REPORT ON THE COST BENEFIT OF ACTIVE LAUNCESTON

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Cost Benefit of Active Launceston

Since its initiation in 2008, Active Launceston's mission has been to improve the health and wellbeing of the Launceston community by increasing their participation in physical activity. By the end of 2015, a total of approximately $1.9 million (in 2015 Australian dollars) were invested from 24 entities (Table 1). To investigate the potential economic benefit and return from Active Launceston, we have conducted a cost benefit analysis (CBA) using return on investment (ROI) figures taken from a state-of-the-art meta-analysis performed by Menzies Institute for Medical Research and recently published in a major international workplace health promotion journal (1), combined with known data about the costs of implementing Active Launceston to calculate the economic benefit and return from the program.

Methods

ROI is used to evaluate the efficiency of an investment or to compare the efficiency of several investments. It measures the amount of return on an investment relative to the costs. The formula used in the meta-analysis to calculate ROI is:

ROI = (Benefits – Costs of program)/Costs of program (1, 2).

In this formula, we have assumed a likely ROI based on the literature, and we know the costs of the program, therefore, the benefit of the program is calculated using the formula:

Benefits of program = ROI × Costs of program + Costs of program (a)

The return of the program is calculated by the formula:

Return of program = Benefits of program − Costs of program (b)

The ROI estimated by our state-of-the-art meta-analysis based on 51 studies was 1.38 (95% CI: 1.38 to 1.39) for all included studies. In addition, a ROI of 1.61 (95% CI: 1.56 to 1.65) was found for non-experimental studies. The ROI of 1.61 was used to calculate the potential economic benefit and return for Active Launceston in the base case analysis as the Active Launceston program was not a controlled study; and we have used the overall ROI of 1.38 in a sensitivity analysis. Mean and 95% confidence interval of the benefit and return was calculated using the ROI and costs of Active Launceston formulas (a) and (b).

Results

Base case analysis

Annual investment of Active Launceston and the potential ROI is summarised in Table 1. A total of 11,887 participants involved in the Active Launceston program with a total investment of $1.9 million from 2008 until 2015. By applying a ROI of 1.61, the economic benefit of Active Launceston ranged from $0.36 million (95% CI: $0.35 million to $0.36 million) in 2009 to $0.73 million (95% CI: $0.72 million to $0.74 million) in 2013 (Table 1). Similarly, the economic return of Active Launceston ranged from $0.22 million (95% CI: $0.21 million to $0.23 million) in 2009 to $0.45 million (95% CI: $0.43 million to $0.46 million) in 2013 (Table 1).

The average economic benefit *per capita* for the participants (total number of participants: 11,887) ranged from $171 (95% CI: $168 to $174) in 2009 to $1,896 (95% CI: $1,860 to $1,925) in 2008. The average economic return *per capita* for the participants ranged from $106 (95% CI: $102 to $108) in 2009 to $1,169 (95% CI: $1,133 to $1,199) in 2008.

The total economic benefit and return of Active Launceston was $4.9 million (95% CI: $4.9 million to $5.0 million) and $3.1 million (95% CI: $3.0 million to $3.1 million) respectively. The *per capita* economic benefit and return was $416 (95% CI: $408 to $423) and $257 (95% CI: $249 to $263) respectively.

Sensitivity analysis

If we use a ROI of 1.38 (the overall ROI calculated from the meta-analysis), total economic benefit and return of Active Launceston was $4.5 million (95% CI: $4.51 million to $4.53 million) and $2.62 million (95% CI: $2.62 million to $2.64 million) respectively. The *per capita* economic benefit and return was $380 (95% CI: $380 to $381) and $220 (95% CI: $220 to $222) respectively.

Discussion

Inadequate physical activity relates to higher risks of stroke, ischaemic heard disease, breast cancer, type 2 diabetes as well as obesity and falls in later life (3, 4). The World Health Organization recommends at least 30 minutes of regular, moderate-intensity physical activity on most days to reduce the risk of disease and injury (5). Programs that encourage an increase in physical activity participation over the lifetime of the Australian population are highly recommended as they are shown to be highly cost-effective and are very likely to be cost-saving (6).

We have estimated that Active Launceston should produce a good return on investment when the invested amount was combined with evidence from a recent systematic review and meta-analysis of workplace health promotion programs. With a ROI of 1.61 in the base case analysis, the total return was evaluated at $3.1 million which was $257 per participant. We have used this value in the base case analysis because Active Launceston was not a trial, so the ROI for non-experimental settings was deemed to be the most applicable to calculate the benefits and return (1). To estimate another possible range of benefit and return from Active Launceston, we have conduct a sensitivity analysis. We have used the overall ROI of 1.38 that was generated from both experimental and non-experimental interventions, and it was found that a total benefit and return from Active Launceston was $4.5 million and $2.6 million respectively, which was equivalent to $380 and $220 per participant.

