



# ACE-PREVENTION PAMPHLETS

## GENERAL POPULATION RESULTS PAMPHLET 9 COST-EFFECTIVENESS OF INTERVENTIONS TO REDUCE OVERWEIGHT AND OBESITY

### 1. MAIN MESSAGES

- Diet and exercise interventions can be reasonably cost-effective but are insufficient to substantially reduce the burden due to overweight and obesity.
- In order to address the growing problem of obesity, there is an urgent need to assess the (cost-) effectiveness of interventions that change the 'obesogenic' environment and target populations rather than individuals.

### 2. BACKGROUND

Overweight and obesity in adults is a global public health concern because excess weight increases the risk of disease and mortality. A range of highly prevalent diseases, notably cardiovascular disease, diabetes and a number of cancers, have been proven to be directly related to excess weight. In 2004/2005, 62% of Australian men and 45% of women were classified as overweight or obese. High body mass was responsible for loss of almost 200,000 DALYs in Australia in 2003, which was 7.5% of the total burden of disease and injury.

### 3. INTERVENTIONS

Interventions to reduce overweight and obesity can be divided into those that target individuals and those that target the 'obesogenic' environment in which people live. Interventions that target adults individually mostly consist of advice and support to improve diet and increase physical activity levels, with or without the simultaneous use of weight-reducing drugs. There is generally less evidence on the effectiveness of environmental interventions, partly because this evidence is more difficult to gather. Based on the literature we selected four interventions for cost-effectiveness analysis:

1. **Low-fat diet:** This diet was developed in New Zealand and emphasizes reducing fat intake, while maintaining adequate levels of micro and macro-nutrients. Participants in the one year program participated in education about reducing dietary fat intake, personal goal setting, self-monitoring and evaluation through a series of monthly small group meetings with dietitians. Targeted at overweight and obese Australian adults; recruitment via mass media and postal mailings.
2. **Diet and exercise:** The Dietary Approaches to Stop Hypertension (DASH) programme was developed in the US. It emphasizes consumption of fruit, vegetables, low fat dairy products, whole grains, poultry, fish and nuts and the reduced consumption of fats, red meat, sweets and sugar containing beverages, and recommends 180 minutes per week of moderate intensity physical activity. The programme consists of 10 group based and 2 individual meetings with dietitians and 2 group meetings and 2 individual meetings with exercise physiologists over a 6 month period. Participants also kept food diaries, recorded physical activity and monitored food intake. Targeted at overweight and obese Australian adults; recruitment via mass media and postal mailings.
3. **Orlistat:** Lipase inhibitor which aids weight loss by preventing the digestion and absorption of dietary fat. Recruitment and prescribing via opportunistic screening by GPs. We assumed a maximum treatment duration of one year. Targeted at obese Australian adults.
4. **Sibutramine:** Aids weight loss by suppressing appetite and increasing metabolism. Recruitment and prescribing via opportunistic screening by GPs. We assumed a maximum treatment duration of one year. Targeted at obese Australian adults.

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FOR FURTHER INFORMATION

[WWW.SPH.UQ.EDU.AU/BODCE-](http://WWW.SPH.UQ.EDU.AU/BODCE-)

