**SUPPORTING INFORMATION**

**Table S1** Univariable regression analysis of factors potentially associated with need for emergency delivery for presumed fetal compromise in whole cohort

|  |  |  |
| --- | --- | --- |
| **Risk factors**  | **Relative Risk**  | **95% confidence interval** |
| **Antenatal characteristics** |   |   |
|  Maternal age, y  | 0.994 | 0.992-0.996# |
|  Caucasian ethnicity  | 0.968 | 0.935-1.003 |
|  Nulliparous  | 4.05 | 3.96-4.15# |
|  History of caesarean section  | 2.23 | 2.15-2.31# |
|  Gestational age at delivery, wks  | 1.11 | 1.10-1.12# |
|  Hypertension | 1.64 | 1.59-1.70# |
|  Preeclampsia / HELLP | 1.96 | 1.71-2.24# |
|  Diabetes\*  | 1.18 | 1.13-1.25# |
| **Intrapartum factors**  |   |   |
|  Induction of labor | 1.69 | 1.65-1.73# |
|  Second stage duration >60 min | 3.41 | 3.32-3.51# |
|  Second stage duration <60 min | 1 (reference) | -- |
|  Severe SGA (birth weight <p3 | 3.30 | 3.15-3.45# |
| Mild SGA (birth weight p3-p10)  | 1.93 | 1.88-1.99# |
|  No SGA (birth weight >p10) | 1 (reference) | -- |

\* Including diabetes mellitus type 1, diabetes mellitus type 2 and gestational diabetes.

# Statistically significant association with emergency delivery for presumed fetal compromise

HELLP: hemolysis elevated liver enzymes low platelets, min: minutes, SGA: small for gestational age.





**Figure S1A and S1B** Difference in rate of emergency delivery for presumed fetal compromise between women who received epidural analgesia, alternative analgesia or no analgesia during labor, according to birth-weight centile.

*Below p3, nulliparous: labor epidural vs. no analgesia 3.8%, alternative analgesia vs. no analgesia -5.1%.*

*Below p3, multiparous: labor epidural vs. no analgesia 8.7%, alternative analgesia vs. no analgesia -2.4%.*





**Figure S2A and S2B** Rate of emergency instrumental vaginal delivery for presumed fetal compromise in nulliparous (a) and parous (b) women, according to birth-weight centile, for neonates born between 36+0 and 42+6 weeks’ gestation in the Netherlands from 2014 to 2018. Error bars indicate standard error of the mean (SEM).

No analgesia; alternative analgesia; labor epidural.

*Below p3, nulliparous: no analgesia: 8.9% (SEM 0.42%), alternative analgesia: 11.8% (SEM 0.94%), labor epidural: 15.5% (SEM 0.71%).*

*Below p3, multiparous: no analgesia: 1.4% (SEM 0.20%), alternative analgesia: 2.7% (SEM 0.62%), labor epidural: 7.6% (SEM 0.11%).*





**Figure S3A and S3B** Rate of emergency Cesarean delivery for presumed fetal compromise in nulliparous (a) and parous (b) women, according to birth-weight centile, for neonates born between 36+0 and 42+6 weeks’ gestation in the Netherlands from 2014 to 2018. Error bars indicate standard error of the mean (SEM).

No analgesia; alternative analgesia; labor epidural.

*Below p3, nulliparous: no analgesia: 14.2% (SEM 0.52%), alternative analgesia: 6.2% (SEM 0.71%), labor epidural: 11.5% (SEM 0.63%).*

*Below p3, multiparous: no analgesia: 6.9% (SEM 0.43%), alternative analgesia: 3.3% (SEM 0.68%), labor epidural: 9.5% (SEM 1.22%).*



**Figure S4** Absolute risk of emergency delivery for presumed fetal compromise in parous women receiving epidural analgesia (◊) or no intrapartum analgesia (◼), according to birth-weight centile. Values are estimated marginal means derived from negative binomial regression analysis. Error bars indicate 95% CI. Adjusted for relevant confounding variables: labor induction, previous Cesarean section and second stage duration >60 min.