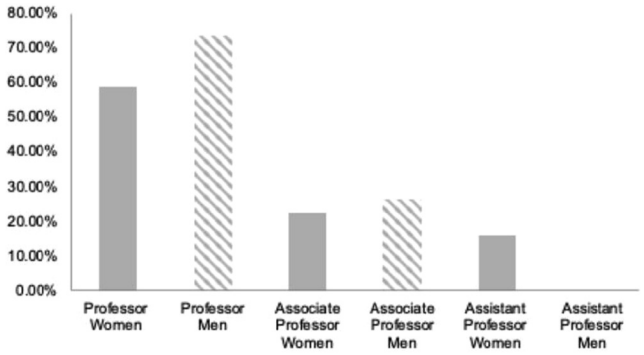
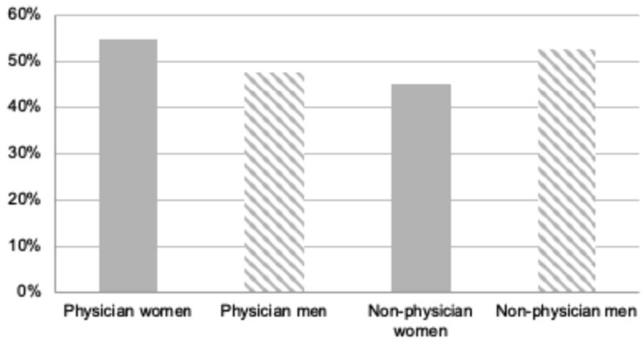
Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

counterparts. In addition, the minority of principal investigators were maternal fetal specialists.





796 Eclampsia and associated adverse outcomes in singleton versus multifetal gestations

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OBJECTIVE: Multifetal gestation is a known risk factor for preeclampsia, but the degree of increased risk for eclampsia has not been quantified. Our objectives were to: 1) compare rates of eclampsia in singleton versus twin and higher order multifetal gestations and 2) investigate whether eclampsia in multifetal gestations is associated with higher maternal morbidity.

STUDY DESIGN: We conducted a cross-sectional study using the US Vital Statistics birth certificate data to identify cases of eclampsia in live-born singleton, twin and higher order multifetal gestations between 2014 and 2018. We excluded subjects with fetal anomalies, gestational age < 24 or > 42 weeks, or missing maternal comorbidity or outcome data. Multivariable Poisson regression with robust error variance was used to compare rates of eclampsia between pregnancies with singleton, twin, and higher order multifetal gestations. Similarly, rates of composite adverse maternal outcome (CMAO; includes any of the following: blood transfusion, ICU admission, unplanned cesarean hysterectomy, and uterine rupture) were compared between groups among pregnancies with eclampsia.

RESULTS: Among the 18.8 million pregnancies identified that met inclusion criteria, the rates of eclampsia increased with increasing degree of multiple gestation (Table 1). Twin pregnancies were more than twice as likely (aRR 2.55, 95% CI 2.47-2.63) to be affected by eclampsia compared to singleton gestations, while triplets and higher order multiples were nearly four times as likely to be affected by eclampsia (RR 3.71, 95% CI 3.20-4.31). Among those with eclampsia, CMAO was higher in multifetal gestations compared to singletons (aRR 1.38, 95% CI 1.16-1.64; Table 2).

CONCLUSION: Multifetal gestations are at increased risk of eclampsia compared to singletons, and risk is increased in higher order pregnancies. Among pregnancies affected by eclampsia, multifetal gestation is associated with higher rates of adverse maternal outcomes compared to singletons.

Table 1. Rate of eclampsia

Number of fetuses	Pregnancies	n	Rate per 1,000 (95% CI)	Relative Risk (95% CI)	Adjusted Relative Risk* (95% CI)
Singletons	18,495,483	44,982	2.43 (2.41-2.45)	Ref	Ref
Twins	313,522	1,967	6.27 (6.00-6.56)	2.58 (2.50-2.66)	2.55 (2.47-2.63)
Triplets or more	6,134	57	9.35 (7.22-12.1)	3.84 (3.31-4.46)	3.71 (3.20-4.31)
All multiples	319,656	2,024	6.33 (6.06-6.61)	2.60 (2.52-2.69)	2.57 (2.49-2.66)

* Adjusted for maternal age, body mass index, prenatal care, race, education, marital status, diabetes, nulliparity, tobacco, and birth year.

