

Supplementary tables for *Effects of the SARS-CoV-2 pandemic on perinatal activity in the Yorkshire and Humber region during 2020: an interrupted time-series analysis*

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Table S1: Rate ratios, adjusted for trend over time and seasonal variation, for perinatal activity indicators during the periods of the coronavirus pandemic compared to the previous 5 years among those identifying as Asian.

| | Lockdown 1 | Between lockdown 1 and 2 | Lockdown 2 | <i>p</i> -value (trend) | Entire pandemic period | |
|----------------|---------------------|--------------------------|--------------------|-------------------------|------------------------|-----------------|
| | RR (95% CI) | RR (95% CI) | RR (95% CI) | | RR (95% CI) | <i>p</i> -value |
| Stillbirth | 0.78 (0.32 – 1.85) | 1.16 (0.64 – 2.11) | 1.61 (0.74 – 3.52) | 0.310 | 1.11 (0.70 – 1.78) | 0.651 |
| EPT admissions | 0.79 (0.23 – 2.75) | 0.51 (0.15 – 1.75) | 1.85 (0.60 – 5.70) | 0.967 | 0.85 (0.39 – 1.84) | 0.679 |
| HIE admissions | 1.04 (0.28 – 3.85) | 0.46 (0.13 – 1.69) | 1.64 (0.43 – 6.17) | 0.807 | 0.82 (0.34 – 1.95) | 0.650 |
| MAS admissions | 1.44 (0.15 – 13.40) | 0.00 (0.00 – Inf) | 0.00 (0.00 – Inf) | 0.345 | 0.46 (0.05 – 4.15) | 0.491 |

Lockdown 1: 23rd March 2020 to 14th June 2020; Between lockdown 1 and 2: 15th June 2020 to 08th November 2020; Lockdown 2: 09th November 2020 to 03rd January 2021; Entire pandemic period: 23rd March 2020 to 03rd January 2021; RR: Rate ratio; 95% CI: 95% confidence interval; EPT: extreme preterm (<27 weeks of gestational age (GA)); HIE: hypoxic ischaemic encephalopathy (defined as babies 36+ weeks' GA who received active cooling within 48 hours of delivery); MAS: meconium aspiration syndrome (defined as babies 36+ weeks' GA who received inhaled nitric oxide within 5 days of delivery)

Table S2: Rate ratios, adjusted for trend over time and seasonal variation, for perinatal activity indicators during the periods of the coronavirus pandemic compared to the previous 5 years among those identifying as Black.

| | Lockdown 1 | Between lockdown 1 and 2 | Lockdown 2 | p-value (trend) | Entire pandemic period | |
|----------------|--------------------|--------------------------|--------------------------|-----------------|------------------------|---------|
| | RR (95% CI) | RR (95% CI) | RR (95% CI) | | RR (95% CI) | p-value |
| Stillbirth | 1.06 (0.28 – 3.98) | 0.51 (0.11 – 2.41) | 0.53 (0.07 – 4.22) | 0.368 | 0.62 (0.23 – 1.69) | 0.354 |
| EPT admissions | 1.77 (0.33 – 9.67) | 1.94 (0.43 – 8.71) | 0.00 (0.00 – Inf) | 0.690 | 1.6 (0.46 – 5.66) | 0.462 |
| HIE admissions | 2.34 (0.2 – 27.83) | 1.24 (0.11 – 14.27) | 6.3 (0.48 – 82.62) | 0.303 | 2.2 (0.37 – 13.04) | 0.389 |
| MAS admissions | 0.00 (0.00 – Inf) | 0.00 (0.00 – Inf) | 502.91 (3.38 – 74803.64) | 0.034 | 4.38 (0.18 – 103.49) | 0.361 |

Lockdown 1: 23rd March 2020 to 14th June 2020; Between lockdown 1 and 2: 15th June 2020 to 08th November 2020; Lockdown 2: 09th November 2020 to 03rd January 2021; Entire pandemic period: 23rd March 2020 to 03rd January 2021; RR: Rate ratio; 95% CI: 95% confidence interval; EPT: extreme preterm (<27 weeks of gestational age (GA)); HIE: hypoxic ischaemic encephalopathy (defined as babies 36+ weeks' GA who received active cooling within 48 hours of delivery); MAS: meconium aspiration syndrome (defined as babies 36+ weeks' GA who received inhaled nitric oxide within 5 days of delivery)

