Original Article

The effect of COVID-19 on general anaesthesia rates for caesarean section. A cross-sectional analysis of six hospitals in the north-west of England

K. Bhatia,[1] **M. Columb,**[2] **A. Bewlay,**[3] **J. Eccles,**[4] **M. Hulgur,**[5] **N. Jayan,**[6] **J. Lie,**[7] **D. Verma**[8] and **R. Parikh**[8]

1 Consultant, Honorary Lecturer, Department of Anaesthesia and Peri-operative Medicine, University of Manchester, Saint Mary's Hospital, Manchester University NHS Foundation Trust, Manchester, UK.
2 Consultant, Department of Anaesthesia, Peri-operative and Intensive Care Medicine, Wythenshawe Hospital, Manchester University NHS Foundation Trust, Manchester, UK.
3 Consultant, Department of Anaesthesia, Royal Preston Hospital, Lancashire Teaching Hospitals NHS Foundation Trust, Preston, UK.
4 Consultant, Department of Anaesthesia, Royal Oldham Hospital, Oldham Care Organisation, Northern Care Alliance NHS Group, Oldham, UK
5 Consultant, 6 Clinical Fellow Department of Anaesthesia, Royal Albert Edward Infirmary, Wrightington, Wigan and Leigh NHS Hospital NHS Foundation Trust, Wigan, UK.
7 Consultant, Department of Anaesthesia, Burnley General Teaching Hospital, East Lancashire Hospitals NHS Trust, Blackburn, UK
8 Consultant, Department of Anaesthesia, Liverpool Women's Hospital, Liverpool Women's Hospital NHS Foundation Trust, Liverpool, UK

Summary

At the onset of the global pandemic of COVID-19 (SARS-CoV-2), guidelines recommended using regional anaesthesia for caesarean section in preference to general anaesthesia. National figures from the UK suggest that 8.75% of over 170,000 caesarean sections are performed under general anaesthetic. We explored whether general anaesthesia rates for caesarean section changed during the peak of the pandemic across six maternity units in the north-west of England. We analysed anaesthetic information for 2480 caesarean sections across six maternity units from 1 April to 1 July 2020 (during the pandemic) and compared this information with data from 2555 caesarean sections performed at the same hospitals over a similar period in 2019. Primary outcome was change in general anaesthesia rate for caesarean section. Secondary outcomes included overall caesarean section rates, obstetric indications for caesarean section and regional to general anaesthesia conversion rates. A significant reduction (7.7 to 3.7%, $p < 0.0001$) in general anaesthetic rates, risk ratio (95%CI) 0.50 (0.39–0.93), was noted across hospitals during the pandemic. Regional to general anaesthesia conversion rates reduced (1.7 to 0.8%, $p = 0.012$), risk ratio (95%CI) 0.50 (0.29–0.86). Obstetric indications for caesarean sections did not change ($p = 0.17$) while the overall caesarean section rate increased (28.3 to 29.7%), risk ratio (95%CI) 1.02 (1.00–1.04), $p = 0.052$. Our analysis shows that general anaesthesia rates for caesarean section declined during the peak of the pandemic. Anaesthetic decision-making, recommendations from anaesthetic guidelines and presence of an on-site anaesthetic consultant in the delivery suite seem to be the key factors that influenced this decline.

Correspondence to: K. Bhatia
Email: kailash.bhatia@mft.nhs.uk
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Introduction

The National Maternity and Perinatal Audit [1] recently reported that over 700,000 births took place in the UK National Health Service (NHS) across England, Wales and Scotland during 2016–2017. In that dataset, around one in four women delivered by caesarean section. Regional anaesthesia, including spinal, epidural or combined spinal-epidural was reported to be the most used anaesthetic technique for caesarean sections in the UK. A descriptive analysis of the National Obstetric Anaesthesia Database in the UK from 2009 to 2014 suggested that 91% of all caesarean sections in the UK were performed under regional anaesthesia [2].

