

Indications for Induction: What is our current practice?

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Background

- Induction of labor is “the artificial initiation of labor before its spontaneous onset for the purpose of delivery of the feto-placental unit.” (*SOGC CPG#107, Aug 2001*)
- Considered when it is felt that the benefits of vaginal delivery outweigh the potential maternal and fetal risks of induction.

Background

- Induction rates have increased to ~20% in some parts of the U.S. and Canada
 - Notable increase when post-term inductions found to decrease the perinatal mortality (*Hannah et. al., 1992*)
- IWK (*RCP, 2005*)
 - Nullips – 37.5% induction rate
 - Multips - 23.35% induction rate
- The SOGC and ACOG have both established clinical practice guidelines regarding the indications for the induction of labor.

Background

- SOGC indications (*SOGC CPG#107, 2001*)
 - Post-term pregnancy (41 completed weeks)
 - Premature rupture of membranes
 - Potential fetal compromise (significant fetal growth restriction, non-reassuring fetal surveillance)
 - Maternal medical indications (Type 1 diabetes, renal disease, significant pulmonary disease, hypertension – gestational or chronic)

Background

- SOGC (cont'd)
 - Antiphospholipid antibody syndrome
 - Chorioamnionitis
 - Abruptio
 - Fetal death
 - ? Social – evidence suggests no place in term pregnancy
 - List not meant to be all-inclusive

Background

- ACOG Guidelines (*Practice Bulletin #10, 1999*)
 - Indications not absolute but should take into account maternal and fetal conditions, gestational age, cervical status, and other factors.
 - Abruptio
 - Chorioamnionitis
 - Fetal demise
 - PIH, preeclampsia, eclampsia
 - PROM

Background

- ACOG (cont'd)
 - Post-term pregnancy
 - Maternal medical conditions
 - Fetal compromise
 - Logistic reasons
 - Rapid labor
 - Distance from hospital

Background

- **Contraindications**
 - Any contraindication to labor or vaginal delivery
 - Previous myomectomy entering the uterine cavity
 - Previous uterine rupture
 - Transverse lie
 - Placental previa
 - Vasa previa
 - Invasive cervical cancer
 - Active genital herpes
 - Previous classical or T uterine incision

Background

- Potential risks of induction include
 - Increased rate of operative vaginal delivery
 - Increased rate of C-section
 - Excessive uterine activity
 - Abnormal fetal heart rate patterns
 - Uterine rupture
 - Maternal water intoxication
 - Incorrect dates – delivery of preterm infant
 - Possible cord prolapse with ARM

Background

- Many patients in today's society have the expectation that they can choose the date of their delivery (some even choose a c-section for this reason – “too posh to push”)
- In addition, with the variety of clinical practices for physicians, there is sometimes pressure to arrange for an induction at a time that is convenient or when they can be available.
- Studies show that fewer births occur on weekends and holidays than during the week (*Rindfuss et al, 1979*)

Purpose

- The purpose of this study was to examine what the current practice is for our booked inductions and to assess if there was evidence that would support these indications according to the SOGC and ACOG guidelines.

Methods



Methods

- Data was collected through a chart review to examine the labor inductions at the IWK Health Center from March 2004- May 2004
 - 100 primiparous women
 - 100 multiparous women
 - Convenient sample
- For each induction, the identification of evidence to support the booked indication was sought through a review of the chart.

Information Collected

- Gravida/Para
- Indication (from chart)
- Evidence for indication
- Method of induction

Information Collected

- Bishop score at induction
- Dilation at induction
- Epidural
- Dilation at epidural
- Delivering physician same as ordering physician

Indications

- Post-term
 - 41 completed weeks
- Hypertension
 - 2 separate readings with systolic BP \geq 160 and/or diastolic BP \geq 90
- SRM
 - Confirmed with ferning/nitrazine

Indications (cont'd)

- Oligohydramnios
 - AFI < 5
 - Single deepest pocket 0 – 2 cm
- Polyhydramnios
 - Single deepest pocket > 8 cm
 - AFI > 25
- Poor BPP
- IUGR
 - EFW < 10 %ile

Indications (cont'd)

- IDDM
- Macrosomia
 - EFW > 4000g
- AMA
 - 40 years old
- Social
 - Rapid labor, distance from hospital
- Other

Methods

- Each chart was examined independently by three reviewers.
 - When disagreement, the consensus of 2/3 reviewers was used to assess if there was evidence for the indication.

