

# Prevention of the Primary Cesarean Sections at Lehigh Valley Health Network.

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# Prevention of the Primary Cesarean Sections at Lehigh Valley Health Network

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## Introduction

A Cesarean delivery is the most common major surgery performed in the United States. In 2011, approximately one in three women (32.8%) who gave birth did so by Cesarean section - the highest recorded since 1996 (21%). This increased rate is attributable to the increase in frequency of primary Cesarean section, declining trials of labor after prior Cesarean birth and decreased frequency for utilizing operative vaginal delivery. Growing evidence also supports an increased risk in maternal and fetal morbidities including intraoperative complications, hemorrhage requiring hysterectomy or transfusions, traumatic injury to bowel and bladder, and serious implications for future gestations such as adhesions, abnormal placentation, and uterine rupture. Thus, the most effective approach to reducing overall morbidities related to Cesarean delivery is to avoid the first Cesarean section. At Lehigh Valley Hospital Network, Highmark Blue Shield reimburses hospitals and providers based on a pay for value system. In regards to Obstetrics and Gynecology, one of the markers used to measure quality health care performance are number of primary Cesarean sections in the population of women with term singleton vertex-presenting live births.

## Methods

This study was conducted as a retrospective chart analysis study utilizing chart review to gather patient data.

We studied 33 patients who underwent Cesarean delivery of the total of 203 Highmark patients who met criteria inclusions.

### Inclusion criteria:

- Term at 37 weeks
- Singleton
- Vertex presentation with live birth
- No history of prior Cesarean section or uterine surgery.

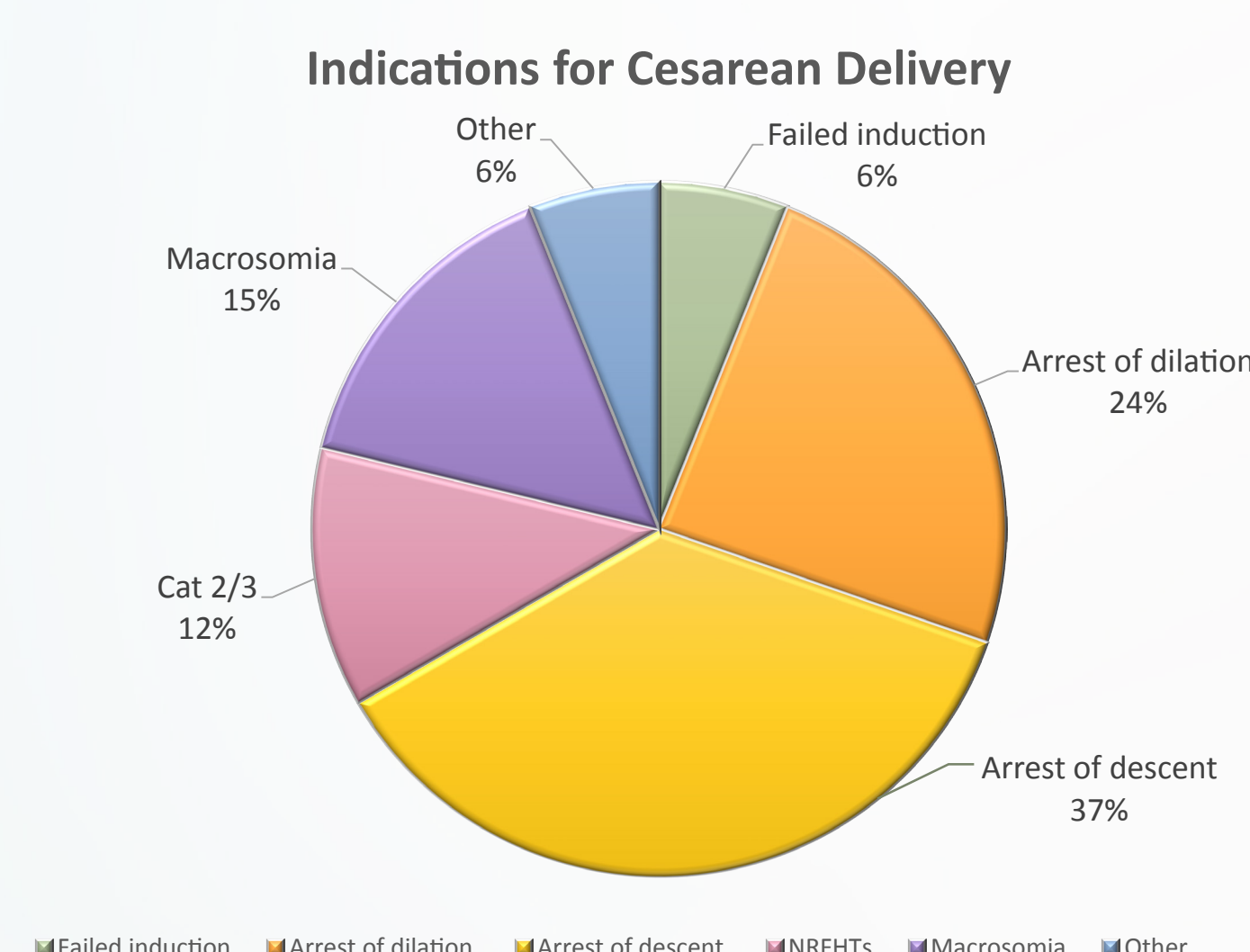
We used the American College of Obstetrics and Gynecology's (ACOG) recommendations for safe prevention of primary Cesarean delivery to define our standards for proceeding with Cesarean delivery to compare our providers' decision making process with evidence-based medicine.

