



ACE–PREVENTION PAMPHLETS

GENERAL POPULATION RESULTS PAMPHLET 11 COST-EFFECTIVENESS OF PHYSICAL ACTIVITY INTERVENTIONS

1. MAIN MESSAGE

A package of interventions to promote physical activity is recommended as a public health measure: although there is substantial variability in the quantity and quality of evidence on intervention effectiveness, and uncertainty about the long-term sustainability of behavioural changes, it is highly likely that the package of interventions could lead to substantial improvement in population health at a cost saving to the health sector.

2. BACKGROUND

Lack of physical activity is a problem in many developed countries, and a growing concern for developing countries adopting a progressively 'westernised' lifestyle. Australia is no exception, with only 44% of men and 36% of women achieving sufficient physical activity for health. This inactivity was responsible for 7% of Australia's disease burden and 10% of all deaths in 2003, with cardiovascular disease and diabetes being the major disease outcomes. The cost of treating physical activity-related disease and injury, lost productivity and diminished quality of life, places a substantial burden on the Australian economy.

3. INTERVENTIONS

We reviewed the physical activity and transport intervention literature to identify a range of interventions targeting the adult population, which would be suitable for implementation in Australia, and had evidence of efficacy/effectiveness to support the analyses. From the review process, we selected six intervention programs for cost-effectiveness analysis:

1. **General practitioner (GP) prescription:** patients are screened opportunistically when visiting their general practice; inactive patients receive a physical activity prescription from the GP and follow-up phone call(s) from an exercise physiologist.
2. **GP referral to exercise physiologist:** screening questionnaires are mailed to all patients on the GP's patient list; inactive patients are invited to attend a series of counselling sessions with an exercise physiologist at their local general practice.
3. **Mass media-based campaign:** a six-week campaign combining physical activity promotion via mass media (television, radio, newspaper, etc.), distribution of promotional material and community events and activities.
4. **TravelSmart:** an active transport program targeting households with tailored information (e.g. maps of local walking paths, bus timetables) and merchandise (e.g. water bottles, key rings) as an incentive and/or reward for reducing use of cars for transport.
5. **Pedometers:** a community program encouraging use of pedometers as a motivational tool to increase physical activity (e.g. to 10,000 steps per day).
6. **Internet:** participants recruited via mass media to access physical activity information and advice across the internet via a website and/or email.

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4. CHOICE OF COMPARATOR

Cost-effectiveness of each intervention is evaluated in comparison to current practice, which approximates a “do nothing” scenario. Our review of intervention implementation in Australia found that while some interventions were in place in 2003, all were operating at less than 5% of the estimated full capacity.

5. INTERVENTION COST-EFFECTIVENESS

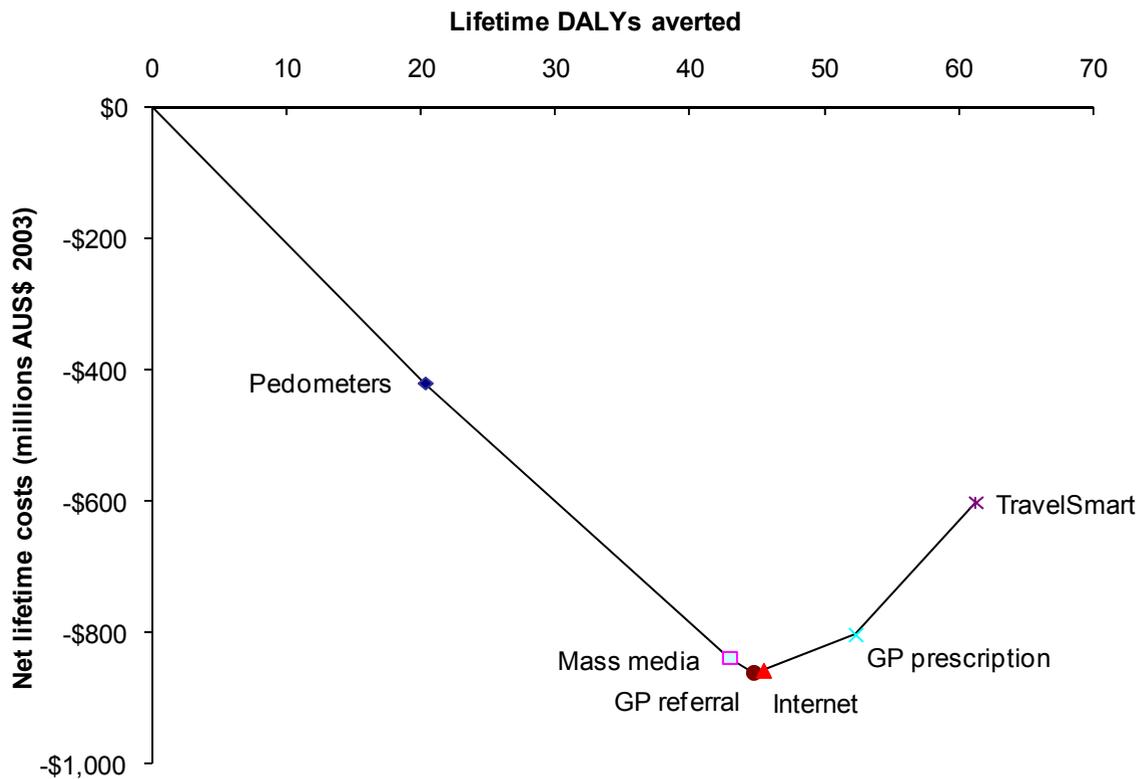
The pedometer and mass media-based community campaigns and GP referral are very likely to lead to a health gain at a cost-saving to the health sector. The internet-based intervention program, the GP physical activity prescription program, and the program to encourage more active transport are less likely to be cost-saving, but still have a high probability of being under a A\$50,000 per DALY threshold.

Table 1 Cost-effectiveness of physical activity interventions

Intervention	Median ICER (95% uncertainty interval)	Probability of being cost-saving	Probability of being under \$50,000/DALY
Pedometers	Dominant (Dominant to Dominant)	100%	100%
Mass media	Dominant (Dominant to Dominant)	100%	100%
GP referral	Dominant (Dominant to \$420)	97%	100%
Internet	\$2,900 (Dominant to \$210,000)	46%	83%
GP prescription	\$7,900 (Dominant to \$130,000)	23%	91%
TravelSmart	\$20,000 (Dominant to \$350,000)	8%	73%



Figure 1 Intervention pathway for physical activity interventions



6. CONCLUSIONS

Intervention to encourage an increase in physical activity participation is highly recommended in Australia. Potential reductions in costs of treating ischaemic heart disease, stroke, diabetes, breast cancer, and colon cancer mean that there is a high probability of cost-savings from a health sector perspective. Taken as a package of interventions, all six physical activity interventions could lead to a substantial improvement in population health at a cost-saving to the health sector.

It is important to note, however, that the evidence around physical activity interventions is relatively weak. There is uncertainty around measures of intervention effect (particularly around sustainability of effects over the long term) and uncertainty around the applicability of evidence from trials to the context of routine health care delivery. Careful evaluation is recommended if these interventions are implemented on a larger scale in the Australian health system.

Publication with further information about the ACE analysis of physical activity interventions:

Cobiac LJ, Vos T, Barendregt JJ (2009) Cost-effectiveness of interventions to promote physical activity: a modelling study. *PLoS Medicine* 6: e1000110.

For more information on this topic area, please visit website 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