

A Lesson in Business: Potential cost-effectiveness of the Physical Activity Loyalty Card Scheme

What is the Physical Activity Loyalty card scheme and what did it find?

Researchers in the Centre for Public Health, Queen's University Belfast developed the Physical Activity Loyalty Card (PAL) scheme, where users could earn points and rewards for being physically active. This scheme was tested in a pilot study to investigate if a 'loyalty' card reward scheme could be used to encourage physical activity among civil servants based at Stormont Estate.

406 civil servants were recruited to take part in the 12-week study. Sensors were placed along footpaths and in gyms, within the grounds at Stormont. When users went for a walk, they swiped their loyalty card across the sensors which collected information on the time and location of the activity. This information was then sent to the study website. Participants logged onto their individual user account to get feedback on the amount of activity that they undertook.



Participants were selected at random to be in one of two groups; 1) the *Incentive Group* where they used their loyalty card to monitor their activity levels and earned points and rewards for the minutes of activity that they completed; or 2) the *No Incentive Group* where they used the card to monitor their activity levels but did not earn points or collect rewards. This made it possible to assess how effective rewards were at encouraging physical activity. The *Incentive Group* "earned" 1 point for each minute of activity that they completed and points could then be redeemed for retail vouchers, for example, free cinema passes, free sandwich vouchers, which were sponsored by local businesses.

What did we want to find out?

We wanted to determine if the PAL scheme was a cost-effective investment, for the health and employment sector, by 'weighing up' the costs of the PAL scheme against its benefits.

For example, from the health sector perspective, the PAL scheme may help employees to obtain the recommended UK physical activity guidelines of 150 minutes of moderate intensity physical activity per week, thereby reducing their chances of major chronic diseases including heart disease and cancer in the long term. In the short term however, small increases in physical activity can lead to improvements in mental wellbeing.

From the employment sector perspective, a strong business case exists for encouraging employees to become more physically active. Evidence demonstrates that a healthy workforce tends to be more productive and take fewer days off sick, leading to reduced staff turnover, increased employee satisfaction, and a higher company profile. Dame Carol Black, in her report to the UK government in 2008, describes how UK employers are actually bearing a significant proportion of the wider economic costs of ill-health, chronic disease and incapacity since lost productivity of those who are out of the workforce is in excess of £60 billion a year and including the costs of sickness absence brings these costs to over £70 billion each year.

What did we do?

Healthcare perspective

Employees were asked to complete a quality of life questionnaire, at baseline and 6 months after the intervention. For each employee, the gain in quality of life over 6 months was calculated and multiplied by 0.5 years (the same length as the follow-up period) to obtain Quality Adjusted Life Years (QALYs). QALYs are the number of years of life in perfect health that would be added by an intervention. This allowed us to compare the total QALYs gained by each group. By dividing the costs of the *Incentive Group* compared to the *No Incentive Group*, by the additional gain in QALYs, a cost-effectiveness ratio from a healthcare perspective was obtained.

Employers' perspective

The quality of life scores at baseline and 6 months after the intervention were converted to productivity estimates. This allowed us to compare the total productivity gains by each group. As before, by dividing the additional costs of the *Incentive Group* compared to the *No Incentive Group*, by the additional gains in productivity, a cost-effectiveness ratio from an employer's perspective was obtained.

What did we find?

Healthcare perspective

The *Incentive Group* reported higher gains in quality of life over 6 months than the *No Incentive Group* (see Figure 1). The cost-effectiveness ratio for the health sector was £2,900/QALY which is well below the UK cost-effectiveness threshold of £20,000/QALY and so is considered very cost-effective.

Employers' perspective

The *Incentive Group* reported higher gains in productivity over 6 months than the *No Incentive Group* (see Figure 1). No cost-effectiveness threshold exists for the employment sector but the cost-effectiveness ratio was £2,700/percentage increase in productivity. This would suggest that if a business has revenue of at least £270,000 then the intervention will likely be cost-effective for them as they should have a return on investment of at least equivalent to what they invested. (Note: A small business is defined as having revenue of less than £5 million per year.)

Why is this important?

These results show that the PAL scheme has the potential to cost-effectively improve employee physical activity levels, quality of life and induce greater gains in productivity; therefore demonstrating its potential economic value for both the health and employment sectors.

In addition, a unique aspect of the scheme, is that it was based on a sustainable "business model" with rewards sponsored from local businesses, creating a potential 'win-win' situation for employers, local businesses and employees. By businesses offering modest financial incentives, such as retail vouchers, they get an increase in the number of customers in return. Employers benefit from greater employee productivity and less absenteeism, and employees become more active and healthier. Recently the UK government has encouraged



public health professionals to work collaboratively with business to improve public health. This study demonstrates how local businesses can be involved in tackling major public health issues.

Citation:

Mary A. Dallat, Ruth F.Hunter, Mark A. Tully, Karen J. Cairns, Frank Kee. A lesson in business: cost-effectiveness analysis of a novel financial incentive intervention for increasing physical activity in the workplace. *BMC Public Health* 2013; 13: 953.

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Acknowledgements

This research was supported by funding from the National Prevention Research Initiative (NPRI) and their funding partners (Alzheimer's Research Trust; Alzheimer's Society; Biotechnology and Biological Sciences Research Council; British Heart Foundation; Cancer Research UK; Chief Scientist Office, Scottish Government Health Directorate; Department of Health; Diabetes UK; Economic and Social Research Council; Engineering and Physical Sciences Research Council; Health and Social Care Research and Development Division of the Public Health Agency (HSC R&D Division); Medical Research Council; The Stroke Association; Welsh Assembly Government; and World Cancer Research Fund, and the Department for Employment and Learning, Northern Ireland.

The research team wish to thank Professor Ken Addley, Patricia McQuillan and Mary McGrath, Occupational Health, Northern Ireland Civil Service for their invaluable support, and the various businesses that sponsored the retail vouchers (Whistles, Decathlon, Activ, Activ Health and Beauty, Strand Cinema, Dundonald International Ice Bowl, and Playball).

Figure 1: Graph showing the gains in productivity and Quality Adjusted Life Years (QALYs) for both groups.

