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### CHANGE IN CEREBRAL PALSY INCIDENCE AND SEVERITY AMONG CHILDREN BORN PRETERM IN 1990-2005: A HOSPITAL-BASED COHORT STUDY

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**Background:** Cerebral palsy (CP) is a neurodevelopmental condition that can be well-recognized from early childhood onward.

**Aims:** To examine CP incidence, severity and associated factors among 2960 preterm survivors of a level III neonatal intensive care unit, born 1990-2005.

**Methods:** Inclusion criteria: gestational age < 34wks and admission < 4 days after birth. Sixteen potentially relevant factors were analyzed. The cohort was divided in period I: 1990-1993 n=661; II: 1994-1997 n=726; III: 1998-2001 n=723 and IV: 2002-2005 n=850. The Gross Motor Function Classification System (GMFCS) was used to evaluate the severity of CP at a mean age of 32.9 (SD 5.3) months. Logistic regression analyses were used.

**Results:** CP incidence decreased from 6.5% in period I, to 2.6%, 2.9% and 2.2% in period II-IV ( $p < .001$ ). Simultaneously, cystic periventricular leukomalacia (c-PVL) decreased from 3.3% in period I to 1.7%, 1.0% and 1.3% in period II-IV ( $p = .004$ ); especially c-PVL grade III from 2.3% in period I to 1.0%, 1.1% and 0.2% in period II-IV ( $p = .003$ ). The

number of children classified in GMFCS Levels III-V in period I compared to IV also decreased ( $p = .035$ ). Independent risk factors for CP: c-PVL (Odds Ratio (OR): 92.7; 95% CI: 46.1-186.4) and severe intraventricular haemorrhage (OR: 12.8; 95% CI: 7.5-22.0). Independent protective factors: antenatal antibiotics (OR: 0.6; 95% CI: 0.3-1.0) and presence of an arterial line (OR: 0.4; 95% CI: 0.3-0.8).

**Conclusions:** CP incidence and severity declined from 1990-1993 onward in preterm born children and this could especially be attributed to a reduction in severe c-PVL.

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### CONTRIBUTION OF CONGENITAL ANOMALIES TO PRETERM BIRTH RISK IN THE NETHERLANDS

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**Objective:** To assess the extents to which congenital anomalies affect risk of preterm birth.

**Methods:** For the present study, we analysed data on 1,972,058 newborns registered in the Netherlands Perinatal Registry database (inclusion criteria 16 weeks of gestation). Logistic regression techniques were applied to estimate risks of preterm (< 37 weeks), very preterm (< 32 weeks) and extremely preterm (< 24 weeks) birth for newborns with congenital anomalies. Adjustments were made for neonatal (gender, plurality) and maternal (age, parity, previous abortions, assisted reproductive management, diabetes) characteristics. Results were expressed as odds ratios (ORs).

**Results:** The overall risk of preterm birth was 3.8-fold higher in newborns with congenital anomalies, as compared to newborns without congenital anomalies. Preterm birth risk was elevated in all organ systems, but especially among newborns with congenital anomalies of the central nervous system (OR 8.8) or the respiratory system (OR 5.8), and among newborns with chromosomal or syndromal anomalies (OR 8.0).

The overall very preterm and extremely preterm birth risks were respectively 8.4-fold and 11.2-fold higher in newborns with congenital anomalies. Among newborns with anomalies of the central nervous system and among newborns with chromosomal