The World Health Organization declared the global pandemic of COVID-19 (SARS-CoV-2) in March 2020 [3]. Since then, multiple guidelines, societies and case reviews have encouraged use of regional anaesthesia over general anaesthesia for surgery, including caesarean sections [4–7]. Cited advantages of regional anaesthesia, specifically in relation to the pandemic, include: decreased risk of an aerosol-generating procedure and its associated risks to healthcare staff; reduced use of specific personal protective equipment (PPE) such as filtering facepiece masks; and improving theatre turnover by avoiding the need to wait for a specific number of air changes [8]. More data about obstetric and neonatal outcomes of pregnant women affected by COVID-19 have been reported across the globe [9–10].

Limited information is available on the impact that national and international anaesthesia guidelines have had on general and regional anaesthesia rates for caesarean section during the pandemic; we could only find one single-centre study reporting a reduction in general anaesthesia rates [11]. We performed a retrospective analysis to investigate if there was a change in the general anaesthesia rate for caesarean sections across six maternity units in the north-west of England during the peak of the COVID-19 pandemic.

Methods

Anaesthetic information for caesarean sections performed in six hospitals across the north-west of England between 1 April and 1 July 2020 (peak of the COVID-19 pandemic in the UK) was retrieved from hospital electronic records. We compared this information with data from caesarean sections performed at the same hospitals during a similar period in 2019 (pre-COVID-19). Tertiary delivery units, St Mary's Hospital and Manchester and Liverpool Women's Hospital (with over 8000 deliveries annually) as well as district general hospitals Wrightington, Wigan and Leigh Hospital, Burnley (East Lancashire Hospitals), Preston (Royal Preston Hospital) and Oldham (Royal Oldham Hospital) were included in our analysis to reflect a reasonable mix of hospitals with varying delivery rates. We specifically planned to determine the general anaesthesia rate for different categories of caesarean sections (as proposed by the Royal College of Obstetricians and Gynaecologists [12]). Ethical approval was not deemed necessary by the clinical governance department of the respective hospitals, as the review was classed as an audit as per Royal College of Anaesthetists (RCoA) standards. Appropriate approval was obtained from local clinical governance departments at each participating hospital. The best practice RCoA standards suggest that > 95% of category 4 caesarean sections, > 85% of category 2–3 and > 50% of category 1 caesarean sections should receive regional anaesthesia. Regional to general anaesthesia conversion should be < 1% for category 4, < 5% for category 2–3 and < 15% for category 1 caesarean sections [13].

Information obtained included: total number of deliveries; total number of caesarean sections performed along with various categories of caesarean sections; cumulative general and regional anaesthesia utilisation rate for various categories of caesarean sections, along with conversion rate from regional to general anaesthesia. We did not seek to obtain specific details of types of regional anaesthesia utilised for caesarean sections, as our emphasis was mainly to assess the impact on general anaesthesia rate for caesarean sections.

Information specific to the pandemic period included: total number of women who tested positive for COVID-19; number of COVID-19 women who had a caesarean section; and the type of anaesthesia that was provided to facilitate the caesarean section. We also asked the consultants collecting the data whether an on-site anaesthetic consultant was available out of hours (20:00-08:00) during weekdays or weekends for the duration of the study.

The primary outcome was the rate of general anaesthesia for caesarean section during the COVID-19 pandemic as compared with the pre-pandemic rate. Secondary outcomes included overall caesarean sections rates; obstetric indications for caesarean sections based on categories of urgency; and regional to general anaesthesia conversion rates for caesarean section.

Rates and effect sizes were estimated from the data as stratified by hospital to get pooled estimates with 95%CI. Mantel-Haenszel chi-square analysis was used to estimate the pooled risk ratio (RR) (95%CI) stratified by hospital. Logistic regression was used to assess differences in rates in

hospitals and to estimate adjusted odds ratios (OR) with 95%CI. Fisher expanded exact p value was used to compare distributions in categories. Sample size calculations were based on the pre-COVID general anaesthesia rate of caesarean sections reported at St Mary's Hospital, Manchester which was 7.5% [11]. It was estimated that at least 1900 women undergoing caesarean section would be required in each of the two periods to find a RR of 0.70 or lower using Mantel-Haenszel chi-square as significant at $p < 0.05$ (two-sided) with at least 80% power. Analyses were performed using Stata 16.1 (StataCorp Inc., College Station, TX, USA) and $p < 0.05$ (two-sided) was used to define statistical significance.