A cost-benefit analysis (CBA) was conducted to evaluate the potential benefit of Active Launceston in monetary terms. The advantage of using CBA is to enable comparison between different programs with varied outcomes of interest. However, it does not involve an evaluation of health outcomes. For example, it would be useful to monitor absenteeism and presentism of the participants and evaluate the benefit of productivity losses avoided. In addition, quality of life is another useful index to gauge the change of wellbeing of participants. Incorporating health outcomes enables the conduct of cost-effectiveness analysis, which is preferred in economic evaluations.

Limitations of the study should be noted. No economic or health benefits were prospectively measured as part of the Active Launceston program, so we were forced to use a ROI figure from a published meta-analysis in order to approximate the monetary benefits of the program. Second, no health outcomes, like changes in quality of life or cardiovascular risk factors were monitored in the program, therefore it was not possible to perform cost-effectiveness analysis to evaluate value for money.

In summary, Active Launceston is estimated to have a good return on investment. Using a ROI of 1.61 and a total investment of $1.9 million from 2008 to 2015, the cost to deliver Active Launceston was $160 per participant, and the estimated economic benefit and return of Active Launceston was $416 and $257 per participant respectively. In future iterations of Active Launceston, further research is encouraged to incorporate relevant economic and health outcomes when conducting the intervention programs. This will enable cost-effectiveness analysis of the program as the preferred method of health economic evaluation of health promotion programs from a broader perspective. We are happy to assist/advise in the design of future research into the health and economic impacts of community health promotion.

References

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Table 1. Annual investment of Active Launceston and the potential return on investment (ROI) in 2015 Australian dollars

Income	2008	2009	2010	2011	2012	2013	2014	2015	TOTAL
UTAS - Office of the Provost	55,500.00	-	78,750.00	75,750.00	135,039.02	75,000.00	74,250.00	75,000.00	569,289.02
Department of Health and Ageing	137,640.00	84,360.00	-	-	-	-	-	-	222,000.00
Launceston City Council	25,530.00	-	37,800.00	36,360.00	35,350.00	45,000.00	45,614.94	47,465.14	273,120.08
Tas Community Fund	-		-	68,250.00		65,650.00	65,650.00		199,550.00
Hawthorn Football Club	-	4,440.00	5,250.00	-	-	-	-	-	9,690.00
St Lukes Health	-	-	5,250.00	5,050.00	5,050.00	-	4,950.00	11,800.00	32,100.00
Website Advertising	999.00	666.00	630.00	909.00	606.00	600.00	594.00	600.00	5,604.00
UTAS - VC Award for Community Engagement	-	-	5,250.00	-	-	-	-	-	5,250.00
PPAC Active Towns Awards	-	-	11,550.00	-	-	2,000.00	-	-	13,550.00
Consultancies	-	-	474.60	15,380.28	-	-	-	-	15,854.88
DHHS - Health Promotion Grants	3,330.00	2,220.00	-	-	-	-	-	-	5,550.00
St Giles	-	-	-	2,727.00	1,535.20	-	-	-	4,262.20
Winifred Booth Charitable Trust	-	-	3,150.00	-	-	-	-	-	3,150.00
DHHS - Ministers Office	-	-	-	-	-	108,000.00	-	-	108,000.00
DHHS - Women's Health	-	1,209.90	-	-	-	-	-	-	1,209.90
Tasmania Health Organisation North	-	-	-	-	-	50,000.00	99,990.00	100,000.00	249,990.00
Women Sport and Recreation Tas	-	-	-	-	-	-	792.00	-	792.00
Anglicare	-	-	-	-	-	-	9,900.00	1,500.00	11,400.00
Country Club Casino	-	-	-	-	-	-	4,356.00	-	4,356.00
Rotary - Sallys ride	-	-	-	-	-	-	2,178.00	2,200.00	4,378.00
UTAS Foundation Interest	-	-	-	-	-	-	2,970.00	900.00	3,870.00
Annual Appeal	-	-	-	-	-	-	198.00	300.00	498.00
Tasmanian Sports and Events	-	-	-	-	-	-	637.56	584.00	1,221.56
Sport and Recreation Tasmania	-	44,400.00	36,750.00	35,350.00	35,350.00	-	-	-	151,850.00
Total annual income	222,999.00	137,295.90	253,104.60	237,176.28	278,580.22	280,600.00	246,430.50	240,349.14	1,896,535.64
Benefit of Active Launceston, base case	582,027.39	358,342.30	660,603.01	619,030.09	727,094.37	732,366.00	643,183.61	627,311.26	4,949,958.03
Return on investment (ROI) , base case	359,028.39	221,046.40	407,498.41	381,853.81	448,514.15	451,766.00	396,753.11	386,962.12	3,053,422.39
Benefit per capita of Active Launceston, base case (number of participants: n=11,887)	1,895.85	171.37	271.63	351.52	440.93	480.24	495.14	762.23	416
ROI *per capita*, base case (number of participants: n=11,887)	1,169.47	105.71	167.56	216.84	271.99	296.24	305.43	470.18	256.87