



# Economic costs of physical inactivity

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The purpose of this document is to provide physical activity practitioners, commissioners and policy makers with the key facts to help them build an economic argument for the need to decrease levels of physical *inactivity* within the population. This evidence briefing summarises the key facts on the total cost of disease to the NHS, the cost of treating individual cases with specific diseases and the cost of disease which can be attributed to physical inactivity.

## Introduction

Physical inactivity is the fourth leading cause of global mortality, and many of the leading causes of ill health in today's society, such as coronary heart disease, cancer and type 2 diabetes, could be prevented if more inactive people were to become active <sup>(1)</sup>. Worldwide, it is estimated that physical inactivity causes:

- 6% of the burden of disease from coronary heart disease
- 10% of colon cancer
- 10% of breast cancer
- 7% of type 2 diabetes
- 5.3 million of the 57 million deaths that occurred worldwide in 2008 <sup>(2)</sup>.

In the UK, these figures are higher with physical inactivity causing:

- 10.5% of coronary heart disease cases
- 18.7% of colon cancer cases
- 17.9% of breast cancer cases
- 13.0% of type 2 diabetes cases
- 16.9% of premature all-cause mortality <sup>(2)</sup>.

The burden of physical inactivity on the economy and healthcare cost has become an increasingly prevalent issue. In 2006/2007, the estimated cost of physical inactivity to the NHS was:

- £117 million for stroke
- £542 million for heart disease
- £65 million for colorectal cancers
- £54 million for breast cancer
- £158 million for type 2 diabetes <sup>(3)</sup>.

## Costs to the UK healthcare system and economy

In developed countries, physical inactivity accounts for 1.5% -3.0% of total direct healthcare costs <sup>(5)</sup>. In 2006/2007, physical inactivity cost the NHS an estimated £0.9 billion <sup>(3)</sup>. More recently, data from 2009/2010 demonstrates that physical inactivity cost:

- the primary care trusts (PCT) in England in excess of £940 million
- each PCT on average £6.2 million <sup>(6)</sup>.

These figures only take into consideration the direct costs from coronary heart disease, cerebrovascular disease, breast cancer, colon/rectum cancer and diabetes mellitus, therefore the potential healthcare costs associated with physical inactivity could be considerably higher. For individual PCTs the costs ranged from £1,323,260 to £17,741,683 per year <sup>(6)</sup>.

Two tools which provide more detailed information on the cost of physical inactivity at a local authority level are Sport England's Local Sport Profile Tool and a new tool developed by the South West Public Health Observatory and Sustrans called Health Impact of Physical Inactivity (HIPI). The Local Sport Profile Tool has been developed to help local authorities in England to generate a sporting profile for their area in the form of charts and tables, bringing together data on sport participation and provision. The HIPI provides English local authority level data on a similar range of health impacts and models the improvement possible if physical activity levels were increased.

For more information, visit:

Local Sport profiles: [www.sportengland.org/research/local\\_sport\\_profiles.aspx](http://www.sportengland.org/research/local_sport_profiles.aspx)

HIPI: [www.apho.org.uk/RESOURCE/VIEW.ASPX?RID=123459](http://www.apho.org.uk/RESOURCE/VIEW.ASPX?RID=123459)

## The economic costs of cardiovascular disease

Cardiovascular disease (CVD) includes all the diseases of the heart and circulation including coronary heart disease (CHD) and stroke.

In 2010/2011 almost 180,000 deaths were attributed to CVD and there were over 1.6 million inpatient episodes (which include consultant visits, ordinary admissions and day cases) <sup>(7)</sup>.

In 2009, the direct healthcare cost of all CVD was £8.7 billion and the total economic cost (including healthcare cost, informal care and loss of productivity) was £18.9 billion <sup>(7)</sup>.

The average cost of a hospital admission for a CVD event is estimated to be £4,614 <sup>(8)</sup>.

### Stroke

In 2010/2011, there were around 50,000 deaths from stroke and more than 240,000 inpatient episodes.

Direct healthcare costs from stroke in 2009 was nearly £1.8 billion with the total economic cost (including healthcare cost, informal care and loss of productivity) being in excess of £3.7 billion <sup>(7)</sup>.

### Example of potential savings

#### Savings to a single country

In 2003 the Scottish Physical Activity Task Force estimated that if physical inactivity in Scotland decreased by 1% each year for the next five years:

- the economic benefit associated with the number of life years saved due to preventing premature death due to physical inactivity is estimated to be £85.2 million
- yearly hospital admissions for coronary heart disease, colon cancer and stroke would fall by around 2,231 cases
- NHS Scotland could have a possible yearly cost saving of £3.5 million <sup>(18)</sup>.

In 2006/2007, stroke due to physical inactivity was estimated to cost the NHS £117 million <sup>(3)</sup>.

In the UK, if all inactive people were to become active, 12% of stroke cases could potentially be prevented <sup>(3)</sup>.

### Coronary heart disease

In 2010/2011, there were around 80,500 deaths due to coronary heart disease (CHD) and over 490,000 reported inpatient episodes <sup>(7)</sup>. CHD was estimated in 2009 to cost the NHS around £1.8 billion per year <sup>(7)</sup>. However, when the wider costs to the UK economy (such as the cost of informal care and loss of productivity) are taken into consideration, CHD is estimated to cost over £6.7 billion a year (estimated from 2009 costs) <sup>(7)</sup>.