Table S3: Rate ratios, adjusted for trend over time and seasonal variation, for perinatal activity indicators during the periods of the coronavirus pandemic compared to the previous 5 years among those identifying as Mixed.

| | Lockdown 1 | Between lockdown 1 and 2 | Lockdown 2 | p-value (trend) | Entire pandemic period | |
|----------------|----------------------|--------------------------|---------------------|-----------------|------------------------|---------|
| | RR (95% CI) | RR (95% CI) | RR (95% CI) | | RR (95% CI) | p-value |
| Stillbirth | 0.00 (0.00 – Inf) | 10.13 (2.52 – 40.74) | 9.62 (1.02 – 90.83) | 0.001 | 5.28 (1.45 – 19.29) | 0.012 |
| EPT admissions | 6.74 (0.35 – 128.47) | 0.00 (0.00 – Inf) | 0.00 (0.00 – Inf) | 0.977 | 2.43 (0.14 – 40.84) | 0.538 |
| HIE admissions | 0.00 (0.00 – Inf) | 0.00 (0.00 – Inf) | 0.00 (0.00 – Inf) | 0.995 | 0.00 (0.00 – Inf) | 0.995 |
| MAS admissions | 0.00 (0.00 – Inf) | 6.76 (0.28 – 163.05) | 0.00 (0.00 – Inf) | 0.387 | 2.93 (0.14 – 61.09) | 0.489 |

Lockdown 1: 23rd March 2020 to 14th June 2020; Between lockdown 1 and 2: 15th June 2020 to 08th November 2020; Lockdown 2: 09th November 2020 to 03rd January 2021; Entire pandemic period: 23rd March 2020 to 03rd January 2021; RR: Rate ratio; 95% CI: 95% confidence interval; EPT: extreme preterm (<27 weeks of gestational age (GA)); HIE: hypoxic ischaemic encephalopathy (defined as babies 36+ weeks' GA who received active cooling within 48 hours of delivery); MAS: meconium aspiration syndrome (defined as babies 36+ weeks' GA who received inhaled nitric oxide within 5 days of delivery)

Table S4: Rate ratios, adjusted for trend over time and seasonal variation, for perinatal activity indicators during the periods of the coronavirus pandemic compared to the previous 5 years among those identifying as Other.

| | Lockdown 1 | Between lockdown 1 and 2 | Lockdown 2 | <i>p</i> -value (trend) | Entire pandemic period | |
|----------------|--------------------|--------------------------|--------------------|-------------------------|------------------------|-----------------|
| | RR (95% CI) | RR (95% CI) | RR (95% CI) | | RR (95% CI) | <i>p</i> -value |
| Stillbirth | 1.78 (0.71 – 4.49) | 1.31 (0.57 – 2.99) | 0.83 (0.20 – 3.57) | 0.669 | 1.33 (0.70 – 2.53) | 0.378 |
| EPT admissions | 0.38 (0.16 – 0.90) | 0.47 (0.23 – 0.95) | 1.00 (0.50 – 1.98) | 0.157 | 0.56 (0.35 – 0.90) | 0.017 |
| HIE admissions | 0.12 (0.02 – 0.88) | 0.46 (0.18 – 1.17) | 0.56 (0.16 – 1.94) | 0.052 | 0.37 (0.17 – 0.78) | 0.009 |
| MAS admissions | 0.37 (0.05 – 2.97) | 1.18 (0.38 – 3.68) | 0.75 (0.09 – 6.19) | 0.929 | 0.83 (0.31 – 2.23) | 0.713 |

Lockdown 1: 23rd March 2020 to 14th June 2020; Between lockdown 1 and 2: 15th June 2020 to 08th November 2020; Lockdown 2: 09th November 2020 to 03rd January 2021; Entire pandemic period: 23rd March 2020 to 03rd January 2021; RR: Rate ratio; 95% CI: 95% confidence interval; EPT: extreme preterm (<27 weeks of gestational age (GA)); HIE: hypoxic ischaemic encephalopathy (defined as babies 36+ weeks' GA who received active cooling within 48 hours of delivery); MAS: meconium aspiration syndrome (defined as babies 36+ weeks' GA who received inhaled nitric oxide within 5 days of delivery)

Table S5: Rate ratios, adjusted for trend over time and seasonal variation, for perinatal activity indicators during the periods of the coronavirus pandemic compared to the previous 5 years among those identifying as White.

