Prevention is better than cure, right?

Obesity

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What do we mean by prevention?
Levels of prevention - 1

- **Primordial**
  - Building healthy environments
    - Targets the whole population & selected groups

- **Primary**
  - Preventing the emergence of risk factors
    - Targets the whole population & selected groups
Levels of prevention - 2

- **Secondary**
  - Treating risk factors
    - Targets patients

- **Tertiary**
  - Minimising risk in those with established disease
    - Targets patients

- Secondary & tertiary prevention approaches are the traditional focus of health care providers
Primordial prevention?

• Aims at avoiding the emergence of the social, economic and cultural patterns of living that are known to contribute to an elevated risk of disease.

• Examples:
  – Preventing war and conflict
  – Reducing global warming, improving global air quality
  – Obesity, and related non-communicable diseases
The problem of obesity
Obesity

- One of today’s most blatantly visible – yet most neglected – public health problems

- The public health equivalent of climate change

- The Millennium Disease

WHO; [www.who.int/nut/obs.htm](http://www.who.int/nut/obs.htm); Laing & Rayner, Obesity Reviews 2007; [www.iotf.org](http://www.iotf.org)
Some facts about obesity

• In Australia, overweight & obesity affects:
  - 2 in 3 men (1:5 obese)
  - 1 in 2 women (1:5 obese)
  - 1 in 4 children & adolescents

• Obesity increases the risk of other diseases:
  - >3 times increased risk of diabetes, sleep apnoea, gall bladder disease …
  - 2-3 times increased risk of heart disease, cancer, osteoarthritis …
  - 1-2 times increased risk of infertility, PCOS …
  - !!!!!!!!!!!!!!
Obesity is associated with high costs

Financial costs of obesity $3.8 billion
Net cost of lost well-being $17.2 billion
Total cost of obesity $21.0 billion

With so many people affected by obesity, and so many associated health, social and economic consequences......

ALL

levels of prevention

are required!
Tackling obesity: the big picture
Societal policies and processes influencing the population prevalence of obesity

Societal policies and processes influencing the population prevalence of obesity

Most of these factors lie well beyond the capacity of the individual, the family or even the Health Sector to modify

Hence the need for a trans-sectoral and whole-of-government approach to obesity prevention

Potential primordial prevention interventions relevant to obesity

- Regulation of food marketing to children
- Urban planning that encourages active transport (walking, cycling) and discourages car use
- Agricultural priorities that favour healthy diets
- Taxes on less healthy foods
Primordial prevention approaches are vital to tackling obesity

BUT
Primordial prevention approaches are vital to tackling obesity

BUT

they are politically sensitive
they are initially expensive
they have a long lead-time to be effective
More downstream prevention approaches
Challenges in dealing with obesity at the 2° and 3° prevention level

- Large numbers of affected people
- Chronic disease – no quick cure
- Different levels of severity require different types of therapy
- Very patchy availability of services
- Few health professionals are well trained in obesity management
- No coordinated model of care for treating obesity
Consider the chronic disease care model

Level 1
- 70-80% of overweight/obese patients
- Self-care & community-based care

Level 2
- High risk patients
- Multidisciplinary care

Level 3
- Complex patients
- Specialist care

Acute care facilities & special obesity clinics
- Specialist teams

Acute care facilities
- Specialist allied health
- Group programs

GPs, other first care
- Group programs

Health promotion/Primary prevention
Consider the chronic disease care model

Level 1
70-80% of overweight/obese patients
Self-care & community based care

Level 2
High risk patients
Multidisciplinary care

Level 3
Complex patients
Specialist care

Level 4 care – bariatric surgery units

Acute care facilities & special obesity clinics
Specialist teams

Acute care facilities
Specialist allied health
Group programs

GPs, other 1° care
Group programs

Health promotion/Primary prevention
Examples of successful secondary prevention interventions

- **Adults**
  - US Diabetes Prevention Program
  - Finnish Diabetes Prevention Study
  - Moderate weight reduction
  - Reduction in comorbidities
  - Cost-savings
  - at 2+ years

- **Children**
  - 2 recent NHMRC-funded trials in obese children*
    (HIKCUPS, PEACH; 6 months duration, 10 sessions)
  - → weight reduction at 12 month

*Golley et al, Pediatrics, 2007; Okeley et al, Proc ASSO ASM, 2007*
Issues for the health (and health insurance) sector to consider - 1

- Advocacy for whole-of-government, trans-sectoral primordial prevention of obesity

- Effective service delivery:
  - Targeting interventions according to age, sex, severity, location
  - Integrating obesity management into the management of other chronic diseases (e.g. diabetes, heart disease, arthritis ...)
  - Funding cost-effective treatment strategies e.g. group programs, phone-coaching, e-communication ...
Issues for the health (& health insurance) sector to consider - 2

- Health professional development
  - Training a wide range of health professionals in effective weight management

- Research & Development
  - Into effective therapies, models of care, health professional training .....
Obesity

A major health problem

Primordial prevention is needed

Effective treatment (secondary & tertiary prevention) of affected individuals is needed
EXTRA SLIDES from here on
Obesity – the questions to consider:

- How do we make the environmental gradient less steep?
- How do we support individuals and families so they can make healthy lifestyle choices?
- What models of care are needed to treat the large numbers of affected people?
How would you respond to a disease with the following characteristics?

