The Effect of the COVID -19 Pandemic on Pregnancy and Birth Outcomes on the Mid-North Coast

AUTHORS

Georgina Evans [1], Amanda Henry [2,3], Raymond Hodgson [1,4], Emma Schofield [1]

AFFILIATIONS

1. UNSW, Faculty of Medicine and Health, School of Clinical Medicine, Rural Clinical Campus, Port Macquarie
2. UNSW, Faculty of Medicine and Health, School of Clinical Medicine
3. St George Hospital, Kogarah, NSW
4. Port Macquarie Base Hospital, Port Macquarie, NSW

INTRODUCTION

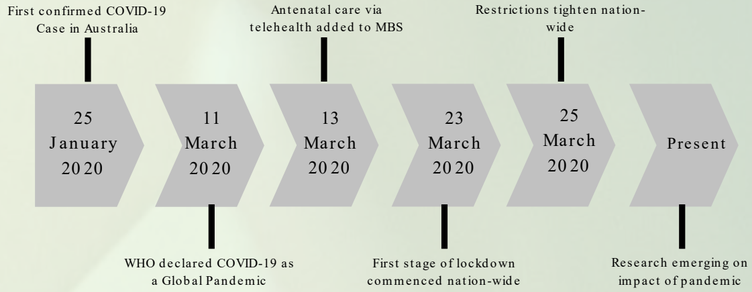
The COVID-19 pandemic, declared by the World Health Organisation (WHO) on the 11th of March 2020 , resulted in abrupt changes to the provision of healthcare globally, including antenatal care. Australia began the first stage of lockdown on the 23rd of March 2020 and telehealth services were also expanded on this day. The delivery of antenatal services via telehealth was added to the Medicare Benefits Scheme on the 13th of March 2020 . Research thus far has found decreased moderate -late preterm birth (PTB) , decreased emergency Cesarean Sections (CS) and increased in instrumental births.

OBJECTIVE

The aim of the study was to investigate how the COVID -19 pandemic impacted the rate of pregnancies and maternal and neonatal labour and birth outcomes at the two largest Mid -North Coast Hospitals: Port Macquarie Base Hospital and Coffs Harbour Health Campus.

METHODOLOGY

A retrospective observational pre -post study was conducted on the 5839 births which occurred at Port Macquarie Base Hospital (PMBH) and Coffs Harbour Health Campus (CHHC) between 23 March 2019 and 23 March 2022. The control group is 23 March 2019 - 23 March 2020 and the exposure group 23 March 2020 - 23 March 2022. Multinomial logistic regressions were performed for mode of birth, onset of labour, reason for caesarean section (CS) and gestational age at birth. These analyses were controlled for hospital of birth, parity, maternal diabetes, maternal hypertension, maternal age, and maternal body mass index (BMI).



RESULTS

PMBH n=2574
- 792 in control group
- 1782 in exposure group

CHHC n=3265
- 1082 in control group
- 2183 in exposure group

Descriptive Statistics

- Mod -late PTB: 2.1% absolute increase at PMBH and 2.5% absolute increase at CHHC
- Emergency/unplanned CS: 5.2% absolute increase at CHHC
- IOL: 1.4% absolute decrease at PMBH and 3.8% absolute decrease at CHHC
- CS due to maternal choice: 1% increase at PMBH and 0.8% increase at CHHC
- CS due to fetal compromise: 3.6% absolute increase at CHHC

