

# Fetal monitoring with CTG in combination with ST analysis vs. CTG alone – a cost-effectiveness analysis

Topic: Obstetrics

**Authors:** Emelie Heintz<sup>1</sup> ([emelie.heintz@ihs.liu.se](mailto:emelie.heintz@ihs.liu.se)), Thor-Henrik Brodtkorb<sup>1</sup> ([thor-henrik.brodtkorb@ihs.liu.se](mailto:thor-henrik.brodtkorb@ihs.liu.se)), Nina Nelson<sup>2</sup> ([nina.nelson@lio.se](mailto:nina.nelson@lio.se)), Lars-Åke Levin<sup>1</sup> ([levin@ihs.liu.se](mailto:levin@ihs.liu.se)).

1. Center for Medical Technology Assessment, Department of Medical and Health Sciences, Linköping University, Linköping, Sweden.
2. Division of Paediatrics, Department of Clinical and Experimental Medicine, Linköping University Hospital, Linköping, Sweden.

**Presenter:** Emelie Heintz

**Address:**

Emelie Heintz  
Center for Medical Technology Assessment  
Department of Medical and Health Sciences  
Linköping University  
SE-581 83 Linköping  
Sweden

**Background:** Oxygen deficiency in the fetus during birth may result in neurological damages leading to cerebral palsy or death. In order to detect fetuses suffering from oxygen deficiency, fetal monitoring with a scalp electrode is used in high-risk deliveries. Cardiotocography (CTG) is currently the most common form of internal fetal monitoring. ST analysis complements CTG with electrocardiography (ECG) of the fetal heart and performs an analysis of the ST interval in the ECG complex. CTG in combination with ST analysis associated with higher equipment costs than CTG alone but has also been seen to reduce the number of fetuses with metabolic acidosis.

**Objective:** To, in term high-risk deliveries, determine the long-term effects on costs and health of using either CTG in combination with ST analysis or CTG alone.

**Methods:** The costs and effects of the two interventions were compared in a decision model. Estimates for probabilities, costs and QALYs (quality-adjusted life-years) weights were derived from the literature. The connection between metabolic acidosis and cerebral palsy was modelled in order to capture the long-term consequences of the interventions.

**Results:** The results showed that CTG in combination with ST analysis contributed to a reduction in cases of cerebral palsy. Thus, the use of this method also resulted in savings of costs and gains in QALYs.

**Conclusion:** When used in term high-risk deliveries and compared to the use of CTG alone, the use of CTG in combination with ST analysis is associated with savings in costs and gains in QALYs.