WP4

Improving Obesity Related outcomes

Stuart Parker, Melanie Rimmer, Paul Bissell, Sheila Kennedy, Christine Smith, Andrew Dearden, Ben Heller, Heath Reed
The Global Obesity Problem

An obese adult is classified as having a Body Mass Index equal to or greater than 30

Source: World Health Organization, 2005
**FAT MAP (2006/7)**
Obesity prevalence by primary care organisation

**THE 20 HEAVIEST PLACES IN ENGLAND**

<table>
<thead>
<tr>
<th>Place</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barrow</td>
<td>10.8</td>
</tr>
<tr>
<td>North Lincolnshire</td>
<td>10.7</td>
</tr>
<tr>
<td>Doncaster</td>
<td>10.1</td>
</tr>
<tr>
<td>Stoke-On-Trent</td>
<td>10.0</td>
</tr>
<tr>
<td>Wolverhampton</td>
<td>10.0</td>
</tr>
<tr>
<td>Blackpool</td>
<td>9.9</td>
</tr>
<tr>
<td>Knowsley</td>
<td>9.9</td>
</tr>
<tr>
<td>Northumberland</td>
<td>9.9</td>
</tr>
<tr>
<td>Halton &amp; St Helens</td>
<td>9.7</td>
</tr>
<tr>
<td>South Tyneside</td>
<td>9.7</td>
</tr>
<tr>
<td>Isle Of Wight</td>
<td>9.6</td>
</tr>
<tr>
<td>Dudley</td>
<td>9.5</td>
</tr>
<tr>
<td>County Durham</td>
<td>9.4</td>
</tr>
<tr>
<td>Medway</td>
<td>9.4</td>
</tr>
<tr>
<td>Barking &amp; Dagenham</td>
<td>9.3</td>
</tr>
<tr>
<td>Hartlepool</td>
<td>9.3</td>
</tr>
<tr>
<td>Wakefield</td>
<td>9.3</td>
</tr>
<tr>
<td>Walsall Teaching</td>
<td>9.3</td>
</tr>
<tr>
<td>Gateshead</td>
<td>9.2</td>
</tr>
<tr>
<td>Rotherham</td>
<td>9.2</td>
</tr>
</tbody>
</table>

All figures are percentages of adults with a BMI of more than 30.
THE 20 HEAVIEST PLACES IN ENGLAND

<table>
<thead>
<tr>
<th>Place</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barnsley</td>
<td>10.8</td>
</tr>
<tr>
<td>North Lincolnshire</td>
<td>10.7</td>
</tr>
<tr>
<td>Doncaster</td>
<td>10.1</td>
</tr>
<tr>
<td>Stoke-On-Trent</td>
<td>10.0</td>
</tr>
<tr>
<td>Wolverhampton</td>
<td>10.0</td>
</tr>
<tr>
<td>Blackpool</td>
<td>9.9</td>
</tr>
<tr>
<td>Knowsley</td>
<td>9.9</td>
</tr>
<tr>
<td>Northumberland</td>
<td>9.9</td>
</tr>
<tr>
<td>Halton &amp; St Helens</td>
<td>9.7</td>
</tr>
<tr>
<td>South Tyneside</td>
<td>9.7</td>
</tr>
<tr>
<td>Isle Of Wight</td>
<td>9.6</td>
</tr>
<tr>
<td>Dudley</td>
<td>9.5</td>
</tr>
<tr>
<td>County Durham</td>
<td>9.4</td>
</tr>
<tr>
<td>Medway</td>
<td>9.4</td>
</tr>
<tr>
<td>Barking &amp; Dagenham</td>
<td>9.3</td>
</tr>
<tr>
<td>Hartlepool</td>
<td>9.3</td>
</tr>
<tr>
<td>Wakefield</td>
<td>9.3</td>
</tr>
<tr>
<td>Walsall Teaching</td>
<td>9.3</td>
</tr>
<tr>
<td>Gateshead</td>
<td>9.2</td>
</tr>
<tr>
<td>Rotherham</td>
<td>9.2</td>
</tr>
</tbody>
</table>

All figures are percentages of adults with a BMI of more than 30.
Association of All-Cause Mortality With Overweight and Obesity Using Standard Body Mass Index Categories
A Systematic Review and Meta-analysis

Katherine M. Flegal, PhD
Brian K. Kit, MD
Heather Orpana, PhD
Barry I. Graubard, PhD

JAMA. 2013;309(1):71-82
Summary random effects hazard ratios of all cause mortality for overweight and obesity relative to normal weight

