



Scotland's  
health

# Valuing Physical Activity and the Economic Impact of Inactivity

#ValuingPA



## Session Purpose:

1. To present the value of physical activity and cost of inactivity in Scotland
2. To learn about methodologies and tools used to evaluate cost and health effectiveness of physical activity
3. To consider how this learning can be applied in Scotland



# Dr Neil Craig



Scotland's  
health

# More than just the money: Health economic evaluation of different ways of increasing physical activity

Neil Craig  
NHS Health Scotland





# Why is physical activity valuable?

- It makes us happy
- It keeps us fit
- It improves our health
- It enhances our well-being in various ways
- i.e. value is about more than just the money



## But money talks....

- ....when we have to make decisions about how best to promote PA and we can't do everything....
- we need to assess potential investments in terms of how much VALUE they add in relation to how much resource they require i.e. how much they cost



## Economic impact of inactivity

- The economic impact of physical *inactivity* is important...
- *BUT* investment decisions should be guided by what we can do about it relative to the cost
- i.e. by whether there are effective (and cost-effective) options



## Value and economic impact

- Valuable doesn't JUST mean it reduces economic impact
- Valuable doesn't JUST mean it helps us save money



## Savings?

- Potentially, but....
- No other areas of public health and health care are required to save money
- We invest in them to improve health, improve well-being and prolong lives i.e. to promote value



## Savings?

- Realising *potential* savings is difficult
- Resources are hard to release
- The *long-term* financial consequences of improving health are uncertain, but this does not mean we shouldn't invest in health improvement or prevention





# Economic evaluation

- So we need tools for comparing value to cost
- Bangs per buck, with the emphasis on the bangs



## For example

- NICE public health guidance
- Cost-utility analysis
- i.e. cost per quality adjusted life year (QALYs)



## Examples

- Walking and cycling interventions to promote PA  
- cost per QALY £300-£9448
- Brief advice on PA for adults in primary care  
- cost per QALY £1730
- PA exercise referral schemes  
- cost per QALY £88,742



## What do these figures mean?

- Economic evaluation is not just about money
- It's about value relative to cost: bangs per buck
- The 'bangs' can be measured in QALYs...
- ... a measure of additional length and quality of life
- MOST of these interventions are a 'good buy'

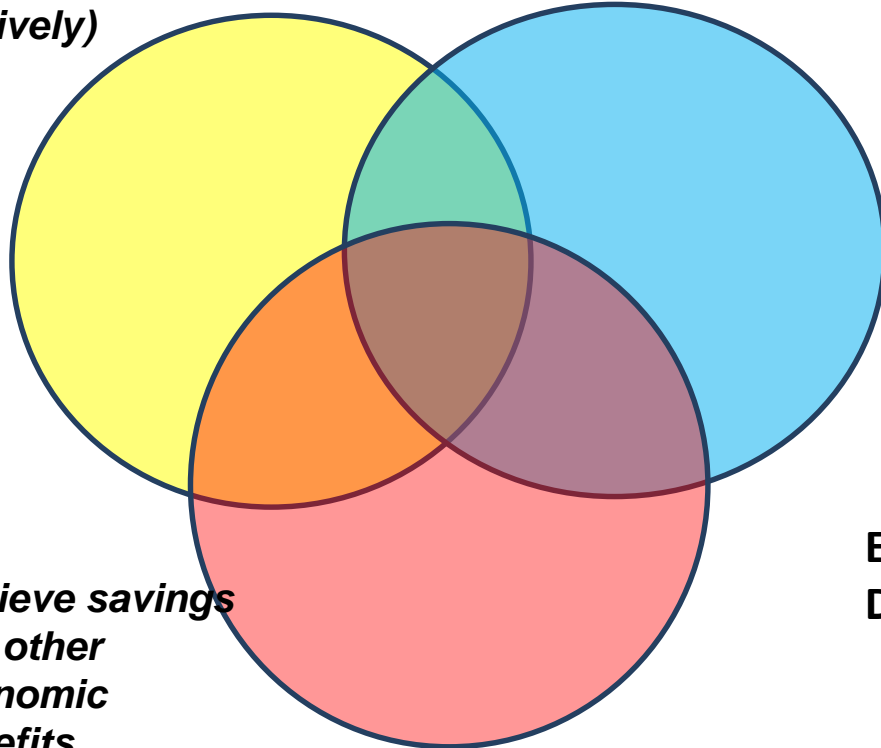


## Other types of economic evaluation

- Cost-consequence analysis
- Cost-effectiveness analysis
- Cost-benefit analysis
- All measure VALUE in relation to cost

***Improve health and wellbeing  
(cost-effectively)***

***Reduce health inequalities***



***Achieve savings  
and other  
economic  
benefits***

**ECONOMIC EVALUATION:  
DIMENSIONS OF VALUE**



## Economics of prevention

NHS Health Scotland is a national Health Board working with and through public, private and third sector organisations to reduce health inequalities and improve health. We are committed to working with others and we provide a range of services to help our stakeholders take the action required to reduce health inequalities and improve health.

### Key messages

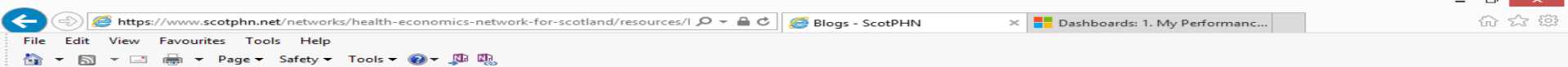
- Many preventative measures have been shown to be cost-effective.
- Some forms of prevention, in particular those addressing the social and economic determinants of health, are likely to reduce health inequalities.
- Some interventions will reduce the future demand for health and social care and will be cost-saving, although most will generate additional health (and other) benefits for additional costs.

### Key actions

- Invest in programmes that address the social and environmental determinants of health.
- Where universal services are provided, invest more in services for vulnerable groups.
- Promote actions and policies that make it easier for everyone to adopt healthy behaviours by increasing the price and/or reducing the availability of products that are damaging to health.

Inequality Briefing 3 March 2016

A series of briefings to promote action to reduce health inequalities.



## Resources

- Blogs >
- Learning >
- Courses >
- Research >
- Academic >
- Tools >
- Groups >
- Organisations >
- Journals >
- Video >

Home > Networks > Resources > Blogs

## Blogs

### Making the Economic Case for Prevention

Read the [latest blog post](#) by Public Health England's Chief Economist Brian Ferguson.

Access the [Health Economics Evidence Resource \(HEER\)](#) referred to in the blog.

It contains:

- An overview of the resource
- Instructions and guidance on how to use it
- Economic evidence
- Further information about the resource including information on different types of economic analysis
- A glossary of economic terms

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## Conclusions

- Economic evaluation is NOT just about the money
- It's about measuring VALUE in relation to cost
- VALUE is not the same as savings
- Many, *but not all*, PA interventions are a 'good buy'
- Be pragmatic!



# Dr Charlie Foster

# How to make an economic case for physical activity to politicians and decision makers

## Scotland - Costs of Physical Inactivity

You are the detective...

Identify the strategies  
Used to present  
economic information?







# Cost estimates for physical inactivity in Scotland

Dr Charlie Foster  
Centre for Exercise, Nutrition and Health Sciences  
School for Policy Studies

Dr Nick Townsend  
Nuffield Department of Population Health  
University of Oxford

# What costs Scotland more?



(£ per Scot)

[http://www.heraldsotland.com/news/15103472.Traffic\\_congestion\\_in\\_Scotland\\_cost\\_drivers\\_2\\_4bn\\_last\\_year/#comments-anchor](http://www.heraldsotland.com/news/15103472.Traffic_congestion_in_Scotland_cost_drivers_2_4bn_last_year/#comments-anchor)

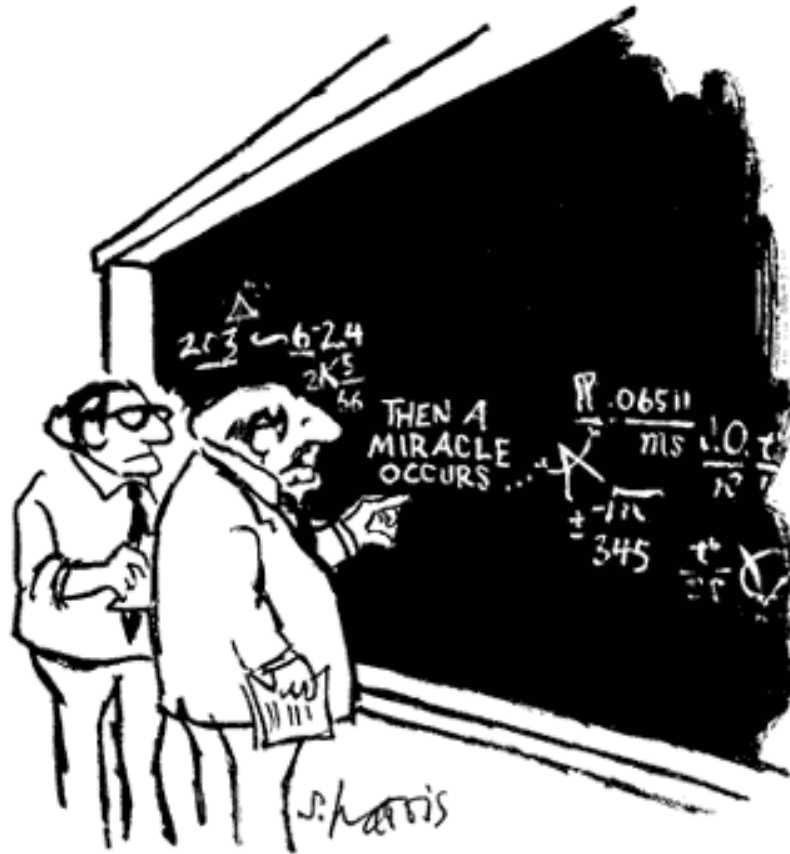
<http://www.gov.scot/Topics/Health/Services/Alcohol>

<http://www.gov.scot/Topics/Health/Services/Smoking>

## Aims

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- To outline the method, results and implications of a new estimate of the cost of physical inactivity for Scotland



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"I think you should be more explicit here in step two."

---

## Methods for developing cost estimates for physical inactivity

- Identify diseases related to physical inactivity (PiA)
- Identify total costs of diseases related to physical activity to the NHS Scotland
- Identify the relative contribution of PiA to each disease – the *Population Attributable Fraction (PAF)*
- Apply the PAF to the cost per disease
- Calculate overall costs



- Total cost of physical inactivity to Scotland 2012

£91.4M

£18.00 per person



## Total cost of physical inactivity to Scotland 2015

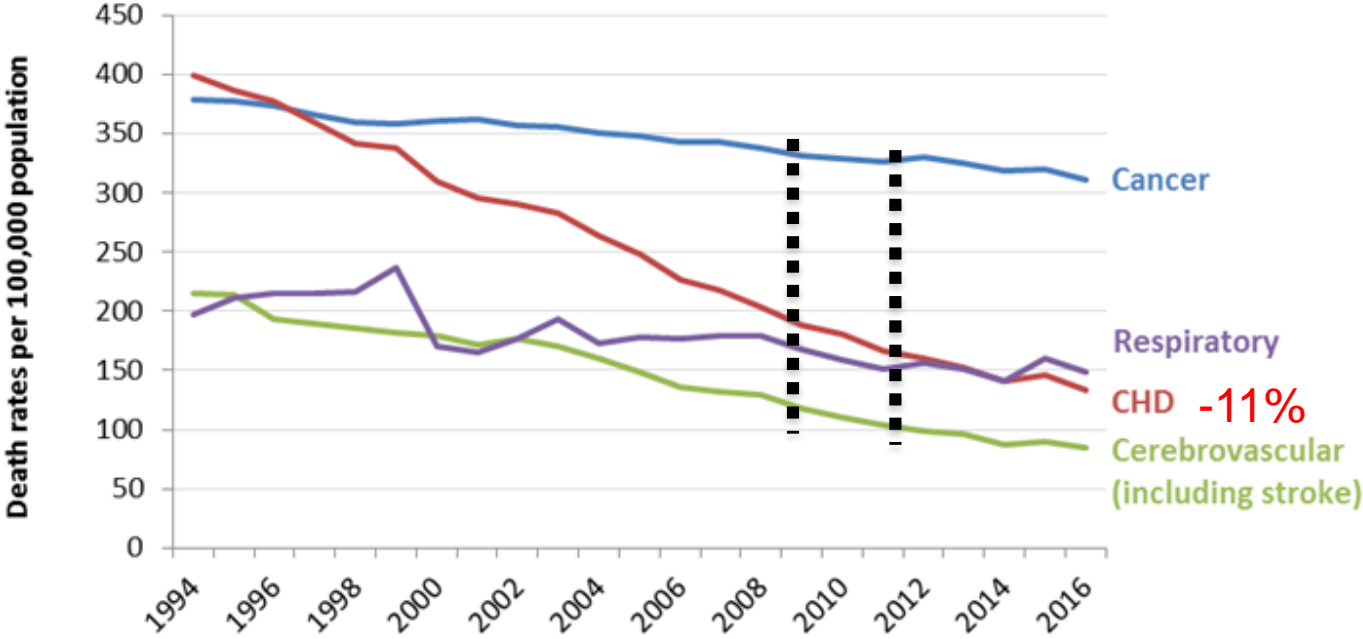
- Total cost of physical inactivity to Scotland 2015

£77M

£14.60 per person



# Mortality rates from Scotland's big 3 killers, cancer, coronary heart disease and stroke are declining



## What costs could also be added?

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- Other disease areas direct health service costs
    - Dementia & Alzheimer's Disease +74% increase
    - Mental health
    - Obesity
    - Falls
  - Indirect costs
    - Lost productivity
    - Premature mortality
  - Others?
-

# Let's make comparisons easy to understand

space required to transport 60 people



car

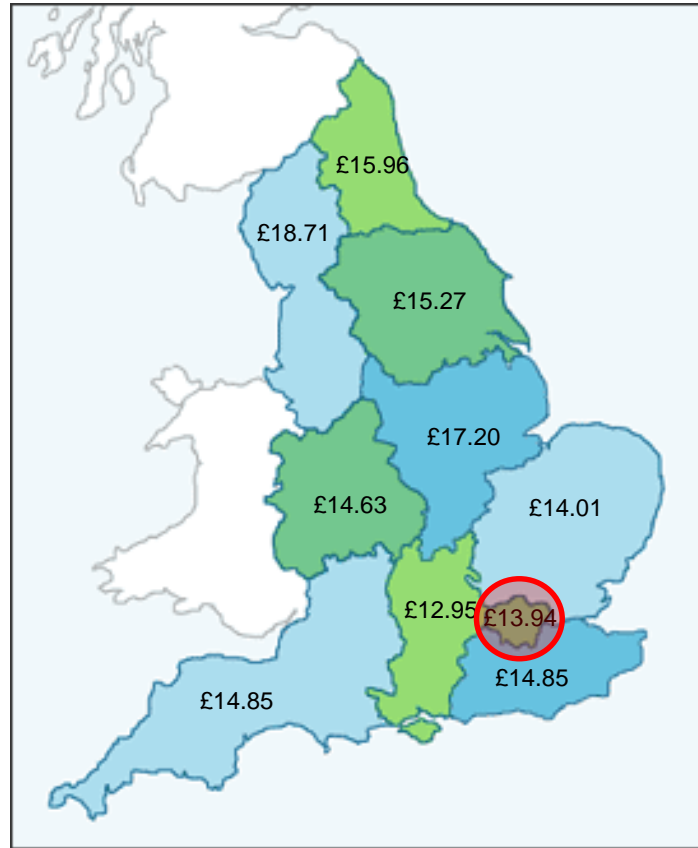


bus



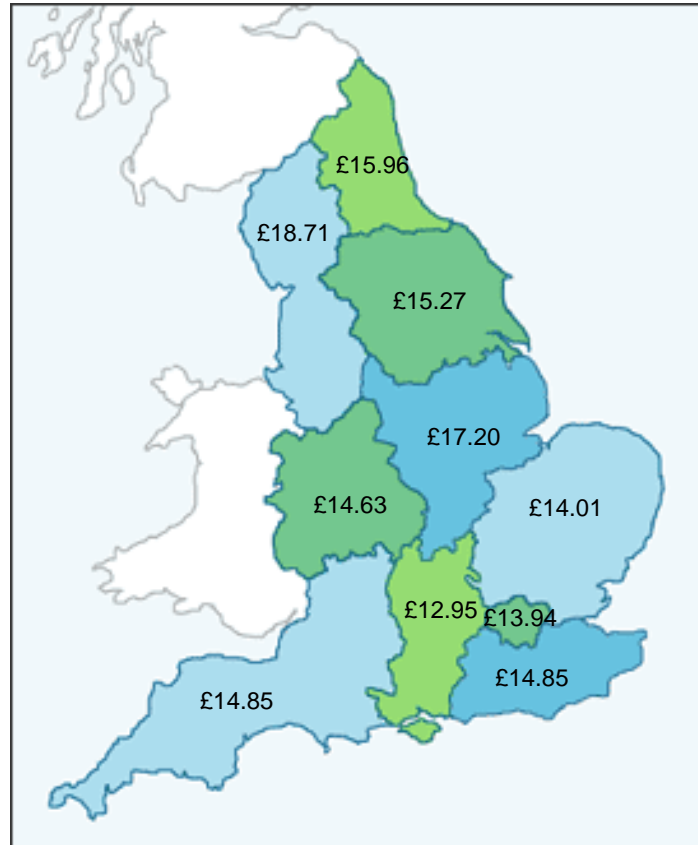
bicycle

## Cost of physical inactivity (£/population) related disease by SHA



Cost of doing  
Nothing  
£14 ~ €16.6

## Cost of physical inactivity (£/population) related disease by SHA



Spend in London  
is 85p per head  
~ €1

# Scotland's Spending Plans and Draft Budget 2017-18

## Sport

**Table 4.05: More Detailed Spending Plans (Level 3)**

Level 3	2016-17 Draft Budget £m	2016-17 Budget £m	2017-18 Draft Budget £m
<b>Sport and Legacy</b>	42.5	42.3	39.1
<b>Physical Activity</b>	3.3	3.3	3.3
<b>Total</b>	<b>45.8</b>	<b>45.6</b>	<b>42.4</b>
<b>DEL Resource</b>	45.8	36.1	42.4*
<b>DEL Capital</b>	-	9.5	-