Results

Across the six hospitals there were 9043 and 8381 maternal deliveries in the pre COVID-19 and post-COVID-19 periods, respectively. During these periods, there were 2555 (28.3%) and 2490 (29.7%) caesarean sections, respectively. Data on the number of deliveries and caesarean sections are available in online Supporting Information Tables S1 and S2).

Regarding the primary outcome, the COVID-19 pandemic resulted in a significant reduction in general anaesthesia rates for caesarean section (7.7 to 3.7%, $p < 0.0001$), RR (95%CI) 0.50 (0.39–0.93) (Table 1).

Secondary outcomes included the caesarean section rate in total maternal deliveries. There was a small rise in the caesarean section rate during the pandemic (28.3 to 29.7%, $p = 0.052$), RR (95%CI) 1.02 (1.00–1.04) (Table 2).

The regional to general anaesthesia conversion rate for caesarean sections was reduced during the pandemic (1.7 to 0.8%, $p = 0.012$), RR (95%CI) 0.50 (0.29–0.86) (Table 3). Obstetric indications as categories for caesarean section did not significantly change during the pandemic ($p = 0.17$) (Table 4). Again, significant reductions in general anaesthesia rates were seen across all categories.

Four of the six hospitals surveyed (Manchester, Oldham, Burnley, Liverpool) had an extra on-site consultant available out of hours on weekdays and this increased to five

Table 1 Effect of COVID-19 (C19) pandemic on general anaesthesia (GA) rates for caesarean section (CS). Values are number (proportion) or RR/OR/estimate (95%CI)

Hospital	Pre-C19 2019	Post-C19 2020	RR	OR
St Mary's	68/658 (10.3%)	24/671 (3.6%)	0.35 (0.22–0.54)	1.00 (reference)
WWL	15/269 (5.6%)	14/225 (6.2%)	1.12 (0.55–2.26)	0.81 (0.52–1.25)
Oldham	30/417 (7.2%)	17/405 (4.2%)	0.58 (0.33–1.04)	0.81 (0.56–1.16)
Preston	24/279 (8.6%)	22/279 (7.9%)	0.92 (0.53–1.60)	1.21 (0.83–1.75)
Burnley	24/406 (5.9%)	6/400 (1.5%)	0.25 (0.11–0.61)	0.51 (0.34–0.79) [b]
Liverpool	36/526 (6.8%)	12/500 (2.4%)	0.35 (0.19–0.67)	0.65 (0.45–0.93) [c]
Estimate	7.7% (6.7–8.8%)	3.7% (3.0–4.5%)	0.50 (0.39–0.63) [a]	0.47 (0.37–0.61) [d]

WWL, Wrightington, Wigan and Leigh Hospitals.
[a]Overall effect size of C19 as the risk ratio ($p < 0.0001$). Significant difference in GA rates in CS across hospitals compared with St Mary's as referenced with the largest denominator: [b]$p = 0.0021$; [c]$p = 0.019$; [d]Effect size of C19 as adjusted OR ($p < 0.0001$).