Table 2. Composite adverse maternal outcomes* in eclampsia

Number of fetuses	Pregnancies with Eclampsia	n	Rate (%) (95% CI)	Relative Risk (95% CI)	Adjusted Relative Risk** (95% CI)
Singletons	44,982	1,362	3.03 (2.87-3.19)	Ref	Ref
All multiples	2,024	71	3.52 (2.80-4.42)	1.16 (0.98-1.38)	1.38 (1.16-1.64)
Twins	1,967	70	3.56 (2.82-4.47)	1.18 (0.99-1.39)	1.39 (1.17-1.65)
Triplets or more	57	1	1.75 (0.04-9.39)	0.77 (0.29-2.03)	1.08 (0.41-2.87)

* CMAO; includes any of the following: blood transfusion, ICU admission, unplanned cesarean hysterectomy, and uterine rupture.
** Adjusted for maternal age, body mass index, prenatal care, race, education, marital status, diabetes, nulliparity, tobacco, and birth year.

797 Adverse outcomes among individuals with and without SARS-CoV-2 infection: a systematic review and meta-analysis

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OBJECTIVE: We sought to compare adverse neonatal and maternal outcomes between individuals who delivered with and without laboratory-confirmed SARS-CoV-2 infection.

STUDY DESIGN: A systematic literature search of MEDLINE, Ovid, Embase, Cumulative Index to Nursing and Allied Health, and Cochrane Library was performed on July 17, 2020 (PROSPERO CRD42020203475). Two additional eligible articles published on or before September 12, 2020 were included in the analysis. Two independent reviewers identified publications that directly compared outcomes among pregnant individuals with positive versus negative SARS-CoV-2 tests. We excluded publications with fewer than twenty gravid individuals in either cohort, review articles, or no data on primary outcomes (intrauterine fetal demise [IUFD] and neonatal death). Study effects were reported as odds ratios (OR) with 95% confidence interval (CI).

RESULTS: Of the 911 abstracts identified, 4 studies met inclusion criteria. Among these studies, 3553 individuals who delivered were tested for SARS-CoV-2 infection, and 14.8% (527) were positive. IUFD and neonatal death occurred at similar rates between the two groups (Table 1). Maternal outcomes including cesarean delivery and maternal death did not significantly differ between groups. However, rates of preterm birth, postpartum fever, maternal respiratory support, and maternal ICU admission were significantly greater in the SARS-CoV-2-positive group (Table 2).

CONCLUSION: Current literature supports no observed difference in rates of IUFD, neonatal death, or maternal death between individuals with and without SARS-CoV-2 infection. Our conclusion may warrant revision as additional studies are published.

Table 1. Neonatal Outcomes

Primary Outcome	SARS-CoV-2 Positive (N = 537 fetuses, 530 neonates)	SARS-CoV-2 Negative (N = 3095 fetuses, 3055 neonates)	OR (95% CI)	p value
Intrauterine Fetal Demise (≥20 weeks)	7/537 (1.3%)	40/3095 (1.3%)	1.01 (0.45-2.26)	0.98
Neonatal Death (birth-27 days)	0/399 (0.0%)	2/2270 (0.1%)	1.14 (0.05-23.70)	0.93

Data presented as N(%)

Table 2. Maternal and Obstetric Outcomes

Maternal Outcomes	SARS-CoV-2 Positive	SARS-CoV-2 Negative	OR (95% CI)	p value
Preterm Birth (<37 weeks)	50/393 (12.7%)	198/2226 (8.9%)	1.49 (1.07-2.08)	**0.002**
Cesarean Delivery	175/527 (33.2%)	939/3026 (31.0%)	1.11 (0.91-1.35)	0.32
Postpartum Fever	11/147 (7.5%)	30/1463 (2.1%)	3.86 (1.89-7.88)	**< 0.001**
Maternal Respiratory Support	6/147 (4.1%)	0/1463 (0.0%)	134.46 (7.54-2399.22)	**< 0.001**
Maternal ICU Admission	8/393 (2.0%)	3/2226 (0.1%)	15.40 (4.07-58.30)	**< 0.001**
Maternal Death	3*/527 (0.6%)	8*/3026 (0.3%)	2.16 (0.57-8.17)	0.26

Data presented as N(%)
*All maternal deaths occurred in a developing country and are derived from a study which included 7/141 (5%) SARS-CoV-2-positive and 36/836 (4%) SARS-CoV-2-negative individuals presenting with ectopic pregnancies or abortions (Nayak AH et al Impact of the Coronavirus Infection in Pregnancy: A Preliminary Study of 141 Patients. Journal of Obstetrics and Gynecology of India. 70(4):256-261)
Bolded if significantly different.

