The DOHaD Consortium
(Developmental Origins of Health and Disease)

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For the prevention of NCDs

Bringing together ALL groups focusing on ‘early origins of health’
Research, translation and delivery

Goes far beyond health: social justice, education and health literacy, environmental and economic policy

(provide a voice to influence these)
The early environment is a critical determinant of future health

Inextricable link between early factors and the risk of future NCDs:

• Maternal health at conception and during pregnancy
• Infant health

Promoting a ‘healthy start to life’ can reduce early and late onset NCDs

• We must promote a ‘life course approach’ to NCD prevention.

The Shanghai Declaration (WUN 2011)
Early life: critical time of risk, a critical time of opportunity

- Prevention is the ultimate approach
- Greatest potential in early life
- Clear evidence: healthy start to life can reduce the risk of both early and later NCDs

The early environment (pre pregnancy, during pregnancy and early childhood) can modify physiological, structural, immune, metabolic and behavioural responses and future disease susceptibility.

“The doctor of the future will give no medicine, but will interest her or his patients in the care of the human frame, in a proper diet, and in the cause and prevention of disease.”

Thomas Edison
US inventor (1847 - 1931)
The pandemic of NCDs:

• Now the leading cause of death in both developed and developing countries
• Most NCDs are inherently preventable
• But the prevailing approaches of adult interventions are far less effective
• We must promote a life-course approach to prevention

“I urge all partners to do their utmost to rise to this challenge. Together, we can unlock the potential of current and future generations.” – New York, 25 January 2012
A global health crisis of epidemic proportions

- Unparalleled rise in NCDs worldwide
- Associated with rapid environmental and lifestyle changes.
- Adverse effects begin in early life, when long-term consequences greatest
- A major global economic threat, and barrier to human development

The most common NCDs: CVD, type 2 diabetes, obesity, asthma, COPD, allergies and autoimmunity, some cancers, neurological and neurodegenerative disorders, mental ill-health, arthritis and osteoporosis
NCD pandemic: on the global political agenda

Dominant focus on ‘4’ NCDs & ‘4’ risk factors

The ‘BIG FOUR’ NCDs
- Type 2 diabetes
- Heart disease
- COPD
- Cancer

The ‘BIG FOUR’ risk factors
- Poor nutrition
- Smoking
- Alcohol
- Physical inactivity

BUT: Need to broaden the focus to include
- other NCDs
- other ‘modern’ risk factors

Shift the ‘adult’ focus to earlier interventions

Inflammation: a central role (pathways / solutions)
1,000 DAYS

“We believe fervently that improving nutrition for pregnant women and children under two is one of the smartest investments we or anyone can make.”
— September 20, 2011

Learn More

http://www.thousanddays.org/
Must be a strong focus on early life:

Very early exposures have greater implications for the risk (and prevention) of future diseases

**Early environment**
(diet, microbes, toxins, stress)

**Risk of later disease**
(heart disease, obesity, dementia, diabetes, allergy, asthma)
Early life origins of health and disease

Our best hope for prevention of many chronic disease (NCDs)

- Growing awareness of the importance of early life in all fields of medicine
- The era of DOHaD has arrived!

New opportunities for interdisciplinary research and collaboration

(DOHaD: Developmental Origins of Health and Disease)
New Initiative
in both research
and education

Developmental Origins of Health and Disease
DOHaD Consortium
for the prevention of NCDs

- Interdisciplinary
- Across multiple institutions
Multi-disciplinary research in action

Promoting research between disciplines

Solutions through collaboration (multiple partners):

- UWA - WIRF
- TICHR - RPH
- PMH - QEII
- KEMH - WAIMR
- ECU - Curtin
- NDU - Murdoch

and numerous national and international relationships

(many institutions, schools, faculties)
A model for life!

..and the structure of the DOHaD Consortium

Education and Training:
- Key ‘DOHaD’ theme from week 1 of new medical curriculum
- New DOHaD Unit at UWA
Common risk factors mean common solutions

The rapid and parallel rise of so many NCDs, implicates common environmental and lifestyle factors

Modern dietary patterns, physical activity, changing microbial diversity, smoking and modern pollutants

Need for an integrated cross-disciplinary, and multi-sectorial approach
Cross-disciplinary themes

Representatives for all disciplines focusing on shared projects around common risk factors:

So far: 2 major active theme groups
Working *across disciplines* (research clusters)

1. The DOHaD **Nutrition** theme (working group)

2. The DOHaD **Microbiome** theme (working group)
Ensure food security, agriculture and health investments are specifically targeted and resourced to improve nutrition of women and young children.
Social, cultural and economic determinants of health

Individuals

- What we eat
- Our physical activity
- Social behaviour
- Stress
- How we cope
- Substance abuse

Society

- Natural environment
- Built environment → Food, Water and Air quality
- Cultural systems
- Social structures → Collective behaviour

Choices
- Opportunities
  - Education
  - Equity

Individual choice

Shift in responsibility

Social structures and policies
We can ban tobacco but we can’t ban food!

Policy, regulation and more food industry ‘buy in’

Highlights the need for broad-based expertise to tackle complex issues
Promote early life opportunities for all aspects of health and wellbeing

- Advocacy
- Research (multi-sectoral engagement)
- Education and training (profession, community, government)
- Translation and Policy (society and environment)
Developing a business model

Executive Planning Meeting (Alistar Robertson)
8th August 2012 (2-4pm)
The plan (concurrent goals):

**Goal 1:** Develop our identity and integrating health science research

**Goal 2:** Collaborating with many other disciplines ‘outside’ health

**Goal 3:** Promote the concept
- within the profession
- within the community
- within government

**Goal 4:** Translation and policy
- individual and societal change
  with sustainable long term benefits

The science: novel collaborative perspectives

Foundations for societal change ‘buy in’

Evidence into practice (evaluate)
Phase 1

Developing our identity and integrating health science research
The ‘Science’: Finding the common ground (years 1-2)

*Novel interlinked NHMRC project grant applications*
Phase 2

Collaborating with many other disciplines ‘outside’ health

Economics, Agriculture, Food, Water, Energy, Anthropology, Justice, Education, Culture and Spirituality, and even History (e.g. ARC CRE on ‘History of Emotion’).
Phase 3

Promoting the DOHaD concept for NCD prevention

(community and government)
To impact on policy:
We need to translate this issue into economic terms

- Impact on health outcomes
- Economic impact $
- Lost productivity $$

Interventions (policy changes)

- Long term health $ savings
- Economic productivity

Requires long range vision
Phase 4

Translation: Individual and societal change with sustainable long term benefits

Lifestyle interventions to prevent NCDs
Community Engagement fundamental part of this....
We can't afford to wait
“Many things we need can wait, children can not. NOW is the time, their bones are being modeled, their blood is being made, their brains and minds are developing.

To him (her), we can not say tomorrow, his (her) name is TODAY”

Gabriela Mistral (1889-1957) Nobel Laureate