## The Cost of Physical Inactivity to Scotland

Based on research commissioned by the British Heart Foundation

These figures do not include the costs of conditions including dementia and mental health issues



### Physical Inactivity costs the NHS in Scotland

**~£77 million p/a**

**equating to a cost of £14.60 per person!**

Spend on sport and physical activity is £7.89 per person

Spend on sport and physical activity is

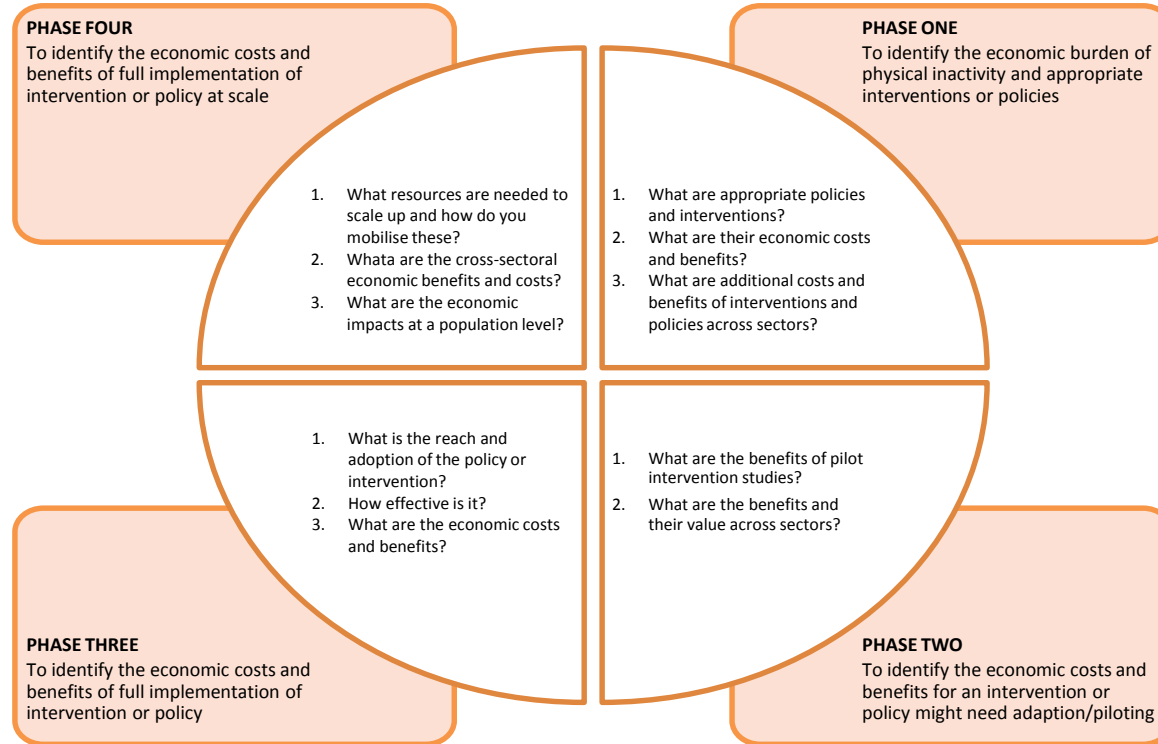
£7.89 per person

Active Transport Spend.....

£14.80 per person

**£22.69**

## Blueprint for using economic tools for physical activity implementation





Funded by the  
Erasmus+ Programme  
of the European Union

<b>Phase 2</b>	<b>What are the economic benefits / costs of adaptations and piloting of interventions or policies?</b>
<b>Aim</b>	<b>To identify the economic costs and benefits for an intervention or policy which might need adaptation/piloting</b>
<b>Actions</b>	<b>What are the health benefits of pilot intervention studies? What are the benefits and their value across other sectors?</b>
<b>Tools</b>	<b>For Sport <a href="#">MOVES TOOL</a> For Active Transport <a href="#">WHO HEAT Tool</a> Workplace <a href="#">NICE Business Case Tool</a></b>

<http://ephepa.medsci.ox.ac.uk/wp-content/uploads/2016/05/EPHEPA-Blueprint-for-economic-tools-for-physical-activity-1.pdf>

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- Any estimate has limitations
- The incidence and costs of 5 main diseases are changing and are an **UNDERESTIMATE**
- New methods include costs of other PI diseases
- Use economic tools
  - EPHEPA Blueprint
- Promoting physical activity and sport is the optimal prevention spend

# What costs Scotland more?



(£. per Scot)

# What costs Scotland more?



(£. per Scot)

## Does physical activity moderate the association between alcohol drinking and all-cause, cancer and cardiovascular diseases mortality? A pooled analysis of eight British population cohorts

K Perreault,<sup>1,2</sup> A Bauman,<sup>2,3</sup> N Johnson,<sup>2,4</sup> A Britton,<sup>5</sup> V Rangul,<sup>3</sup> E Stamatakis<sup>2,4,5</sup>

### ABSTRACT

ew  
na

**Objective** To examine whether physical activity (PA)

reduce alcohol consumption have involved alcohol risk reducing campaigns and measures aimed at



(£ per Scot)

[http://www.heraldsotland.com/news/15103472.Traffic\\_congestion\\_in\\_Scotland\\_cost\\_drivers\\_2\\_4bn\\_last\\_year/#comments-anchor](http://www.heraldsotland.com/news/15103472.Traffic_congestion_in_Scotland_cost_drivers_2_4bn_last_year/#comments-anchor)  
<http://www.gov.scot/Topics/Health/Services/Alcohol>  
<http://www.gov.scot/Topics/Health/Services/Smoking>



## Leisure-time physical activity and lung cancer risk: A systematic review and meta-analysis



Darren R. Brenner<sup>a,b,c,\*</sup>, Demetra H. Yannitsos<sup>a,b</sup>, Megan S. Farris<sup>a,b</sup>, Mattias Johansson<sup>d</sup>,  
Christine M. Friedenreich<sup>a,b,c</sup>

<sup>a</sup> Department of Cancer Epidemiology and Prevention Research, Cancer Control Alberta, Alberta Health Services, Canada

<sup>b</sup> Department of Community Health Sciences, Cumming School of Medicine, University of Calgary, Canada

<sup>c</sup> Department of Oncology, Cumming School of Medicine, University of Calgary, Canada

<sup>d</sup> Genetic Epidemiology Group, International Agency for Research on Cancer, Lyon, France

ew  
na

### ARTICLE INFO

#### Article history:

Received 5 November 2015

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### ABSTRACT

**Objectives:** We conducted a systematic review and meta-analysis of the association between recreational physical activity and lung cancer risk to update previous analyses and to examine population subgroups of interest defined by smoking status and histology.

**Materials and methods:** We searched the PubMed database for studies up to May 2015. Individual study



(£ per Scot)

[http://www.heraldscotland.com/news/15103472.Traffic\\_congestion\\_in\\_Scotland\\_cost\\_drivers\\_2\\_4bn\\_last\\_year/#comments-anchor](http://www.heraldscotland.com/news/15103472.Traffic_congestion_in_Scotland_cost_drivers_2_4bn_last_year/#comments-anchor)

<http://www.gov.scot/Topics/Health/Services/Alcohol>

<http://www.gov.scot/Topics/Health/Services/Smoking>

Media centre Publications Countries Programmes Governance About WHO

Health and sustainable development

atic



## Urban design, transport, and health 2



### Land use, transport, and population health: estimating the health benefits of compact cities

Mark Stevenson, Jason Thompson, Thiago Hérick de Sá, Reid Ewing, Dinesh Mohan, Rod McCure, Ian Roberts, Geetam Tiwari, Billie Giles-Corti, Xiaoduan Sun, Mark Wallace, James Woodcock

Using a health impact assessment framework, we estimated the population health effects arising from alternative land-use and transport policy initiatives in six cities. Land-use changes were modelled to reflect a compact city in which land-use density and diversity were increased and distances to public transport were reduced to produce low motorised mobility, namely a modal shift from private motor vehicles to walking, cycling, and public transport. The modelled compact city scenario resulted in health gains for all cities (for diabetes, cardiovascular disease, and respiratory disease) with overall health gains of 420–826 disability-adjusted life-years (DALYs) per 100 000 population. However, for moderate to highly motorised cities, such as Melbourne, London, and Boston, the compact city scenario predicted a small increase in road trauma for cyclists and pedestrians (health loss of between 34 and 41 DALYs per

Lancet 2016; 388: 2925–35

Published Online

September 23, 2016

[http://dx.doi.org/10.1016/S0140-6736\(16\)30067-8](http://dx.doi.org/10.1016/S0140-6736(16)30067-8)

50140-6736(16)30067-8

This is the second in a Series of three papers about urban design, transport, and health

University of Melbourne

<http://> Traffic congestion in Shanghai  
<http://>  
<http://> Ralph Chapman

# The Cost of Physical Inactivity to Scotland

Based on research commissioned by the British Heart Foundation

These figures do not include the costs of conditions including dementia and mental health issues



## Physical Inactivity costs the NHS in Scotland

# ~£77 million p/a

equating to a cost of £14.60 per person!

### The Cost of the Big 5

per year due to physical inactivity

Coronary Heart Disease

£25 million



Diabetes  
£15 million



Cerebrovascular Disease

£15 million



Gastro Intestinal Cancer

£12 million



Breast Cancer

£9.5 million



### Sector Expenditure

per year due to physical inactivity



Acute Services

£44 million



Pharmaceutical Services

£11 million



General Medical Services

£7.5 million



Geriatric Long Stay

£5 million



A&E and Outpatients

£3 million

Coronary Heart Disease

costs equate to

# 32%

of all the costs incurred  
due to physical  
inactivity



The cost per person in  
Scotland for physical inactivity is  
more than **£1** higher than England

Acute & Pharmaceutical

Services combined  
accounted for

# 90%

of the total costs  
to the NHS

- Use local data
- Make data simple
- Make comparisons with rivals
- Feature existing good projects so you can build on current strengths
- Present solutions as options
  - *You could v you should* (no one likes being told what to do)





# Dr Charlie Foster

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School for Policy Studies

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@FosteratBristol

Thanks to  
Dr Nick Townsend  
Dr Wilby Williamson





# Dr Paul Kelly

*VALUING PHYSICAL ACTIVITY AND THE ECONOMIC IMPACT OF INACTIVITY WORKSHOP*

Identifying best investments for physical activity: Translating what we know internationally into local practice

**Dr Paul Kelly**

PAHRC

Institute for Sport, Physical Education and Health Sciences

22<sup>nd</sup> March



# Physical Activity for Health Research Centre (PAHRC)

## Key Areas of Research

The promotion of walking

Reducing sedentary time

Physical activity in children and adolescent girls

Physical activity for people with medical conditions

The role of the environment in physical activity  
promotion



**Prof Nanette Mutrie  
MBE**

<http://www.ed.ac.uk/education/rke/centres-groups/pahrc>







## ***RESEARCH INTERESTS – PHYSICAL ACTIVITY EPIDEMIOLOGY***

Health benefits of physical activity  
(especially walking)

Measurement of physical activity

Pragmatic evaluation of  
interventions

<https://scholar.google.co.uk/citations?user=DXHhJcgAAAAJ&hl=en>

# Best Investments for Physical Activity

## The Dumfries and Galloway Best Investment Method and Approach

The Health and Wellbeing Team in Dumfries and Galloway commissioned the Physical Activity for Health Research Centre (PAHRC) based in the University of Edinburgh to co-design and co-implement this appraisal of evaluation evidence. A data collection template was co-created, the Health and Wellbeing Team coordinated the collation of project data, and the PAHRC Team conducted the synthesis and appraisal.

The method and approach were designed to meet the three primary objectives:

1. To use existing evaluation findings to describe the spread and parity of physical activity promotion by geographical region, and age group and gender catered for;
2. To use existing evaluation findings to highlight the existing approaches in Dumfries and Galloway that are providing best return on investment;
3. To make recommendations for enhancing existing work, and evaluation and monitoring systems.

Objective 1 was met through descriptive analysis and reporting of projects by key demographics (location, age groups, and gender).

Objective 2 was perhaps the most challenging. We used a pragmatic approach to determine which projects were offering the greatest return on investment in Dumfries and Galloway. We considered the cost weighted against (where available) the 3 critical aspects of (i) number of unique participants or users reached; (ii) number of repeat attendees; and (iii) duration of project or likelihood of ongoing impact. This was used to generate an informal subjective ranking within each of the 8 project types.

Given the extremely varied nature of approaches, it is important to avoid comparisons between project types. For example an awareness project using online materials will have a very different financial model to building urban infrastructure such as leisure facilities. Our approach was designed to highlight examples of success in multiple areas, rather than state that Project A was better or worse than Project B. The projects named are not necessarily the best, but based on the available data are examples of success.

An additional consideration is when a project utilises existing infrastructure such as a school, sports club, or leisure facility. On the surface these will usually appear more cost-effective than approaches that start from scratch, but will be limited to areas where these facilities exist.

Finally, the legacy or ongoing impact of a project was considered. The construction of a cycle path might be less cost-effective than "event days" over 6 months, but are far more likely to have an ongoing impact over many years once they are in place.

Objective 3 was met through highlighting successes and gaps and suggesting practical steps that could be taken to build on successes or adapt to enhance PA promotion efforts.



5

## Physical Activity Promotion in Dumfries and Galloway

### Physical Activity Promotion by geographical location

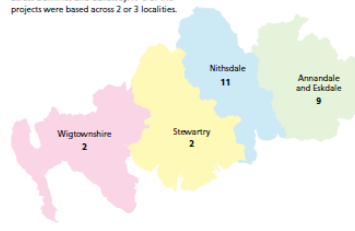
Dumfries and Galloway Physical Activity Alliance led the co-ordination of the evaluation reports for n=52 physical activity promotion projects or strategies for the period 2015-2016. From the returned data Dumfries and Galloway had achieved 700,000 unique engagements (attendances, sessions, etc.) with physical activity projects, at a total cost of £2.1 million. These figures provide an indication of the scale of physical activity projects included in this report, but should not be considered representative of the total physical activity regional landscape.

Geographically these 52 projects covered the 4 localities of Dumfries and Galloway (Annandale and Eskdale, Nithsdale, Stewartry and Wigtonshire). 44 (85%) of these projects were acting across the entire Dumfries and Galloway area suggesting good geographical spread across Dumfries and Galloway. 14 (27%) of the projects were based across 2 or 3 localities.

However, the most common project type was "regional" with n=25 projects focused in 1 of the 4 Dumfries and Galloway localities. Among these projects the majority (n=20 representing almost 80% of the regional projects) were located in Annandale and Eskdale (n=9) or Nithsdale (n=11). These results are shown in table 1. This finding likely reflects where the Health and Wellbeing Specialist had the most established network of contacts to ensure data collection.

Table 1. Geographical spread of PA promotion in Dumfries and Galloway

Region	Number of projects
Annandale and Eskdale	9
Nithsdale	11
Stewartry	3
Wigtonshire	2
2-3 Localities	5
All Localities	22



**Recommendation 1:** establish a project monitoring system across the entire Dumfries and Galloway Region, to better understand the geographical spread.

6

# NON COMMUNICABLE DISEASE PREVENTION: Investments that Work for Physical Activity

A complementary document to  
*The Toronto Charter for Physical Activity: A Global Call to Action*

Physical inactivity is the fourth leading cause of deaths due to non communicable disease (NCDs) worldwide - heart disease, stroke, diabetes and cancers - and each year contributes to over three million preventable deaths.<sup>1</sup> Physical inactivity is related directly and indirectly to the other leading risk factors for NCDs such as high blood pressure, high cholesterol and high glucose levels; and, to the recent striking increases in childhood and adult obesity, not only in developed countries but also in many developing countries. Substantial scientific evidence supports the importance of physical inactivity as a risk factor for NCD independent of poor diet, smoking and alcohol misuse.