| | Lockdown 1 | Between lockdown 1 and 2 | Lockdown 2 | <i>p</i> -value (trend) | Entire pandemic period | |
|----------------|--------------------|--------------------------|--------------------|-------------------------|------------------------|-----------------|
| | RR (95% CI) | RR (95% CI) | RR (95% CI) | | RR (95% CI) | <i>p</i> -value |
| Stillbirth | 1.15 (0.76 – 1.74) | 1.31 (0.93 – 1.83) | 1.39 (0.83 – 2.31) | 0.062 | 1.26 (0.96 – 1.64) | 0.091 |
| EPT admissions | 1.14 (0.70 – 1.85) | 0.63 (0.40 – 1.00) | 0.43 (0.19 – 0.99) | 0.012 | 0.73 (0.52 – 1.02) | 0.068 |
| HIE admissions | 1.28 (0.67 – 2.44) | 1.08 (0.65 – 1.79) | 0.30 (0.07 – 1.25) | 0.467 | 0.99 (0.65 – 1.52) | 0.973 |
| MAS admissions | 0.97 (0.36 – 2.60) | 1.54 (0.79 – 3.01) | 0.73 (0.17 – 3.16) | 0.526 | 1.24 (0.69 – 2.22) | 0.480 |

Lockdown 1: 23rd March 2020 to 14th June 2020; Between lockdown 1 and 2: 15th June 2020 to 08th November 2020; Lockdown 2: 09th November 2020 to 03rd January 2021; Entire pandemic period: 23rd March 2020 to 03rd January 2021; RR: Rate ratio; 95% CI: 95% confidence interval; EPT: extreme preterm (<27 weeks of gestational age (GA)); HIE: hypoxic ischaemic encephalopathy (defined as babies 36+ weeks' GA who received active cooling within 48 hours of delivery); MAS: meconium aspiration syndrome (defined as babies 36+ weeks' GA who received inhaled nitric oxide within 5 days of delivery)

Table S6: Rate ratios, adjusted for trend over time and seasonal variation, for perinatal activity indicators during the periods of the coronavirus pandemic compared to the previous 5 years among those identifying as non-White.

| | Lockdown 1 | Between lockdown 1 and 2 | Lockdown 2 | <i>p</i> -value (trend) | Entire pandemic period | |
|----------------|--------------------|-----------------------------|--------------------|----------------------------|------------------------|-----------------|
| | RR (95% CI) | RR (95% CI) | RR (95% CI) | | RR (95% CI) | <i>p</i> -value |
| Stillbirth | 1.07 (0.61 – 1.88) | 1.36 (0.88 – 2.09) | 1.44 (0.77 – 2.67) | 0.105 | 1.25 (0.89 – 1.76) | 0.191 |
| EPT admissions | 0.59 (0.32 – 1.09) | 0.56 (0.32 – 0.98) | 1.22 (0.69 – 2.17) | 0.363 | 0.71 (0.48 – 1.03) | 0.073 |
| HIE admissions | 0.43 (0.17 – 1.11) | 0.49 (0.24 – 1.01) | 1.00 (0.43 – 2.30) | 0.156 | 0.57 (0.34 – 0.96) | 0.035 |
| MAS admissions | 0.54 (0.12 – 2.41) | 1.15 (0.43 – 3.05) | 1.49 (0.32 – 6.82) | 0.715 | 0.97 (0.43 – 2.17) | 0.939 |

Lockdown 1: 23rd March 2020 to 14th June 2020; Between lockdown 1 and 2: 15th June 2020 to 08th November 2020; Lockdown 2: 09th November 2020 to 03rd January 2021; Entire pandemic period: 23rd March 2020 to 03rd January 2021; RR: Rate ratio; 95% CI: 95% confidence interval; EPT: extreme preterm (<27 weeks of gestational age (GA)); HIE: hypoxic ischaemic encephalopathy (defined as babies 36+ weeks' GA who received active cooling within 48 hours of delivery); MAS: meconium aspiration syndrome (defined as babies 36+ weeks' GA who received inhaled nitric oxide within 5 days of delivery)

Table S7: Descriptive data (means (SD)) for perinatal activity indicators in Yorkshire & Humber, 2015-2020 (complete data only).