<table>
<thead>
<tr>
<th>BMI</th>
<th>Group</th>
<th>Hazard ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;30</td>
<td>All ages</td>
<td>1.18 (1.12-1.25)</td>
</tr>
<tr>
<td></td>
<td>&gt;65</td>
<td>1.03 (0.94-1.12)</td>
</tr>
<tr>
<td>25&lt;30</td>
<td>All ages</td>
<td>0.94 (0.91-0.96)</td>
</tr>
<tr>
<td></td>
<td>&gt;65</td>
<td>0.90 (0.86-0.94)</td>
</tr>
<tr>
<td>30&lt;35</td>
<td>All ages</td>
<td>0.95 (0.88-1.01)</td>
</tr>
<tr>
<td></td>
<td>&gt;65</td>
<td>0.87 (0.72-1.05)</td>
</tr>
<tr>
<td>&gt;35</td>
<td>All ages</td>
<td>1.29 (1.18-1.41)</td>
</tr>
<tr>
<td></td>
<td>&gt;65</td>
<td>1.20 (0.94-1.52)</td>
</tr>
</tbody>
</table>

Flegal et al. JAMA. 2013;309(1):71-82
The relationship between body mass index prior to old age and disability in old age

K Backholer¹,²,⁵, K Pasupathi¹,²,⁵, E Wong¹,², A Hodge³, C Stevenson⁴ and A Peeters¹,²

[Graph showing the relationship between BMI group (kg m⁻²) and odds ratio for disability & 95% CI for females.]

### About social innovation

**Sylvia Wyatt**  
Sylvia.wyatt@youngfoundation.org

<table>
<thead>
<tr>
<th>Stage</th>
<th>Pre- requisites</th>
<th>Activities</th>
</tr>
</thead>
</table>
| 1. Prompts, problem definition | Open accessible data  
Ideation tools and techniques  
Co-design, co production, user insights  
Inter and intra organisational collaboration | Defining the citizen-centred problem.  
Fresh (ethnographic) research  
Stakeholder mapping |
| 2. Developing proposals to solve problems | Headspace – time and resources to think  
Openness to new ideas.  
Plurality of providers and funders  
Sorting mechanism for new ideas  
Visibility of relative benefit | Specialist support for shaping new ideas |
| 3. Proof of concept, testing | Involvement of innovators  
Trial-ability – ability to test it out  
Evaluation design  
Risk taking (investment)  
Immediacy of benefit | Testing for safety and cost effectiveness  
Iterative testing for usability  
Rapid prototyping  
Design thinking  
User engagement |
# About social innovation

**Sylvia Wyatt**

Sylvia.wyatt@youngfoundation.org

<table>
<thead>
<tr>
<th>Stage</th>
<th>Pre- requisites</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Prompts, problem definition</strong></td>
<td>Open accessible data</td>
<td>Defining the citizen-centred problem.</td>
</tr>
<tr>
<td></td>
<td>Ideation tools and techniques</td>
<td>Fresh (ethnographic) research</td>
</tr>
<tr>
<td></td>
<td>Co-design, co production, user insights</td>
<td>Stakeholder mapping</td>
</tr>
<tr>
<td></td>
<td>Inter and intra organisational collaboration</td>
<td></td>
</tr>
<tr>
<td><strong>2. Developing proposals to solve problems</strong></td>
<td>Headspace – time and resources to think</td>
<td>Specialist support for shaping new ideas</td>
</tr>
<tr>
<td></td>
<td>Openness to new ideas.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Plurality of providers and funders</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sorting mechanism for new ideas</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Visibility of relative benefit</td>
<td></td>
</tr>
<tr>
<td><strong>3. Proof of concept, testing</strong></td>
<td>Involvement of innovators</td>
<td>Testing for safety and cost effectiveness</td>
</tr>
<tr>
<td></td>
<td>Trial-ability – ability to test it out</td>
<td>Iterative testing for usability</td>
</tr>
<tr>
<td></td>
<td>Evaluation design</td>
<td>Rapid prototyping</td>
</tr>
<tr>
<td></td>
<td>Risk taking (investment )</td>
<td>Design thinking</td>
</tr>
<tr>
<td></td>
<td>Immediacy of benefit</td>
<td>User engagement</td>
</tr>
</tbody>
</table>

innovAge

SOCIAL INNOVATIONS PROMOTING ACTIVE AND HEALTHY AGEING
WP4 Objectives

• To develop a comprehensive and current, qualitative and quantitative understanding of obesity and its determinants (Literature, survey analysis, interviews)

• To develop a novel, acceptable and effective social intervention with the potential to prevent and/or reduce obesity using user-centred healthcare design and evaluation activities (UCHD team)

• To develop an implementation strategy to facilitate the use and on-going evaluation of the new intervention in different national and social environments (Implementation team)
WP4 Objectives

• To develop a comprehensive and current, qualitative and quantitative understanding of obesity and its determinants (*Literature, survey analysis, interviews*)

• To develop a novel, acceptable and effective social intervention with the potential to prevent and/or reduce obesity using user-centred healthcare design and evaluation activities (*UCHD team*)

• To develop an implementation strategy to facilitate the use and on-going evaluation of the new intervention in different national and social environments (*Implementation team*)
WP4 Objectives

• To develop a comprehensive and current, qualitative and quantitative understanding of obesity and its determinants (Literature, survey analysis, interviews)
Intergenerational exchange
Literature search areas

