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.

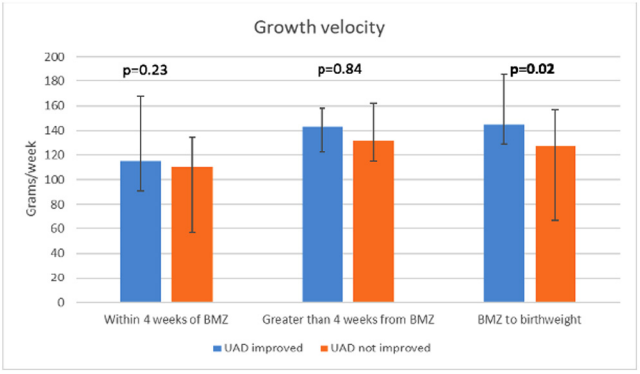
CONCLUSION: UAD improved in more than half of growth restricted fetuses following BMZ. UAD improvement was associated with a reduced risk of SGA, improved growth velocity, longer latency and later gestational age at delivery. UAD response to BMZ may be useful to further risk stratify FGR.

Table 1. Outcomes in FGR with and without UAD improvement after BMZ

	UAD improved (n=28)	UAD not improved (n=21)	uOR (95% CI)	aOR (95% CI)	p-value
SGA	**14 (50.0)**	**16 (76.2)**	**0.31 (0.09-1.09)**	**0.21 (0.05-0.93)***	**0.04**
Birthweight (grams)	**2315 [1862.5,2665.0]**	**1630 [1335.0,2045.0]**	--	--	**<0.01**
Growth velocity (grams/week, BMZ to delivery)	**144.8 [128.3,185.1]**	**126.7 [66.8,157.0]**	--	--	**0.02**
GA at delivery (weeks)	**37.1 [35.6,37.3]**	**34.4 [32.7,36.4]**	--	--	**<0.01**
Latency (days, BMZ to delivery)	**43.5 [29.5,68.0]**	**29.0 [22.0,45.0]**	--	--	**0.03**
PTB < 34w	**0 (0.0)**	**6 (37.5)**	--	--	**<0.01**
PTB < 37w	**7 (35.0)**	**12 (75.0)**	**0.17 (0.04-0.77)**	**0.17 (0.03-0.88)***	**0.03**
Cesarean delivery	19 (67.9)	16 (76.2)	0.66 (0.18-2.37)	0.98 (0.25-3.86)*	0.98
Neonatal composite***	11 (39.3)	14 (66.7)	0.32 (0.10-1.06)	0.85 (0.16-4.53)**	0.85
Higher level nursery admission	16 (57.1)	17 (81.0)	0.31 (0.08-1.17)	1.37 (0.23-8.00)**	0.73

Data presented as n (%) or median [IQR]
*Adjusted for initial UA dopplers, cHTN
**Adjusted for initial UA dopplers, GA at delivery
***Composite includes: oxygen therapy, suspected sepsis, NEC, IVH, and need for ionotropic support

Figure 1. Growth velocity of fetuses with and without UAD improvement after BMZ



754 Brachial plexus injury rate before & after a multi-disciplinary shoulder dystocia simulation program

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OBJECTIVE: Simulation of obstetric emergencies is implemented with the goal of improving clinical outcomes. We sought to assess whether mandatory, multi-disciplinary, department-wide shoulder dystocia simulation training was associated with a change in the rate of brachial plexus injury following shoulder dystocia.

STUDY DESIGN: This is a retrospective pre-post study comparing brachial plexus injuries before and after implementation of a mandatory, multi-disciplinary simulation curriculum in 2015. All shoulder dystocia cases were identified from a contemporaneous obstetric database and confirmed via chart review. Cases between January 1, 2010 and December 31, 2015 (PRE) were compared with those between January 1, 2016 and December 31, 2019 (POST). The primary outcome was rate of brachial plexus injury. Additional outcomes included any birth injury, NICU admission, and 5 min Apgar ≤ 4.