Statistics

- Descriptive data
- Fisher's exact test to compare between groups (primips vs multips)
- Agreement between observers – kappa test (corrects proportion of agreement due to chance)

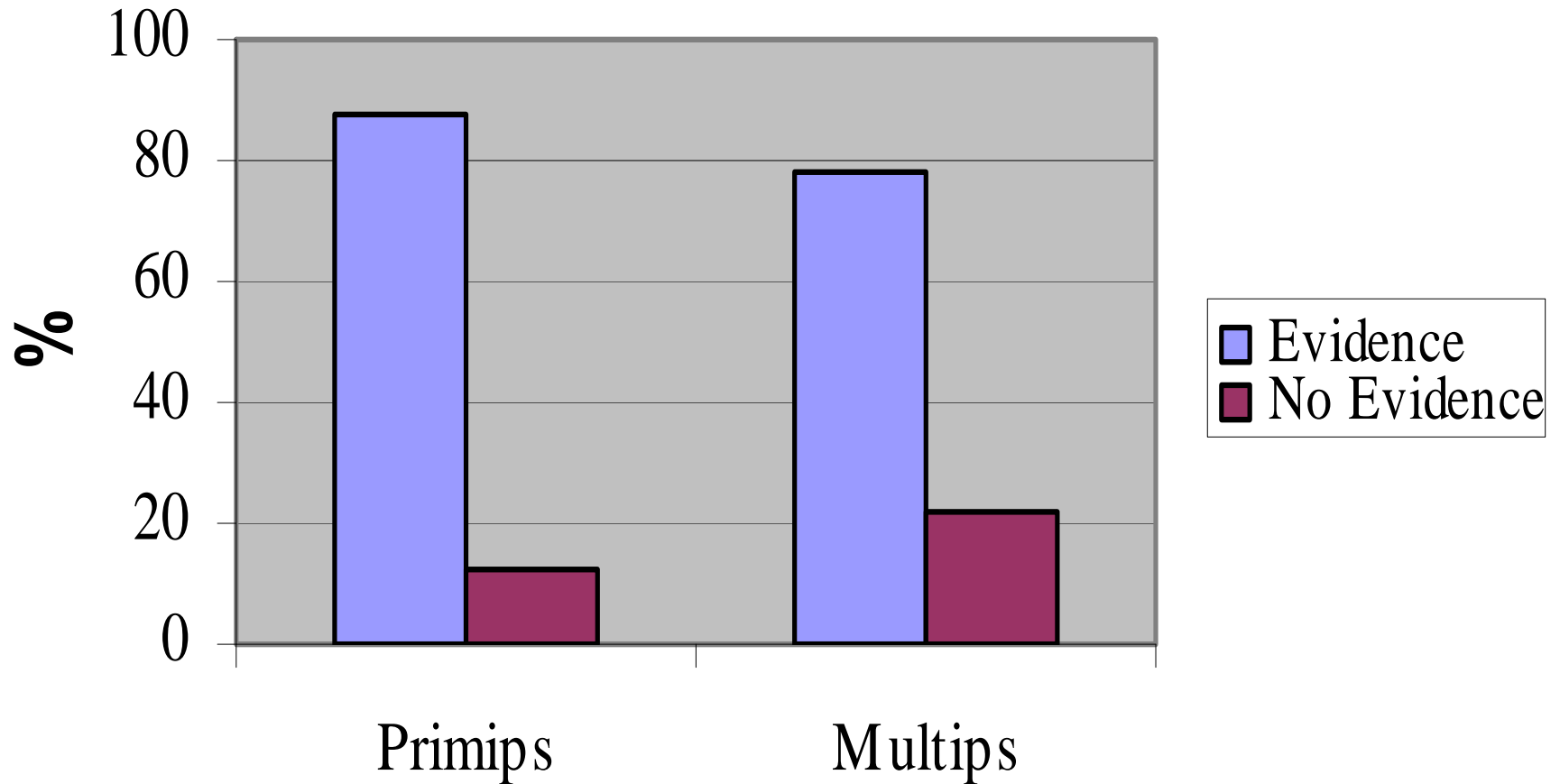
Results



Results

- 211 charts reviewed between Mar 2004 - May 2004
 - 11 charts not appropriate (augmentations)
 - 100 primips
 - 100 multips
- Kappa = 0.85

