



# **Generation R *Next* Intervention study**

## ***Preconception and Embryonic Origins of Health and Disease***

**Rama Wahab, PhD Student**  
Erasmus University Medical Center, Rotterdam

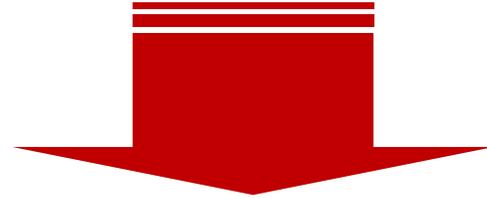
**Healthy Start Convergence Initiative**  
**Kick off meeting June 15th 2021**

# Clustering of risk factors in earliest phase of life

**Social and ethnic background**

**Environment**

**Nutrition, lifestyle, stress**



**Health and disease from embryonic life until adulthood**



# Generation R *Next* Study

## *Focus on preconception and embryonic life*

Population-based cohort study – observational

From preconception or embryonic life onwards

3500 women and men

40% preconception measurements, 95% embryonic measurements

Detailed measurements at preconception, 6-13 weeks, and in childhood

Focus area's

- *Preconception health*
- *Fertility, miscarriage*
- *Embryonic development*
- *Childhood outcomes*



# City as our laboratory

7000 people in Rotterdam

City of Rotterdam

20 Midwife practices

5 Hospitals

15 Child health centers

> 100 General practitioners

> 100 Pharmacies



# Early pregnancy as critical period

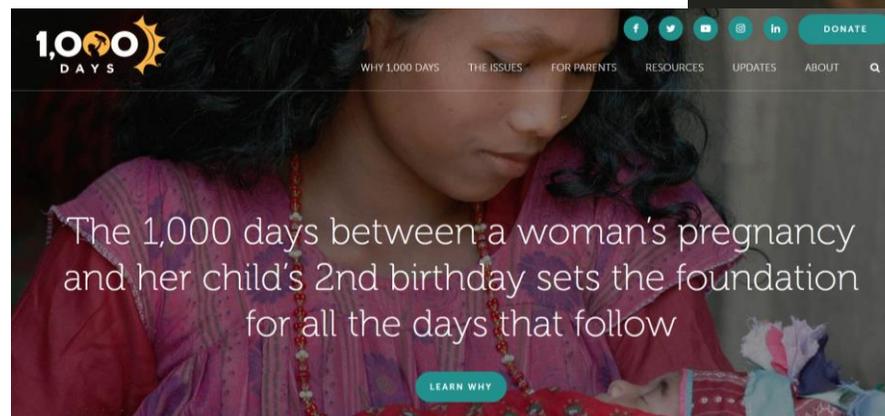
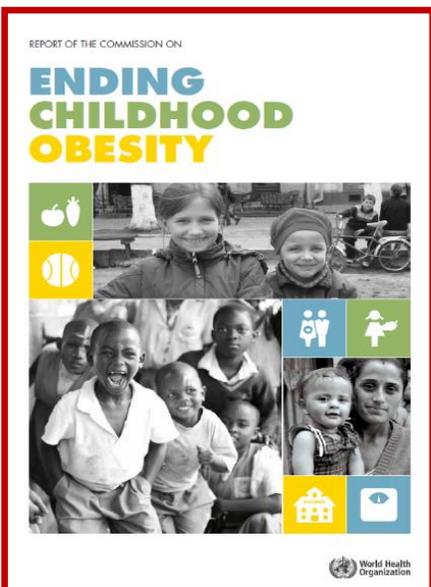
*Important for most organs*



# Prevention of adverse health outcomes in preconception or early-pregnancy?

We propose novel definitions of the preconception period relating to embryo development and to action at individual or population level. A sharper focus on intervention before conception is needed to improve maternal and child health and reduce the growing burden of non-communicable disease. Alongside continued efforts to reduce smoking, alcohol and obesity in the population, we call for heightened awareness of preconception health, particularly regarding diet and nutrition. Importantly health professionals should be alerted to ways of identifying women who are planning a pregnancy.

Lancet 2018



# Generation R *Next* Intervention Study

Optimizing maternal health and lifestyle from preconception onwards for the improvement of maternal and offspring health

# Innovative dissemination

Lifestyle intervention program on a population level:

- Women and their partners planning pregnancy or pregnant <10 weeks gestation
- Targeting multiple lifestyle factors
- Group counseling
- Supporting smartphone app

Focus lifestyle factors:

- ✓ No smoking or alcohol
- ✓ Folic acid and vitamin D supplementation
- ✓ Diet
- ✓ Mindfulness: stress reduction and lifestyle adherence