Table 2 Effect of COVID-19 (C19) pandemic on caesarean section (CS) rates in total maternal deliveries. Values are number (proportion) and RR/OR/estimate (95%CI)

Hospital	Pre-C19 2019	Post-C19 2020	RR	OR
St Mary's	658/2247 (29.3%)	671/2088 (32.1%)	1.04 (1.00–1.08)	1.00 (reference)
WWL	269/852 (31.6%)	225/758 (29.7%)	0.97 (0.91–1.04)	1.00 (0.89–1.13)
Oldham	417/1317 (31.7%)	405/1261 (32.1%)	1.01 (0.96–1.06)	1.06 (0.95–1.18)
Preston	279/1108 (25.2%)	279/1062 (26.3%)	1.02 (0.97–1.07)	0.78 (0.70–0.88) [b]
Burnley	406/1599 (25.4%)	400/1484 (27.0%)	1.02 (0.98–1.07)	0.80 (0.72–0.89) [b]
Liverpool	526/1920 (27.4%)	500/1728 (28.9%)	1.02 (0.98–1.06)	0.86 (0.80–0.98) [c]
Estimate	28.3% (27.3–29.2%)	29.7% (28.6–30.1%)	1.02 (1.00–1.04) [a]	1.07 (1.00–1.14) [d]

WWL, Wrightington, Wigan and Leigh Hospitals.
[a]Overall effect size of C19 as the risk ratio ($p = 0.052$). Significant differences in CS rates in total maternal deliveries across hospitals compared with St Mary's as referenced with the largest denominator: [b]$p < 0.0001$; [c]$p = 0.014$; [d]Effect size of C19 as adjusted OR ($p = 0.051$).

Table 3 Effect of COVID-19 (C19) pandemic on regional anaesthesia (RA) to general anaesthesia (GA) conversion rates from RA for caesarean section (CS). Values are number (proportion) and RR/OR/estimate (95%CI)

Hospital	Pre-C19 2019	Post-C19 2020	RR	OR
St Mary's	7/597 (1.2%)	1/648 (0.2%)	0.13 (0.02–1.07)	1.00 (Reference)
WWL	5/259 (1.9%)	5/216 (2.3%)	1.20 (0.35–4.1)	3.19 (1.25–8.13) [b]
Oldham	10/397 (2.5%)	4/392 (1.0%)	0.41 (0.13–1.28)	2.75 (1.15–6.59) [c]
Preston	4/259 (1.5%)	3/260 (1.2%)	0.75 (0.17–3.31)	2.09 (0.75–5.79)
Burnley	7/389 (1.8%)	2/396 (0.5%)	0.28 (0.06–1.34)	1.77 (0.68–4.62)
Liverpool	6/496 (1.2%)	4/492 (0.8%)	0.67 (0.19–2.37)	1.56 (0.61–3.96)
Estimate	1.7% (1.2–2.2%)	0.8% (0.5–1.2%)	0.50 (0.29–0.86) [a]	0.49 (0.28–0.86) [d]

WWL, Wrightington, Wigan and Leigh Hospitals.
[a]Overall effect size of C19 as the risk ratio ($p = 0.012$). Significant differences in conversion rates across hospitals compared with St Mary's as referenced with the largest denominator: [a]$p = 0.015$; [b]$p = 0.023$; [d]effect size of C19 as adjusted OR ($p = 0.012$).

Table 4 Obstetric indications as categories for caesarean section (CS) and general anaesthesia (GA) rates. Values are number (proportion) and RR/OR/estimate (95%CI)

Category	Pre-C19 2019	Post-C19 2020	RR	OR
1	118/486 (24.3%)	61/472 (12.9%)	0.53 (0.40–0.70)	11.4 (8.10–16.13) [b]
2	44/740 (5.9%)	16/665 (2.4%)	0.40 (0.23–0.70)	2.14 (1.44–3.19) [c]
3	7/270 (2.6%)	3/245 (1.2%)	0.47 (0.13–1.66)	0.95 (0.47–1.91)
4	28/1059 (2.6%)	15/1098 (1.4%)	0.52 (0.28–0.93)	1.00 (Reference)
Estimate	7.7% (6.7–8.8%)	3.8% (3.1–4.7%)	0.50 (0.40–0.63) [a]	0.45 (0.35–0.59) [d]

C-19, coronavirus disease-19; WWL, Wrightington Wigan and Leigh Hospitals.
[a]Overall effect size of C19 as the risk ratio ($p < 0.0001$).
Significant differences in GA rates in CS across categories compared with category 4, or elective, as referenced with the largest denominator: [b] $p < 0.0001$; [c] $p = 0.0002$; [d] effect size of C19 as adjusted OR ($p < 0.0001$). The distribution of obstetric indications as categories is not significantly affected by C19 ($p = 0.17$).

