The association between sonographic measurement of fetal head circumference and labour outcome
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Objective
To determine the association between antenatal sonographically measured head circumference (HC) and labour outcome.

Methods
A retrospective cohort study (July 2007 to December 2012) of singleton pregnancies at term with fetal sonographic HC measurement up to 7 days prior to delivery. In order to assess the contribution of HC to obstetrical outcome, HC was compared between parturients who underwent operative vaginal delivery or cesarean section due to prolonged second stage of delivery and women who underwent spontaneous vaginal delivery. A sub-analysis for the association between sonographically measured HC above and below the 75th percentile and pregnancy outcome was performed.

Results
Overall, 44,263 women delivered during the study period, of them 2,351 met the inclusion criteria. Overall, 306 (13%) parturients underwent intervention for prolonged second stage of delivery. Multivariate analysis suggested that each additional 10 mm of sonographically measured HC were associated with an increased risk for obstetrical intervention due to prolonged second stage of delivery (aOR 1.26, 95% CI 1.08-1.46, p=0.003). In a sub-analysis, HC > 75th percentile (533 women, 22.7%) was independently associated with a higher risk for operative vaginal delivery due to prolonged second stage of labour (aOR 1.77, 95% CI 1.3-2.4, p<0.001), increased risk for 1-minute Apgar score <7 (aOR 2.9, 95% CI 1.5-5.7, p=0.002) and a higher risk for neonatal asphyxia (aOR 2.2, 95% CI 1.02-4.7, p=0.045).

Conclusion
Antenatal sonographically measured head circumference above the 75th percentile at term, up to 7 days prior to delivery, is associated with increased rates of obstetrical interventions due to prolonged second stage of labor and birth asphyxia.