RESULTS: A total of 639 cases of shoulder dystocia were identified. 359 occurred prior to simulation implementation and 280 occurred afterwards. Birth weight, maternal BMI, and number of maneuvers required were similar between the two eras. The composition of delivery providers (between residents, midwives, and attending physicians) was significantly different after the simulation. The rate of brachial plexus injury decreased from 9.8% to 7.1% after simulation implementation, however not statistically significantly so ($p = 0.24$). 5 minute Apgar ≤ 4 was similar (PRE 1.7% vs. POST 1.8%, $p = 0.91$). The rate of any birth injury decreased significantly from 22.3% (PRE) to 12.5% (POST, $p = 0.001$); however, the rate of admission to the NICU increased significantly: 7.0% (PRE) vs. 12.9% (POST, $p = 0.012$).

CONCLUSION: We found no change in the rate of brachial plexus injury following implementation of shoulder dystocia simulation. There was a decrease in birth injury overall and an increase in NICU admission rate, indicating some association between outcomes and simulation. Further research is needed to understand how to reduce injuries from shoulder dystocia; simulation in and of itself is not a panacea for all adverse obstetric outcomes.

Table 1. Characteristics of the study subjects grouped by delivery pre- and post- simulation implementation

Description	*All*	*Pre-Simulation*	*Post-Simulation*	*P-Value*
Birth weight[1] (grams, n=639)	3865 (18.0)	3868 (23.8)	3860 (27.4)	0.82
Maternal BMI[1] (n=602*)	33.9 (.4)	34.0 (.7)	33.9 (.4)	0.91
Delivery Provider[2] (n=378*)				
Resident	185 (48.9%)	88 (76.5%)	97 (36.9%)	**0.00**
Midwife	42 (11.1%)	0 (0%)	42 (16%)	
Attending	151 (40.0%)	27 (23.5%)	124 (47.1%)	
Number of maneuvers[2] (n=546*)				
≤ 2	384 (70.3%)	211 (70.8%)	173 (69.7%)	0.78
3	106 (19.4%)	55 (18.5%)	51 (20.6%)	
≥ 4	56 (10.3%)	32 (10.7%)	24 (9.7%)	

[1] Reported as n (SD)
[2] Reported as n (%)
* BMI available for 602 deliveries, delivery provider available for 378, number of maneuvers available for 546.

Table 2. Outcomes grouped by delivery pre- and post- simulation implementation*

Description	*All (n=639)*	*Pre-Simulation (n=359)*	*Post-Simulation (n=280)*	*P-Value*
Brachial Plexus Injury	55 (8.6%)	35 (9.8%)	20 (7.1%)	0.244
Any Birth Injury	115 (18%)	80 (22.3%)	35 (12.5%)	**0.001**
Admission to the NICU	61 (9.6%)	25 (7.0%)	36 (12.9%)	**0.012**
5 Min Apgar ≤ 4	11 (1.7%)	6 (1.7%)	5 (1.8%)	0.912

*All reported as n (%)

755 Cesarean birth morbidity among women with SARS-CoV-2

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OBJECTIVE: Many infected women undergo cesarean delivery, but whether they face an increased risk of perioperative morbidity is unknown. The objective of this study was to compare maternal outcomes of women with and without SARS-CoV-2 infections who underwent cesarean births.

STUDY DESIGN: This was a matched cohort study of pregnant women who had a cesarean birth between March 15 and May 20, 2020. Cases included women who tested positive for SARS-CoV-2. For every case, two patients who tested negative for SARS-CoV-2

were matched by maternal age, gestational age, body mass index, primary or repeat cesarean birth, and whether the procedure was scheduled or unscheduled. We compared rates of adverse post cesarean complications (intraoperative bladder or bowel injury, estimated blood loss greater than or equal to 1000 mL, hemoglobin drop more than 3 g/dL, hematocrit drop more than 10%, need for blood transfusion, need for hysterectomy, maternal intensive care unit admission, postoperative fever, and development of surgical site infection), with the primary outcome being a composite of those outcomes. We also assessed duration of postoperative stay. Fisher exact tests were performed to compare the primary outcome between both groups.

RESULTS: Between March and May 2020, 202 women who subsequently underwent cesarean birth were tested for SARS-CoV-2. Of those 202, 43 (21.3%) patients were positive. They were matched to 86 patients who tested negative. There was no significant difference in the rate of composite adverse surgical outcomes between groups (SARS-CoV-2 infected 27.9%, SARS-CoV-2 uninfected 25.6%; p=.833) (Table 1). There was a higher rate of postoperative fevers (20.9% vs. 5.8%; p=.015), but that did not result in a longer length of stay (p=.302) (Table 2).

