

## Perinatal mortality and severe morbidity in low and high risk term pregnancies in the Netherlands: prospective cohort study

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### ABSTRACT

**Objective** To compare incidences of perinatal mortality and severe perinatal morbidity between low risk term pregnancies supervised in primary care by a midwife and high risk pregnancies supervised in secondary care by an obstetrician.

**Design** Prospective cohort study using aggregated data from a national perinatal register.

**Setting** Catchment area of the neonatal intensive care unit (NICU) of the University Medical Center in Utrecht, a region in the centre of the Netherlands covering 13% of the Dutch population.

**Participants** Pregnant women at 37 weeks' gestation or later with a singleton or twin pregnancy without congenital malformations.

**Main outcome measures** Perinatal death (ante partum, intrapartum, and neonatal) or admission to a level 3 NICU.

**Results** During the study period 37 735 normally formed infants were delivered at 37 weeks' gestation or later. Sixty ante partum stillbirths (1.59 (95% confidence interval 1.19 to 1.99) per 1000 babies delivered), 22 intrapartum stillbirths (0.58 (0.34 to 0.83) per 1000 babies delivered), and 210 NICU admissions (5.58 (4.83 to 6.33) per 1000 live births) occurred, of which 17 neonates died (0.45 (0.24 to 0.67) per 1000 live births). The overall perinatal death rate was 2.62 (2.11 to 3.14) per 1000 babies delivered and was significantly higher for nulliparous women compared with multiparous women (relative risk 1.65, 95% confidence interval 1.11 to 2.45). Infants of pregnant women at low risk whose labour started in primary care under the supervision of a midwife had a significant higher risk of delivery related perinatal death than did infants of pregnant women at high risk whose labour started in secondary care under the supervision of an obstetrician (relative risk 2.33, 1.12 to 4.83). NICU admission rates did not differ between pregnancies supervised by a midwife and those supervised by an obstetrician. Infants of women who were referred by a midwife to an obstetrician during labour had a 3.66 times higher risk of delivery related perinatal death

than did infants of women who started labour supervised by an obstetrician (relative risk 3.66, 1.58 to 8.46) and a 2.5-fold higher risk of NICU admission (2.51, 1.87 to 3.37). **Conclusions** Infants of pregnant women at low risk whose labour started in primary care under the supervision of a midwife in the Netherlands had a higher risk of delivery related perinatal death and the same risk of admission to the NICU compared with infants of pregnant women at high risk whose labour started in secondary care under the supervision of an obstetrician. An important limitation of the study is that aggregated data of a large birth registry database were used and adjustment for confounders and clustering was not possible. However, the findings are unexpected and the obstetric care system of the Netherlands needs further evaluation.