

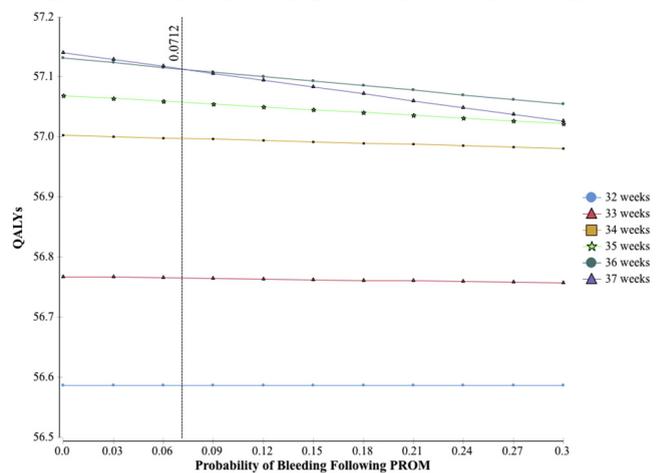
394 Timing of delivery in women with vasa previa:**A decision analysis**Zoe C. Frank¹, Kayli L. Senz², Aaron B. Caughey¹¹Oregon Health & Science University, Portland, OR, ²Case Western Reserve University, Cleveland, OH

OBJECTIVE: Prior studies have suggested that the optimal timing for delivery in pregnancies with vasa previa is in the late preterm period. However, these recommendations are based upon evidence from small studies. The purpose of the current study is to determine the optimal gestational age (GA) at which to deliver pregnancies complicated by vasa previa and examine how varying baseline assumptions would affect this decision.

STUDY DESIGN: A decision-analytic model was built using TreeAge software to compare the outcomes of strategies of planned delivery at 32-37 weeks' gestation in a theoretical cohort of 10,000 women diagnosed with vasa previa. Strategies involving expectant management until a later GA accounted for the risks of premature rupture of membranes (PROM), bleeding following PROM, spontaneous labor, and stillbirth during each successive week. GA-associated risks of neonatal complications included neonatal death and cerebral palsy and considered the reduction in risk afforded by antenatal corticosteroids. The risk of intrapartum death according to time from PROM or onset of labor to delivery was also incorporated. Probabilities and utilities were derived from the literature and total quality-adjusted life years (QALYs) were calculated. Univariate sensitivity analyses were used to vary model inputs to investigate the robustness of our baseline assumptions. We assumed a 28.0% baseline rate of bleeding following PROM.

RESULTS: In our theoretical cohort of 10,000 women, delivery at 36 weeks maximized maternal and neonatal QALYs. Compared to 34 weeks' gestation, delivery at 36 weeks would result in 47.3 fewer children with cerebral palsy, but 18.9 more stillbirths (Table 1). Univariate sensitivity analysis found that delivery at 36 weeks remained the optimal strategy until the probability of bleeding with PROM fell below 0.07, at which point 37 weeks became optimal (Figure 1). Monte Carlo Analysis demonstrated that when variation was incorporated into the model, delivery at 36 weeks was the dominant strategy 79% of the time.

CONCLUSION: When weighing the risks of intrapartum mortality against GA-associated neonatal complications, the optimal time for delivery in women with vasa previa is at 36 weeks.

**Figure 1: Sensitivity Analysis Varying Probability of Bleeding Following PROM****395 Outcomes of elective induction of labor at 40 weeks versus expectant management at community hospitals**

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OBJECTIVE: Recent evidence suggests that elective induction of labor may reduce cesarean deliveries and other obstetric outcomes. The current study compares elective induction of labor (eIOL) versus expectant management in nulliparous women at community hospitals.

STUDY DESIGN: This is a retrospective cohort study of singleton, vertex, nonanomalous deliveries in community hospitals in California between 2007 and 2011 using linked hospital discharge and vital statistics data (n=544,537). We compared eIOL defined by the Joint Commission at 40 weeks with expectant management. The primary outcomes of interest were cesarean delivery, neonatal death, operative vaginal delivery, shoulder dystocia, 5 minute Apgars less than 7, NICU admission, neonatal respiratory distress syndrome (NRDS), chorioamnionitis, and endomyometritis. Rates were first compared using chi-square analysis and then examined using multivariate logistic regression controlling for maternal age, comorbidities, ethnicity, education level, initiation of prenatal care in the first trimester, and insurance status.

RESULTS: Among women delivering at community hospitals, rates of cesarean delivery, neonatal death, operative vaginal delivery, and NICU admission were significantly lower among eIOL at 40 weeks than among women undergoing expectant management (Table 1). Rates of several adverse maternal and neonatal outcomes were also significantly lower among the eIOL group. Logistic regression analysis indicated expectant management past 40 weeks significantly increased the odds of cesarean delivery (OR 1.67, 95% CI 1.60-1.74) and neonatal death (OR 5.79, 95% CI 0.78-42.9) compared to eIOL.

CONCLUSION: Among women delivering at community hospitals, risk of cesarean delivery, neonatal death, and several adverse maternal and neonatal outcomes are significantly higher among women undergoing expectant management than among woman undergoing eIOL at 40 weeks.



	32 Weeks	33 Weeks	34 Weeks	35 Weeks	36 Weeks	37 Weeks
QALYs	565860	567580	569830	570250	570400	570330
Stillbirth	0	4.27	9.21	17.9	28.1	40.7
Cerebral Palsy	135	74.2	52.4	31.6	5.09	4.97
Neonatal Death	110.9	90.7	29.4	20.2	15.6	11.9
Normal Infants	9754	9831	9909	9930	9945	9943

QALYs, quality-adjusted life years