Pregnancy & obesity: Considerations for European policymakers

“Poor maternal nutritional conditions at the earliest stages of the life-course, during foetal development and early life, can induce both short-term and longer lasting effects; in particular, an increased risk of noncommunicable diseases and obesity throughout the life-course. The importance of the intergenerational impact of nutrition leads to new policy challenges and raises critical questions about protecting and promoting public health through maternal and infant nutrition.”  
WHO, 2016

The present briefing has been written to support policymakers, civil society organisations and other stakeholders concerned with pregnancy and obesity policies. This briefing will support the development of pregnancy and obesity guidelines and recommendations. It summarises the evidence provided by systematic reviews, cost studies, case studies and other resources and guidelines that are freely available in the World Obesity Federation’s policy dossier, here.

INTRODUCTION

Pre-pregnancy obesity, excessive gestational weight gain and post-partum weight retention present a challenge for public health. Maternal obesity is defined as a body mass index (BMI) ≥ 30 kg/m² at the first antenatal consultation. Maternal obesity is a global problem: nearly 40 million pregnant women were living with overweight or obesity in 2014. A recent study, focused on determining the global and country-level burden of obesity among pregnant women between 2005 and 2014 highlighted that in high income and upper middle countries, 17.5% and 37.7% respectively. In the UK alone, the prevalence of maternal obesity has more than doubled between 1989 and 2007, reaching 15.6%. In addition, about 40%-70% of pregnant women gain weight during pregnancy in excess of the recommendations from the Institute of Medicine.

Risks associated with maternal obesity

Maternal obesity is associated with significant complications for both mother and child. The risk of developing gestational diabetes is one of the most common obesity-related pregnancy complications and it increases significantly with increases in pre-pregnancy BMI. Compared with non-overweight women, the risk of gestational diabetes in overweight women increases more than twofold and in women with obesity and severe obesity 3.5-fold and 8.5-fold respectively. We also observe increased risks of adverse outcomes during the gestational and delivery periods, cardiovascular diseases (CVD), and higher rates of caesarean delivery and stillbirth. Furthermore, 28% of maternal mortality results from non-obstetric causes, including obesity.

Maternal obesity is also associated with higher healthcare costs. A study investigating the health service utilisation and associated costs in the UK National Health Service found that, compared with women of healthy weight, women who were overweight or had obesity spent 30% more days in hospital and had a 10% higher usage of general practitioner services. The increased utilisation of services along with direct healthcare costs in women with higher BMIs during pregnancy led to a predicted additional £144m spent on health services during an 11-months period.

Maternal obesity can also have an impact on the health of the unborn child, including delayed mental development, macrosomia, a higher risk of CVD, as well as being more prone to adolescent and adult overweight and obesity.
Worldwide, 6.5% of children under 5 live with overweight or obesity and childhood obesity is a strong predictor of adulthood obesity. The likelihood of a child developing obesity in adulthood increases by 8% with every kilogram of maternal gestational weight gain. Therefore, given the impact the intrauterine environment can have on both pregnancy and neonatal outcomes as well as the long-term health of the infant, policies to maternal obesity will also reduce childhood obesity.

**Pregnancy: a window of opportunity**

The period of pregnancy offers a unique opportunity for health professionals to engage with women about their health and weight. Pregnancy is a key opportunity to address both maternal and childhood obesity.

A systematic review summarising the effectiveness of lifestyle interventions initiated during the antenatal and/or postnatal period in women living with overweight/obesity showed that post-partum interventions were effective in reducing postpartum weight. Overall, the study recommended intensive interventions combining diet and physical activity components. In addition, an evidence review looking at similar interventions but focusing on the antenatal period showed that multi-component diet and physical activity interventions could reduce pregnancy-induced hypertension, caesarean section and neonatal respiratory distress syndrome.

Among other factors, the timing of gestational weight gain is important. Weight gained from week 0 to week 14 might be associated with an incremental increase in child adiposity, whereas gestational weight gain between week 14 and week 36 might be associated with increased child adiposity only when maternal weight gain exceeds 500g/week. CVD risk in the offspring increased in association with increasing gestational weight gain between week 14 and week 36.