**Take 1**

- Affecting increasing numbers of the population – mainly adults, but increasingly seen even in children
- Associated with decreased quality of life, increased disability and shortened life expectancy
- Strong genetic predisposition
- Globally prevalent
- High economic burden
- A significant contributor to death from other major diseases
- Most health professionals are untrained in its management
Action stations!
How would you respond to a disease with the following characteristics? Take 2

- Highly stigmatised
- Not perceived as a disease by much of the community and the medical profession
- The subject of media voyeurism and victim-blaming
- Affected individuals are seen as:
  - Less attractive
  - Weak-willed, morally vulnerable, lacking will-power and strength
  - Bringing the disease on themselves
  - Probably of lower value than those who are unaffected
Welcome to the issue of obesity!
Australian adults 1999-2000: 2 out of 3 men and 1 in 2 women overweight or obese ... and 1 in 5 obese

<table>
<thead>
<tr>
<th></th>
<th>Overw’t &amp; obesity (BMI &gt;25 kg/m²)</th>
<th>Obesity (BMI &gt;30 kg/m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult males</td>
<td>67.5%</td>
<td>19.3%</td>
</tr>
<tr>
<td>Adult females</td>
<td>52.2%</td>
<td>22.2%</td>
</tr>
</tbody>
</table>

AusDiab Study: Cameron et al, MJA 2003
Measured heights & weights; adults >25 y
# Risks of obesity in Caucasians

<table>
<thead>
<tr>
<th>Relative risk</th>
<th>Disease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greatly increased (RR &gt;&gt;3)</td>
<td>Type 2 diabetes, Dyslipidaemia</td>
</tr>
<tr>
<td></td>
<td>Insulin resistance, Sleep apnoea</td>
</tr>
<tr>
<td></td>
<td>Gall bladder disease</td>
</tr>
<tr>
<td>Moderately increased (RR 2–3)</td>
<td>Heart disease, Hypertension</td>
</tr>
<tr>
<td></td>
<td>Cancer, Osteoarthritis</td>
</tr>
<tr>
<td></td>
<td>Gout</td>
</tr>
<tr>
<td>Slightly increased (RR 1-2)</td>
<td>Infertility, Anaesthetic risk</td>
</tr>
<tr>
<td></td>
<td>Polycystic ovary syndrome</td>
</tr>
</tbody>
</table>

RR = Relative risk

Updated from “Obesity: Preventing and managing the global epidemic”. WHO, 2004
Trends in combined overweight & obesity in school-aged children since 1970

Trends in combined overweight & obesity in school-aged children since 1970

1 in 4 Australia children & adolescents are overweight or obese

Prevalence rates are increasing

Complications of obesity in children and adolescents

- Psychosocial
  - Eating disorders
  - Poor self-esteem
  - Body image disorder
  - Social isolation and stigmatisation
  - Depression

- Neurological
  - Pseudotumour cerebri
    (Idiopathic intracranial hypertension)

- Pulmonary
  - Exercise intolerance
  - Obstructive sleep apnoea
  - Asthma

- Gastrointestinal
  - Gallstones
  - Gastric oesophageal reflux
  - Non-alcoholic fatty liver disorder

- Renal
  - Glomerulosclerosis

- Musculoskeletal
  - Ankle sprains
  - Flat feet
  - Tibia vara
  - Slipped capital femoral epiphysis
  - Forearm fracture

- Cardiovascular
  - Hypertension
  - Dyslipidaemia
  - Coagulopathy
  - Chronic inflammation
  - Endothelial dysfunction

- Endocrine
  - Insulin resistance
  - Impaired fasting glucose
    or glucose intolerance
  - Type 2 diabetes
  - Precocious puberty
  - Menstrual irregularities
  - Polycystic ovary syndrome (females)

Source: Ebbeling et al, Lancet 2002
Complications of obesity in children and adolescents

What are the health & economic consequences of increased numbers of adolescents entering adulthood with:

- Established obesity
- Established type 2 diabetes
- Risk factors for heart disease & diabetes
- Other co-morbidities?

Source: Ebbeling et al, Lancet 2002
Obesity prevention
Individual behaviour change

Healthy eating
Healthy activity
Healthy weight

Environmental change

The environmental gradient is steep

Adapted from Puska P, 2004
Individual behaviour change

Complementary approaches to prevention

Healthy eating
Healthy activity
Healthy weight

Environmental change

So, changing the gradient ...

Adapted from Puska P, 2004
Complementary approaches to prevention

Individual behaviour change

Healthy eating
Healthy activity
Healthy weight

Environmental change

... will make it easier to change behaviour

Adapted from Puska P, 2004