(with the addition of Preston) on weekends during the pandemic. All the hospitals except Liverpool (for regional to general anaesthesia conversion for category 1 caesarean section) met all the RCoA suggested standards pre-COVID-19. Post COVID-19, all the hospitals met all the RCoA standards. Pooled analysis of regional anaesthesia rates and regional to general anaesthesia conversion rates for all hospitals show that that all the RCoA standards were met, with regional anaesthesia rates increasing for all caesarean sections categories while the regional to general anaesthesia conversion rates were lower, especially for category 1 caesarean sections during the COVID-19 pandemic ($p = 0.027$) (Tables 5 and 6).

During the pandemic period, of the 76 women who tested positive for COVID-19, 27 underwent caesarean section with only one (3.7%) having a general anaesthetic, which is similar to the overall general anaesthesia rate for all caesarean sections ($p = 0.97$).

Table 5 Regional anaesthesia (RA) rates for caesarean section (CS) compared with Royal College of Anaesthetists (RCoA) audit standards. Values are number and proportion (95%CI)

Category	Pre-C19 2019	Post-C19 2020	C19 p value	RCoA standard
1	368/486 75.7% (71.2–79.5%) [a]	411/472 87.1% (83.7–90.0%) [a]	< 0.001	> 50%
2–3	959/1010 95.0%(93.4–96.2%) [a]	891/910 97.9% (96.8–98.7%) [a]	<0.001	> 85%
4	1031/1059 97.4% (96.2–98.2%) [b]	1083/1098 98.6% (97.8–99.2%) [a]	0.032	> 95%

C-19, coronavirus disease-19.
[a]$p < 0.0001$ and [b]$p = 0.0002$ vs. RCoA standard.

Table 6 Regional anaesthesia (RA) to general anaesthesia (GA) conversion rates for caesarean section. Values are number and proportion (95%CI)

Category	Pre-C19 2019	Post-C19 2020	C19 p value	RCoA standard
1	20/368 5.4% (3.4–8.3%) [a]	10/411 2.4% (1.2–4.4%) [a]	0.03	< 15%
2–3	14/959 1.5% (0.8–2.4%) [a]	7/891 0.8% (0.3–1.6%) [a]	0.14	< 5%
4	5/1031 0.5% (0.2–1.1%) [b]	2/1083 0.2% (0.02–0.7%) [c]	0.17	< 1%

C-19, coronavirus disease-19; RCoA, Royal College of Anaesthetists.
[a] $p < 0.0001$, [b] $p = 0.11$ and [c] $p = 0.0031$ vs. RCoA standard.

Discussion

This study has shown a reduction in general anaesthesia rates for caesarean section (from 7.7% to 3.7%) in the north-west of England during the COVID-19 pandemic. In comparison, a mean general anaesthesia rate of 8.75% was reported in the National Obstetric Anaesthesia Database analysis of over three million births and 770,000 caesarean sections during the period 2009–2014 [2]. Our data from a small number of hospitals highlight the fact that the general anaesthesia rate dropped to 3.7% during the peak of the pandemic in these hospitals, with regional anaesthesia utilisation rate for caesarean sections increasing to over 96%.

St Mary's Hospital had the highest reported delivery rate across all the hospitals both pre- and post-COVID-19, contributing almost 25% of all deliveries. It had previously reported a drop in general anaesthesia rates from 7.5% to 3.3% during the pandemic [11]. As a sensitivity analysis, we removed the hospital with the largest denominator (St Mary's Hospital) and re-analysed using Mantel-Haenszel chi-square to check the effect of COVID-19 on the reduction in general anaesthesia rate for caesarean sections. This still confirmed the reduction (6.9% to 3.8%, $p = 0.0001$) in the remaining hospitals, RR (95%CI) 0.58 (0.44–0.77). The larger national caesarean section rate of 8.75% increases the effective power to > 95%. Thus, the findings of a decline in general anaesthesia rates are valid and replicated in all the other five hospitals.

