

PREGNANCY AND SMOKING



EIWH Policy Briefing

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According to the European Commission, "Smoking during pregnancy is one of the biggest yet avoidable causes of illness and death for both mother and infant. Nonetheless, epidemiological studies show that between 11% and 30% of pregnant women smoke or are passively exposed to tobacco smoke."²

Smoking, particularly the carbon monoxide (CO) and nicotine from cigarettes, has negative impacts on both maternal and foetal health. Nicotine and CO reduces foetal oxygen supply. In addition, nicotine increases foetal blood pressure. Moreover, due to placental characteristics, nicotine and CO levels in the foetus are significantly higher than those found in the mother.³

Smoking and maternal health

Women who smoke during pregnancy are at elevated risk of:

- **Stillbirth:** the risk nearly doubles in pregnant smokers compared to non-smokers.
- **Perinatal mortality:** 150% greater in smoking than non-smoking women.
- **Ectopic pregnancy:** 1.6x greater in women smoking 1-5 cigarettes a day and 2.3x greater in women smoking 11-20 cigarettes a day than non-smoking women.
- **Placental abruption** (placenta detachment from uterine wall before delivery): risk increases 23% in women smoking less than one pack a day and 86% in women smoking more than one pack daily compared to non-smokers.
- **Placenta previa** (placenta covering of the uterine opening): pregnant smokers had an increased the risk of placenta previa of 1.58x compared to non-smokers.
- **Premature labour:** accounts for 15% of premature labour.^{4,5,6}

Smoking and foetal health

Infants born to mothers who smoke while pregnant are at increased risk of:

- **Behaviour disturbances:** smoking during pregnancy is associated with ADHD in children and with increased risk of hyperactivity, learning difficulties & distractibility.
- **Birth defects, including cleft lip or palate:** the risk of birth defect in an infant is over 25% higher for pregnant smokers than in non-smokers.
- **Decreased respiratory function:** smoking during pregnancy is a basic risk factor for asthma in childhood.
- **Infant mortality:** nearly doubled in children born to women who had smoked during pregnancy compared to non-smokers.
- **Low birthweight & underweight during infancy:** Infants born to women that smoked during pregnancy as 200-250g lighter than those born to non-smokers.
- **Sudden Infant Death Syndrome (SIDS):** 2.3x greater risk of SIDS in infants whose mothers smoked compared to those did not smoke during pregnancy.

Children exposed to smoking en utero also at increased risk of asthma, respiratory infection, adult emphysema, infant colic, long-term growth impairment, intellectual disability, reproductive organ issues and breast disease.^{7,8,9,10}

Passive smoking and pregnancy

Research finds that pregnant women who did not smoke themselves but were exposed to smoke at work or home had a 23% increased risk of stillbirth and 13% increased risk of having a baby with defects compared to women who were not exposed to passive smoking during pregnancy. Exposure to more than 10 cigarettes a day was sufficient for increased risk.¹¹

Studies also show that infants whose mothers were exposed to passive smoke during pregnancy were at increased risk for poor physiological, sensory, motor and attention responses compared to infants whose mothers had not been exposed to passive smoking while pregnant regardless of socio-economic, obstetric and paediatric factors. Nicotine exposure in utero negatively affected infant neurobehavioural development.¹²

Third-hand smoking and pregnancy

Third-hand smoke comprises of toxins from tobacco smoke that remain on clothing, in hair, in cars, on furniture or in carpets a long time after someone has finished smoking a cigarette. Studies indicate that prenatal exposure to known can have adverse impacts on the foetus' future health. Third-hand smoke exposure during pregnancy can cause serious damage to infant lung development, damage that may be significantly worse than postnatal exposure to secondhand smoke as these toxins build up over time. This exposure can also lead to the development of asthma and other respiratory ailments later in life.¹³

Smoking and conception

Tobacco affects every system involved in reproduction, impacting both men and women. For instance, smoking can make conception more difficult, particularly when in vitro fertilisation (IVF) is being utilised. Overall, male and female smokers have lower fertility levels than non-smokers.^{14, 15}

There is no safe amount of cigarettes with regard to smoking, but effects are increase as the number of cigarettes smoked increases. Conception thus takes longer for smokers than for non-smokers. The chances of conception are 10-40% lower in women who smoke than in women who do not smoke. Individuals whose mothers smoked while pregnancy have lowered fertility levels.^{16, 17}

