

# Rate of Emergent Cesarean Section at Time of External Cephalic Version

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# Background and Hypothesis

- Background

- Emergency Cesarean Section (ECS) increases length of hospital stay, infections, postpartum depression
- In a low-risk population, chance of ECS at time of external cephalic version (ECV) is  $<1\%$

- Hypothesis

- Rate of ECS at the time of ECV is higher than previously reported in a contemporary cohort at a high acuity academic center
- Secondary aim to Identify variables associated with ECS

# Study Design

- Retrospective cohort Study
- Inclusion Criteria
  - $\geq 18$  years old
  - Had ECV procedure performed
  - Deliver a live infant at KU between 2013-2023
- Exclusion Criteria
  - Contraindication to vaginal delivery
  - Multiple gestation
- Bivariate logistic regression was used to determine variables associated with ECS
- Variables with  $P < 0.2$  included in the multivariable model

Table 1. Odds ratios and 95% CI for Emergency CS at the time of ECV by Maternal and Pregnancy Characteristic

Characteristic	Emergency CS	
	Unadjusted OR (95% CI)	Adjusted* OR (95% CI)
Age (compared to < 25)		
25-29	2.27 (0.06, 8.50)	
30-34	2.95 (0.82, 10.65)	
35-40	3.09 (0.81, 11.83)	
>40	1.62 (0.30, 8.78)	
EGA (compared to <38w)		
38-38.6	1.65 (0.74 - 3.66)	2.02 (0.73, 5.67)
39+	3.41 (1.65 - 7.02)	<b>3.60 (1.30, 9.93)</b>
Multiparous vs nulliparous	1.20 (0.65, 2.22)	
History of Cesarean Section	1.20 (0.43 - 3.38)	
History of Vaginal delivery	1.33 (0.72 - 2.45)	
BMI mg/kg <sup>2</sup>		
25 – 29.9 vs 18.5-24.9	1.44 (0.44, 4.66)	
30-34.9 vs 18.5-24.9	2.21 (0.68, 7.21)	
35-39.9 vs 18.5-24.9	2.84 (0.81, 9.92)	
≥ 40 vs 18.5-24.9	1.03 (0.24, 4.51)	
Weight gain	1.01 (0.95, 1.07)	
Race and Ethnicity		
Black vs White	1.07 (0.13, 0.97)	0.47 (0.11, 1.98)
Hispanic vs White	0.36 (0.13, 0.97)	0.40 (0.13, 1.30)
Asian vs White	0.88 (0.278, 2.76)	0.48 (0.09, 2.56)
Native Hawaiian/PI vs White	>999.9 (<0.001, >999.9)	>999.9 (<.001, >999.9)
Other vs White	0.33 (0.04, 2.62)	0.60 (0.05, 6.60)
Anterior Placenta Yes vs No	0.86 (0.46, 1.62)	
FGR < 10%ile	1.48 (0.52, 4.25)	
EFW > 90%ile	0.59 (0.13, 2.56)	
Terbutaline use	0.37 (0.21, 0.75)	<b>0.38 (0.16, 0.90)</b>
Any regional anesthesia	20.95 (2.84, 154.68)	<b>8.35 (1.02, 68.42)</b>
Maternal comorbidities		
HTN disorder vs no HTN disorder	1.71 (0.82, 3.57)	<b>0.784 (0.26, 2.36)</b>
GDM vs no GDM	0.65 (0.22, 1.94)	
Pre-gestational diabetes	0.97 (0.42, 2.22)	

\*Adjusted for all characteristics with P < 0.2 in bivariate regression including EGA, Race/Ethnicity, Terbutaline use, any regional anesthesia use, and maternal hypertension.

Table 2: Rate of Emergency CS at the time of ECV by Number of Risk Factors Present.

Number of Risk Factors	Emergent Cesarean Rate (%)
0	1.72
1	11.76
2	25.58
3	37.50

Risk factors that are statistically significant based on table 1: EGA 39+ weeks, No terbutaline, Yes anesthesia, Yes to Maternal HTN

# Conclusion

- ECS rate during ECV in a contemporary cohort at a high acuity academic center was extremely high
  - Could be due to high acuity maternal and fetal population
- We hope to guide physician counseling and improve patient selection for ECV based on pregnancy co-morbidities
- Make formal recommendations/implement results of the QI project and repeat the study to search for improvement