## Results

- 2 out of 3 cases in Highmark subset were due to labor dystocia
  - 37% Arrest of Descent
  - 24% Arrest of Dilation
  - 6% Failed Induction
- Macrosomia was an indication for 15% of cases
- Abnormal fetal heart tracing (cat 2/3) accounted for 12%
- Other complications 6%

### In investigating the details in the decision making process of our providers we found:

- 2 of 2 Cesarean deliveries for failed induction were managed by evidence basis and given the full 24 hours for latent phase of labor or 12 hours with rupture of membranes.
- Arrest of dilation - 62.5% of cases reached active phase of labor defined as 6 cm dilation and had the recommended 4 or 6 hours of contractions without cervical change.
- Arrest of descent 83.3% were given adequate time of 2 or 3 more hours for pushing; however, only 2 of 12 cases had an attempt at operative vaginal delivery or manual rotation.
- Macrosomia only 1 of 5 cases applied ACOG's recommendation for Cesarean as an estimated fetal weight >5000g for non-diabetic mothers and >4500g for diabetics.; however all 5 met macrosomia defined as >90% on ultrasound prior to delivery.
- In those patients who had Cesarean birth for category 2/3 fetal heart tracing, all 4 patients had in utero resuscitative measures taken before indication for surgery.



Indication for Primary Cesarean Section	# of Cases
Failed Induction	2
Up to 24 hours for latent phase or 12 hours since AROM with pit	2 or 2
Arrest of Dilation	8
At least 6cm dilated (in active phase)	5 of 8
4 hours of adequate contractions or 6 hours of inadequate cix without cervical change	5 of 8
Arrest of Descent	12
2 or 3 or more hours of pushing based on parity	10 of 12
Manual rotation attempt	1 of 12
Operative vaginal delivery attempt	1 of 12
Category 2/3 Fetal Heart Tracing	4
Intrauterine resuscitation	4 of 4
Amnioinfusion for recurrent decelerations	1 of 2
Macrosomia	5
Estimated fetal weight >5000g for nondiabetic, >4500g for diabetic	1 of 5
Estimated fetal weight >90% on US prior to delivery	5 of 5
Other	2
Total	33

## Discussion

In a 2011 population-based study, the most common indication for primary Cesarean section was labor dystocia at 34%. Our patients in this study showed labor dystocia as 67%. This study indicates that we may have to redefine or standardize how we classify our different stages of labor with new evidence suggesting that active phase of the first stage of labor does not begin for most patients until 6 cm dilation where it was 4 cm in the past. Patience should be utilized in the process of inductions of labor and in allowing the recommended 4-6 hours prior to recommending Cesarean delivery for arrest of dilation. Operative vaginal delivery or manual rotation should be considered in arrest of descent where appropriate criteria are met.

## Discussion

The rate of cesarean delivery today at 32.8% is the highest recorded since 1996. Preventing the primary cesarean section is a key to decreasing the overall rate and therefore associated co-morbidities to mother and baby. Here at LVHN, we found the following factors to be contributors to this increased rate: labor dystocia including failed induction, arrest of descent and arrest of dilation, macrosomia, and category 2/3 heart tracing. Labor dystocia accounted for 67% of our primary cesarean deliveries. Future adherence to recommended guidelines and patience can lead to more successful outcomes for the mother and baby.

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