users rapidly discharged from section did not experience poorer outcomes than service users discharged before this process. However, there was an upward trend in negative outcomes in the post-rapid discharge cohort. This suggests it could be possible to discharge some service users from section earlier without compromising safety.

## References

**Amorim LD and Cai J** (2015) Modelling recurrent events: a tutorial for analysis in epidemiology. *International Journal of Epidemiology* **44**, 324–333.

**Barnett P, Mackay E, Matthews H, Gate R, Greenwood H, Ariyo K, Bhui K, Halvorsrud K, Pilling S and Smith S** (2019) Ethnic variations in compulsory detention under the Mental Health Act: a systematic review and meta-analysis of international data. *The Lancet Psychiatry* **6**, 305–317.

**Care Quality Commission** (2018) *Mental Health Act The Rise in the use of the MHA to Detain People in England*. London: CQC, pp. 1–27. Available at https://www.cqc.org.uk/publications/themed-work/mental-health-act-rise-mha-detain-england.

**Carr MJ, Steeg S, Webb RT, Kapur N, Chew-Graham, CA, Abel KM, Hope H, Pierce M and Ashcroft DM** (2021) Effects of the COVID-19 pandemic on primary care-recorded mental illness and self-harm episodes in the UK: a population-based cohort study. *The Lancet Public Health* **6**, 124–135.

**Garriga M, Agasi I, Fedida E, Pinzón-Espinosa J, Vazquez M, Pacchiarotti I and Vieta E** (2020) The role of mental health home hospitalization care during the COVID-19 pandemic. *Acta Psychiatrica Scandinavica* **141**, 479–480.

**Green BH and Griffiths EC** (2014) Hospital admission and community treatment of mental disorders in England from 1998 to 2012. *General Hospital Psychiatry* **36**, 442–448.

**Johnson S, Dalton-Locke C, San Juan NV, Foye U, Oram S, Papamichail A, Landau S, Olive RR, Jeynes T, Shah P, Rains LS, Lloyd-Evans B, Carr S, Killaspy H, Gillard S and Simpson A** (2021) Impact on mental health care and on mental health service users of the COVID-19 pandemic: a mixed methods survey of UK mental health care staff. *Social Psychiatry and Psychiatric Epidemiology* **56**, 25–37.

**Mind** (2020) The impact of coronavirus on discharge from mental health hospital. Briefing from Mind, pp. 1–12. Available at https://www.mind.org.uk/media-a/6293/the-impact-of-coronavirus-on-mental-health-hospital-discharge-briefing.pdf.

**NHS Digital** (2019) Mental Health Act Statistics, Annual Figures 2018-19, Data Tables, Table 1a. Available at https://digital.nhs.uk/data-and-information/publications/statistical/mental-health-act-statistics-annual-figures/2018-19-annual-figures.

**NHS Digital** (2020) NHS Sickness Absence Rates October 2020, Monthly Tables, Table 1. Available at https://digital.nhs.uk/data-and-information/publications/statistical/nhs-sickness-absence-rates/october-2020-provisional-statistics.

**NHS England/NHS Improvement** (2020) Managing capacity and demand within inpatient and community mental health, learning disabilities and autism services for all ages. Version 1, 25 March 2020. Available at https://www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2020/03/Managing-demand-and-capacity-across-MH-LDA-services_25-March-final.pdf.

**Smith S, Gate R, Ariyo K, Saunders R, Taylor C, Bhui K, Mavranezouli I, Heslin M, Greenwood H, Matthews H and Barnett P** (2020) Reasons behind the rising rate of involuntary admissions under the Mental Health Act (1983): service use and cost impact. *International Journal of Law and Psychiatry* **68**, 101506.

**Stewart R, Martin E and Broadbent M** (2020) Mental health service activity during COVID-19 lockdown: South London and Maudsley data on working age community and home treatment team services and mortality from February to mid-May 2020. *medRxiv*. Unpublished manuscript. https://doi.org/10.1101/2020.06.13.20130419.

**Sukut O and Ayhan Balik CH** (2020) The impact of COVID-19 pandemic on people with severe mental illness. *Perspectives in Psychiatric Care* **57**, 953–956.

**Therneau T** (2020) A Package for Survival Analysis in R. R package version 3.2-7. Available at https://CRAN.R-project.org/package = survival.