# Time of Spontaneous Vaginal Delivery and Subsequent Preterm Birth

Nicole Ho[1,2], Cathy Liu[1,2], Christopher Lehner[2,3], Akwasi Amoako[1,2], Renuka Sekar[2,3]
Faculty of Medicine, University of Queensland[1];
Department of Obstetrics and Gynaecology, Royal Brisbane and Woman's Hospital[2];
Centre for Advanced Prenatal Care, Royal Brisbane and Women's Hospital[3]

## Introduction

Preterm birth complications are the leading cause of death among children under 5 years of age, responsible for approximately 1 million deaths in 2015[1]. Despite various interventions (such as progesterone supplementation[2] and screening for short cervix in previous preterm births[3]) to reduce the risk of preterm birth, preterm birth rates continue to rise.

A study by Levine et. al. suggests that spontaneous labor in the early term period is associated with subsequent spontaneous preterm birth[4]. Hence, this study aims to compare gestational ages of the index spontaneous vaginal delivery (SVD) and evaluate the rate of subsequent spontaneous preterm birth in women with consecutive singleton pregnancies.

## Methods

A retrospective study at Royal Brisbane and Women's Hospital of women with consecutive deliveries from January 2014 to December 2017. Singleton pregnancies who deliver spontaneously at term in the index pregnancy were included. The outcome of spontaneous preterm birth in the subsequent pregnancy was compared between the different gestational ages of the index delivery. Data was extracted from electronic charts.

Women were divided into 2 groups: women with a subsequent term delivery vs women with a subsequent preterm delivery. T-test was used to assess the outcome of spontaneous preterm birth in the subsequent pregnancy by comparing the gestational ages of the index spontaneous vaginal delivery.

## Results

215 women with consecutive deliveries met the inclusion criteria; of which 7 (3.3%) had a subsequent preterm delivery and 208 (96.7%) had a subsequent term spontaneous delivery. The group with term SVD before 38 weeks (P=0.0001) and 39 weeks (P=0.0111) gestation were more likely to deliver preterm in the subsequent pregnancy. The group with delivery after 39 weeks were not likely to deliver preterm in the subsequent pregnancy (P=0.559).

| Gestation of index delivery | Term | Preterm | P-value |
|---|---|---|---|
| 37 – $37^{+5}$ weeks | 4 | 3 | 0.0001 |
| 38 – $38^{+5}$ weeks | 27 | 3 | 0.0111 |
| 39 – $39^{+5}$ weeks | 58 | 0 | 0.0559 |
| ≥40 weeks | 119 | 1 | 0.0640 |

**Table 1. Outcomes of subsequent singleton pregnancy based on the different gestation at index spontaneous vaginal delivery**

## Conclusion

Spontaneous vaginal delivery before 39 weeks is associated with preterm birth in the subsequent pregnancy. Spontaneous delivery after 39 weeks was not associated with subsequent preterm birth.

## References

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3. Heath et al. Cervical length at 23 weeks of gestation: prediction of spontaneous preterm delivery. Ultrasound Obstet Gynecol, 1998.
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