

# Preconception Health

## CHALLENGES AND OPPORTUNITIES

A new series of papers 'Preconception Health' published by our team in The Lancet on April 16 [www.thelancet.com/series/preconception-health](http://www.thelancet.com/series/preconception-health) makes the case for both men and women to improve their diet and health **before** trying for a baby.



Mothers' obesity or under-nutrition and similar factors in fathers can adversely affect the eggs, sperm and embryos with enduring consequences, increasing long-term cardio-metabolic and non-communicable disease risk in offspring. Pre-conception care and preparation for pregnancy is the right strategy for health of the nation across generations.



### Improving nutritional preparation for pregnancy

Many men and women of reproductive age, in both high income (HIC) and low-and-middle income countries (LMIC) are not well-prepared for pregnancy in terms of nutrition. Lifecourse research pin-points investment in the **pre-conception** period as critical for long-term health across generations. Though we now know that pregnancy planning is more common than was thought, opportunities to invest in health before conception - a key time-point - have been overlooked. Collectively, the Lancet series points to a new emphasis on preparing for conception as a way of preventing disease and improving public health.

#### What does the evidence say?

Evidence from life course epidemiology and developmental (gamete/embryo) programming around the time of conception suggests that maternal over-nutrition and obesity, maternal undernutrition and related paternal factors, have enduring consequences leading to increased disease risk for the next generation. These parental influences on lifetime health act at the onset of the reproduction cycle and can perturb or modify the epigenetic, cellular, metabolic, or physiological status of early embryos with the potential to change how they develop. Defining the causative mechanisms, and the exposures that drive them, will be essential for the development of specific recommendations for pre-conception health.

The biological evidence coupled with maternal motivation and disappointing outcomes of interventions starting **during** pregnancy support the pre-conception period as a critical opportunity for intervention. While micronutrient supplementation starting in pregnancy can correct important maternal nutrient deficiencies, and dietary interventions in pregnancy can limit weight gain, they are 'too little, too late' to fundamentally improve child health and pregnancy outcomes.

# WHAT CAN WE DO?

#### Recommendation 1

**People contemplating pregnancy** should have an opportunity to improve their health before conception. **Primary Care and Public Health agencies should plan interventions to target support to people planning a pregnancy.** Simultaneously Public Health agencies should mount **population-level initiatives** to reduce the determinants of pre-conception risks, such as obesity and smoking, for those not yet contemplating pregnancy. These must be adequately resourced.

#### Recommendation 2

**Motivations** to engage with pre-conception health differ according to age and phase of life; understanding and harnessing these motivations is key to successful intervention.

- **Ministries of Education need to adapt school curricula** to reflect the impact of health and health behaviours in adolescence in preparing for later parenthood.
- Support for improving nutritional status before conception needs to be offered to young adults in **reproductive health clinics promoting a 'Reproductive Life Plan'**.
- **Primary Care and Public Health staff should be trained in skills to motivate and engage** adults intending to become pregnant to improve their health before conception.

#### Recommendation 3

Interventions need to be context specific and to make best use of existing platforms for delivery. **Globally, Ministries of Education should encourage schools to work alongside Primary Care providers to raise public awareness of the importance of pre-conception health, and facilitate access to practical resources and support - appropriate for their contexts.**

#### Recommendation 4

**Big food and big food retailers** should be mobilised as part of the solution and in support of a social movement for better pre-conception health and nutrition. The food industry, government organisations including (in England) Public Health England, non-governmental organisations and research institutions should form **advocacy coalitions to create more demand for preconception health support.**

#### Series papers

##### Preconception health 1:

*Before the beginning: nutrition and lifestyle in the preconception period and its importance for future health*

Judith Stephenson, Nicola Heslehurst, Jennifer Hall, Danielle A J M Schoenaker, Jayne Hutchinson, Janet E Cade, Lucilla Poston, Geraldine Barrett, Sarah R Crozier, Mary Barker, Kalyanaraman Kumaran, Chittaranjan Yajnik, Janis Baird, Gita D Mishra

##### Preconception health 2:

*Origins of lifetime health around the time of conception: causes and consequences*

Tom P Fleming, Adam J Watkins, Miguel A Velazquez, John C Mathers, Andrew M Prentice, Judith Stephenson, Mary Barker, Richard Saffery, Chittaranjan S Yajnik, Judith J Eckert, Mark A Hanson, Terrence Forrester, Peter D Gluckman, Keith M Godfrey

##### Preconception health 3:

*Intervention strategies to improve nutrition and health behaviours before conception*

Mary Barker, Stephan U Dombrowski, Tim Colbourn, Caroline H D Fall, Natasha M Kriznik, Wendy T Lawrence, Shane A Norris, Gloria Ngaiza, Dilisha Patel, Jolene Skordis-Worrall, Falko F Sniehotta, Régine Steegers-Theunissen, Christina Vogel, Kathryn Woods-Townsend, Judith Stephenson

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