Our Children are the guardians of our genome
Health and wealth of future generations relies on the priorities we give them today

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The Unfolding Science of Epigenetics & its Implications to health and Diseases

Mapping of the Human Genome 2000
Epigenetics

The study of changes in gene expression in response to the wider environmental factors without altering the underlying DNA sequence.

These changes are **reversible** & may last for **multiple generations**.
Exercise

Cruciferous vegetables

Toxins

Switching the gene off

Switching the gene on

Smoking

Pollution

Hormones
The main determinants of health (Dahlgren and Whitehead, 1991)
We & our genes are more flexible than we ever thought before.
1. We now have evidence at the DNA level confirming that positive life style & environmental changes can lead to epigenetic modifications of genes that are associated with improved health outcomes.

We cannot change our genome, but we can change our epigenome
2. Health interventions in pregnancy impact 3 generations at the same time.

3 generations at once are exposed to the same environmental conditions (diet, toxins, hormones, etc.).

Mothers are the INCUBATORS of future generations.

*University of Utah Genetics Science Learning Centre Website*
3. The health of children especially at pre-puberty is of paramount importance for the child & as he/she become an adult & for their future children & grandchildren.

Not just the first 1000 days of life!
Life course

Risk of chronic diseases

Childhood development period is THE most important & cost effective time to intervene & prevent diseases

Birth

Timely intervention produces substantial risk reduction

Impact of adult intervention is small

Fixed genetics contribution to risk + Environmental influence in utero

Life course

Risk of chronic diseases
Improve foetal health & Childhood health

Healthier children & grandchildren

Improve health of the whole nation

Improve education of parents & education of children

Improve employment & chances of social mobility

Improve the economy & prosperity

Reduce inequalities in health
Sustained synergistic actions on both health & education of ALL children

Health & wealth of future generations relies on what priorities we give children TODAY

Children are the GUARDIANS of our genome

They are our insurance policy

This is so fundamental to our future survival that it should be enshrined in LAW

Extending the UNCRC to include a statement of intent to place children’s health, well being & education as the first priority of our public policy to sustain future generations
Prioritising children

- Reduce inequalities in health
- Improve social mobility
- Ameliorate child poverty
- Improve the economy

Will take at least two decades to be achieved