Physical activity has comprehensive health benefits across the lifespan: It promotes healthy growth and development in children and young people, helps to prevent unhealthy mid-life weight gain, and is important for healthy ageing, improving and maintaining quality of life and independence in older adults.

The most recent global estimates indicate that 60% of the world population are exposed to health risks due to inactivity.<sup>2</sup> Increasing population-wide participation in physical activity is a major health priority in most high and middle income countries and is a rapidly-emerging priority in lower income countries experiencing rapid social and economic transitions.

The **Toronto Charter for Physical Activity** (May 2010) outlines the direct health benefits and co benefits of investing in policies and programs to increase levels of physical activity.<sup>2</sup> Already translated into 11 languages, the Toronto Charter makes a strong case for increased action and greater investment on physical activity as part of a comprehensive approach to NCD prevention. The Charter was developed with extensive world-wide

stakeholder consultation and calls for action in four key areas consistent with the WHO Global Strategy for Diet and Physical Activity: 1) national policy; 2) policies and regulations; 3) programs and environments; and 4) partnerships.

There is strong evidence to guide the implementation of effective approaches to increase physical activity.<sup>3,4,5,6</sup> Reversing downward trends in physical activity will require countries to commit to a combination of strategies aimed at the individual, social-cultural, environmental and policy determinants of inactivity. Physical activity is influenced by policies and practices in education, transportation, parks and recreation, media, and business, so multiple sectors of society need to be involved in the solutions. There is the clear need to inform, motivate and support individuals and communities to be active in ways that are safe, accessible and enjoyable. **There is no one single solution to increasing physical activity, an effective comprehensive approach will require multiple concurrent strategies to be implemented.** To support countries ready to respond, there are seven "best investments" for physical activity, which are supported by good evidence of effectiveness and that will have worldwide applicability.



**Whole-of-community approaches where people live, work and recreate have the opportunity to mobilize large numbers of people.**

<http://www.globalpa.org.uk/pdf/investments-work.pdf>

# Best Investments for Physical Activity

Integrational by



## 1 Communication and public education

Consistent public education, including use of mass and social media



## 7 Sport and recreation

Sport systems and programs that promote "sport for all" and encourage participation across the life span



## 2 Transport and the environment

Transport policies and systems that prioritise walking, cycling and public transport



## 6 Community-wide programs

Work with communities to provide appropriate local solutions, aiming to mobilise large numbers of people



## 3 Urban design and infrastructure

Provide safe and equitable access for recreation and physical activity across the life course



## 5 Education

Make regular physical activity in schools and places of learning normal



## 4 Healthcare and health education

Ensure assessment and advice about physical activity is a routine part of healthcare services



We need action to achieve the goal of 10% increase in participation by 2025

**Work together to make it happen**

<http://bjsm.bmj.com/content/51/16/1227>

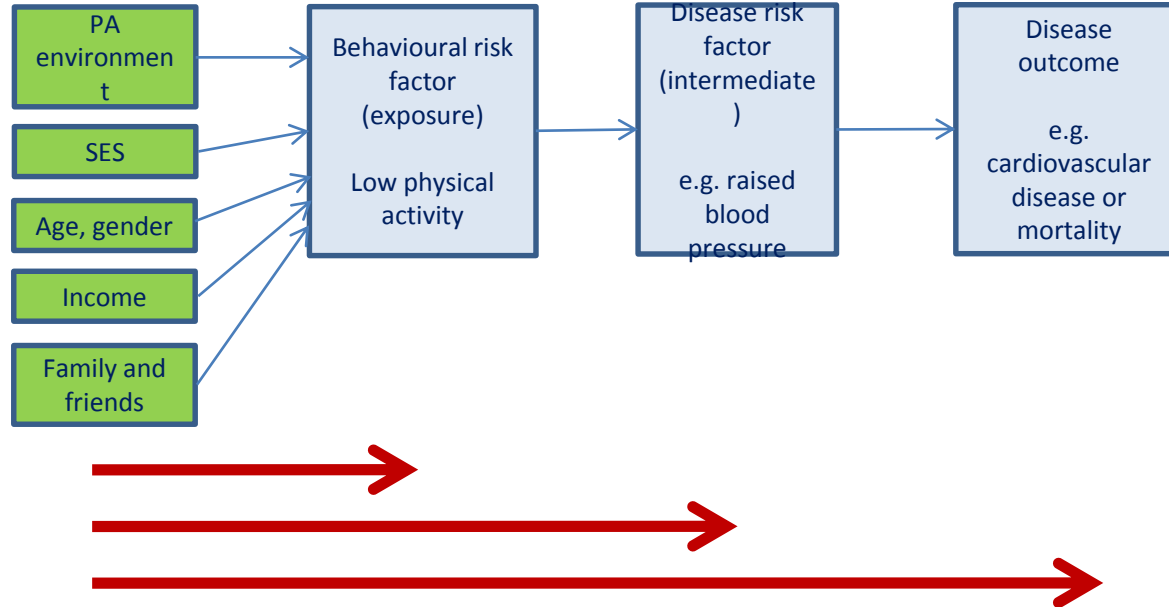
***1. THERE IS A DIFFERENCE BETWEEN  
ACADEMIA AND THE REAL WORLD..***

***2. WE FOUND THIS WHEN TRYING TO  
IDENTIFY “BEST INVESTMENTS” IN  
DUMFRIES AND GALLOWAY***

# Data requirements

1. Cost of project
2. Duration of project
3. Number of participants
4. Description of participants (gender, age, etc)
5. Number of sessions per participant
6. Physical activity before
7. Physical activity after
8. Evaluation Report
9. Health outcomes

# Reasonable and pragmatic assumptions





***3. IN THE “REAL WORLD” YOU DON’T  
HAVE ACCESS TO IDEAL DATA***

# Data requirements

1. Cost of project
2. Duration of project
3. Number of participants
4. Description of participants (gender, age, etc)
5. Number of sessions per participant
6. Physical activity before
7. Physical activity after
8. Evaluation Report
9. Health outcomes

***4. WE WERE ABLE TO HIGHLIGHT  
PROMISING INVESTMENTS IN  
DUMFRIES AND GALLOWAY ACROSS  
THE 7 BEST INVESTMENT AREAS***

# Best Investments for Physical Activity

Incorporated by



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**Work together to make it happen**

<http://bjsm.bmj.com/content/51/16/1227>



### Physical Activity Promotion in Dumfries and Galloway by age and gender

In terms of age there were n=14 projects focussing on children and adolescents (5-18 years), n=15 for adults (19+ years), and n=16 for multiple age groups (identified as intergenerational). This represents excellent spread and provision for ages 5-64 years. These data are shown in table 3.

**Table 3. Types of PA promotion in Dumfries and Galloway**

Project age	Number of projects
Under 5 years	3
Children and adolescents (generally 5-18 years)	14
Adults (generally 19-64 years)	15
Intergenerational (all ages)	18
Older adults (65+ years)	2

In contrast, there were just n=3 projects for those under 5 years and n=2 for older adults (65+). This represents a clear area for focus for Dumfries and Galloway in the coming years. Especially given the local context; Dumfries and Galloway has a growing older adult population, above the national average and this is a major challenge for Health and Social Care Integration. Persons aged 60 and over make up 31.1% Dumfries and Galloway population (National average = 24%) according to the National Records for Scotland, 2015<sup>19</sup>. The over-65s population is likely to grow by 21% by 2020 /46% by 2035<sup>20</sup>.

<sup>19</sup> National Records for Scotland, (2015), Dumfries & Galloway Council Area. Demographic: Factbook. National Records for Scotland. Available from: <http://www.nrscotland.gov.uk/files/factbook/council-area-data/dumfries-and-galloway-factbook.pdf>  
<sup>20</sup> National Records for Scotland, (2015). Census: Agegroup data (Scotland). UK Data Service Census Support. Available from: <http://www.ukdataservice.ac.uk/>

**Recommendation 3: We recommend a renewed focus on for provision of physical activity promotion that is contextually relevant in older adults (65 years and older).**

**Recommendation 4: We recommend a renewed focus on for provision of physical activity promotion that is contextually relevant in early years (under 5s).**

In terms of gender 48 of the 52 projects (96%) were open to all, with one project for females and one for males. Of the 52 projects open to all, 2 had a female only component, and 3 had a specific aim to target and recruit females. This suggests that Dumfries and Galloway has an equitable gender focus, while acknowledging that specific approaches and targeted recruitment may be required. From the available data there is no information on approaches for disability groups.

## Principle Findings – Best Investments for Physical Activity in Dumfries and Galloway

In the following section we attempt to highlight the projects that have offered the best return on investment in Dumfries and Galloway, based on the evaluation data available. In line with goal of the strategic partnership to deliver a broad range of physical activity promotion we have presented the best investments within each of the project types (see table 2).

### School and Education

Of the schools based approaches, offering opportunities and infrastructure for a range of sports and games before during and after school for 5-18 year olds appeared to offer the best return on investment as demonstrated by the [Active Schools – Annual Programme] and [The Schools Sport Competition]. While these approaches can be expensive to setup and run, their extensive reach in terms of sessions, and age groups catered for resulted in excellent returns.

It should be noted that [Bikeability] and [Outdoor Education] Projects offered good return on investment as well. An evaluation into the impact of bikeability training on long term cycling behaviours could be considered beneficial. From the evaluation data these projects had lower reach, but were also less expensive to run and might be considered candidates for scalability.

**Recommendation 5: Continue school based provision of access and opportunity, seek to build sustainability and conduct assessment of equality of access. Conduct process evaluation aimed at delivery improvements.**

**Recommendation 6: Assess school based projects with potential for scale-up**

### Transport

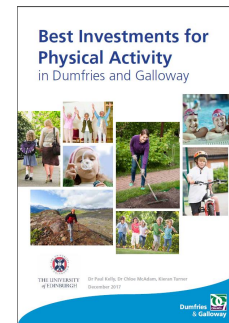
Within Transport there was only evaluation data on reach, which was a function of both the nature of the project and the quality of evaluation data available.

The [Active Travel Maps] project provided active travel information for over 20,000 households which represents a good return on the investment in terms of reach. However, data are now needed on how many people used this information resource. Likewise the [iBike] project reached those aged 5-18 years in Dumfries and Galloway in good numbers compared to the cost, but to fully understand the return on investment, the number of those who started cycling (or reliable estimates) is critical.

**Recommendation 7: Evaluate existing transport projects for impact beyond reach, to understand the return on investment they may offering**

## List of Recommendations

Number	Recommendation	Investment/ Promotion Area
1	Establish a project monitoring system across the entire Dumfries and Galloway Region, to better understand the geographical spread.	Demographic Location
2	Establish a project monitoring system across the entire Dumfries and Galloway Region, to better understand the types of project being delivered. This will highlight potential areas for focus or sustainability.	Type of Physical Activity
3	We recommend a renewed focus on for provision of physical activity promotion that is contextually relevant in older adults (65 years and older).	Age and Gender
4	We recommend a renewed focus on for provision of physical activity promotion that is contextually relevant in early years (under 5s).	Age and Gender
5	Continue school based provision of access and opportunity. Seek to build sustainability and conduct assessment of equality of access. Conduct process evaluation aimed at delivery improvements.	School and Education
6	Assess school based projects with potential for scale up	School and Education
7	Evaluate existing transport projects for impact beyond reach, to understand the return on investment they may offering.	Transport
8	Existing projects have promising evaluation data for impact and cost-effectiveness. We recommend evaluation of longer term impacts to understand the scale at which these projects should be promoted, and their potential in terms of sustainability.	Urban design, Infrastructure and Natural Environment
9	We recommend a strategic focus on lasting urban and natural infrastructure and successful place making with legacy potential. Particularly those project which could benefit all in society. This may require long sighted projections and evaluations to assess the true value.	Urban design, Infrastructure and Natural Environment
10	Physical activity promotion within primary and secondary healthcare should be considered a priority in Dumfries and Galloway. It is a reasonable assumption that any provision is cost-effective in the context of healthcare costs for treating chronic disease. be considered.	Health and Social Care



***5. AVOID THE TEMPTATION TO  
COMPARE A CYCLE PATH TO A WEIGHT  
MANAGEMENT PROGRAMME***

accessible and enjoyable. ***There is no one single solution to increasing physical activity, an effective comprehensive approach will require multiple concurrent strategies to be implemented.*** To support countries ready to respond, there are seven “best investments” for physical activity, which are

<http://www.globalpa.org.uk/pdf/investments-work.pdf>



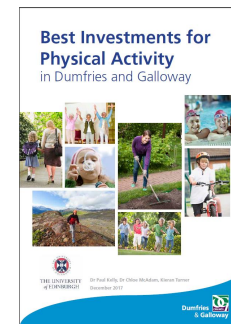


***6. IF WE CAN IMPROVE MONITORING  
OF DELIVERY WE WILL MAKE HUGE  
STRIDES IN IDENTIFYING  
INTERVENTIONS THAT WORK (LOCALLY)  
AND DELIVER VALUE FOR MONEY***

***(AND IF WE EVALUATE ALSO HOW TO  
IMPROVE THEM)***

**Table 2. Types of PA promotion in Dumfries and Galloway**

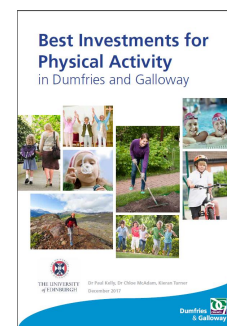
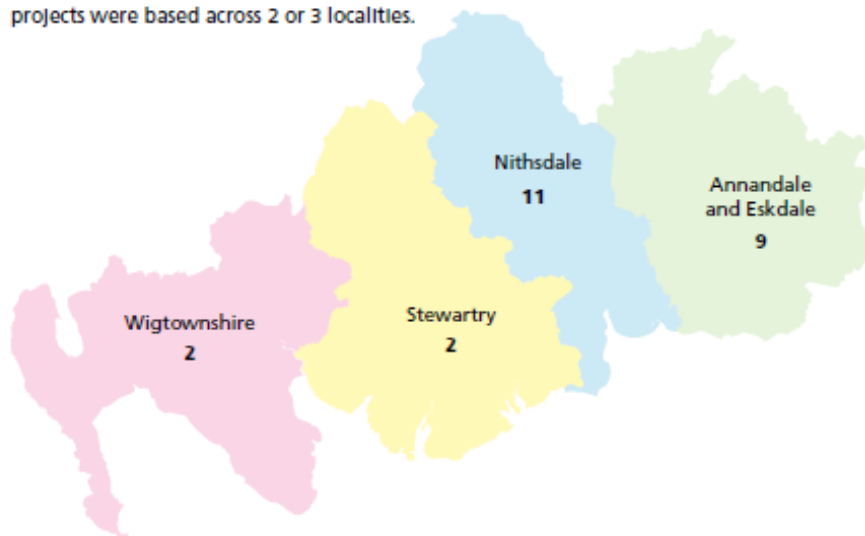
<b>Project type</b>	<b>Number of projects</b>
School and Education	8
Transport	4
Urban design, Infrastructure and Natural Environment	6
Health and Social Care	9
Mass Media	1
Sport	5
Leisure	17
Workplace	2



representative of the total physical activity regional landscape.

Geographically these 52 projects covered the 4 localities of Dumfries and Galloway (Annandale and Eskdale, Nithsdale, Stewartry and Wigtownshire). N=22 (42%) of these projects were acting across the entire Dumfries and Galloway area suggesting good geographical spread across Dumfries and Galloway. N=5 of the projects were based across 2 or 3 localities.

Region	Number of projects
Annandale and Eskdale	9
Nithsdale	11
Stewartry	3
Wigtownshire	2
2-3 Localities	5
All Localities	22



## **Million Dollar question(s)...**

**How do we translate what we know internationally into local practice?**

**Work with real world data**  
**Pragmatic and defensible assumptions**  
**Make fair and useful comparisons**  
**Consider the whole strategy/system**  
**Monitor and evaluate delivery**

Thanks for listening!