| | Pre-pandemic | Lockdown 1 | Between lockdown 1 and 2 | Lockdown 2 | Entire pandemic period |
|-------------------------------|---------------|---------------|--------------------------|---------------|------------------------|
| | Mean (SD) | Mean (SD) | Mean (SD) | Mean (SD) | Mean (SD) |
| Number of women | 1148.3 (56.2) | 1074.3 (33.2) | 1103.2 (30.4) | 1021.0 (47.9) | 1080.2 (45.4) |
| Number of deliveries | 1179.9 (58.6) | 1090.7 (35.0) | 1117.0 (32.6) | 1031.6 (46.4) | 1094.2 (47.0) |
| Number of live births | 1174.8 (58.2) | 1086.6 (34.7) | 1112.8 (31.9) | 1026.6 (45.7) | 1089.8 (46.8) |
| Number of stillbirths | 4.4 (1.9) | 3.6 (2.5) | 3.7 (1.7) | 3.6 (2.4) | 3.6 (2.0) |
| Number of antenatal transfers | 8.1 (3.1) | 6.2 (2.8) | 5.9 (2.7) | 3.0 (2.3) | 5.4 (2.9) |
| EPT admissions | 3.1 (2.0) | 2.8 (1.8) | 1.9 (1.5) | 2.6 (2.2) | 2.3 (1.7) |
| HIE admissions | 1.6 (1.3) | 1.4 (0.9) | 1.6 (1.2) | 1.1 (1.1) | 1.4 (1.1) |
| MAS admissions | 0.7 (0.9) | 0.6 (0.8) | 1.0 (0.9) | 0.5 (0.9) | 0.8 (0.9) |
| EPT transfers | 1.0 (1.0) | 1.3 (1.1) | 0.6 (0.7) | 0.9 (1.1) | 0.9 (0.9) |
| HIE transfers | 0.6 (0.8) | 0.6 (0.7) | 0.7 (0.7) | 0.2 (0.5) | 0.6 (0.7) |
| MAS transfers | 0.6 (0.9) | 0.6 (0.7) | 0.7 (0.9) | 0.2 (0.7) | 0.6 (0.8) |

Prepandemic: 29th December 2014 to 22nd March 2020; Lockdown 1: 23rd March 2020 to 14th June 2020; Between lockdown 1 and 2: 15th June 2020 to 08th November 2020; Lockdown 2: 09th November 2020 to 03rd January 2021; Entire pandemic period: 23rd March 2020 to 03rd January 2021; SD: standard deviation. Antenatal transfers: number of women transferred at <27 weeks' gestational age (GA), or <28 weeks if multiple pregnancy; EPT: extreme preterm (<27 weeks of GA); HIE: hypoxic ischaemic encephalopathy (defined as babies 36+ weeks' GA who received active cooling within 48 hours of delivery); MAS: meconium aspiration syndrome (defined as babies 36+ weeks' GA who received inhaled nitric oxide within 5 days of delivery)

Table S8: Rate ratios, adjusted for trend over time and seasonal variation, for perinatal activity indicators during the periods of the coronavirus pandemic compared to the previous 5 years (complete data only).

| | Lockdown 1 | Between lockdown 1 and 2 | Lockdown 2 | <i>p</i> -value (trend) | Entire pandemic period | |
|--------------------|--------------------|-----------------------------|--------------------|----------------------------|------------------------|-----------------|
| | RR (95% CI) | RR (95% CI) | RR (95% CI) | | RR (95% CI) | <i>p</i> -value |
| Stillbirths | 1.08 (0.76 – 1.52) | 1.16 (0.87 – 1.55) | 1.26 (0.82 – 1.95) | 0.185 | 1.15 (0.91 – 1.45) | 0.242 |
| In utero transfers | 0.76 (0.59 – 0.99) | 0.72 (0.58 – 0.89) | 0.39 (0.25 – 0.60) | <0.001 | 0.67 (0.56 – 0.80) | <0.001 |
| EPT admissions | 0.92 (0.62 – 1.37) | 0.59 (0.40 – 0.85) | 0.85 (0.52 – 1.38) | 0.033 | 0.74 (0.56 – 0.98) | 0.033 |
| HIE admissions | 0.87 (0.50 – 1.51) | 0.86 (0.55 – 1.33) | 0.64 (0.29 – 1.41) | 0.238 | 0.82 (0.57 – 1.19) | 0.298 |
| MAS admissions | 0.78 (0.34 – 1.83) | 1.32 (0.72 – 2.42) | 1.13 (0.38 – 3.33) | 0.490 | 1.11 (0.66 – 1.87) | 0.701 |
| EPT transfers | 1.47 (0.80 – 2.69) | 0.62 (0.32 – 1.22) | 0.68 (0.26 – 1.77) | 0.241 | 0.90 (0.56 – 1.45) | 0.667 |
| HIE transfers | 1.22 (0.51 – 2.91) | 1.07 (0.54 – 2.15) | 0.42 (0.10 – 1.83) | 0.562 | 0.98 (0.54 – 1.75) | 0.934 |
| MAS transfers | 1.07 (0.45 – 2.55) | 1.51 (0.74 – 3.11) | 0.78 (0.18 – 3.40) | 0.554 | 1.23 (0.68 – 2.24) | 0.497 |

