



# ACE-PREVENTION PAMPHLETS

## GENERAL POPULATION RESULTS PAMPHLET 7 COST-EFFECTIVENESS OF INTERVENTIONS TO INCREASE CONSUMPTION OF FRUIT AND VEGETABLES

### 1. MAIN MESSAGES

- Only five out of 23 programs evaluated for promoting fruit and vegetable intake are effective or cost-effective measures for improving population health and those that are cost-effective would only have a small impact on population health.
- Instead, we recommend more investment in evaluating interventions that target the whole population or whole communities, such as changes to policies that influence fresh food prices or availability, to see if these approaches can provide more effective and cost-effective incentives for improving fruit and vegetable intake.

### 2. BACKGROUND

Fruits and vegetables are an essential part of the human diet, but many people do not consume the recommended serves to prevent cardiovascular disease and cancer. In this research, we evaluate the cost-effectiveness of interventions to promote fruit and vegetable consumption to determine which interventions are good value for money, and by how much current strategies can reduce the population disease burden.

### 3. INTERVENTIONS

In a review of published literature, we identified 23 interventions for promoting fruit and vegetable intake in the healthy adult population that have sufficient evidence for cost-effectiveness analysis. Twenty-two out of the 23 interventions aimed to change individual behaviour; only one intervention took a whole-of-community approach.

1. **General population:** Marcus 1998, Radakovich 2006, Howard 2006, Heimendinger 2005a, Heimendinger 2005b, Heimendinger 2005c, Greene 2008, Ashfield-Watt 2007\*
2. **Supermarket:** Kristal 1997
3. **Worksite:** Tilley 1999, Hebert, 1993, Sorensen 1996, Emmons 1999, Sorensen 1998, Beresford 2001, Engbers 2006
4. **Health care setting:** Kristal 2000, Stevens 2003, Sacerdote 2006
5. **Low income:** Nitzke 2007, Herman 2008a, Herman 2008b, Havas 2003

\* targeted the whole community rather than individuals

### 4. CHOICE OF COMPARATOR

Cost-effectiveness of each program is evaluated in comparison to current practice. None of the 23 interventions are currently in place in Australia.

NHMRC GRANT NO. 351558

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FOR FURTHER INFORMATION

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

ACE-PREVENTION

## 5. INTERVENTION COST-EFFECTIVENESS

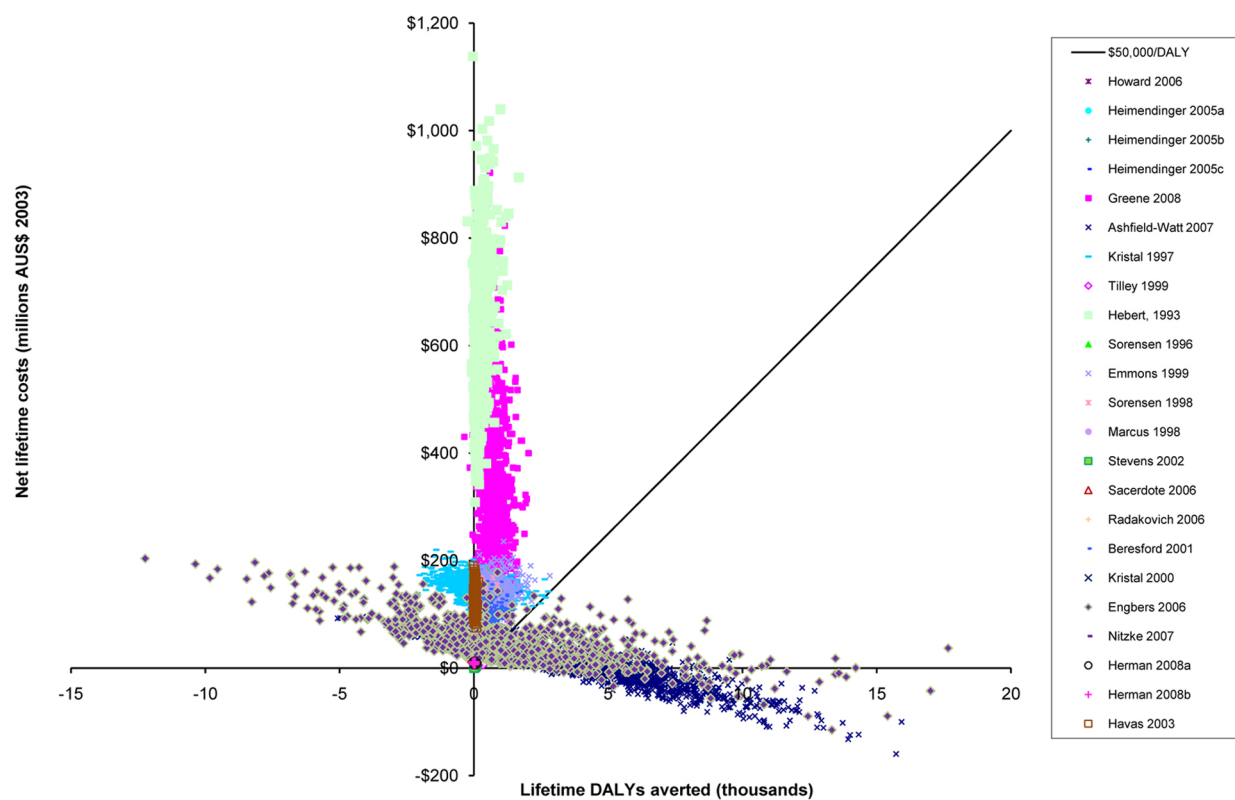
Current interventions that rely on dietary counselling, telephone contact, worksite promotion or other methods to encourage change in dietary behaviour are not highly effective or cost-effective. Only five out of 23 interventions are less than an A\$50,000 per disability-adjusted life year cost-effectiveness threshold, and even the most effective intervention can avert only 5% of the disease burden attributable to insufficient fruit and vegetable intake.