## *PHYSICAL ACTIVITY FOR HEALTH*

# Any questions?



**Paul Kelly**

@narrowboat\_paul

Lecturer in physical activity and health

#physicalactivity

[p.kelly@ed.ac.uk](mailto:p.kelly@ed.ac.uk)

[@narrowboat\\_paul](https://twitter.com/narrowboat_paul)

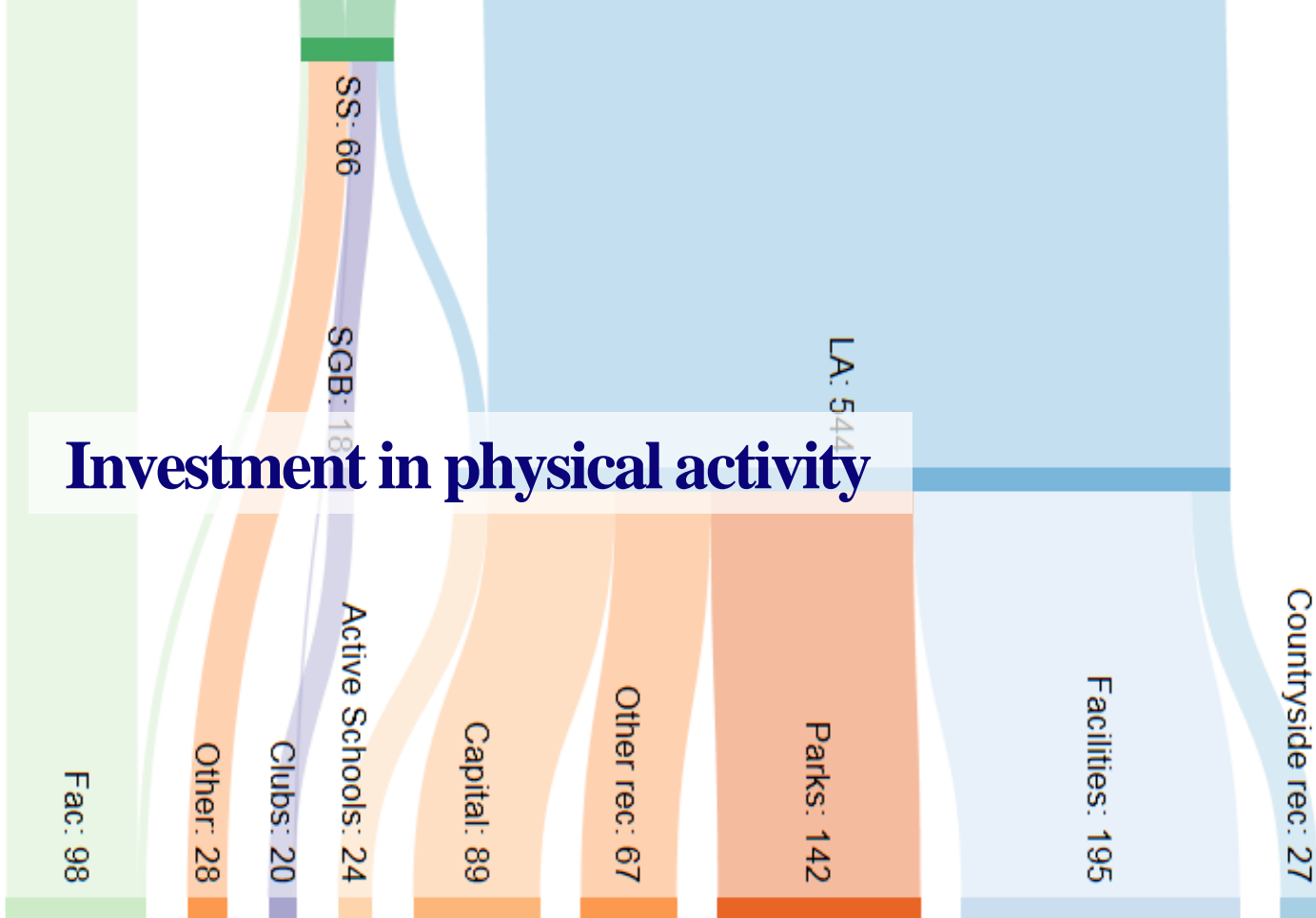
March 2018





# David Williamson

# Investment in physical activity





# Vision and Mission

## Vision

- Our **vision** is a Scotland where sport is a way of life, where sport is at the heart of Scottish society and has a positive impact on people and communities.

## Mission

- Our **mission** is to build a **world class sporting system** for everyone in Scotland. World class is an ambition to be the best we can be **at all levels** in sport.

# Our strategic context

**A MORE ACTIVE SCOTLAND:** Physical activity is about getting people moving. Daily walking, playing in the park, going to a gym, training with a team or aspiring to win a gold medal - it doesn't really matter how people get active, it just matters that we do. Being physically active contributes to our personal, community and national wellbeing. Our vision is of a Scotland where more people are more active more often.

We encourage and enable the inactive to be more active

We encourage and enable the active to stay active throughout life

We develop physical confidence and competence from the earliest age

We improve our active infrastructure - people and places

We support wellbeing and resilience in communities through physical activity

We improve opportunities to participate, progress and achieve in sport



## Why

*“Physical activity and sport are static”*

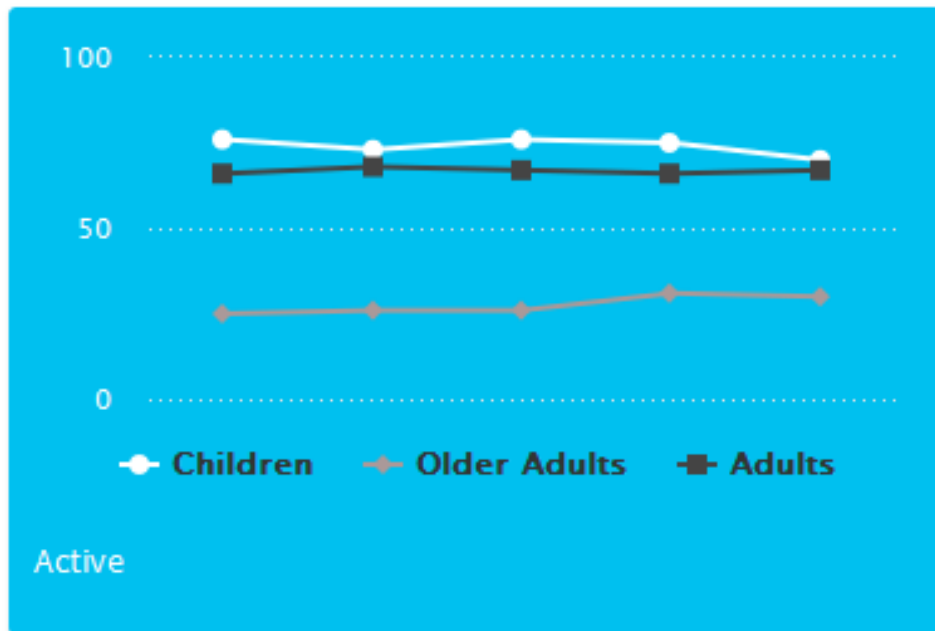
*“10% of sport expenditure”*

Understand our contribution in context

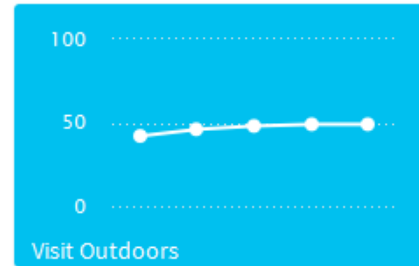
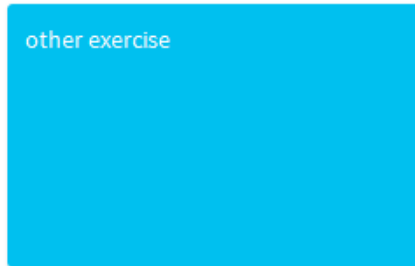
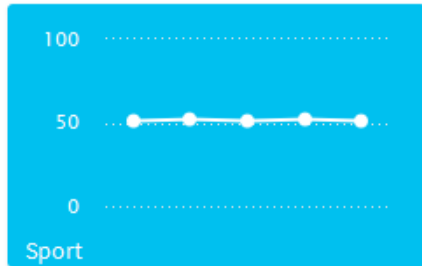
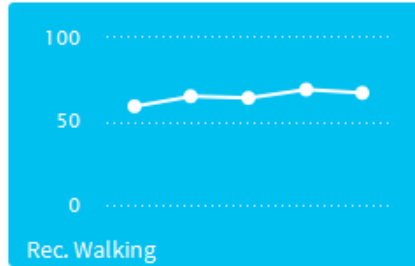
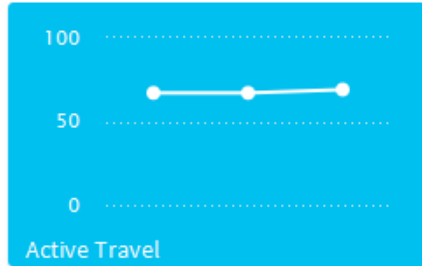
Domains of physical activity

Mapping the ASOF

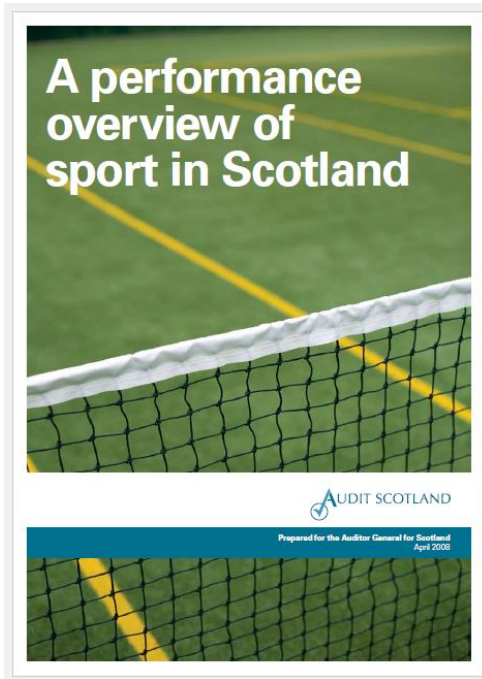
# Physical Activity



# Physical Activity Domains



## 10% Method



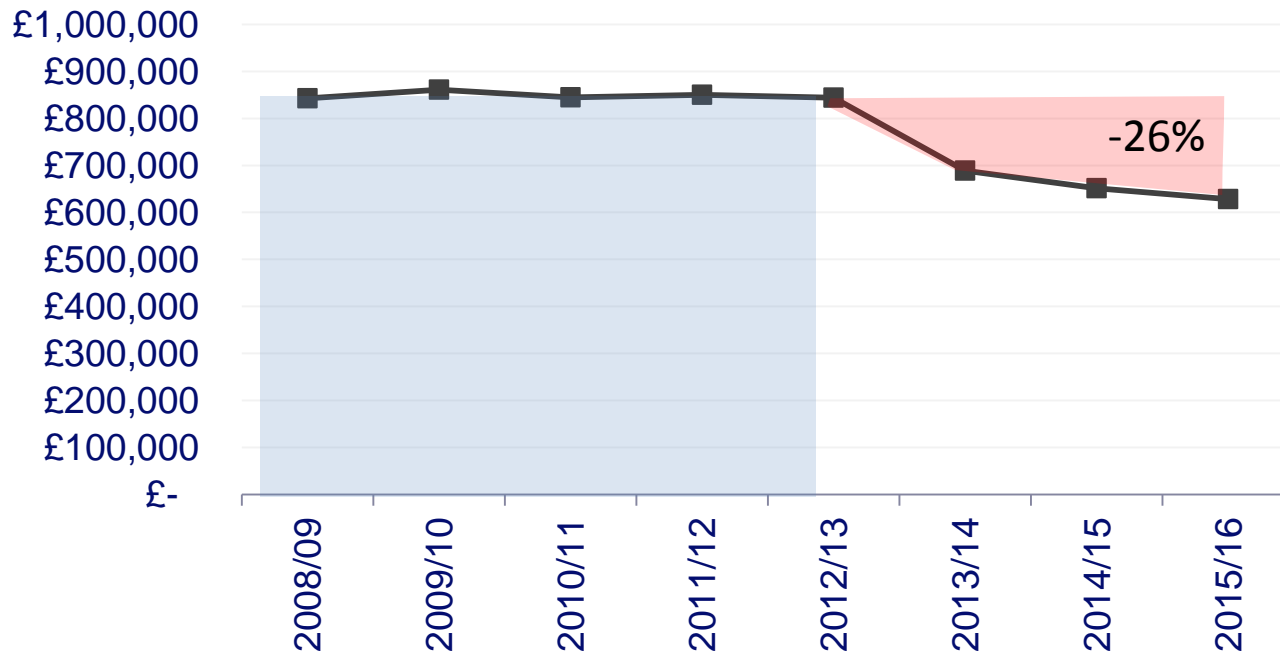
*Scottish Local Government  
Financial Statistics*

*sportscotland annual reports*

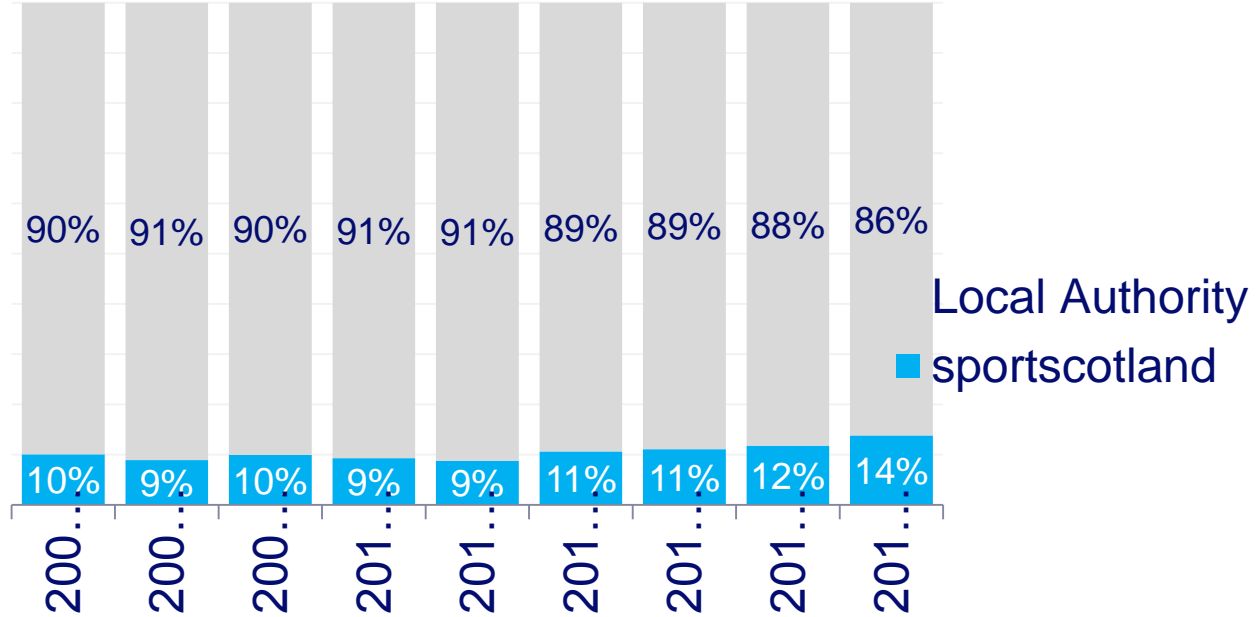
*Scottish Budget Spending Review*

# Expenditure in Sport

Real terms



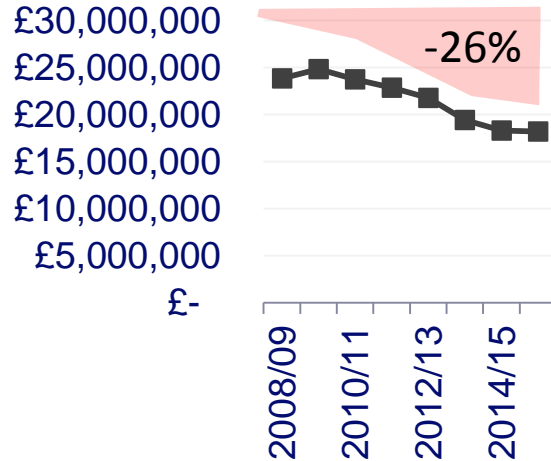
# What is the split now?



