

## Do Increasing C-Section Rates Lower the Risks of Shoulder Dystocia or Brachial Plexus Injury?

S. Mahalingaiah\*, J. Greenberg, and T. McElrath. Department of Ob/Gyn, Brigham and Women's Hospital, Boston MA.

**OBJECTIVE:** To determine if rising cesarean section rates are protective against shoulder dystocias and/or neonatal brachial plexus injuries.

**STUDY DESIGN:** ICD-9 and CPT code data were reviewed from all births at Brigham & Women's and Massachusetts General Hospitals from 1997-2004. Total births, c-sections (C/S), forcep deliveries (Frcp), total operative vaginal deliveries (OpV), infants weighing >4,500gms delivered vaginally (Mac), shoulder dystocias (SD) and neonatal brachial plexus injuries (Erb) were recorded. The rates for these data were calculated and the trends were assessed using a nonparametric test of trend.

**RESULTS:** There were 100,149 births (range: 10,652-13,417 per year) with an average c-section rate of 24.3% during the study interval. The results and clinical trends are summarized in Table 1. A statistically significant increasing trend was observed for the rate of c-section overall. Statistically significant decreasing trends included forcep delivery and total operative vaginal delivery. The rates of shoulder dystocia, brachial plexus injuries and macrosomic vaginal delivery were unchanged.

**CONCLUSION:** Our data suggest a rise in cesarean section rates is not protective against shoulder dystocias or neonatal brachial plexus injuries even though the rate of macrosomic infants delivered vaginally was unchanged concomitant with a drop in the rates of forceps deliveries and overall operative vaginal deliveries. These findings are consistent with the observation that both shoulder dystocias and neonatal brachial plexus injuries have proven to be difficult to predict and prevent.

**Table 1: Annual Rates (%) of Clinical Events**

	C/S	Frcp	OpV	Mac	SD	Erb
1997	21.5	3.6	8.4	1.9	1.1	0.12
1998	20.8	3.2	8.2	2.3	1.1	0.2
1999	22.5	3.1	8.0	2.4	1.0	0.12
2000	22.4	2.2	7.6	1.9	1.3	0.14
2001	24.2	1.7	6.7	2.0	1.0	0.16
2002	25.4	1.8	7.6	3.4	1.5	0.11
2003	28.0	1.7	7.3	3.8	1.2	0.19
2004	29.2	1.9	7.2	3.4	1.0	0.09
p=	0.01*	0.02*	0.03*	0.08	0.41	0.41