The average costs (in terms of 2000 prices) of common treatments to the NHS for CHD related illness are <sup>(9)</sup>:

- cardiac rehabilitation (estimated average cost) - £427 per treatment episode
- coronary artery bypass graft (CABG) surgery for chronic angina (elective) - £4,956 per intervention
- angioplasty for chronic angina (elective) - £2,369 per intervention
- primary angioplasty for myocardial infarction (MI) (non-elective) - £2,478 per intervention
- ACE inhibitors (for acute MI) - £20 per patient per year.

In 2006/2007, heart disease due to physical inactivity was estimated to cost the NHS £542 million <sup>(3)</sup>.

In the UK, if all inactive people were to become active, 10.5% of CHD cases could potentially be prevented <sup>(2)</sup>.

## The economic costs of cancer

In 2008/09 the NHS spent £5.13 billion on cancer treatment<sup>(10)</sup>. The estimated cost of treatment for all cancers was:

- £1.1 billion for surgery
- £900 million for drugs
- £250 million for radiotherapy<sup>(11)</sup>.

### Colorectal cancer

In 2006, the total annual cost for the diagnosis and treatment of colorectal cancer in England was approximately £1.1 billion<sup>(12)</sup>.

The average cost per patient for colon and rectal cancer treatment was estimated at £8,808 and £12,037, respectively<sup>(12)</sup>.

In 2006/2007, colorectal cancer due to physical inactivity was estimated to cost the NHS £65 million<sup>(3)</sup>.

In the UK, if all inactive people were to become active, 18.7% of all colon cancer cases could potentially be prevented<sup>(2)</sup>.

### Breast cancer

The average drug cost per cycle of chemotherapy for breast cancer has been estimated to cost between £296 and £1,223<sup>(13)</sup>.

In 2006/2007, breast cancer due to physical inactivity was estimated to cost the NHS £54 million<sup>(3)</sup>.

In the UK, if all inactive people were to become active, 17.9% of all breast cancer cases could potentially be prevented<sup>(2)</sup>.

#### Example of potential savings

##### Increasing physical activity in the workplace

Physical activity programmes in the workplace have varying success rates at reducing employee absences. Even if a programme was only 1% effective at reducing the number of employee absences over a year, employers have the potential to save between £2,870 and £6,244 each year.

If a programme was considered 50% effective in increasing physical activity, an employer could see a potential saving of up to £312,217 each year<sup>(22)</sup>.



## The economic costs of type 2 diabetes

In 2010/2011, the cost of direct NHS patient care (which includes treatment, intervention and complications) for those living with type 2 diabetes was estimated at £8.8 billion, and the indirect costs (such as sickness absences and informal care) were estimated to be £13 billion. These costs are estimated to rise to £15.1 billion (direct cost) and £20.5 billion (indirect cost) by 2035/2036 <sup>(14)</sup>.

In 2006/2007, type 2 diabetes due to physical inactivity was estimated to cost the NHS £158 million <sup>(3)</sup>.

In the UK, if all inactive people were to become active, 13% of type 2 diabetes cases could potentially be prevented <sup>(2)</sup>.

## The economic costs of obesity

In 2002, the estimated total annual cost to the NHS of overweight and obesity (including treatment and its consequences) was £2 billion, and the total economic impact on employment was estimated to be around £10 billion <sup>(15)</sup>.

By 2050 the NHS cost is projected to be £9.7 billion, with wider societal cost estimated at £49.9 billion (at 2007 prices) <sup>(15)</sup>.

In 2006/2007, over £5 billion was spent on overweight/obesity-related ill health, including costs incurred from poor diet and physical inactivity <sup>(3)</sup>.





## The economic costs of falls

Approximately 30% of people over 65 years of age living in the community fall each year and around 10% of falls result in a fracture <sup>(16)</sup>.

- Each hip fracture costs the NHS an estimated £12,000 <sup>(17)</sup>.
- Over two years, each hip fracture costs local authorities an estimated £3,879 for social care <sup>(17)</sup>.

Based on these figures, and similar calculations being made for other common fractures from falls, an effective falls and fractures prevention service in a population of 320,000 people will save around £290,000 over a five year period. These savings would come from decreased cost to NHS acute and community services and local authority social care costs. This figure would be greater if revenue costs, saving on drug therapy and social care costs for people who fund their own care were included <sup>(17)</sup>.

### Example of potential savings

#### Cost reduction through active travel

In 2007, a report written for Cycling England calculated that if by 2015 the number of cycling trips increased by 20% (returning to 1995 levels), over £500 million could be saved by preventing ill-health, reducing levels of pollution and decreasing congestion. When looking at the savings made through active travel's ability to improve health:

- £107 million could be saved by reducing premature deaths
- £52 million could be saved by lowered NHS costs
- £87 million could be saved by reducing absences from work <sup>(19)</sup>.

A second analysis by Jarrett and colleagues, published in 2012, demonstrated that if 2010 levels of walking were to immediately double and levels of cycling were to increase by eight-fold, the NHS in England and Wales would see savings of roughly £17 billion (in 2010 prices) over the next 20 years <sup>(20)</sup>.

While the above two models demonstrate theoretical savings to the NHS, a recent analysis of walking and cycling along the National Cycle Network in the UK, provides a practical example of the economic savings made possible through active travel. Using the World Health Organization Health Economic Assessment Tool for walking and cycling (HEAT), Sustrans estimated the health benefits of active travel to be worth £442 million in 2011, based on the 484 million walking and cycling trips made on the network that year <sup>(21)</sup>.

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