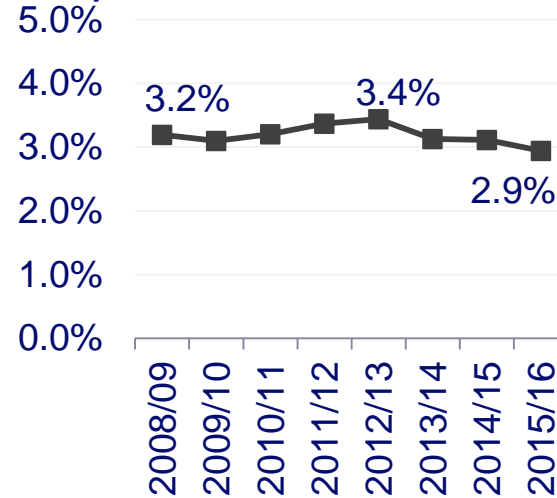


# Local Authority Expenditure

**Total Local Authority Expenditure (Real Terms)**  
(£Thousands)

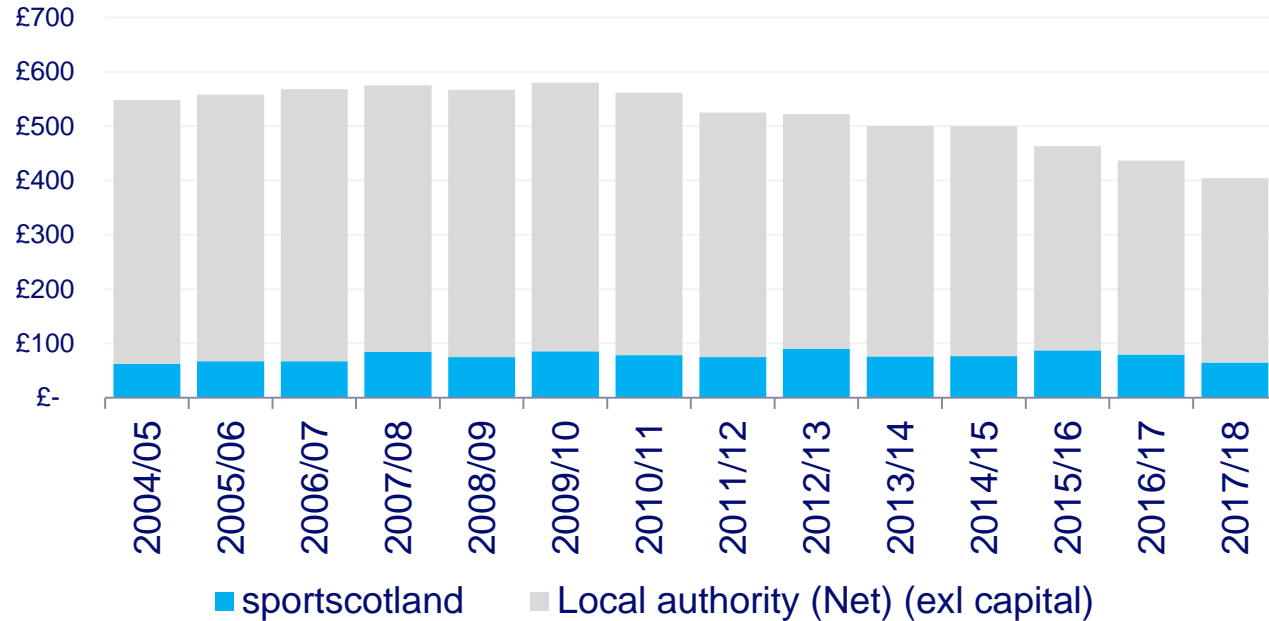


**% of LA expenditure going to Sport**

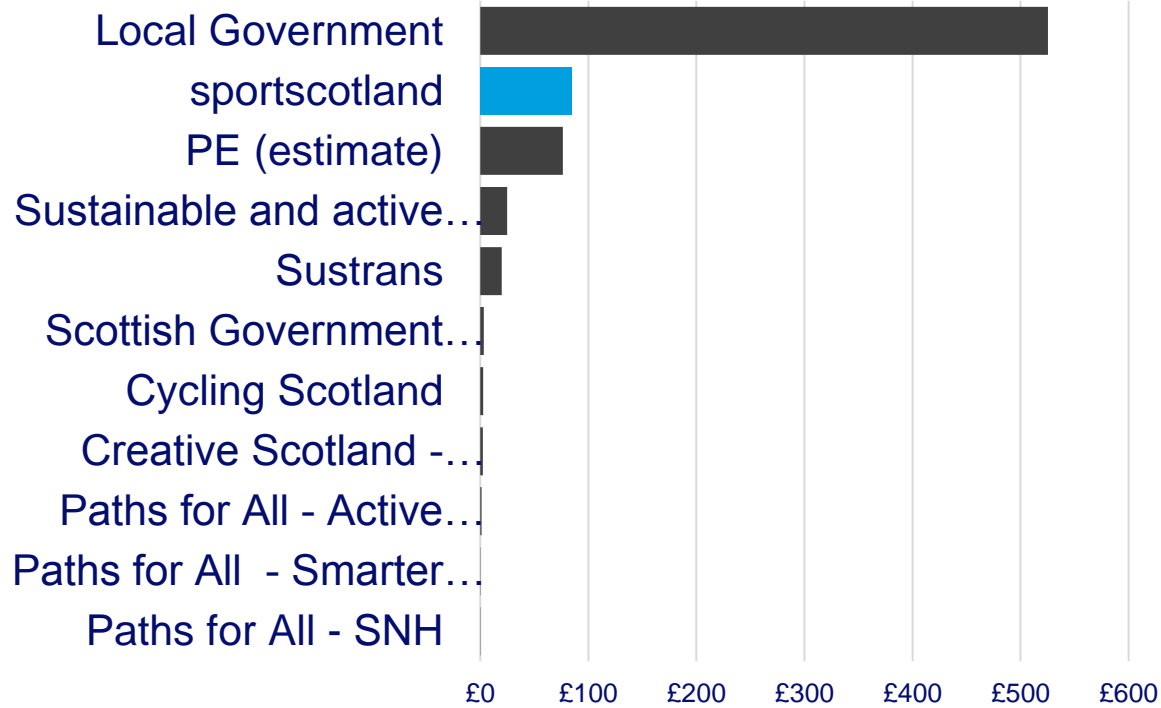


# Projection

Sport

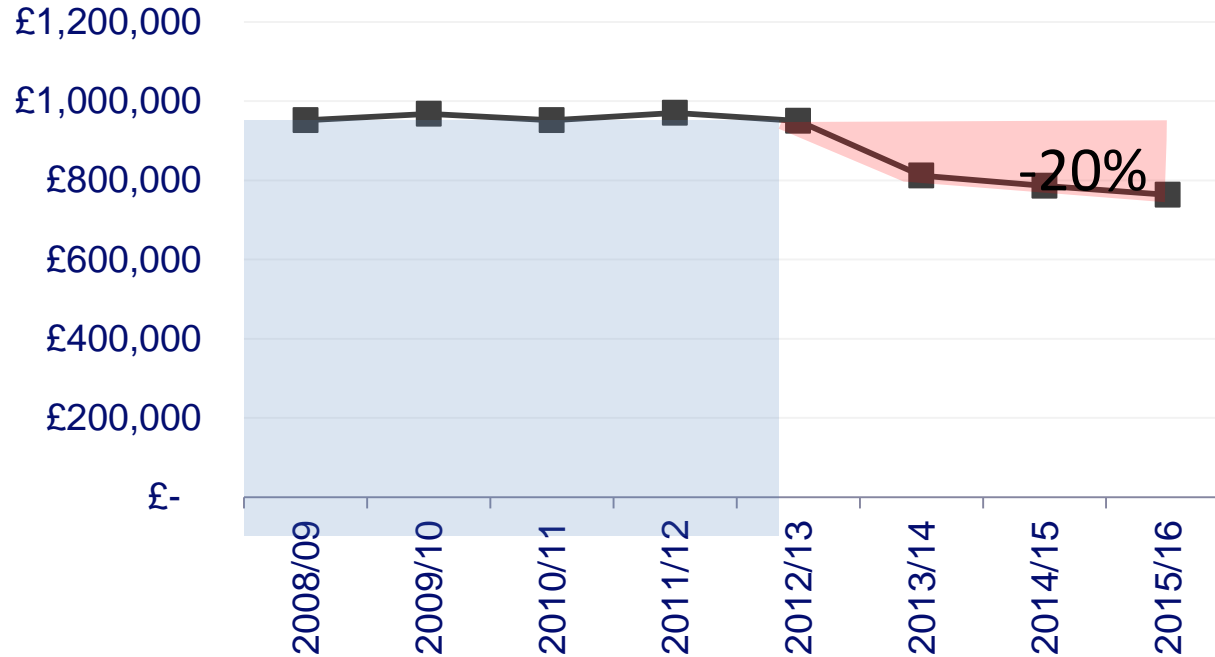


# Public sector investment 2015 (£m)

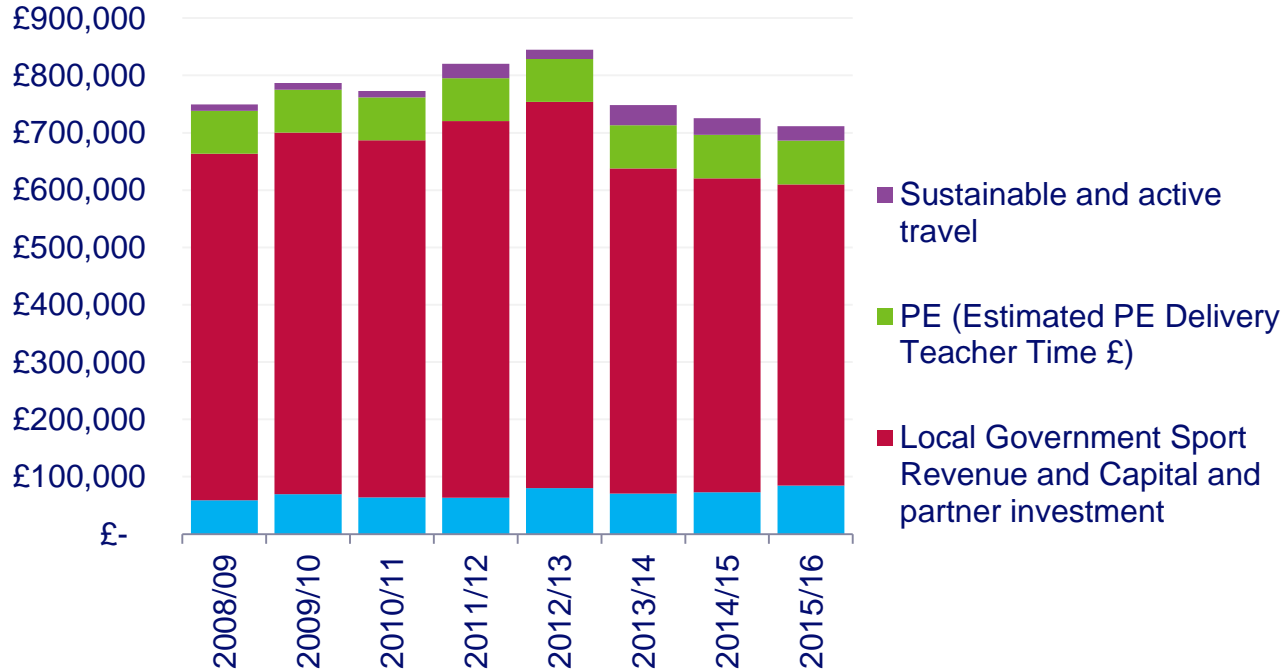


# Expenditure in Physical Activity

Real terms

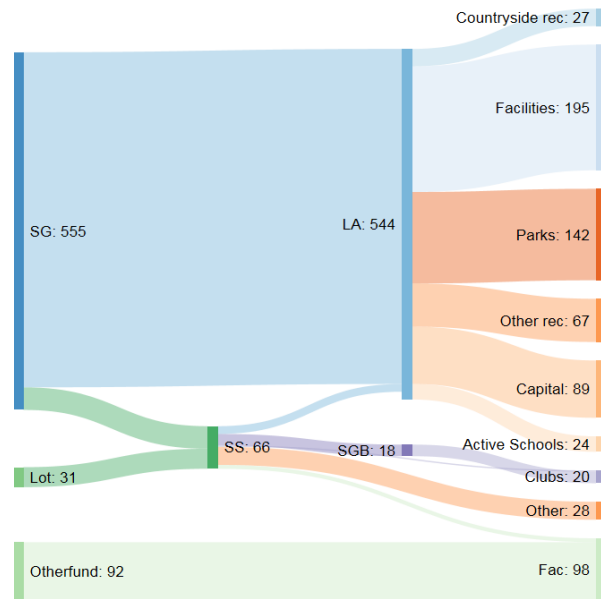


## Trend, top 4



# Caveats

- Incomplete
- Budget lines are messy
- Only includes public sector
- Overlaps (e.g. Active Schools)
- Commonwealth Games



# Understand our contribution in context

- Wider Evaluations
- ASOF and equality – who is benefitting from our support?
- Understanding the inactive population (and some active/meets recommendations)
- Looking for help to refine

# Questions

- Is this your understanding?
- If accurate, what physical activity trends should we expect?
- What investment would be required for growth?
- How far do we collectively invest in the right places, to deliver the Active Scotland Outcomes Framework?
- Who benefits?
- How coordinated is physical activity as a sector?



Susan Kelso



# Active and Independent Living Programme

## Susan Kelso AHP National Lead Early Intervention

Valuing Physical Activity and the Economic  
Impact of Inactivity

Thursday 22 March 2018

Storytelling Centre, 43-45 High Street, Edinburgh EH1 1SR



# Public Health Challenges

- Arising from lifestyle, social-cultural factors and our modern environment
- How do we increase public and service knowledge and awareness of where avoidable harm can be reduced?
- How do we prevent ‘Lifestyle Drift’? (25% gain from direct health care; 50% from socioeconomic factors)
- AILP introduced as part of National Health and Social Care Delivery Plan to address these challenges – including supporting people of all ages to be physically active.

# Integrated health and social care – wellbeing is central principle

## Better care

- Working with - not 'doing to'
- People involved in and

## Better Health

- Anticipation, prevention self management not 'fixing'
- M

## Better value

- Integrated approaches
- More in the community
- Changes f

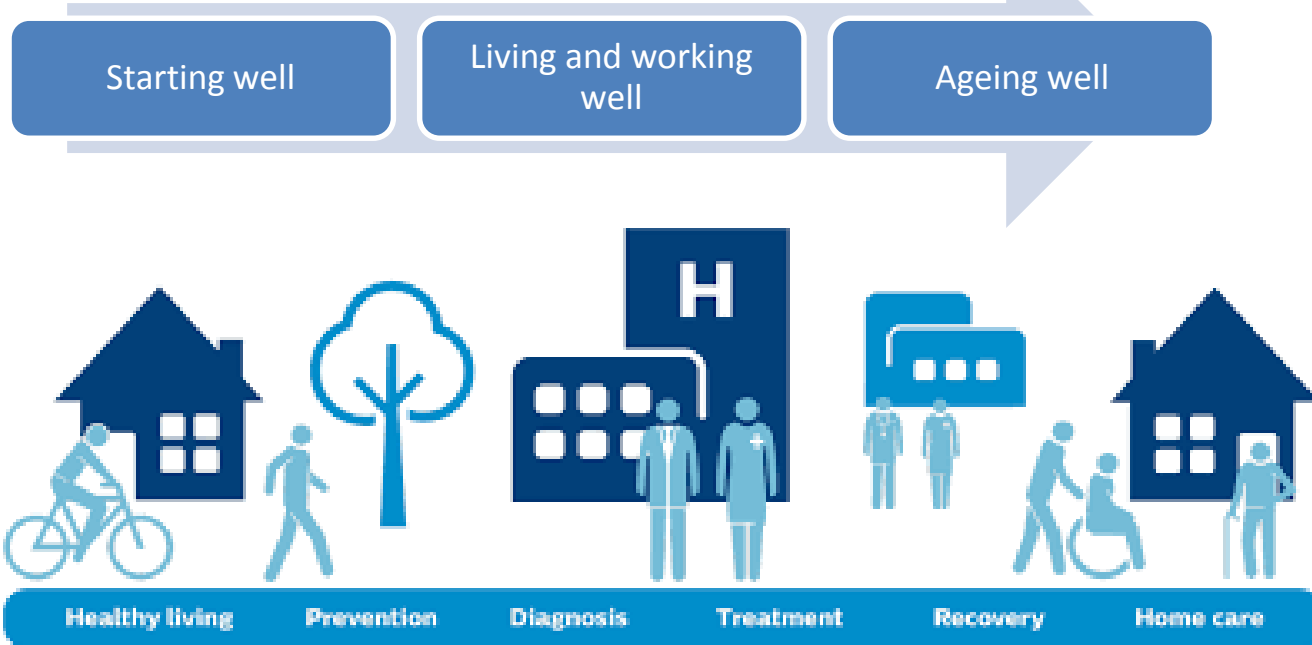
**NB: Self management is crucial as is social care and support for people with disabilities**

# Active and Independent Living Programme



# Wellbeing approaches across the life-course

Move and improve/Eat well/Make Every communication count



What matters to people? Identifying strengths, seeking resilience, shared decision making, collaborative working