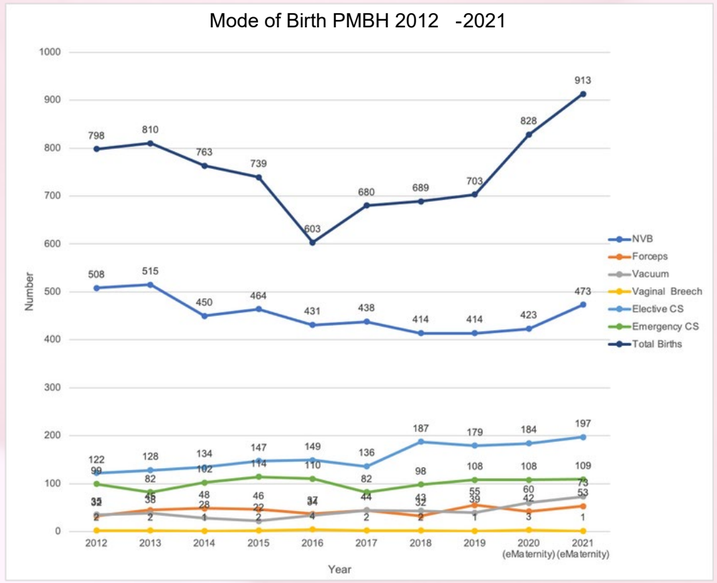
Multinomial Logistic Regressions

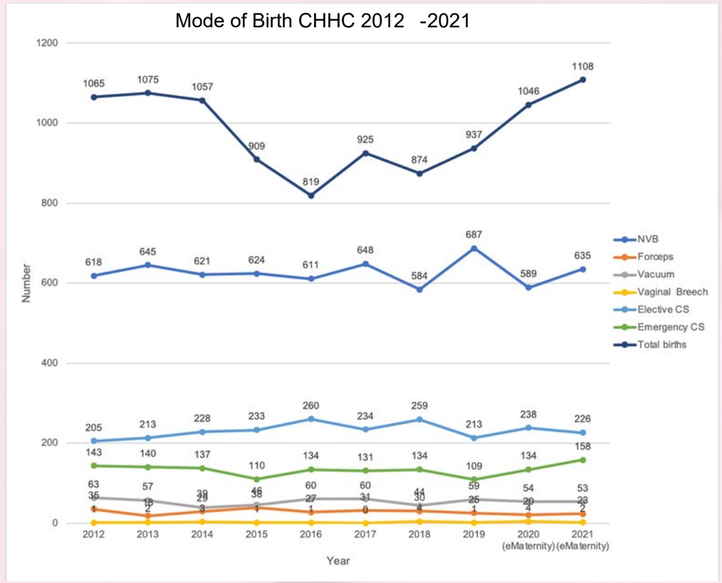
MODE OF BIRTH: chi -square = 5.024 , df = 7, p = 0.657
- Emergency/unplanned CS (relative to NVB) (p=0.047, OR = 1.206, 95% CI [1.002 ,1.453])

CS INDICATION : chi -square = 18.714, df = 12, p = 0.096
- Maternal choice (relative to no CS): (p=0.030 , OR = 1.597, 95% CI [1.047 ,2.433])
- Fetal compromise (relative to no CS): (p=0.024 , OR = 1.364 , 95% CI [1.043 ,1.786])

LABOUR ONSET: chi -square = 6.367, df = 3, p = 0.095
- IOL (relative to spontenous onset) : (p=0.012, OR = 0.838, 95% CI [0.730 ,0.962])

GESTATIONAL AGE: chi -square = 13.938 , df = 4, p = 0.007
- Moderate -late PTB (relative to term) : (p=0.036 , OR = 1.285, 95% CI [1.016 ,1.623])





ANALYSIS

This study found an increase in mod -late PTB compared to a decrease in the limited available literature. A decrease in IOL was found and IOL had not been found to be impacted by the pandemic. This study found an increase in emergency/unplanned CS with previous studies reporting a decrease . It also found an increase in CS due to maternal choice and fetal compromise.

STRENGTHS AND LIMITATIONS

This study is among the first on this topic in New South Wales. It has a sufficient sample size comprised of public hospital data and the analysis was well controlled for. Important limitations include the limited pre -pandemic dataset and that periods of lockdown were not accounted for, and this should be rectified by using antecedent time periods in future studies.

CONCLUSION

The COVID-19 pandemic impacted emergency and unplanned CS, CS due to maternal choice and fetal compromise, induction of labour and moderate to late PTB at the two largest Mid -North Coast Hospitals. Further studies are required to draw robust conclusions. It is important to continue research so adverse outcomes for mothers and babies are reduced in future pandemics.

- World Health Organisation [WHO]. A timeline of WHO's response to COVID-19 in the WHO European Region: a living document (Version 2.0 from 31 December 2019 to 31 December 2020). (2021).
- Health, A.G.D.o. COVID-19 temporary MBS telehealth services . (2020).
- Jasper, B., Stillerova, T., Anstey, C. & Weaver, E. Reduction in preterm birth rates during and after the COVID-19 lockdown in Queensland Australia . Aust N Z J Obstet Gynaecol (2022).
- Gallo, L.A., et al. A decline in planned, but not spontaneous, preterm birth rates in a large Australian tertiary maternity centre during COVID-19 mitigation measures . Australian and New Zealand Journal of Obstetrics and Gynaecology 62, 62-70 (2022).
- Matheson, A., et al. Prematurity Rates During the Coronavirus Disease 2019 (COVID-19) Pandemic Lockdown in Melbourne, Australia . Obstet Gynecol 137, 405 - 407 (2021).
- Stansfield, S., Rattan, A., Mol, B.W., Rolnik, D.L. & Malhotra, A. Impact of the COVID-19 pandemic and multiple community lockdowns on total live birth rates and preterm births in Melbourne, Australia . Aust N Z J Obstet Gynaecol (2022).