

# **Fetal death**

## **Population-based studies of pregnancies in Norway**

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## ABSTRACT

Fetal death is a devastating outcome of pregnancy, annually affecting more than 200 pregnancies in Norway; hence increased knowledge on causes and risk factors is warranted.

We conducted a large population-based cohort study of more than 2 million pregnancies in Norway from 1967 through 2006. Fetal death was studied at different gestational lengths. We report that fetal mortality has decreased by more than 70%, and the largest decrease was in pregnancies at term (gestational week 37-43) from 10.8 fetal deaths per 1,000 at risk in 1967-1971 to 3.3 fetal deaths per 1,000 in 2002-2006.

In Norway maternal age has increased and high maternal age is a known risk factor of fetal death. We report that women  $\geq 40$  years have an increased risk of fetal death compared to women aged 20-24 years, particularly at term and postterm. The relative risk of fetal death was 2.8 (95% CI 2.4–3.2) in pregnancies lasting  $\geq 37$  weeks in mothers aged 40-44 years. However, the impact of high maternal age has been attenuated during 1967-2006.

Women with hypertensive disorders in pregnancy (pre-eclampsia, gestational hypertension and chronic hypertension) have an increased risk of fetal death compared to normotensive women. During the 40 year study period the risk of fetal death among women with hypertensive disorders in pregnancy declined, especially among women with pre-eclampsia, where the relative risk declined from 3.6 (95% CI 3.4-3.8) during 1967-1986 to 1.2 (95% CI 1.1-1.4) during 1987-2006.

Human parvovirus B19 is a common virus that has been associated with fetal death, however, studies of parvovirus B19 and fetal death are conflicting. We conducted a case-control study within a cohort of 35,940 women, cases were 281 women with fetal death and the control group consisted of 957 women with a live born child. Presence of maternal parvovirus B19 antibodies or seroconversion during pregnancy was not associated fetal death, low birth weight or reduced length of gestation.

The thesis provides useful knowledge about the importance of risk factors for stillbirth that may be a useful adjunct in the ongoing effort to achieve a reduction in stillbirths.

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