# Opportunities for collaboration

*Erasmus MC, TU Delft, EUR*



*Generation R Next*



# Opportunities for collaboration

*Erasmus MC, TU Delft, EUR*



*Generation R Next*

*Behaviour change  
Economic impact*



# Opportunities for collaboration

*Erasmus MC, TU Delft, EUR*



*Generation R Next*

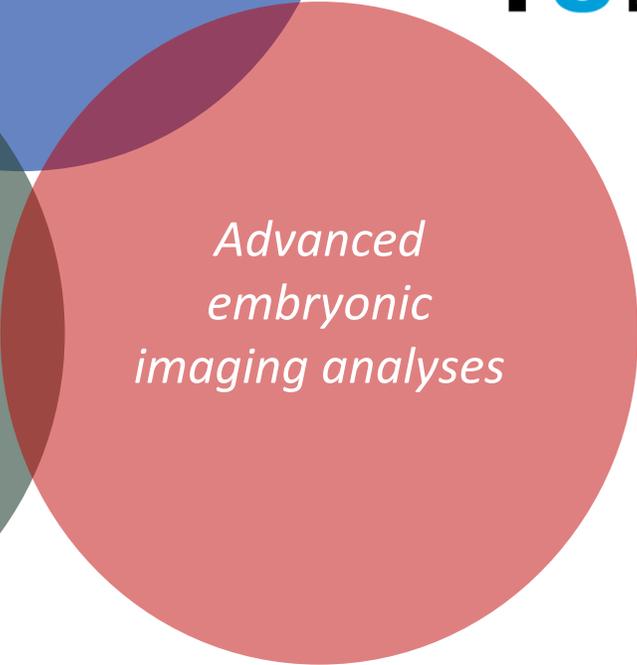
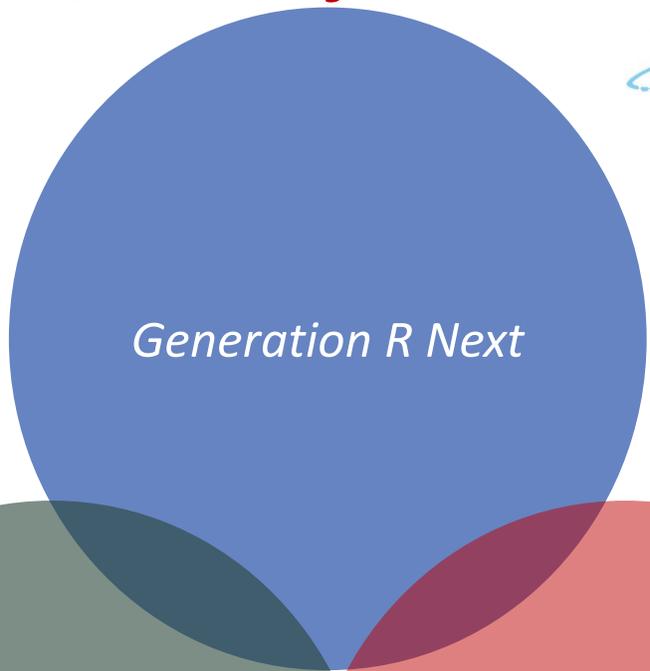
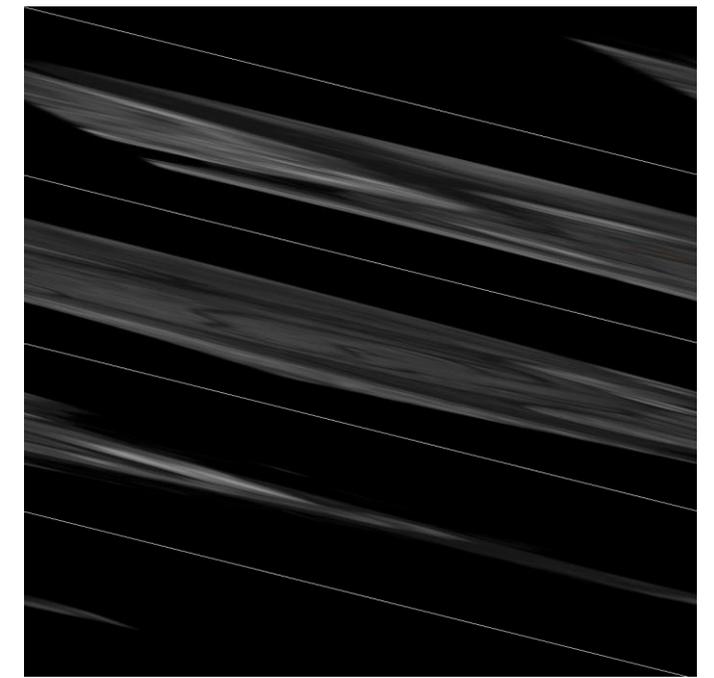
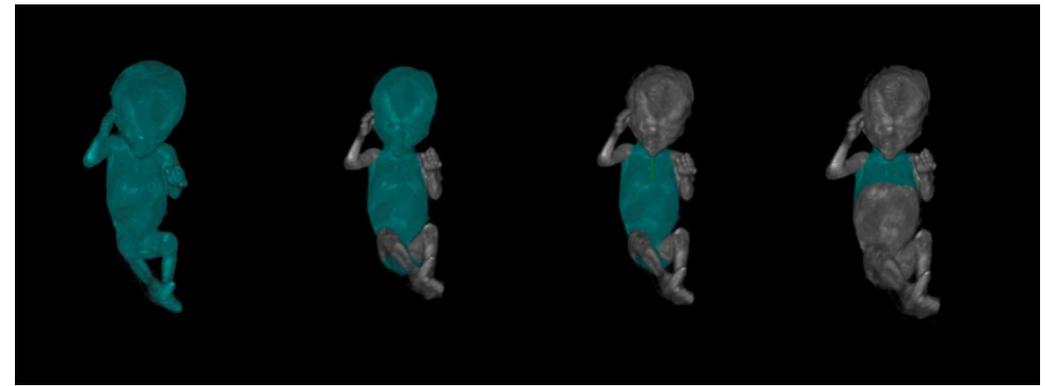
*Behaviour change  
Economic impact*

*Advanced  
embryonic  
imaging analyses*



# Opportunities for collaboration

*Erasmus MC, TU Delft, EUR*



# Collaborators

- City of Rotterdam
- Bernard van Leer Foundation
- Trustfonds
- Volkskracht

*Stichting Bevordering van Volkskracht*



Gemeente Rotterdam



# Thank you



**Healthy Start Convergence Initiative  
Kick off meeting June 15th 2021**