Asset based Personal Outcomes approach

# How do we find out where we currently are intervening?

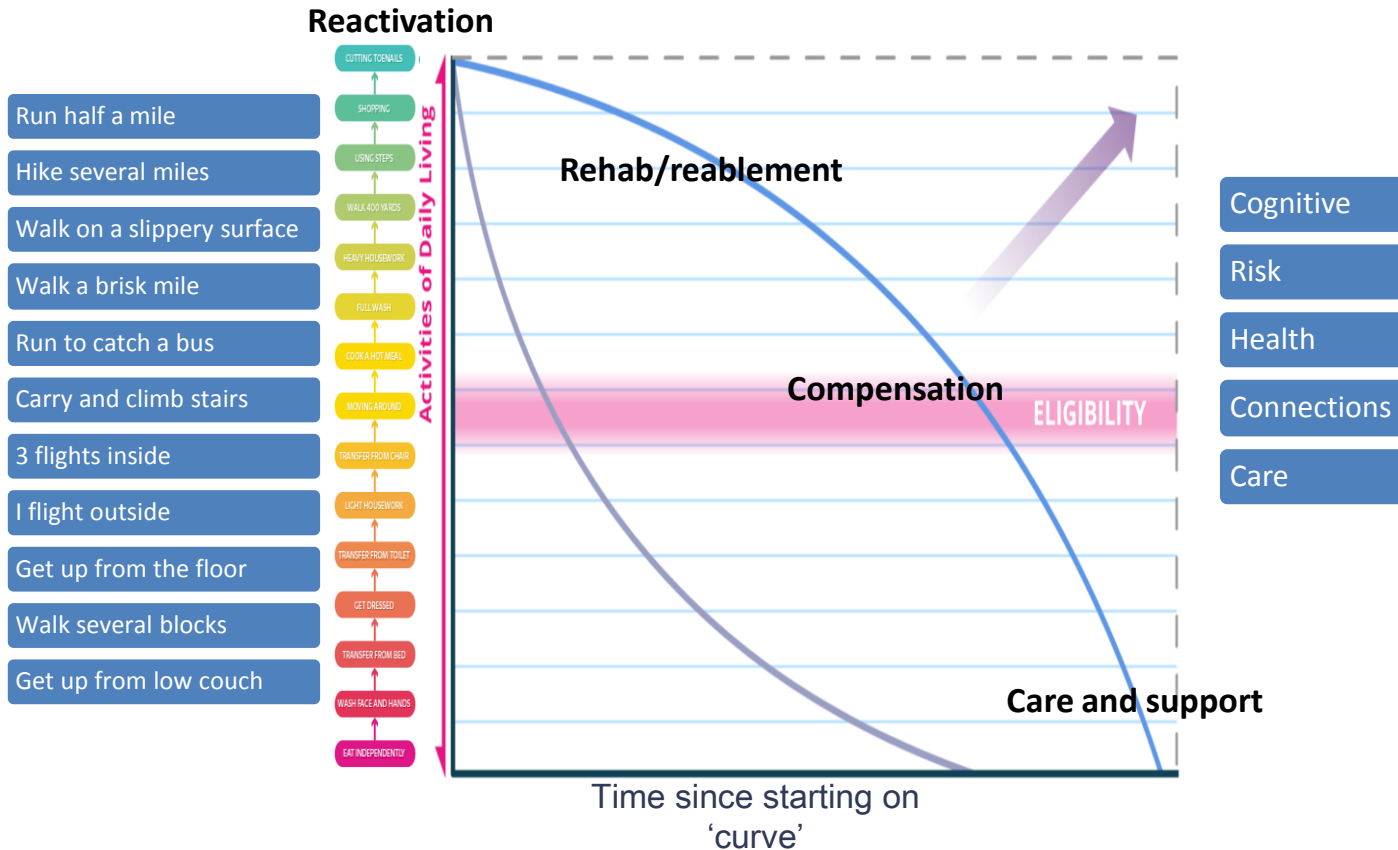
- ✓ If we as AHPs are to achieve our AILIP vision and focus on ***PREVENTION*** then we have to know where we are currently intervening in their Health and Well Being Journey
- ✓ Given the policy direction on prevention, early intervention and self management there is still no clarity around how we will do this! Opportunity for Allied Health to lead the way!
- ✓ ***National Survey on the Lifecurve*** which will identify exactly where the AHP workforce is intervening on an individuals' health and well being journey.



- ✓ All Boards and Partnerships
- ✓ All Adult AHPs working in Adult Services
- ✓ All Registered and Non-Registered Staff
- ✓ A representative sample of people who attend our services

**IT'S NEVER  
BEEN DONE  
BEFORE**

# Prevention, anticipation, early intervention, self management – where? What does it look like?





CAN do this unaided	Activity of Daily Living	CANNOT do this unaided	How long since you were able to do this?	
			Number of months?	Number of years?
	Heavy Housework (eg moving furniture to Hoovering)			
	Using steps / stairs			
	Eat your food independently			
	Get dressed			
	Wash your face and hands			
	Get on / off a toilet			
	Have a full wash			
	Walk 400 yards			
	Cook at hot meal			
	Get on / off a bed			
	Shopping			
	Cut your toenails			
	Get up / down from a chair			
	Light housework (eg ironing, dusting)			
	Moving around			

## NATIONAL LIFE-CURVE SURVEY : PART 1

Where are you seeing the AHP member of staff today? Please tick only one option:

- Inpatient   
 Outpatient   
 Community   
 Your Home

If you travelled to get here today, how did you get here? Please tick only one option:

- By Bus   
 By Car   
 By Ambulance   
 N/A   
 Walking  
 Combination of travel methods

Who do you normally live with? Please tick only one option:

- With other people eg. Partner, family, friends   
 I live alone  
 In sheltered accommodation or a residential home (eg care home)

Do you have any communication support needs?

E.g. hearing or low vision aid, interpreter, large print, easy read, communication aid.   
 Yes   
 No   
 N/A

Are you in work or do you take part in other regular activity? Please tick which apply:

- Yes I work   
 I am a volunteer   
 N/A  
 I help to look after other family members eg grandchildren/nieces/nephews

Is your home suitable for your needs? Please tick only one option:

- Yes I can manage all daily activities within my home  
 I am beginning to struggle with managing daily activities within my home  
 I cannot manage some daily activities within my home without help

Are you a carer?

Please tick only one option:

- Yes   
 No  
 Both – I care for someone and I have a carer

How would you describe your emotional wellbeing today?

NB: 1 is very good and 5 is very bad



Who arranged for you to see the member of AHP staff today? Please tick only one option:

- A member of health staff   
 A member of social work staff  
 Myself, family member or friend   
 Other  
 I don't know/not sure   
 I don't know as I was admitted in an emergency to hospital

This is the end of the Survey: Thank you for taking part.

## NATIONAL LIFECURVE SURVEY : PART2

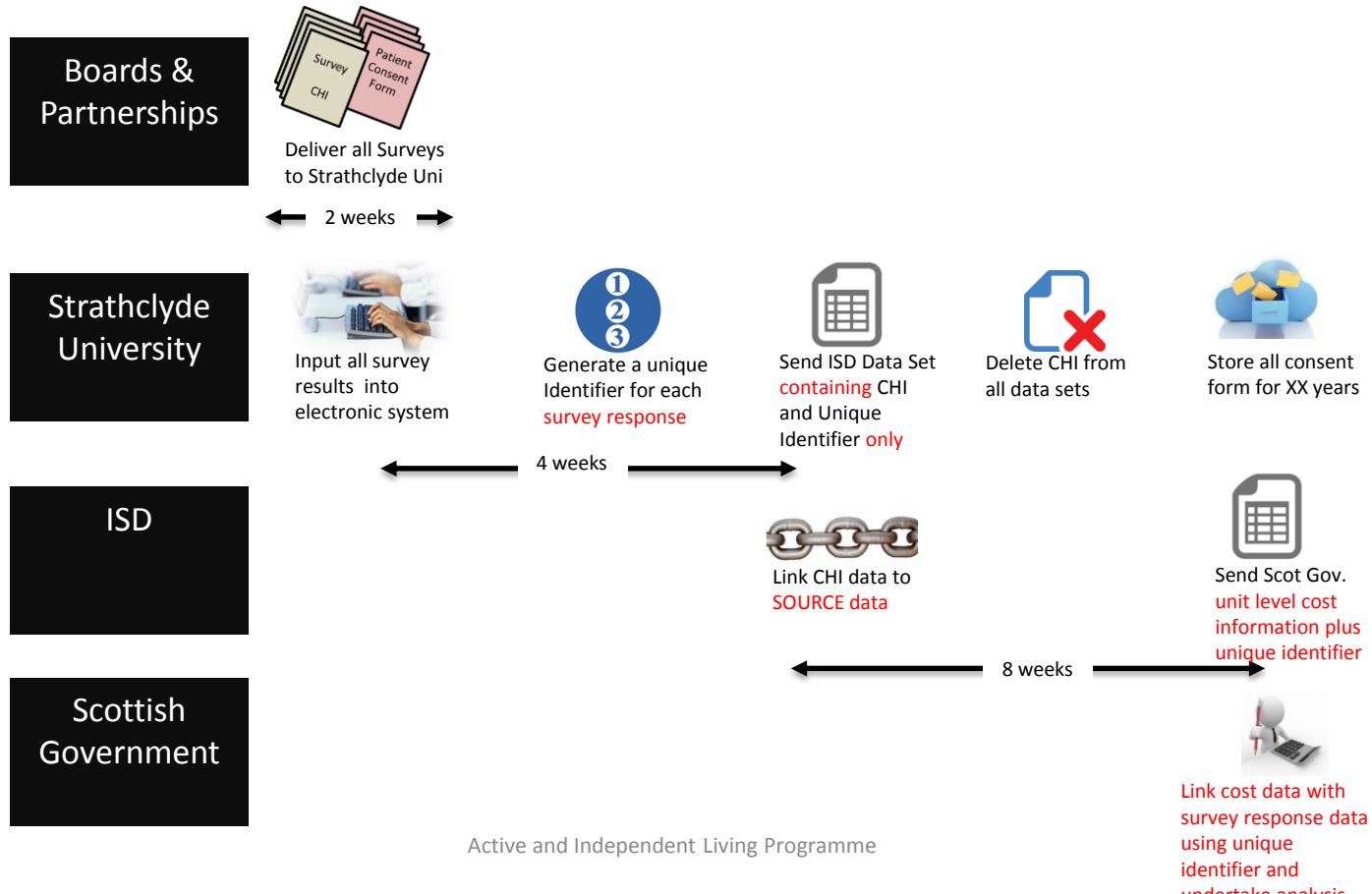
Part 2: Office Use Only (to be completed by member of staff)

NB: Items marked \* only complete if no access to CHI number

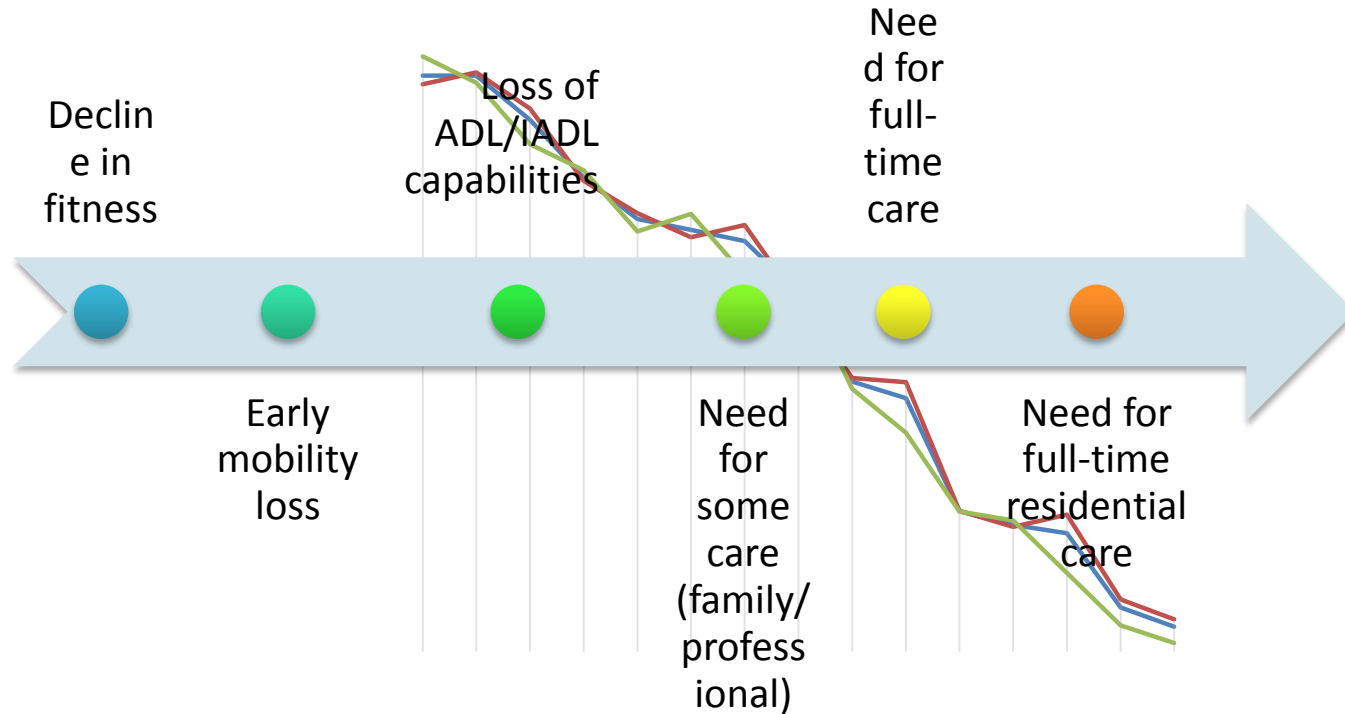
Persons CHI number:	X		Date Survey Completed	(DD / MM /YY):	
Date Of Birth*	X		Postcode*		
State your AHP profession:			I am a Student	Yes	No
Band / Grade			I am a generic AHP support staff member	Yes	No
Are you registered with HCPC (tick which)?	Yes	No	State Service type - Refer to checklist		
Is this a first time or return visit (tick which)?	First Return	Return Visit			
Name of LA / Partnership Area:			Name of NHS Board:		Other:
What is the Main Purpose for visit? (tick which)	Treatment Rehabilitation Reablement	Assessment / Review	Diagnostic Test	Maintenance	Education / Advice

Thank you for completing the survey

# What will the data collection process be?



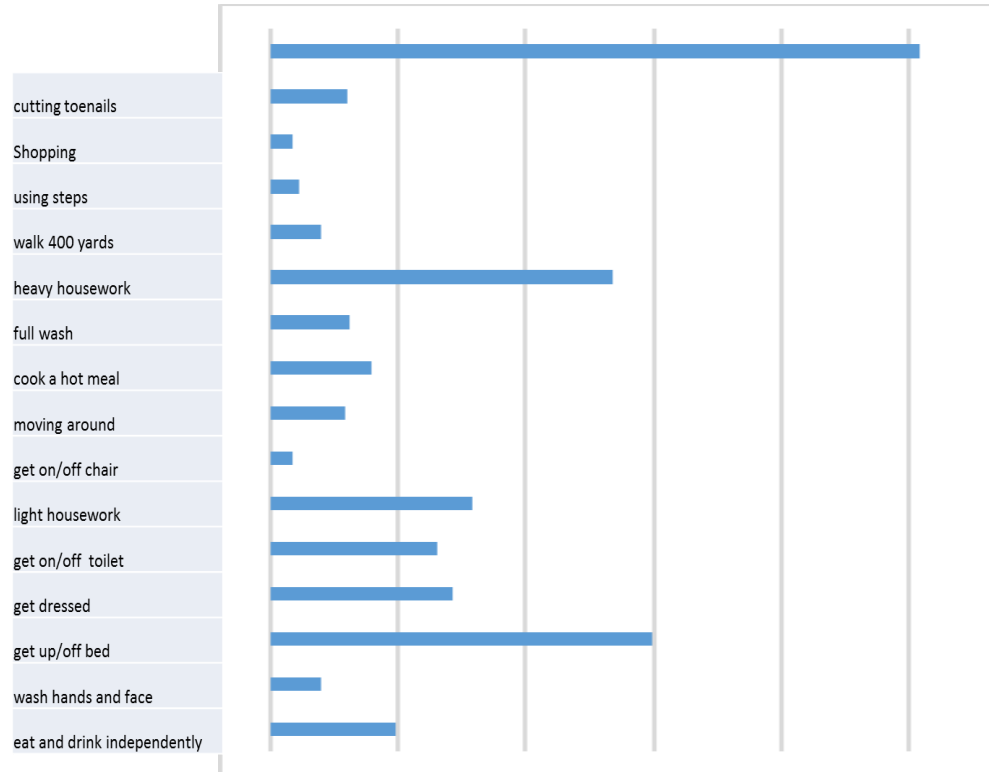
# Link costed data to support economic argument for prevention/early intervention



