

Factors That Influence Receiving an Instrumental Assisted Birth: An Evidence-Based Project

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Background

- 5% to 20% of all births are instrumentally assisted, posing risks to the parturient woman and neonate.
- Women in labor may experience increased vaginal and perineal tearing and damage, anal sphincter injury, hematomas, or long-term damage to the pelvic muscles.
- The neonate may suffer fractures and damage to the skull, facial nerve damage, or death.
- Factors known to increase the risk for this procedure include pre-birth use of analgesics and prolonged active labor.
- It is important to quantify the rate of instrumental births and associated factors in hospital facilities to provide the best care for patients.

Purpose

- The purpose of this project was to determine the rate of instrumental assisted births and differences in factors among cases with and without this procedure for parturient women presenting for a live, vaginal birth at one of two Providence hospitals in Eastern Washington.

Methods

- This project utilized data retrospectively extracted from the electronic medical records of hospital accounts from two community-based hospitals in Eastern Washington.
- Data were included from hospital encounters of parturient women presenting for live, vaginal birth between October 2017 – October 2022 who were at least 18 years of age at the time of admission with a gestational age between 35.0 weeks and 42.0 weeks. The outcome variable was whether the neonate received an instrument-assisted birth with either forceps or a vacuum.
- Bivariate risk ratios were reported with a 95% CI. The significance level was set at $p < 0.05$.

Results

- A total of 16,612 encounters met the criteria for analysis; of these, $n=823$ (5%) had documentation of an instrument-assisted birth.
- Patients receiving a continuous labor epidural had increased odds of receiving a continuous labor epidural OR 2.81 (95% CI 2.17-3.63) $p < 0.001$
- Patients that were multiparous were had decreased odds of receiving an instrumental assisted birth OR 0.27 (95% CI 0.24-0.32) $p < 0.001$
- Other factors measured in the table below were not statistically significant with this model.

Discussion

- Rates of instrument-assisted birth were low in the two hospitals.
- As anticipated, an increased proportion of parturient women who had received a continuous labor epidural had increased odds of having an instrumental assisted birth.
- Parturients that were multiparous had decreased odds of receiving an instrumental assisted birth as time to birth, and labor times decreased during subsequent births. Multiparity has been previously associated with fewer difficulties in the process of delivery due to the parturient having given birth before.

Implications for Practice

- Instrument-assisted birth is utilized by providers to ease the neonate's passage through the birth canal.
- Prolonged labor with higher pain may relate to difficulty passing the neonate through the canal, especially as a first-time parturient. Sharing this information may help reduce the incidence of this outcome in the two hospitals.

Acknowledgments

Special thanks to Providence for providing mentorship and the opportunity to utilize the data to work on this project.

Factors	OR	95% CI		P value
		Lower	Upper	
Continuous Labor Epidural	2.81	2.17	3.63	<0.001
Advance Maternal Age (35+)	0.98	0.79	1.20	0.812
Multiparous	0.27	0.24	0.32	<0.001
Neonate Birth Weight (Ounces)	1.00	0.99	1.00	0.140
Maternal BMI	1.00	0.99	1.01	0.914

For references, please press the following hyperlink: [References](#)