Evidence for Induction



No significant difference between primips and multips ($p = 0.09$, RR 1.128 95% CI = 0.99-1.28)

No Evidence

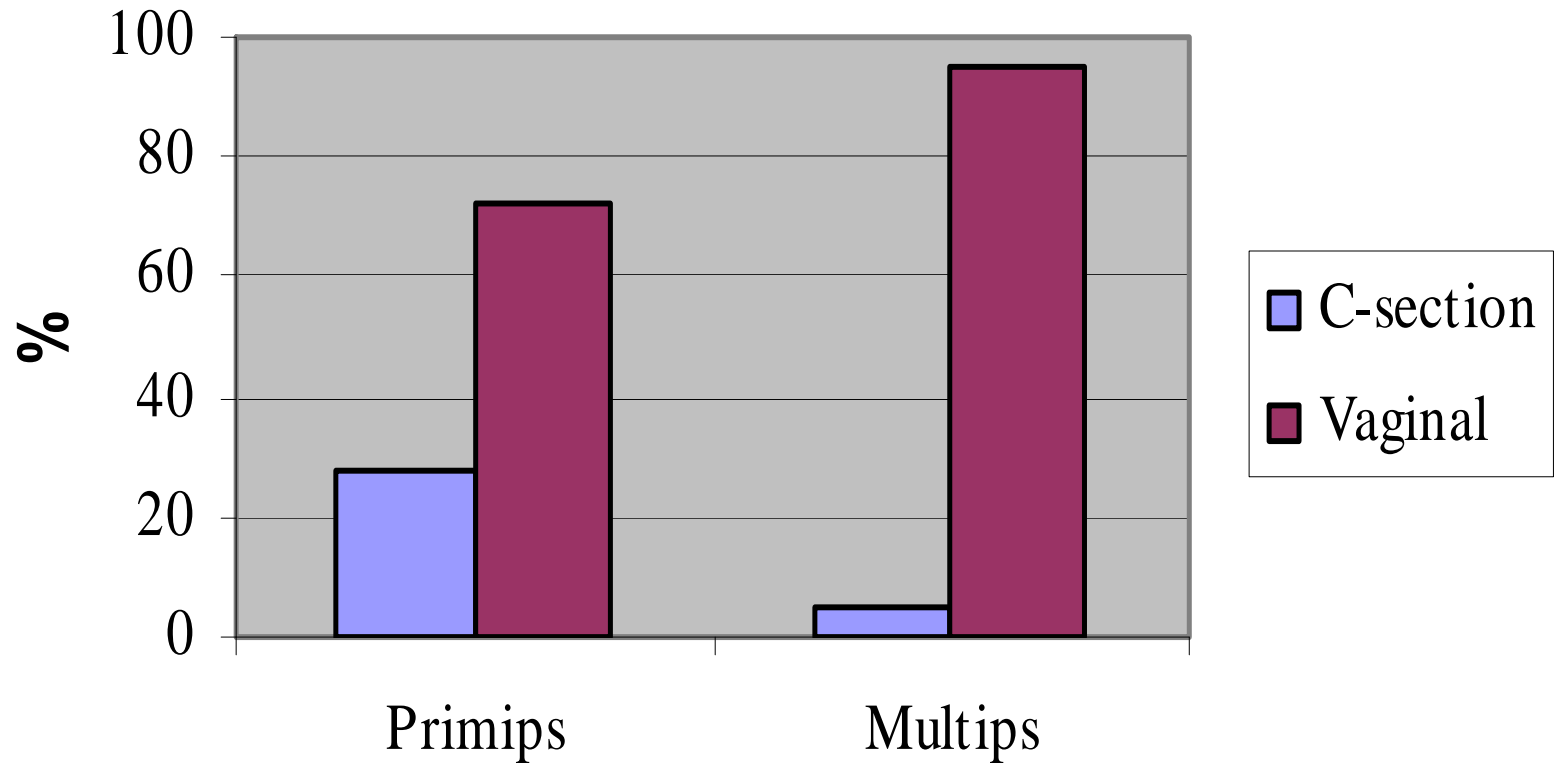
■ Primips (n = 12)