CONCLUSION: Pregnant women with SARS-CoV-2 who underwent a cesarean birth did not have an increased risk of adverse surgical outcomes, other than fever, compared to pregnant women without SARS-CoV-2.

Table 1: Adverse Operative Outcomes

Cesarean Birth Outcomes	SARS-CoV-2 positive N= 43	SARS-CoV-2 negative N= 86	*P*
Adverse composite outcome	12 (27.9%)	22 (25.6%)	0.833
Intraoperative organ injury	0 (0%)	1 (1.2%)	1
EBL ≥ 1000 mL	5 (11.6%)	14 (16.3%)	0.603
Hemoglobin drop more than 3 g/dL	0 (0%)	11 (12.8%)	0.016
Hematocrit drop more than 10%	0 (0%)	11 (12.8%)	0.016
Need for blood transfusion	1 (2.3%)	2 (2.3%)	1
ICU admission	1 (2.3%)	0 (0%)	0.333
Surgical site infections[a]	1 (2.3%)	5 (5.8%)	0.663
Diagnosed after discharge[b]	1/35 (2.9%)	4/80 (5%)	1
Postop fever	9 (20.9%)	5 (5.8%)	0.015
Postop fever[c]	5/39 (12.8%)	2/83 (2.4%)	0.034

Data presented as N (percentage)

[a]Surgical site infections included skin and wound infection and endometritis

[b]Excluding patients who were lost to follow up postpartum (N=14)

[c]Excluding patients who had antepartum fever (N=7)

Table 2: Operative/Postpartum Characteristics

Operative/Postpartum characteristics	SARS-CoV-2 Positive N= 43	SARS-CoV-2 Negative N= 86	*P*
Unscheduled cesarean birth	34 (79.1%)	67 (77.9%)	1
Primary cesarean	30 (69.8%)	64 (74.4%)	0.675
Indication for cesarean birth			0.093
Mal-presentation	5 (11.9%)	17 (19.8%)	
Prior Cesarean/ prior surgery	10 (23.8%)	14 (16.3%)	
Elective	3 (7.1%)	5 (5.8%)	
Non reassuring fetal heart tracing	14 (33.3%)	26 (30.2%)	
Arrest of dilation	2 (4.8%)	16 (18.6%)	
Arrest of descent	2 (4.8%)	5 (5.8%)	
Maternal	6 (14.3%)	3 (3.5%)	
Operative length (minutes)	45.9 (17.4)	44.7 (18.3)	0.724
EBL (mL)[a]	800 (600 - 800)	800 (600 - 800)	0.599
Postop hemoglobin (g/dL)	10.1 (1.1)	10.2 (1.5)	0.730
Postop hematocrit (%)	31.7 (3.1)	31.5 (4.8)	0.883
Postpartum temperature max	99.7 (1.2)	99.3 (0.8)	0.040
Postpartum highest White blood cell count (K/uL)	13.4 (4.49)	13.9 (4.0)	0.490
Lymphocytes (%)	11.6 (5.0)	11.3 (5.0)	0.712

756 Consumption of sugar sweetened and artificially sweetened beverages and pregnancy outcomes

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OBJECTIVE: Non-caloric artificially sweetened beverages (ASB) are proposed to be a healthier alternative to sugar sweetened beverages (SSB), but animal studies suggest an association with negative changes to gut microbiome, glucose absorption, and taste receptor sensitivity. We sought to characterize SSB and ASB consumption habits among pregnant women and whether there is an association with adverse pregnancy outcomes.

STUDY DESIGN: We conducted a secondary analysis of a prospectively collected cohort study of singleton pregnancies among women at a large, tertiary referral center from January 2017-March 2020. Participants completed a self-administered NIH Food Frequency Questionnaire reporting frequency and amount of consumption of beverages. The primary outcome was macrosomia. Secondary outcomes included neonatal hypoglycemia and fetal growth restriction (FGR), gestational diabetes, preeclampsia, BMI at delivery. Due to distribution of intake with most women consuming some SSB and no ASB, we compared the top 75th percentile of SSB and top 90th percentile of ASB consumption. Multivariable logistic regression was performed to assess the association between consumption patterns and maternal and neonatal outcomes after controlling for maternal age, race, obesity, and substance use.

RESULTS: Of 878 patients in the original study, 226 were in the top quartile SSB consumption (High SSB), consuming 77-1141 ounces