The cigarette smoking impacts hormone production that is necessary for pregnancy. Smoking also impedes the transportation of the egg through the Fallopian tubes to the womb.¹⁸ According recent studies, smoking during pregnancy even impacts the future fertility of male infants.¹⁹

Smoking breast feeding

Smoking impedes breast milk development—smokers produce on average about 250 ml less of breast milk per day than non-smokers. Prolactin is a hormone that is essential to breast milk production. Smokers have a lower level of prolactin than non-smokers; nicotine has been connected to reduced prolactin levels.²¹

Smoking and childhood asthma

Studies have recently found that smoking during pregnancy increases the risk of asthma in children even when children were not exposed to asthma after birth. Children exposed to smoking in the womb were two-thirds more likely to have asthma by the age six compared to children whose mothers did not smoke during pregnancy. Smoking only during the first trimester—in cases where women quit smoking for the second and third trimester—was linked to higher asthma risk in children as well.²²



NHS Smokefree Campaign²⁰

Pregnant smoker characteristics

Pregnant smokers are more likely to be single, unemployed or in unskilled occupations, have low levels of education, having an unplanned pregnancy, attending clinic late or irregularly, living with a partner who smokes and interacting socially with smokers, and have smoked throughout a previous pregnancy than pregnant non-smokers.²³

These characteristics make pregnant smokers difficult to effectively target through smoking cessation programmes. Smoking cessation programmes with incentives have been shown to be the most effective type of programming to successfully assist women in quitting smoking.²⁴

Smoking cessation during pregnancy

Studies illustrate that women who quit smoking early in their pregnancy delivered babies with a similar birth weight and head circumferences to those born to mothers who had never smoked. Early smoking cessation also reduced the rates of pre-term births. Couples quitting smoking during periconceptional period will be beneficial to infant health.²⁵

Research on women from Eastern and Northern Europe indicated that women with higher levels of education and higher household income are more likely to quit smoking during pregnancy than those with lower levels of education in household income.²⁶

Nicotine Replacement Therapy and pregnancy

To aid women in quitting smoking during pregnancy, nicotine replacement therapy (NRT) has often been recommended to women. Using NRT during pregnancy remains controversial, as NRT contains the toxin nicotine; the safety of NRT use during pregnancy is not fully known. Recent studies suggest that utilising NRT during pregnancy has no serious impact on the risk of stillbirth and other adverse pregnancy and birth outcomes. However, research also suggests that some NRT like the patch may be less effective in pregnant women as their bodies metabolise nicotine faster than non-pregnant women.^{27,28}

Steps for Policy Action

- 1. Increase awareness of the harms of smoking exposure prior to and during pregnancy.**
Exposure to smoking during pregnancy is one of the largest and avoidable causes of mortality and morbidity in both mother and infant. At the same time, smoking among young women, women in their prime childbearing years, is increasing. Increased awareness throughout the EU of these dangers is needed, particularly among high-risk groups.
- 2. Improve existing EU data collection on pregnancy and smoking.**
Currently, little data collection occurs at EU level examining pregnancy smoking and exposure prevalence and its impact on maternal and infant health across the 27 Member States. Data should be collected annually at the national and EU levels on smoking prevalence and exposure during pregnancy as well as on its health impacts. The data will enable the effective combatting of smoking throughout pregnancy and monitor the effectiveness of intervention programmes across the EU.
- 3. Examine the effect of social determinants on smoking exposure and smoking cessation effectiveness during pregnancy.**
Exposure to smoking and effectiveness smoking cessation during pregnancy appear to be linked to various factors including education and income. Further research on these social determinants is needed to determine how to be design policy and programming to reduce pregnant women's exposure to smoking and encourage smoking cessation.
- 4. Encourage more research and development of policy and programming to effectively encourage smoking exposure and smoking cessation.**
Smoking exposure during pregnancy has large impacts on maternal and infant health. Smoking cessation during pregnancy can be highly effective. Policies and programmes that effectively target pregnant women and support women to continue smoking cessation after pregnancy should be research and developed. The effectiveness and safety of existing techniques in pregnant women needs to be studied.
- 5. Provide effective supports to women who are pregnant or plan on becoming pregnant that smoke to help them quit for their health and for the health of their foetus.**
Many women in Europe smoke or are exposed to smoke during their pregnancy. The healthcare systems and communities more broadly need to develop programming and support structures targeted specifically at women who are pregnant or plan on becoming pregnant that smoke. Women and their partners need to be educated about the risks of smoking and need support them throughout their pregnancies to initiate and maintain smoking cessation.

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