public health commissioning network

Return on investment for lifestyle interventions

Note

The following information was kindly provided by Jilla Burgess-Allen, Senior Public Health Advisor at NHS Stockport (Jilla.Burgess-Allen@stockport-pct.nhs.uk), in response to a question asked in the 'Swapshop' in the August 2010 PHCN newsletter about return on investment (ROI) for lifestyle interventions.

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Mental health & wellbeing

- **Early intervention with Conduct and Emotional Disorders**. Total value of benefits of prevention from treating a one year cohort of children with conduct disorder is estimated at £5.2 billion.
- **Promote good mental health as well as social & emotional skills in childhood (especially those with conduct disorders).** Estimated lifetime benefit of £115,000 per case of child with conduct disorder. Cost savings for mental health promotion are £75,000 per case. Total value of benefits of prevention of promoting positive mental health in a one year cohort of UK children is £23.25 billion.
- **Early Intervention is cost effective in reducing the risk of re-offending**: Every £1 spent on a prevention programme for those at risk of offending saves £5.
- **Later targeted parenting programmes with children with emotional and conduct disorders.** (e.g. Triple P or Functional Family Therapy). Programmes cost £639-3,839 but a total cost of a child with conduct disorder is £70,000 by 28 years of age.
- **Family Intervention Programme**: Cost of programme £8-20,000 compared to costs, if no intervention, of £250-350,000.
- **Refer and treat alcohol misuse problems in perpetrators of violence across health and CJS systems**. Alcohol is a key risk factor for carry out and being a victim of violence and abuse. For every £1 spent on treatment, the public sector saves £6.

Source: Cost Effectiveness of Outcome Focused Interventions (UCLan 2009)

Obesity

1. Weightwatchers

Intervention: 12 weeks of vouchers offering free access to a local Weight Watchers group. Self referral service promoted through GP Practices. A limited supply of vouchers is available.

The cost effectiveness of Weight Watchers, in terms of weight loss is as follows:

Cost of Weight Watchers compared to no treatment is £1, 022 per QALY

Costs of anti-obesity medication ranges from £3,200 to £24,431 per QALY

2. Local Exercise Action Pilot findings

The Local Exercise Action Pilots (LEAP) were pilot projects funded by the DH at ten sites designed to improve the intervention evidence base for physical activity. The projects were located in both PCTs and local authorities and classified under seven categories: exercise referral; motivational interviews; classes and groups; training leaders and coordinators; campaigns and directories and outdoors and transport.

Each intervention targeted priority groups: those who are sedentary; those at risk of chronic health problems; those on low incomes; young people; older people; women and people from black and ethnic minorities.

The findings of the interventions were positive, however it should be noted that the majority of participants (60.2%) who took part were already meeting the physical activity guidelines.

- The future cost saving for the NHS per participant ranges from £770 per participant to £4900.
- The cost per participant of LEAP interventions ranges from £50 to £3400.
- The cost per Quality Adjusted Life Year (QALY) from LEAP interventions ranged from £50 to £510.

The cost per participant improving their physical activity category ranged from £260 to £2790. There was no obvious relationship between LEAP intervention themes and cost per participant improving their physical activity level.

3. Brief Intervention

NICE established that brief intervention for physical activity in primary care costs between **£20 and £440 per quality-adjusted life year (QALY)** (when compared with no intervention) with **net costs saved per QALY gained of between £750 and £3,150.**

The service provided by the Phase IV Cardiac Rehab is developed along a similar model.

A programme of training, to support the delivery of physical activity brief intervention in primary acre is currently provided.

In comparison, the cost of statins is at between £10,000 and £17,000 per QALY.

In comparison, smoking cessation costs between £221 and £9,515 per QALY – a common and well accepted NHS service.