# National Results N=15,000



& INDEPENDENT  
LIVING PROGRAMME



# Lifecurve score across Scotland

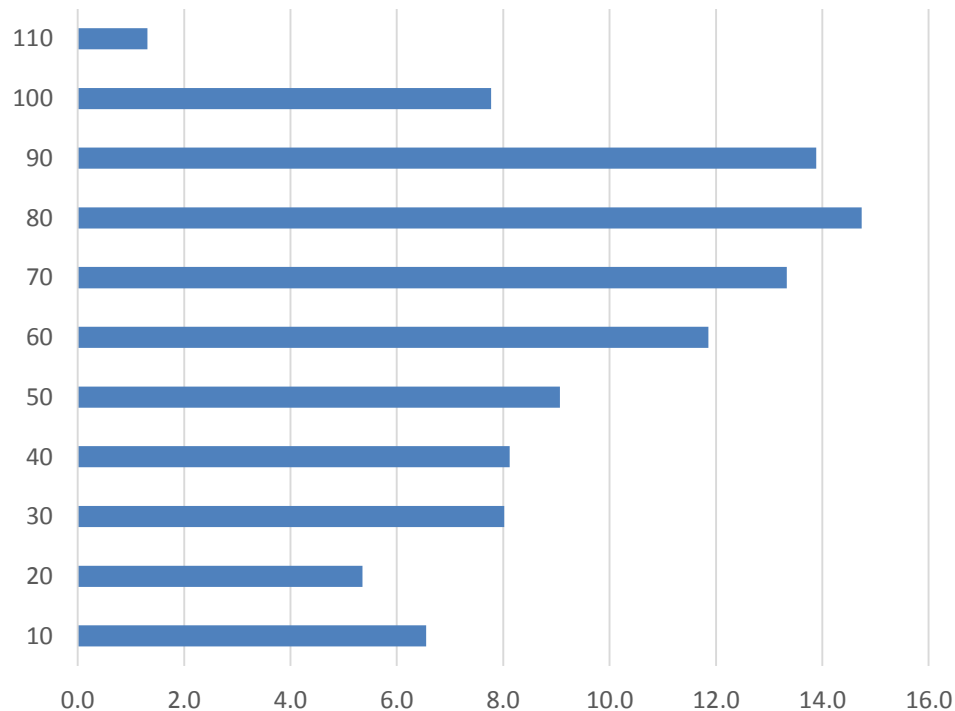
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Greater Glasgow and Clyde	29	3	1	1	2	14	3	3	3	1	8	6	8	13	2	4
Grampian	23	5	0	2	2	14	3	5	3	1	8	7	5	16	2	4
Fife	28	3	1	1	3	14	3	4	3	1	7	6	7	13	2	4
Tayside	27	4	1	1	2	12	4	5	2	1	9	8	5	14	2	5
Lothian	27	2	1	1	2	15	3	4	3	1	7	5	6	13	1	6
Lanarkshire	27	2	1	1	2	12	2	5	4	1	7	6	9	14	2	5
Highland	32	2	0	1	2	12	3	4	3	1	7	5	7	13	2	5
Forth valley	21	4	1	2	2	10	1	4	2	1	8	6	11	18	2	6
Dumfries & Galloway	24	4	1	1	2	10	3	4	5	2	8	8	6	16	3	2
Borders	31	4	0	0	2	16	3	3	4	3	6	3	6	12	1	4
Ayrshire & arran	12	2	1	3	3	10	4	5	5	0	8	15	8	18	3	3
Western Isles	33	7	0	1	2	17	2	2	0	0	11	8	3	8	3	3
Shetland	20	0	0	0	5	11	5	2	0	0	9	5	11	27	2	2
Orkney	38	0	4	0	4	13	0	0	4	0	8	8	4	8	4	4

# Heat Map of current activity by AHP Profession

life curve score	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Physiotherapist	27	2	1	2	2	15	3	3	4	1	8	6	7	13	1	4
Occupational Therapist	13	2	1	1	1	10	3	5	3	1	9	11	9	22	3	6
Podiatrist	26	10	0	1	4	18	2	3	3	1	8	3	6	10	1	3
Radiographer (diagnostic)	65	3	0	0	1	13	2	1	2	1	2	1	3	5	0	1
Dietitian	34	3	1	1	4	17	3	5	1	0	9	3	5	6	3	4
Speech and Language	23	3	2	1	2	14	3	6	1	2	7	2	8	13	5	9
Prosthetist/Orthotist	32	2	0	3	3	13	5	2	3	2	10	3	6	12	1	2
Radiographer(therapeutic)	73	1	0	0	3	11	1	1	1	0	4	0	2	1	0	4
Orthoptist	52	4	1	2	1	16	4	5	2	0	0	3	2	8	1	1

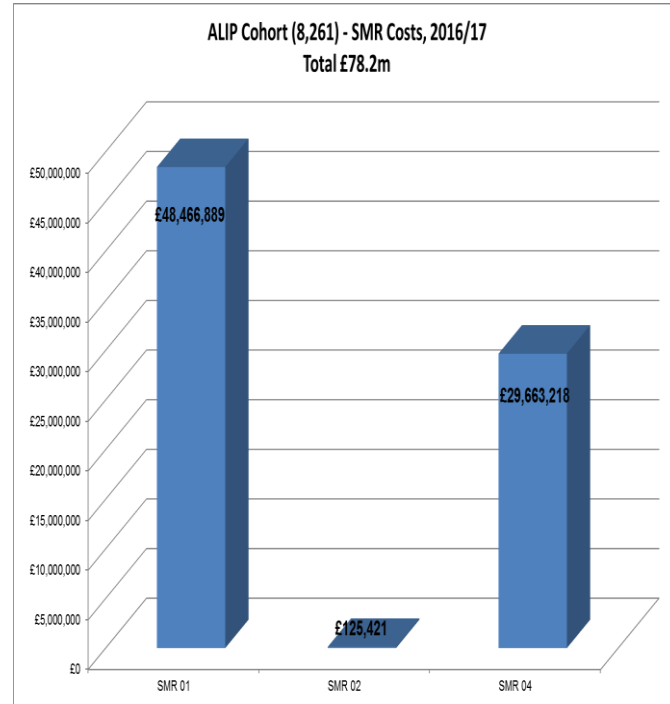
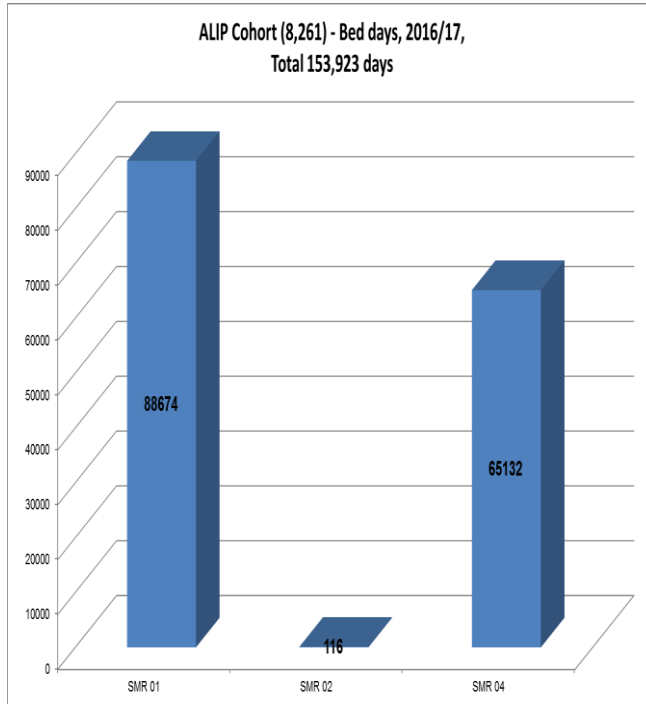
# Lifecurve Survey Age Profile

Age	%
10	6.5
20	5.4
30	8.0
40	8.1
50	9.1
60	11.9
70	13.3
80	14.7
90	13.9
100	7.8
110	1.3

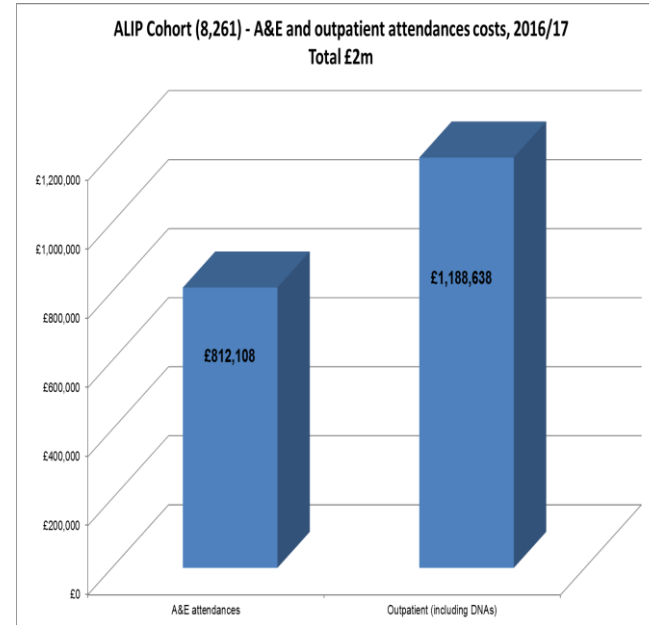
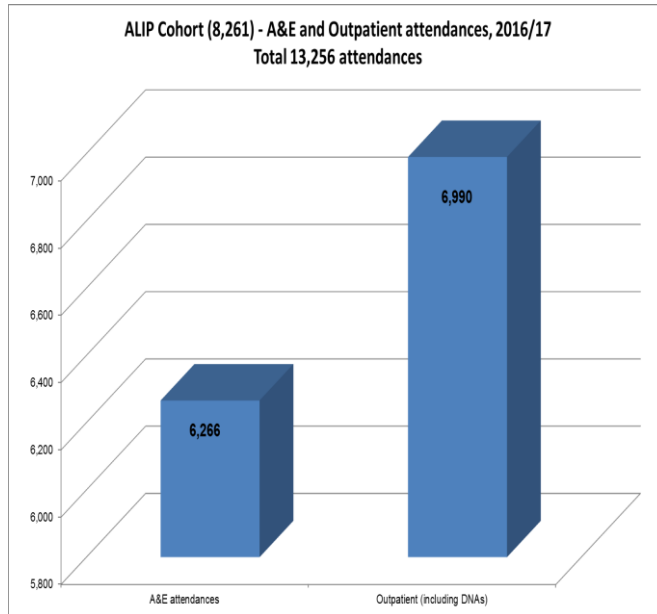




## Bed Days and associated costs for approx 60% of total cohort



## A+E / Out-patients attendances and associated costs for the 60%



# ALIP Cohort by SIMD - A&E, Outpatients, SMR 1 and SMR 4 costs

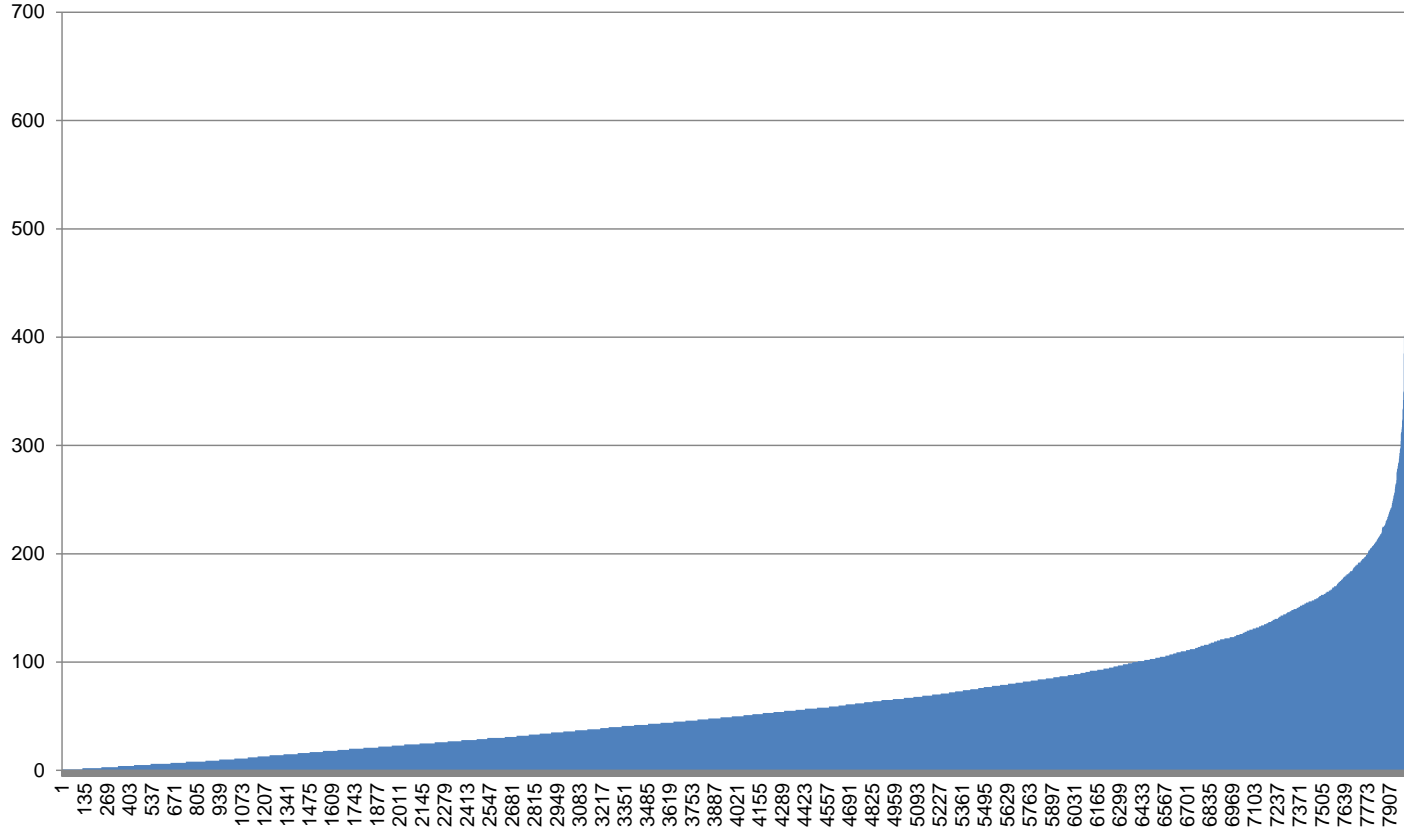
Total £80.2m

SIMD 1 = most deprived SIMD 10 = least deprived



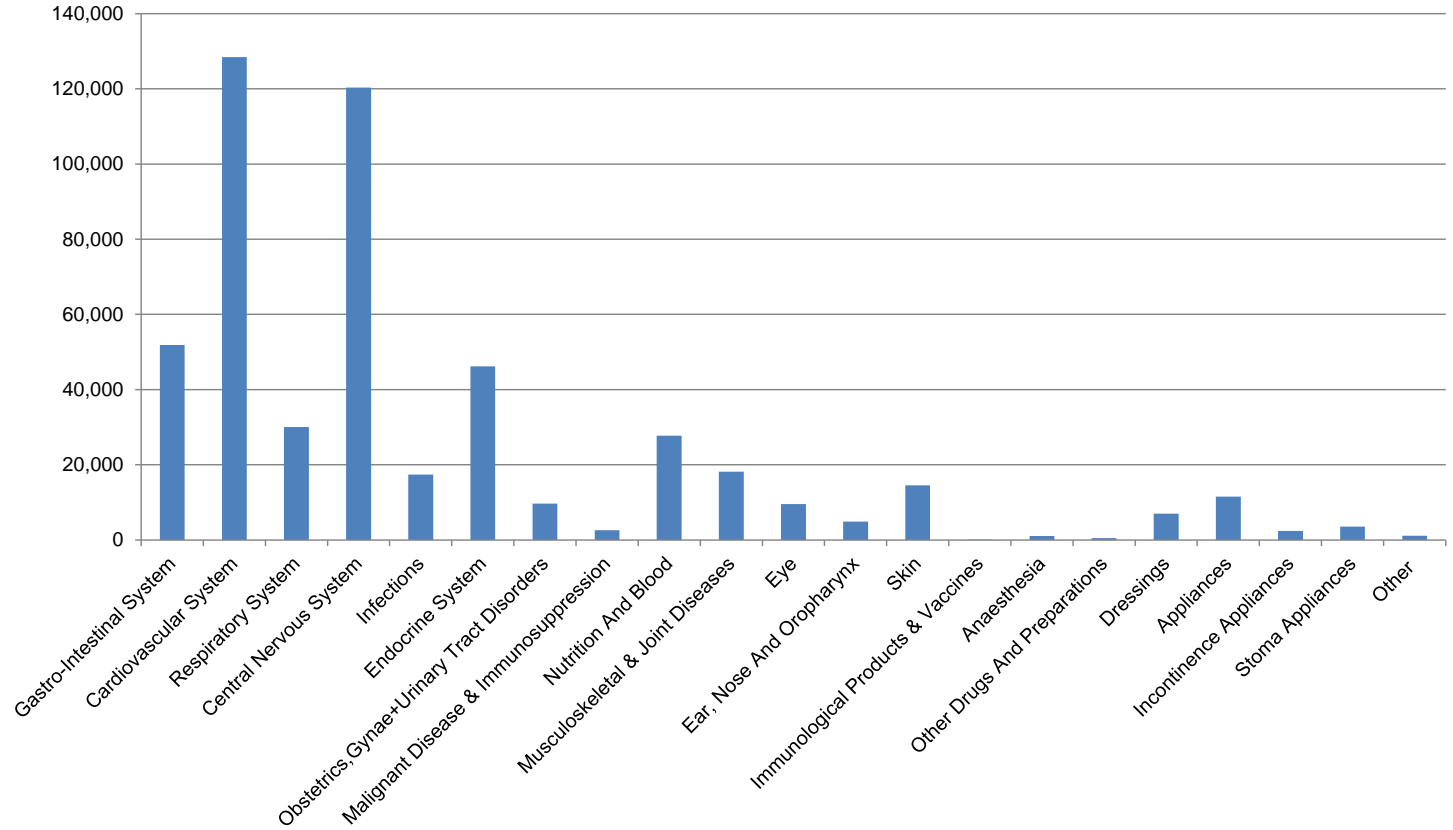
# Number of items prescribed per person, 2016/17

