DYNAMO-HIA
modelling obesity outcomes

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DYNAMO-HIA

• DYNAMO-HIA project and tool

• Key findings from the DYNAMO-HIA project on the potential health impact of interventions targeting the obesogenic environments

• Future steps
DYNAMO-HIA is a ready-to-use tool to project the effects of changes in risk factor exposure due to a policy measure or intervention on disease-specific and summary measures of population health.
1. Organizes and stores necessary input data

2. Syntheses data according to standard causal epidemiological pathway

3. Projects how changes in risk factor distribution affect disease-specific and summary measures of population health
Key findings

Obesity Prevention/Management

Modelling obesity outcomes: reducing obesity risk in adulthood may have greater impact than reducing obesity prevalence in childhood


Obesity Reviews 2013
Two types of interventions

1. Interventions which reduce the number of overweight/obese individuals that enter adulthood
   = cumulative effect of interventions to reduce obesity prevalence in childhood

2. Interventions which alter the probability of a given individual becoming overweight/obese during his or her adult life
   = sum of the obesogenic influences in an environment acting throughout adulthood
Model

Nine chronic diseases:

• Ischaemic heart disease (IHD)
• Diabetes
• Chronic obstructive pulmonary disease (COPD)
• Stroke
• Cancers of the lung, breast, colon, oral-cavity and oesophagus
Scenario’s

**BAU:**
prevalence projections for male population of England from National Heart Forum

**Intervention scenario’s:**
quantified the effects of *changes* in:
(i) the prevalence of OW and OB at age 18 years
(ii) the probability of becoming OW and OB after the age of 18 years
(iii) combinations of both (i) and (ii).
## Disease-free life expectancy at birth, UK men

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Disease free is without any of the nine major chronic diseases: ischaemic heart disease (IHD), diabetes, chronic obstructive pulmonary disease (COPD), stroke and cancers of the lung, breast, colon, oral-cavity and oesophagus.
Life expectancy with disease at birth, UK men

<table>
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</table>

With disease is with any of the nine major chronic diseases: ischaemic heart disease (IHD), diabetes, chronic obstructive pulmonary disease (COPD), stroke and cancers of the lung, breast, colon, oral-cavity and oesophagus
Summary of Results

Both approaches reduce the prevalence of chronic diseases and improve life expectancy and disease-free life expectancy, but they are not equivalent:

• A given percentage reduction in OB prevalence during childhood had a smaller effect than the same percentage reduction in the risk of becoming OB throughout adulthood.

• A large reduction in child obesity prevalence may be reversed by a small increase in the risk of becoming overweight or obese in adulthood.
Implications

• Investment in programs that have long-term, sustainable effects, and help the individual resist the obesogenic environments they may face throughout life
  – interventions during childhood

• Interventions that change obesogenic environments for people of all ages
Future steps

• Model the health effects of *specific* interventions that change the obesogenic environment and/or that lead to sustained behaviour change to resists the obesogenic environment.

• Assess the impact on health of the average population and of subgroups most affected by the obesity epidemic (lower socio-economic status)
  – Size and timing

• Compare health outcomes of several interventions.
Challenges: how can they be reached?

Through multidisciplinary teams
– Reviews and meta analyses
– Design and evaluate (natural) experiments, policy changes and interventions
– Modelling for data synthesis and impact assessment of interventions and policy changes
DYNAMO-HIA

- Development was part of the Public Health Program 2003-2008 of the European Commission's Directorate General for Health and Consumer Affairs (DG SANCO)

- Co-financing from the Erasmus Medical Center Rotterdam, the Institute of Public Health and the Environment in the Netherlands, the Catalan Institute of Oncology, the International Obesity task force, the London School for Hygiene and Tropical Medicine, the Haughton Institute in Dublin, and the Instituto Tumori in Milan.

- Since it development used in several projects
Publications


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Thank you for your attention

• http://www.dynamo-hia.eu/

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