Table 1 Cost-effectiveness ratios and probability of being cost-effective for fruit and vegetable interventions

Intervention	Cost per DALY (95% uncertainty range)	Probability of being under \$50,000/DALY
<b>General population</b>		
Marcus 1998	\$74,000 (\$30,000 to \$290,000)	21%
Radakovich 2006	\$520,000 (\$250,000 to \$1,300,000)	0%
Howard 2006	\$75,000 (\$30,000 to \$180,000)	18%
Heimendinger 2005a	\$27,000 (\$2,900 to Dominated)	68%
Heimendinger 2005b	\$12,000 (\$130 to \$85,000)	95%
Heimendinger 2005c	\$8,600 (Dominant to \$45,000)	98%
Greene 2008	\$410,000 (\$140,000 to \$2,300,000)	0%
Ashfield-Watt 2007	Dominant (Dominant to Dominated)	94%
<b>Supermarket</b>		
Kristal 1997	\$2,500,000 (\$86,000 to Dominated)	0%
<b>Worksite</b>		
Tilley 1999	\$77,000 (\$35,000 to \$230,000)	16%
Hebert, 1993	\$3,400,000 (\$930,000 to \$35,000,000)	0%
Sorensen 1996	\$650,000 (\$230,000 to \$2,800,000)	0%
Emmons 1999	\$270,000 (\$97,000 to \$1,200,000)	0%
Sorensen 1998	\$1,000,000 (\$260,000 to \$10,000,000)	0%
Beresford 2001	\$380,000 (\$99,000 to Dominated)	0%
Engbers 2006	\$47,000 (Dominant to Dominated)	50%
<b>Health care setting</b>		
Kristal 2000	\$880,000 (\$290,000 to \$7,200,000)	0%
Stevens 2003	\$140,000 (\$62,000 to \$350,000)	1%
Sacerdote 2006	\$390,000 (\$95,000 to Dominated)	0%
<b>Low income</b>		
Nitzke 2007	\$10,000,000 (\$1,900,000 to Dominated)	0%
Herman 2008a	\$270,000 (\$130,000 to \$860,000)	0%
Herman 2008b	\$660,000 (\$220,000 to Dominated)	0%
Havas 2003	\$3,700,000 (\$1,400,000 to \$68,000,000)	0%

NB. A 'Dominant' cost-effectiveness ratio is associated with more health and less cost than if no fruit and vegetable intervention is in place, and a 'Dominated' cost-effectiveness ratio is associated with less health and more cost than if no fruit and vegetable intervention is in place.

Figure 1 Cost-effectiveness of fruit and vegetable interventions



# ACE–PREVENTION PAMPHLETS

## 6. 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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