798 Timing of delivery and associated outcomes in pregnancies complicated by maternal congenital heart disease

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OBJECTIVE: To evaluate timing of delivery for pregnancies complicated by maternal congenital heart disease (CHD) and determine if early-term delivery is beneficial.

STUDY DESIGN: Retrospective cohort study of singleton gestations with maternal CHD that delivered after 37 weeks at a single tertiary care center between March 2013 and August 2020. Patients were categorized by gestational age (GA) at delivery: 37 weeks, 38 weeks, and greater than or equal to 39 weeks. The primary outcomes were composite adverse cardiovascular, maternal, and neonatal outcomes. Demographics, primary outcomes, and selected secondary outcomes, including hypertensive disease of pregnancy, indication for delivery, mode of delivery, and additional neonatal outcomes were compared by GA at delivery with Chi-squared (or Fisher's exact) and Kruskal-Wallis tests. Multivariate logistic regression was conducted to calculate adjusted odds ratio for GA at delivery.

RESULTS: 82 pregnancies with maternal CHD delivered after 37 weeks with known neonatal outcomes. Of these, 23 (28.0%) had a composite adverse cardiovascular outcome, 13 (15.8%) had a composite adverse maternal outcome, and 11 (13.4%) had a composite adverse neonatal outcome. Development of adverse cardiovascular outcome (p=0.13) and adverse maternal outcome (p=0.24) were not significantly different by GA at delivery. Early-term deliveries had significantly more adverse neonatal outcomes (p=0.01), NICU admissions (p=0.002), and small for GA infants (p=0.03). Multivariate logistic regression demonstrated that adverse cardiovascular and maternal outcomes were not significantly associated to GA at delivery, but earlier GA at delivery was associated with an increased odds of adverse neonatal outcomes (p=0.01).

CONCLUSION: Early-term deliveries for pregnancies with maternal CHD are associated with an increased risk of adverse neonatal outcomes without a decreased rate in adverse maternal cardiovascular outcomes. In the absence of maternal or fetal indications for early delivery, consider avoiding induction of labor prior to 39 weeks for pregnancies complicated by maternal CHD.

Figure 1. Rate of adverse cardiovascular and pregnancy outcomes by gestational age at delivery

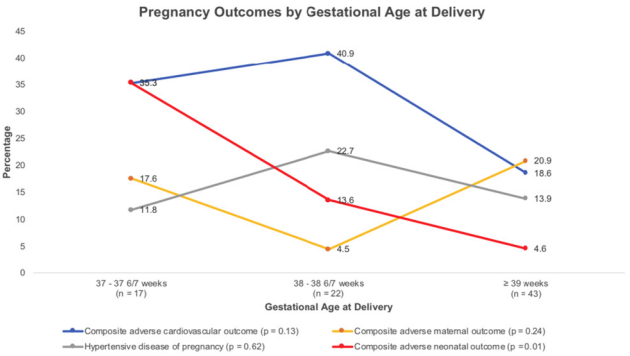

Table 1. Multivariate logistic regression of gestational age at delivery for composite adverse outcomes

	Composite adverse cardiovascular outcome		Composite adverse maternal outcome		Composite adverse neonatal outcome	
	OR (95% CI)	p-value	OR (95% CI)	p-value	OR (95% CI)	p-value
Gestational age at delivery (referent is ≥ 39 weeks)		0.26		0.29		0.01
37 weeks	1.23 (0.29 – 5.26)	0.78	0.93 (0.21 – 4.16)	0.92	14.84 (2.42 – 91.42)	0.003
38 weeks	2.71 (0.81 – 9.15)	0.11	0.18 (0.02 – 1.54)	0.12	3.70 (0.55 – 24.71)	0.18
Advanced maternal age	0.70 (0.23 – 2.15)	0.53	1.08 (0.29 – 3.95)	0.91	0.47 (0.10 – 2.25)	0.34
CARPREG II score	3.23 (1.02 – 10.85)	0.05	1.06 (0.26 – 4.34)	0.94	0.97 (1.91 – 4.96)	0.97
High-risk cardiac disease[a]	1.53 (0.28 – 8.36)	0.62	0.99 (0.09 – 10.36)	0.99	0.88 (0.07 – 11.44)	0.92

a. High-risk cardiac disease defined as one or more of the following: NYHA class > II, oxygen saturation < 90%, systemic EF < 40%, LVOT peak gradient > 30 mmHg, subpulmonary EF < 40%, or connective tissue disease