- Post-term = 6
- Pain = 3
- Social = 2
- HTN = 1

■ Multips (n = 22)

- Pain = 10
- Post-term = 4
- IUGR = 3
- Macrosomia = 2
- Social = 1
- HTN = 1
- None = 1

Mode of Delivery

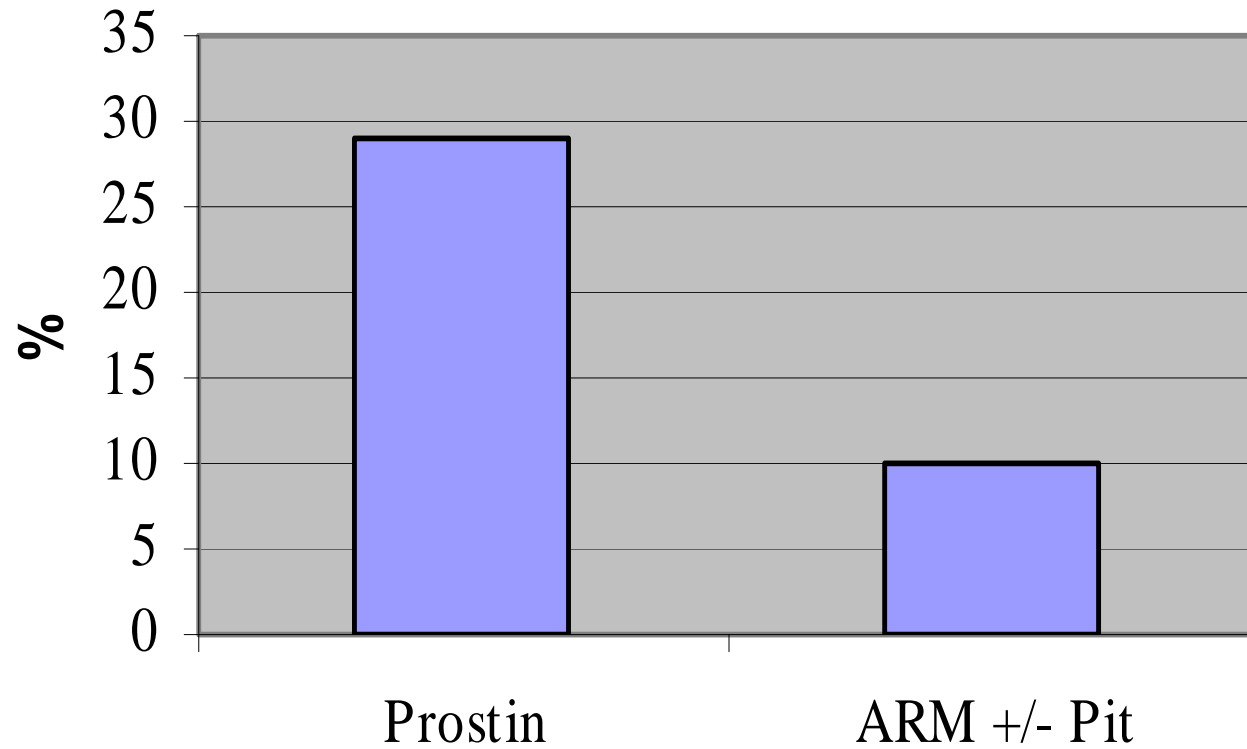


Primips vs Multips $p < 0.0001$, RR = 5.6, 95% CI = 2.25-13.93

Prostin

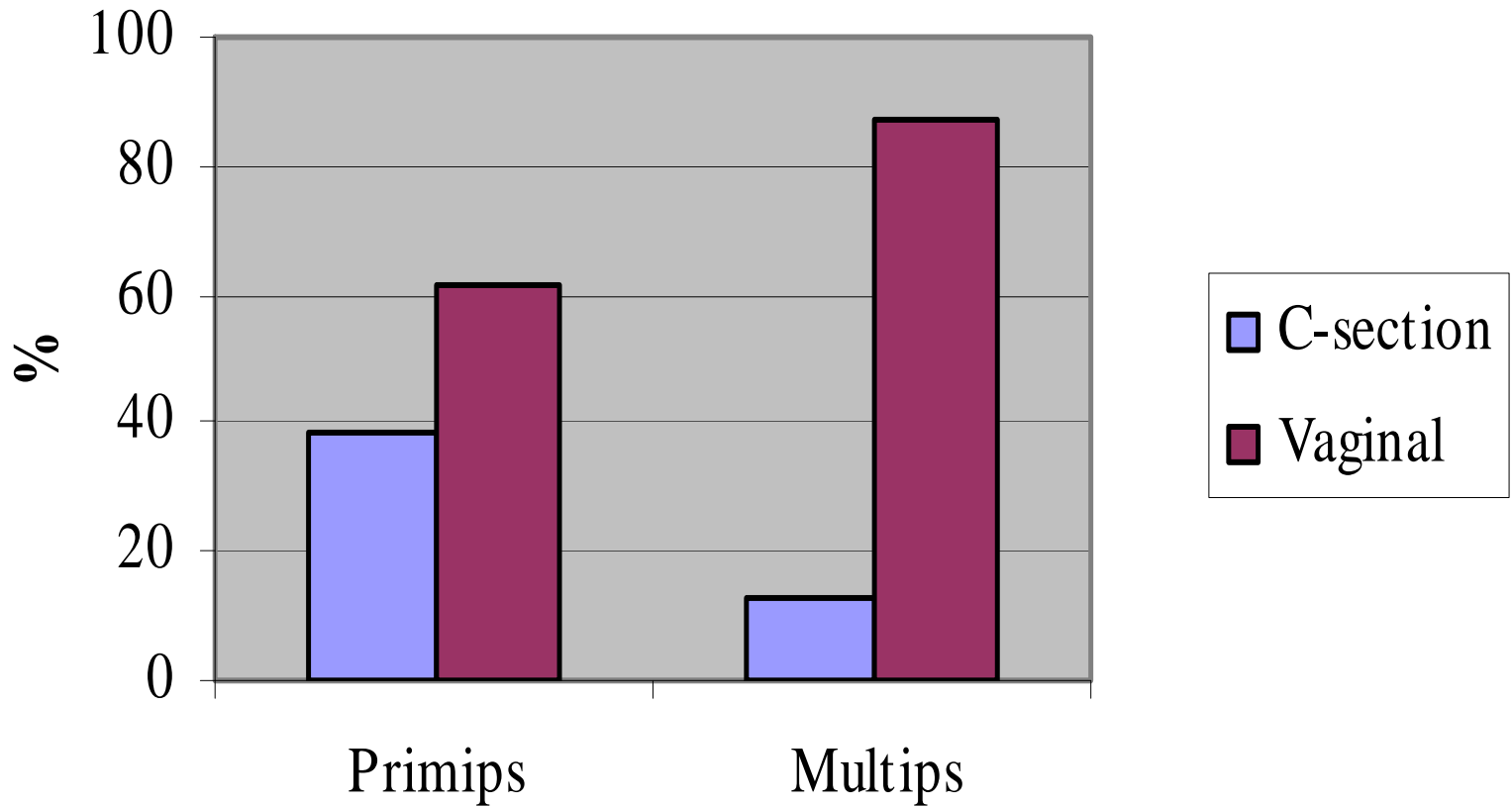
- Prostin
 - $68/200 = 34\%$
- ARM =/- Pit
 - $132/200 = 66\%$