Multiple reasons could be attributed to the fall in general anaesthesia rates. The advantages of regional anaesthesia for women undergoing a caesarean section are well known to anaesthetists. Superior peri-operative pain relief; allowing partners in theatre during the caesarean sections; earlier skin to skin contact with the neonate; mitigation of difficult intubation risks, aspiration and awareness; decreased blood loss; decreased transfusion; decreased thromboembolism risk; reduced hospital stay; and decrease in the rate of respiratory tract and surgical site infections, have been well established in literature reviews of anaesthesia for caesarean section [14–16]. In low- and middle-income countries, use of regional anaesthesia has also been shown to decrease maternal morbidity, maternal mortality, maternal critical care admissions and neonatal mortality [17].

More relevant is the awareness amongst anaesthetists that tracheal intubation for caesarean section (and associated manoeuvres) is an aerosol-generating procedure that poses one of the highest risks of viral transmission from a suspected or a confirmed case. This has been highlighted in reviews during previous severe acute respiratory syndrome (SARS) and Middle Eastern respiratory syndrome outbreaks [18]. General anaesthesia not only puts anaesthetic staff at risk, but other healthcare workers as well. During the SARS outbreak, 21% of infected individuals globally were healthcare workers. Routine maternal testing for COVID-19 was not initially available across all maternity units in the UK. Anaesthetic recommendations published globally during the pandemic further strengthened the advice to prefer regional over general anaesthesia, so it is not surprising that anaesthetists were keen to avoid general anaesthesia in any parturient unless regarded as essential. Our analysis further highlights that general anaesthesia was still used in 12% of our category-1 caesarean sections across all hospitals during the pandemic. Thus, anaesthetists were not hesitant to provide general anaesthesia when necessary (e.g. during fetal distress).

Anaesthetic staffing changed during the pandemic. On-site out-of-hours anaesthetic consultant support systems were established in 80% of the hospitals we analysed. Obstetric data collected from the accidental awareness during general anaesthesia National Audit Project (NAP5) suggested that many out-of-hours category-1 and −2 caesarean sections were being performed by trainees, with distant supervision possibly contributing to a high general anaesthesia rate [19]. During the pandemic,

most of the maternity units we studied benefitted from the presence of more experienced and skilled personnel in the delivery suite, leading to improved on-site immediate and local supervision. This possibly contributed to the high regional anaesthesia rates and lower regional to general anaesthesia conversion rates compared with the pre-COVID group.

Obstetric decision-making, as highlighted by various categories of caesarean sections (both pre-COVID-19 and during COVID-19) in our study did not differ during the pandemic. We therefore assume that anaesthetic decision-making was the main factor in increased utilisation of regional anaesthesia rates and a drop in general anaesthesia rates during COVID-19 period. Personal protective equipment recommendations were different for women needing regional anaesthesia and at low risk of a conversion to a general anaesthesia (droplet precautions) compared with those having general anaesthesia from the commencement of caesarean section or those at high risk of conversion (airborne precautions). Donning of PPE for general anaesthesia takes time, which could theoretically result in adverse fetal outcomes in urgent/emergency caesarean sections. It is possible that this factor may have contributed to decision-making by anaesthetists.

The caesarean section rate did increase during the pandemic. The unadjusted total caesarean section rate both pre-COVID-19 and during the pandemic was just under 30%, highlighting that it is higher than the suggested national figure of 25%, at least in some of the hospitals in the north-west of England. The data possibly reflect an inter-hospital and geographical variation, as previous reviews suggest that some unadjusted caesarean section rates across the hospitals and various regions of England vary from 14% to 32% [20]. Similar variations have been noted in cross-sectional studies conducted in the USA and Ireland [21, 22]. We acknowledge that our data are from a limited cohort of hospitals in England and we would not want to draw any conclusions from this finding.