Feasibility of "Let's Get Moving": Based on NICE public health guidance and the Let's Get Moving feasibility study, the following indicative costs have been provided for the implementation of the pathway:

Indicative set-up costs per surgery

Costs of staff training (time): £414 (GP) + £336 (PN) + £264 (HCA) = £1, 014

Costs of training consultant = £400

Costs of ongoing practice support = £200

Total training and support = £1, 614

	Delivered by GP	**Delivered by PN**	**Delivered by HCA**
500 patients are assessed and receive brief intervention in one year			
Cost of assessment and brief intervention	£32 per patient	£6.50 per patient	£5.15 per patient
For 500 patients	£16,000	£3, 250	£2,575
80% of patients undertake intervention = 400 patients			
Cost of support activity following brief intervention and follow-up	£5 per patient	£5 per patient	£5 per patient
For 400 patients	£2,000	£2,000	£2,000
Total cost for one year (including training and support)	£19,614	£6,864	£6,189
25% patients complete programme and achieve health gain = 100 patients			
QALY gain per patient undertaking intervention	0.17	0.17	0.17
Total QALY gain	68	68	68
Cost per QALY gain	**£288/QALY**	**£101/QALY**	**£91/QALY**

4. Active travel

Sustrans has gathered the evidence around health cost benefits around cycling and walking infrastructure schemes. The following examples indicate the considerable health benefits which could be gained should "Active Travel" be prioritised in Local Transport Plans

Bike/Pedestrian Trails in Nebraska

From a public health perspective, a cost-benefit analysis of using bike/pedestrian trails in Lincoln, Nebraska, to reduce health care costs associated with inactivity was conducted. Data was obtained from the city's 1998 Recreational Trails Census Report and the literature. Per capita annual cost of using the trails was U.S.$209.28 ($59.28 construction and maintenance, $150 of equipment and travel). Per capita annual direct medical benefit of using the trails was $564.41.

The cost-benefit ratio was 2.94, which means that every $1 investment in trails for physical activity led to $2.94 in direct medical benefit.

Norway

The study presents cost–benefit analyses of walking and cycling track networks in three Norwegian cities. The cost–benefit analyses take into account the benefit of reduced insecurity and the health benefits of the improved fitness the use of non-motorised transport provides. In addition to reductions in health costs, the analyses also take into account that a change from travel by car to cycling or walking means reduced external costs (e.g. air pollution and noise) from motorised traffic and reduced parking costs. The benefits of investments in cycle networks are estimated to be at least 4–5 times the costs

London

DfT cites a canal towpath in London, transformed into a high quality route for commuter use between 2002 and 2004, with improved route surface quality and connectivity. This, plus the introduction of the congestion charge, led to considerable increases in usage, resulting in:

- total present value of benefits£24,891,736
- of which £10,300,266 is attributed to increased physical fitness (based on numbers of preventable deaths)
- and £3,529,245 through reduced absenteeism
- a benefit to cost ratio of 22:1

A more recent economic assessment of walking & cycling interventions found that **almost all of the studies identified report economic benefits of walking and cycling interventions which are highly significant. The median result for all data identified is 13:1 and for UK data alone the median figure is higher, at 19:1.**

Investment in infrastructure which enables increased activity levels amongst local communities through cycling and walking is likely to provide low cost, high-value options providing benefits for our individual health, the NHS in terms of cost savings, and for transport as a whole (Davis, A. March 2010).

Bibliography / Additional resources

IDeA (2009). Valuing Health: Developing a business case for health improvement. From: http://www.idea.gov.uk/idk/core/page.do?pageId=15246382

Cobiac LJ, Vos T, Barendregt JJ (2009). Cost-Effectiveness of Interventions to Promote Physical Activity: A Modelling Study. PLoS Med 6(7): e1000110. doi:10.1371/journal.pmed.1000110

Health England (2009). Health England Report No. 5: Prioritising investment in preventative health. From: http://www.healthengland.org/

Department for Children, Schools and Families (2007). Cost benefit analysis of interventions with parents. From: http://www.education.gov.uk/research/programmeofresearch/projectinformation.cfm?projectid=14874&resultspage=1

Matrix Evidence (2008). Supplementary economic analysis on interventions to reduce health inequalities. From: http://www.matrixknowledge.com/wp-content/uploads/supplementaryeconomicanalysisoninterventionstoreducehealthinequalities.pdf

National Mental Health Development Unit (2009). Commissioning Population Mental Health and Well-being: a Leadership Briefing for Boards and Senior Managers: Draft Working Document

Davis A, Department of Health & Government Office of the South West (2009). Value for Money: An Economic Assessment of Investment in Walking and Cycling. From: http://www.apho.org.uk/resource/item.aspx?RID=91553