ACE-PREVENTION

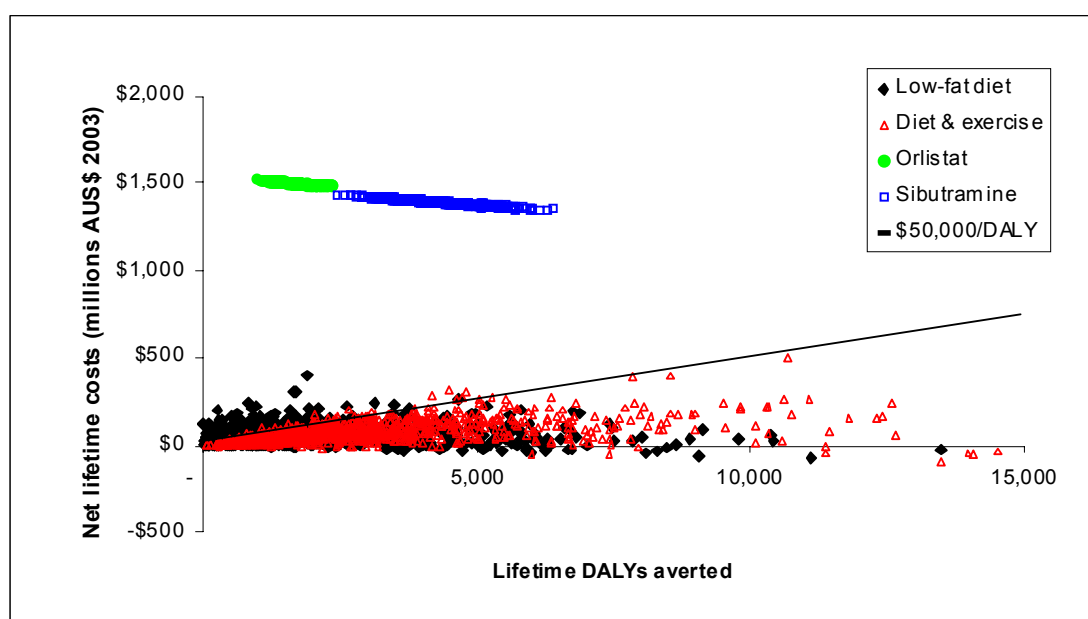
#### 4. CHOICE OF COMPARATOR

All interventions were compared to current practice, which approximates a “do nothing” scenario.

#### 5. INTERVENTION COST-EFFECTIVENESS

All four interventions mostly fall in the north-east quadrant of the cost-effectiveness plane and deliver health at a net cost (Figure 1). Most of the points for the low-fat diet and diet & exercise interventions fall below the \$50,000/DALY threshold.

Figure 1. Cost-effectiveness of interventions to reduce overweight and obesity



When compared to current practice, the low-fat diet and the diet and exercise interventions are likely to be reasonably cost-effective with median costs per DALY of around \$30,000 to \$40,000 (Table 1). However, when participants' costs for time and travel are included, these ratios increase to \$180,000/DALY for the diet and exercise intervention and \$130,000/DALY for the low-fat diet and the interventions would no longer be considered cost-effective. Treating obese individuals with orlistat or sibutramine is not cost-effective.

Table 1 Number of DALYs averted, cost-effectiveness ratio and probability of being cost-effective for the four interventions to reduce overweight and obesity when compared to current practice

	DALYs averted	Cost per DALY (95% uncertainty range)	Probability of being under \$50,000/DALY
Diet & exercise	2,100 (310 – 7,600)	\$33,000 (\$7,000 – \$69,000)	84%
Low-fat diet	1,200 (110 – 6,100)	\$41,000 (\$0 – \$310,000)	59%
Sibutramine	5,800 (4,300 – 7,600)	\$230,000 (\$170,000 – \$330,000)	0%
Orlistat	2,100 (1,500 – 2,900)	\$700,000 (\$500,000 – \$1,000,000)	0%

The estimated impact for these four interventions combined is about 11,000 DALYs over the lifetime of all adult Australians alive in 2003. Compared to the total annual loss of 200,000 DALYs due to overweight and obesity, this is a very small effect.

## 6. CONCLUSIONS

Diet and exercise interventions can be reasonably cost-effective but are insufficient to substantially reduce the burden due to overweight and obesity. Treating obese persons with orlistat or sibutramine is not cost-effective. The uptake of both drugs and diets is likely to be greater among women with higher socio-economic status. Shortages of dietitians and exercise physiologists may limit the capacity for diet and exercise interventions, especially in rural areas.

To address the high burden due to excess body weight, there is an urgent need to assess the (cost-)effectiveness of interventions that change the 'obesogenic' environment and target populations rather than individuals.

As part of the ACE Prevention project, work on nutrition labelling, taxing unhealthy foods and gastric banding is reported elsewhere.

For more information on this topic area, please visit: [www.sph.uq.edu.au/bodce-ace-prevention](http://www.sph.uq.edu.au/bodce-ace-prevention)

# ACE–PREVENTION PAMPHLETS

## 7. ABOUT ACE-PREVENTION

To aid priority setting in prevention, the Assessing Cost-Effectiveness in Prevention Project (ACE-Prevention) applies standardised evaluation methods to assess the cost-effectiveness of 100 to 150 preventive interventions, taking a health sector perspective. This information is intended to help decision makers move resources from less efficient current practices to more efficient preventive action resulting in greater health gain for the same outlay.

### PAMPHLETS IN THIS SERIES

#### Methods:

- A. The ACE-Prevention project
- B. ACE approach to priority setting
- C. Key assumptions underlying the economic analysis
- D. Interpretation of ACE-Prevention cost-effectiveness results
- E. Indigenous Health Service Delivery

#### Overall results

1. League table
2. Combined effects

#### General population results

1. Adult depression
2. Alcohol
3. Blood pressure and cholesterol lowering
4. Cannabis
5. Cervical cancer screening, Sunsmart and PSA screening
6. Childhood mental disorders
7. Fruit and vegetables
8. HIV
9. Obesity
10. Osteoporosis
11. Physical activity
12. Pre diabetes screening
13. Psychosis
14. Renal replacement therapy, screening and early treatment of chronic kidney disease
15. Salt
16. Suicide prevention
17. Tobacco

#### Indigenous population results

1. Cardiovascular disease prevention
2. Diabetes prevention
3. Screening and early treatment of chronic kidney disease



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