Lockdown 1: 23rd March 2020 to 14th June 2020; Between lockdown 1 and 2: 15th June 2020 to 08th November 2020; Lockdown 2: 09th November 2020 to 03rd January 2021; Entire pandemic period: 23rd March 2020 to 03rd January 2021; RR: Rate ratio; 95% CI: 95% confidence interval; EPT: extreme preterm (<27 weeks of gestational age (GA)); HIE: hypoxic ischaemic encephalopathy (defined as babies 36+ weeks' GA who received active cooling within 48 hours of delivery); MAS: meconium aspiration syndrome (defined as babies 36+ weeks' GA who received inhaled nitric oxide within 5 days of delivery)

Table S9: Rate ratios, adjusted for trend over time and seasonal variation, for perinatal activity indicators during the periods of the coronavirus pandemic compared to the previous 5 years (calculated using negative binomial regression models).

| | Lockdown 1 | Between lockdown 1 and 2 | Lockdown 2 | p-value (trend) | Entire pandemic period | |
|--------------------|--------------------|--------------------------|--------------------|-----------------|------------------------|---------|
| | RR (95% CI) | RR (95% CI) | RR (95% CI) | | RR (95% CI) | p-value |
| Stillbirths | 1.08 (0.78 – 1.51) | 1.26 (0.97 – 1.65) | 1.29 (0.87 – 1.93) | 0.050 | 1.21 (0.98 – 1.49) | 0.077 |
| In utero transfers | 0.74 (0.56 – 0.97) | 0.70 (0.56 – 0.87) | 0.37 (0.24 – 0.57) | <0.001 | 0.64 (0.54 – 0.77) | <0.001 |
| EPT admissions | 0.88 (0.58 – 1.33) | 0.60 (0.41 – 0.88) | 0.81 (0.49 – 1.34) | 0.025 | 0.73 (0.55 – 0.96) | 0.022 |
| HIE admissions | 0.85 (0.50 – 1.45) | 0.81 (0.54 – 1.22) | 0.68 (0.34 – 1.38) | 0.159 | 0.80 (0.57 – 1.11) | 0.181 |
| MAS admissions | 0.79 (0.35 – 1.82) | 1.41 (0.81 – 2.47) | 0.99 (0.34 – 2.88) | 0.445 | 1.15 (0.71 – 1.85) | 0.580 |
| EPT transfers | 1.37 (0.77 – 2.44) | 0.61 (0.32 – 1.15) | 0.86 (0.39 – 1.93) | 0.324 | 0.90 (0.59 – 1.37) | 0.616 |
| HIE transfers | 1.04 (0.45 – 2.40) | 0.94 (0.50 – 1.78) | 0.36 (0.09 – 1.51) | 0.302 | 0.84 (0.5 – 1.44) | 0.534 |
| MAS transfers | 0.92 (0.36 – 2.32) | 1.28 (0.62 – 2.64) | 0.62 (0.13 – 2.83) | 0.947 | 1.04 (0.57 – 1.9) | 0.886 |

Lockdown 1: 23rd March 2020 to 14th June 2020; Between lockdown 1 and 2: 15th June 2020 to 08th November 2020; Lockdown 2: 09th November 2020 to 03rd January 2021; Entire pandemic period: 23rd March 2020 to 03rd January 2021; RR: Rate ratio; 95% CI: 95% confidence interval; EPT: extreme preterm (<27 weeks of gestational age (GA)); HIE: hypoxic ischaemic encephalopathy (defined as babies 36+ weeks' GA who received active cooling within 48 hours of delivery); MAS: meconium aspiration syndrome (defined as babies 36+ weeks' GA who received inhaled nitric oxide within 5 days of delivery)