1. What is the impact of obesity in older people?

2. What are the intergenerational influences on obesity?

3. What intergenerational interventions have been attempted to reduce obesity?
Literature search areas

1. What is the impact of obesity in older people?

2. What are the intergenerational influences on obesity?

3. What intergenerational interventions have been attempted to reduce obesity?
Literature search areas

1. What is the impact of obesity in older people?
   WP1

2. What are the intergenerational influences on obesity?
   BIG!

3. What intergenerational interventions have been attempted to reduce obesity?
Literature search areas

What intergenerational interventions have been attempted to reduce obesity?
<table>
<thead>
<tr>
<th>Population</th>
<th>Interventions</th>
<th>Target</th>
<th>Outcome(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Systematic literature reviews (3)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parents/children</td>
<td>Intergenerational interventions to improve energy balance, weight and dietary behaviour in children</td>
<td>Energy balance, weight, dietary intake</td>
<td>Treatment and prevention of overweight/obesity, diabetes/CV risk</td>
</tr>
<tr>
<td>Grandparents/grandchildren</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obese children / adult caregiver</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Children, adolescents and parents</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Randomised controlled trials (3)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Children in school (with home program), Parents and obese children, mother-daughter dyads.</td>
<td>Extra PE and nutrition lessons. Home program with activities for parents and children to do together Educational and behavioural program for a healthy lifestyle for: Nutrition education, counselling and physical exercise</td>
<td>Physical fitness, +nutrition Healthy lifestyle, Physical activity</td>
<td>Weight, eating habits physical fitness, physical activity</td>
</tr>
<tr>
<td><strong>Controlled evaluations (4)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>low-income mothers with children under 4 Parents of elementary school children 5-9 year olds and parents Families</td>
<td>Nutrition, weight and fitness, exercise and gardening, family involvement, family activity levels</td>
<td>Weight status of child, parental knowledge and intentions, sedentary behaviour, physical activity.</td>
<td>active play, family activity level, sedentary behaviour diet, preventive behaviours and awareness physical activity,</td>
</tr>
</tbody>
</table>
WP 4. Literature review.
What intergenerational interventions have been attempted to reduce obesity? Preliminary analysis

<table>
<thead>
<tr>
<th>Population</th>
<th>Interventions</th>
<th>Target</th>
<th>Outcome(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Children / Parents</td>
<td>Diet / nutrition</td>
<td>Weight</td>
<td>Weight</td>
</tr>
<tr>
<td>Children/Grandparents</td>
<td>Physical activity</td>
<td>Physical fitness</td>
<td>Physical activity</td>
</tr>
<tr>
<td>Children/ Families</td>
<td>Sedentary behaviours</td>
<td>Physical activity</td>
<td>Physical fitness</td>
</tr>
<tr>
<td></td>
<td>Healthy lifestyle</td>
<td>Sedentary behaviours</td>
<td>Energy balance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Knowledge / self</td>
<td>Risk factor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>management skills</td>
<td>modification</td>
</tr>
</tbody>
</table>

In all of the studies, the direction of the exchange is from older to younger generations. We have found no studies describing intergenerational exchange targeting obesity where the direction of the exchange is predominantly younger to older.
Intergenerational Social Interventions - Design

Literature reviews
The role of technology
User workshops (pilot) and context mapping
  Life course mapping
Understanding barriers and motivations to PA
Early concept development workshops / brainstorming activity

Heath Reed – Design Futures and the Art and Design Research Centre, Sheffield Hallam University

www.lab4living.org.uk  www.uchd.org.uk
User workshops (pilot) and context mapping
Life course mapping
Understanding barriers and motivations to PA
Early concept development workshops / brainstorming activity
In our sample (28 respondents, over two workshops) most popular PA was walking (21). Second was running, then cycling, then swimming. 68 activities were cited in all.

But activity that was regarded as being medium / highest exertion was running (14) then cycling, then swimming and lastly walking.

Walking was regarded lowest exertion of the top four but was identified as the highest in terms of social interaction.
Innovage - SHU team process schematic

**PILOT WORKSHOP 1**
1. Introduction, topic & aims
2. Open conversation
3. 'Lifetime line' exercises
4. Capture & close

**PILOT WORKSHOP 2**
1. Introduction aims recap
2. Review of finding and concepts
3. New issues arising
4. Capture & close

**SHU ACTIVITY**
Methods review
Finalise cohort
Ethics
Recruitment
Further develop concepts

**COHORT WORKSHOP 1a**
1.
2.
3.
4.

**COHORT WORKSHOP 2a**
1.
2.
3.
4.

**COHORT WORKSHOP 1b**
1.
2.
3.
4.

**COHORT WORKSHOP 2b**
1.
2.
3.
4.

- Concepts emerge
- Concepts develop
- Concepts tested
Questions: for discussion

We ask stakeholders to share their insights and expertise on the following issues:

- Physical activity as a focus for the development of the innovation.
- Innovation to reduce problematic obesity in old age.
- Using intergenerational exchange as a resource to develop / deliver the innovation.
Intervention group, feedback on:

- Intervention types and acceptance of them (what are barriers to uptake)
- What technology people use and what aspects of it they find easy / challenging
- Lifetime/lifecourse activity – what changes are there, when, how do they impact people