Regional to general anaesthesia conversion decreased from 1.7% to 0.8% during the COVID-19 study period and is a significant factor in the reduction of general anaesthesia rates. The biggest reduction was seen in category-1 caesarean sections across most of the hospitals. We postulate this to be due to on-site consultant presence, adoption of specific strategies in hospitals following the recommendations by various societies and specific decision-making with regard to the utilisation of specific regional anaesthesia techniques for caesarean sections. A significant number of general anaesthesia conversions may be potentially avoidable (though not always), and this cohort is at higher risk of anaesthesia-related complications [23]. So, it is in the best interests of the woman and the peripartum team to achieve a safe reduction in these conversions. Most of the hospitals met the RCoA standards and current best practice guidelines for caesarean sections.

Our study presents some interesting findings on women who tested positive for COVID-19. Seventy-six women tested positive in our study and the caesarean section rate for COVID-19 positive women was 35.5%. This is much lower than the 48% reported in a systematic review on COVID-19 pregnancies by Khalil et al. [9], whereas Knight et al. [24] reported a caesarean section rate of almost 60% and a general anaesthesia rate of 19% in their preliminary analysis of COVID-19 pregnant women. The overall general anaesthesia rate for the COVID-19 positive women is the same as the general anaesthesia rate for all caesarean sections during the pandemic (< 4%). We would not want to draw any specific conclusions as we do not have the details for these women. We do not know the number of women who were swabbed for COVID-19 and cannot therefore estimate the incidence of COVID-19 in these hospitals. We would like to highlight the fact that our dataset has one of the lowest caesarean section rates reported for COVID-19 positive pregnant women.

One strength of our study is that it is adequately powered and thus provides valuable evidence that general anaesthesia rates for caesarean section decreased significantly in the north-west of England during the pandemic. It highlights the factors contributing to this finding and the impact of national and international recommendations on hospitals in the north-west of England. It also reflects that on-site consultant anaesthetic cover increased out-of-hours during the pandemic and that regional anaesthesia utilisation rates across a mix of hospitals were much higher than previous nationally reported rates. Whether this change was replicated nationally needs further investigation. Our data affirm that a 'safe' reduction of general anaesthesia rates across hospitals is possible, is in the interest of the mothers, is advantageous to healthcare workers and has institutional benefits with regard to resource utilisation (of PPE). The data from this study also provide food for thought regarding variations in caesarean section rates for COVID-19 women and whether the caesarean section rate is on the rise, though both these findings need further investigation. Whether the decline in general anaesthesia rates can be sustained or whether this is a 'one-off' phenomenon, possibly contributed to by on-site anaesthetic consultant presence during the pandemic, is also an area that requires further research.

Our study is not without limitations. It is retrospective, observational and reflects the data within a small number of hospitals in the north-west of England. No detailed information of the breakdown of specific regional anaesthesia techniques such as number of spinals, epidurals as well as combined spinal-epidurals are provided, nor are the conversion details of which regional techniques (epidural top-ups or spinals) had a higher failure rate. No details of maternal baseline characteristics, maternal morbidity or mortality, obstetric or neonatal outcomes were provided and perhaps these details would reflect whether the decreased use of general anaesthesia was indeed beneficial.

Overall, we conclude that the general anaesthesia rate for caesarean sections declined significantly during the peak of the COVID-19 pandemic. Anaesthetic decision-making recommendations from anaesthetic guidelines and presence of an on-site anaesthetic consultant in the delivery suite seemed to be the key factors that potentially influenced this decline.

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Supporting Information

Additional supporting information may be found online via the journal website.

Table S1. Pre-COVID-19 – deliveries, caesarean section (CS), regional anaesthesia (RA) and general anaesthesia (GA) rates.

Table S2. Post-COVID-19 – deliveries, caesarean section (CS), regional anaesthesia (RA) and general anaesthesia (GA) rates.