Pregnant women living with obesity may simultaneously have multiple nutrient deficiencies due to inadequate nutrient intake. Micronutrient deficiency and overweight or obesity are likely to overlap, especially in those of low socioeconomic status, and this conjunction may exacerbate the rise in transgenerational non-communicable diseases (NCDs). Pregnant women with obesity are at increased risk of vitamin D deficiency compared with women with healthy body weight, and supplementation should therefore be considered. Dietary habits in pregnancy could also affect taste preference of the child: a study showed that the consumption of ‘junk’ (energy-dense, micronutrient-poor) food during pregnancy was associated with a child’s future preference for similar foods high in fat, sugar and salt.

The care that women receive before, during and after pregnancy has profound implications for the later health and development of their child. Timely and good-quality care throughout these periods provides important opportunities to prevent the intergenerational transmission of risk and has a high impact on the health of the child throughout the life course. However, globally there is inconsistency in maternal weight gain policies and recommendations: there is no World Health Organization guidance at global or European levels and there is a lack of consensus on the amount of weight a pregnant women living with obesity should gain.
RECOMMENDATIONS

Based on the evidence from systematic reviews, cost studies, case studies, government guidelines and recommendations as well as professional and civil society organisation statements, the following considerations for developing guidelines to address the pregnancy period have been identified:

- **Develop and update national standards, guidelines and recommendations for maternal care**: Best-practice guidance for health workers should be available throughout health services. Policies to achieve universal health coverage should also include a focus on reproductive, maternal, newborn and child health.\(^\text{15}\)

- **Invest in maternal health**: Interventions that improve maternal nutritional status and healthcare are the most effective and sustainable means of achieving positive impacts on health, reducing health service costs and reducing inequalities across future generations.\(^\text{1}\)

  **Adopt an inter-sectoral approach**: Tackling the underlying determinants of health inequity and nutrition is key and should be prioritised to develop guidelines that go beyond the formal health sector. This will likely promote the development of a supportive environment and create optimal conditions throughout the pregnancy.\(^\text{1,12}\).

- **Use a multidisciplinary approach**: Ensure effective partnership between maternal, public health, nutrition and social services to provide multidisciplinary support to manage diet, physical activity and weight throughout women’s reproductive years. An emphasis should be put on the need for women to return to their pre-pregnancy weight during the first year after pregnancy.\(^\text{1}\).

- **Collect and improve data collection**: Access to robust data regarding child and maternal health will allow the development and implementation of tailored interventions. In addition, setting specific objectives and indicators will help monitor and evaluate progress and encourage sharing of good practices.\(^\text{1,12}\).

- **Train primary health care professionals**: work with health professionals to ensure the needs of women during pregnancy are met and that they receive proper advice.\(^\text{1}\) Mothers should receive the appropriate information throughout their pregnancy, including the benefits of maintaining a healthy weight during pregnancy.\(^\text{16,14}\).

- **Encourage care-seeking behaviours**: Raise awareness through health promotion campaigns to encourage care-seeking among women of reproductive age and guarantee proper access and delivery.

- **Engage with women’s and community groups supporting women**: Educate mothers and women, visiting families and hosting talks at maternity clinics, on the importance of healthy body weight and the impact on their child.\(^\text{12}\).


**Promote breastfeeding:** Systematic reviews have found that women living with overweight and obesity were less likely to initiate breastfeeding for different reasons including physiological, medical conditions, socio-cultural influences and psychological causes. However, the review also points to a dose-dependent association between the duration of breastfeeding and risks of overweight and obesity later on in life. More than 13,000 cases of childhood obesity could be prevented in England and in Wales in children’s first nine years if all infants were breastfed for at least three months. There is also evidence that breastfeeding reduces post-partum weight retention.

**Address women’s nutrition before, during and after pregnancy:** Pregnant women with obesity often lack essential micronutrients. The intrauterine environment can have a decisive impact on infants’ health into adulthood. Ensuring the proper supply of nutrients in the mother’s diet could have a substantial impact in halting the rise in the global epidemic of obesity and NCDs. After-pregnancy follow-up should also be considered to ensure women receive appropriate support following childbirth, including adequate nutritional information and weight loss guidance.

**Reduce unnecessary caesarean section:** Birth by caesarean section disrupts microbiome establishment and can adversely affect nutrition and health. In addition, caesarean delivery is a significant predictor of delayed initiation of breastfeeding.

**REFERENCES**


ACKNOWLEDGMENTS

Written by Hannah Brinsden and Margot Neveux, with support from Lesly Vejar Renteria and Tim Lobstein.

The production of this Briefing Paper has received support from an operating grant under the European Union’s 3rd Health Programme. The European Commission is not responsible for any use that may be made of this document.