C-section with Mode of Induction



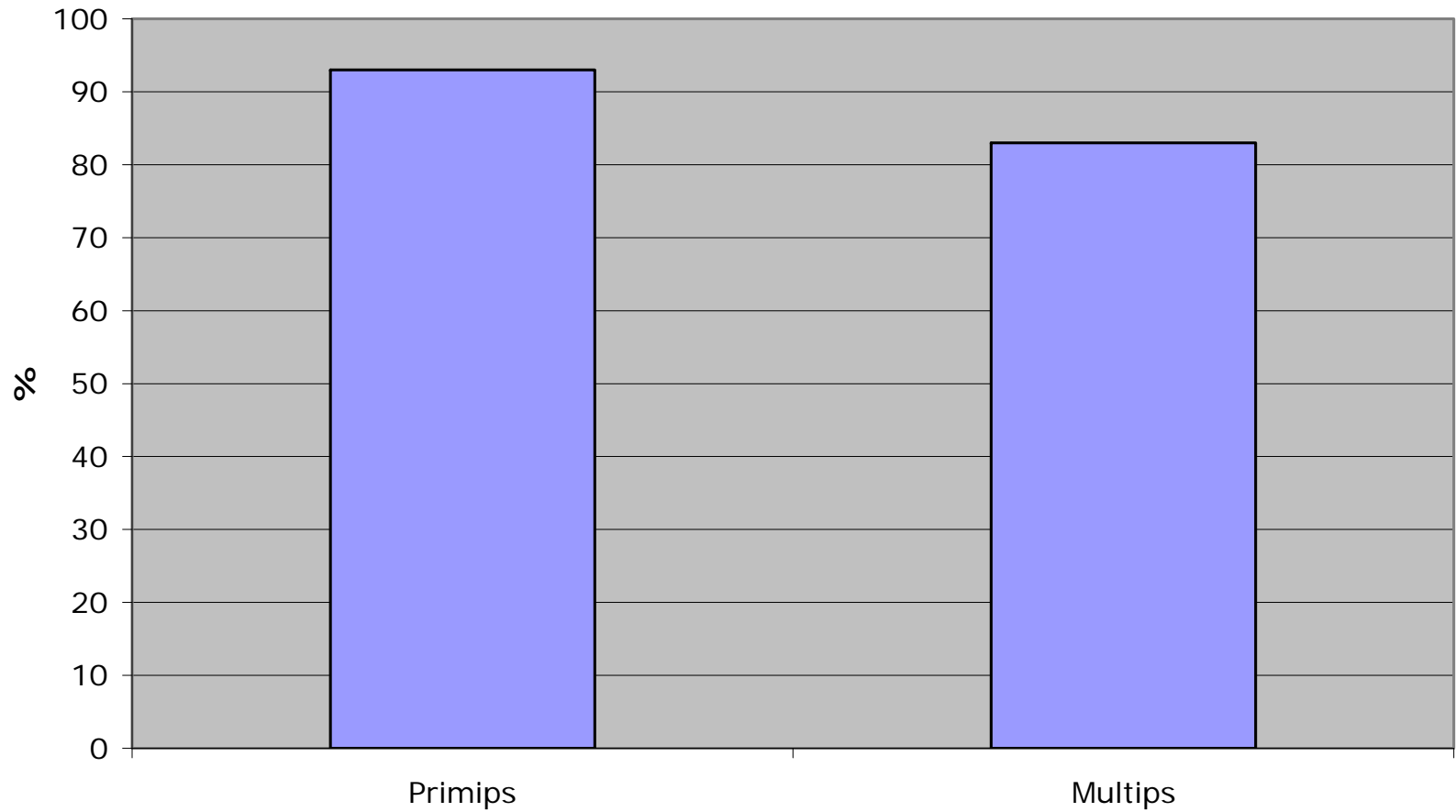
P = 0.0006, RR = 3.03, 95% CI = 1.61-5.72

Prostin Outcomes



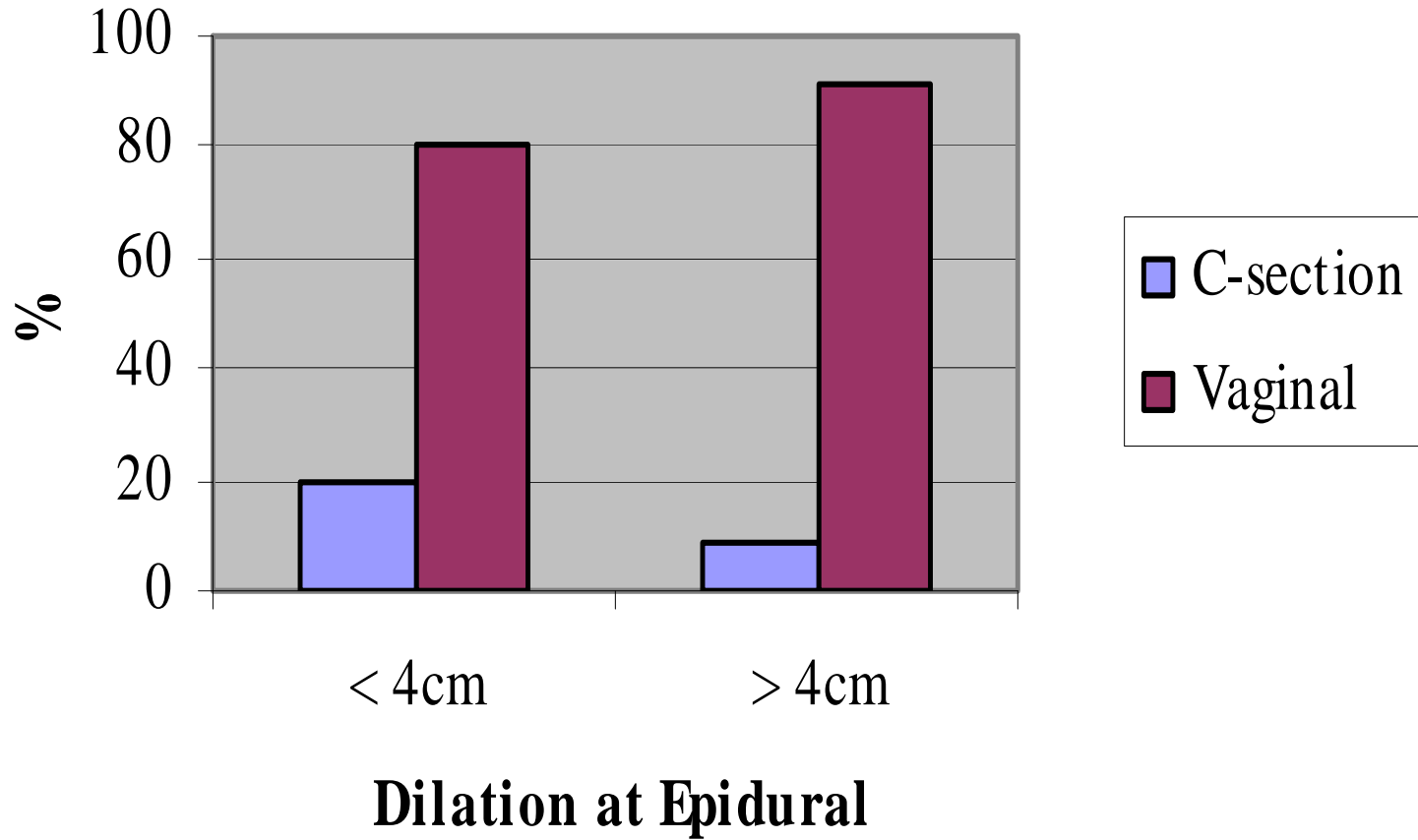
P = 0.028, RR = 3.1, 95% CI = 1.01 - 9.5

Epidural



P = 0.048, RR = 1.12, 95% CI = 1.01-1.24

Outcomes with Epidural



P = 0.123, RR = 2.14, 95% CI = 0.86 - 5.33

Summary

- A large proportion of inductions do not have evidence (in the chart) to support the indication.
- Primiparous women are more likely to have a C-section
- Patients receiving Prostin are more likely to have a C-section
- Patients getting an epidural $< 4\text{cm}$ are not more likely to have a C-section

Recommendations

- Induce patients (particularly primips) with an unripe cervix only if there is a strong indication.
- Document Bishop score!
- ? Departmental policy on indications - help in counseling patients
- ?Medico-legal implications
 - Should we obtain written consent?

Acknowledgements

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