Min 1 item, Max 632 items, Average 63 items



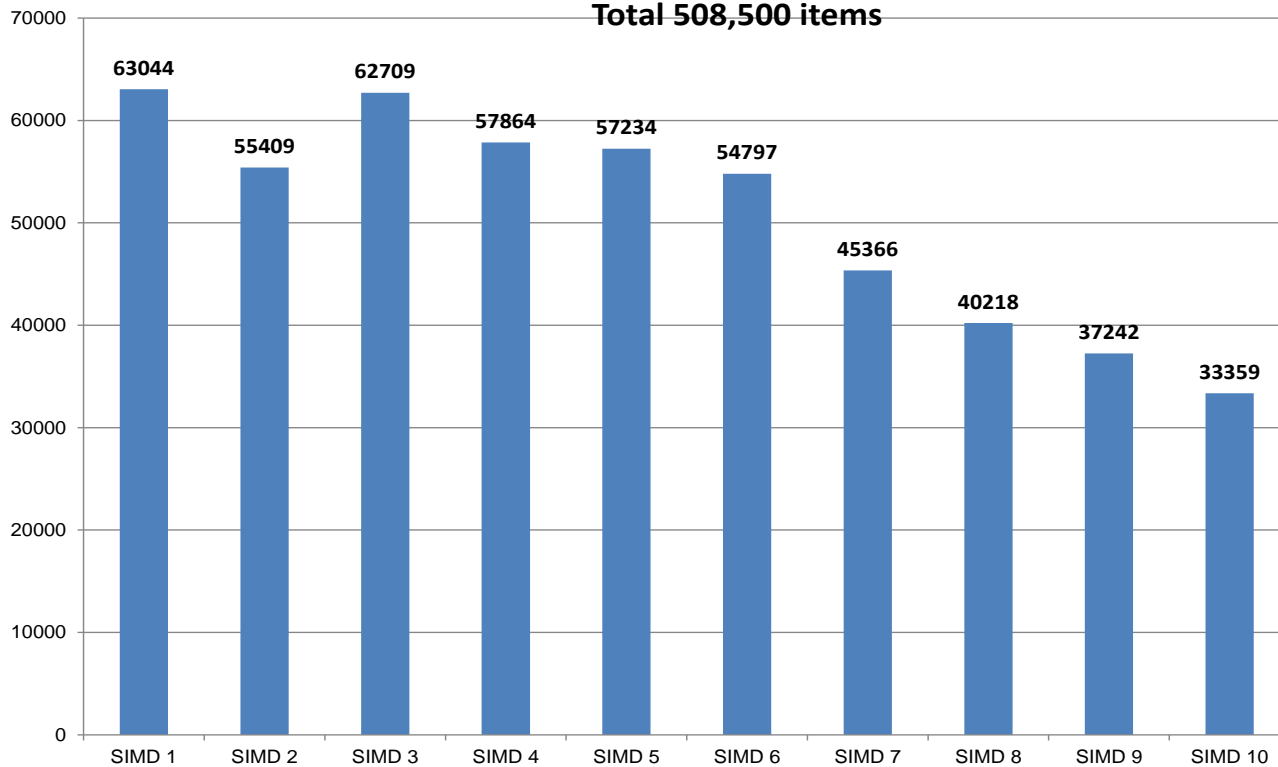
## ALIP Cohort (8,261) - Prescribing number of items by drug category, 2016/17

### Total 508,500 items



## Prescribing number of items by SIMD decile, 2016/17

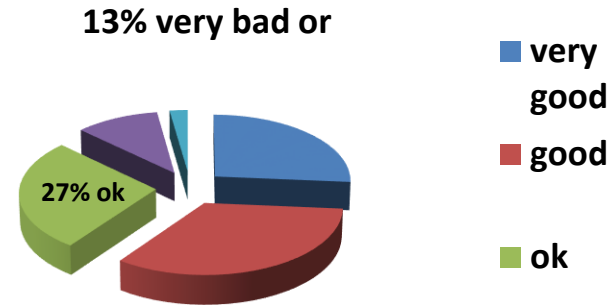
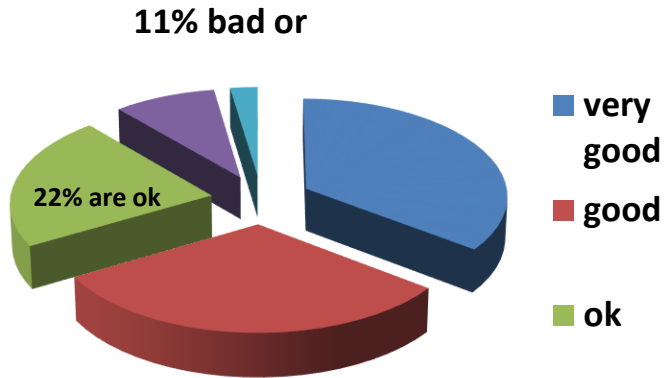
SIMD 1 - most deprived, SIMD 10 - least deprived



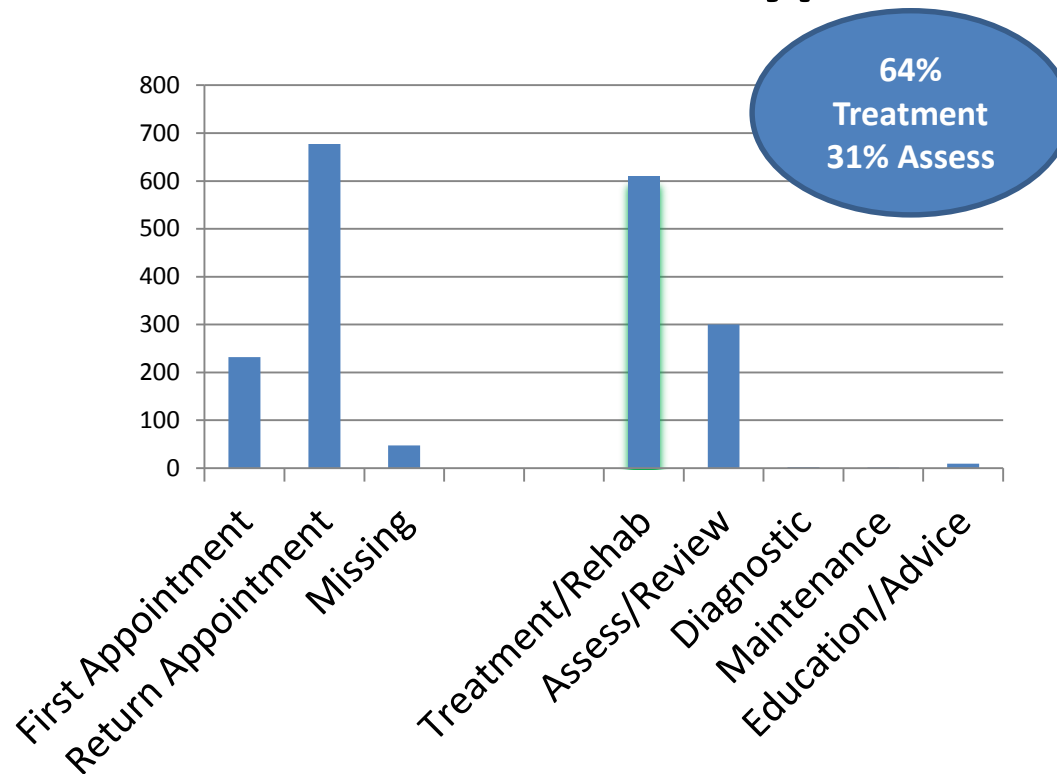
# Emotional Wellbeing in one area

Acute/hospital based services

Community/rehab services

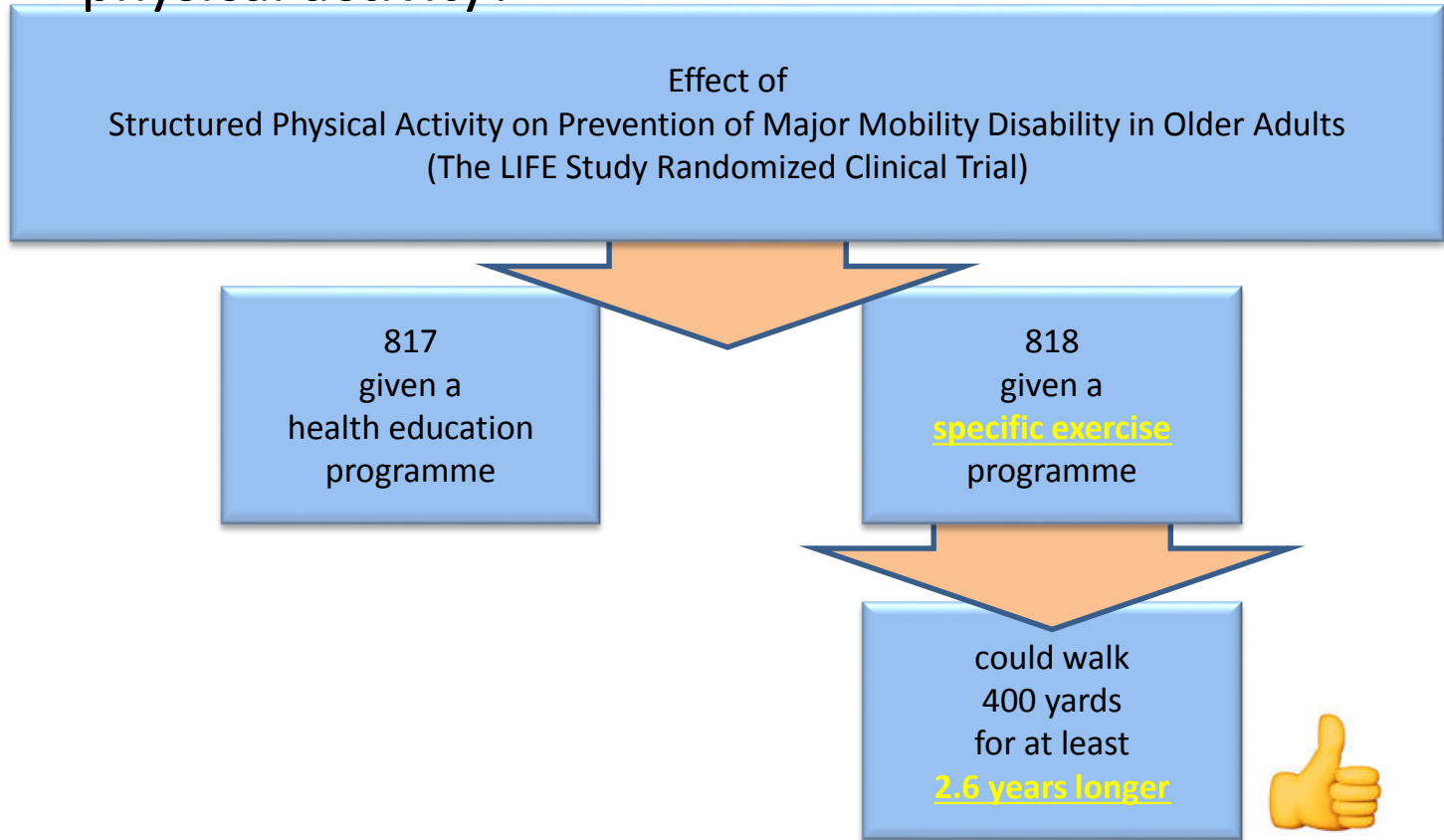


# MSK Intervention Type





# How do we engage with people around physical activity?



**MUSCLE  
WEAKNESS & POOR  
BALANCE**



As we get older, our balance and muscle strength  
can

**slowly decline without us noticing.**

As a result, a trip or slip can become a **FALL**.

Active and Independent Living Program

**MOVE AND IMPROVE**



**FALLS PROGRAMME**

ACTIVE & INDEPENDENT  
LIVING PROGRAMME

# TAKE THE BALANCE CHALLENGE



# 400 yards campaign

- Not being able to walk 400 yards – a ‘tipping point’
- 50% cannot walk 400 yards
  - 64% are struggling or needing help to live at home
- Link with partners across sectors
- Leisure/Sports clubs
- Glasgow Leading Attractions
- Link with #endpjparalysis

# Thank you for listening

Contact me via:

e: susan.kelso@nhs.net

m: 0794 308 3735

t: susankelso@AHP

For more information about AILP visit

<http://www.knowledge.scot.nhs.uk/ahpcommunity.aspx>



# Kevin Lafferty



Forestry Commission Scotland  
Coimisean na Coilltearachd Alba



**Branching Out**  
Positive Mental Health  
Through Nature



**2007-2018**

Kevin Lafferty

National Policy Advisor

Forestry Commission Scotland



- **Health Walks**
- Horticultural therapy
- **Branching Out**
- Green Gym
- Natural Play
- Forest School
- WAP for people with Dementia





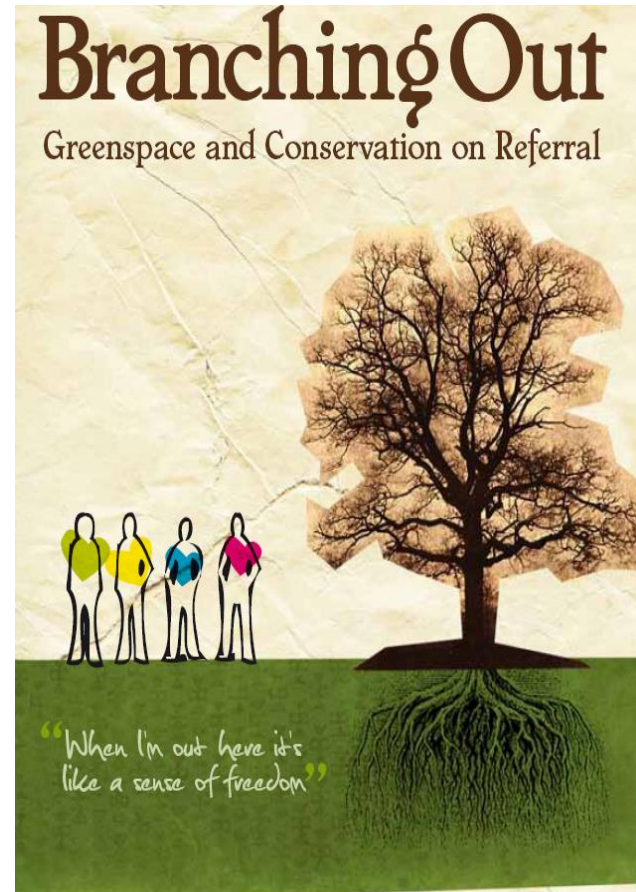
Greenspace and conservation  
on referral for adults using  
mental health services

Programme runs in 10 area  
health boards across Scotland

40 plus groups delivered per  
annum

Established training  
programme for environment  
and health professionals

Economic study 2016



## Branching Out Summary of Economic Study

Branching Out is a programme run by Forestry Commission Scotland (FCS) that aims to improve the Health-Related Quality of Life of adults experiencing severe and enduring mental health problems. First established in 2007, it is based on a 12-week programme of woodland activities, which are used as a vehicle to help participants learn strategies that can maintain positive mental health. It runs as an adjunct treatment for those in secondary and tertiary care.

The programme has been evaluated through two survey-based studies, one for 2011-2012 and one for 2014-2015. The studies used 12-point short form surveys, completed by participants both before and immediately after the scheme, with a follow-up survey three months after completion of the programme.

The 2011-2012 survey showed benefits in Quality-Adjusted Life Years (QALYs), a standard measure used to assess the cost-effectiveness of treatments across the health care sector, but these were not statistically significant. It also showed that the programme was cost-effective when compared with the National Institute for Health and Care Excellence (NICE) guidelines. The aim of the 2014-2015 survey was to increase the amount of data available, to see whether a larger sample would show statistically significant effects for QALYs, and to extend the analysis of the programme's cost-effectiveness.

The results of both surveys show small but significant improvements in participants' mental health, social participation and general vitality. Perhaps because of a relatively low response rate for the latter survey, the benefits for QALYs in the 2014-2015<sup>1</sup> survey are also not statistically significant.

Improvements in mental health and vitality as a result of the scheme are particularly marked for participants with more severe mental health problems before they entered the programme.

The programme has a high retention rate. Participants were more likely to maintain contact with Branching Out than with comparable schemes, which indicates their satisfaction with it.

The cost of one QALY delivered through Branching Out is just over £17,000. This compares favourably with the NICE benchmark of £30,000 for an intervention to deliver one QALY. Although it was not possible to collect reliable data on how long its benefits last, this indicates that Branching Out is a cost-effective way to improve mental health.

Details of the programme are available at [www.forestry.gov.uk/branchingout](http://www.forestry.gov.uk/branchingout)

<sup>1</sup>QC Consulting 2016. Branching Out Economic & Impact Final Report to Forestry Commission Scotland. Available at: [www.forestry.gov.uk/branchingout](http://www.forestry.gov.uk/branchingout).

## Branching Out Positive Mental Health Through Nature

authors  
 a public health, a consulting  
 and research, a research  
 is and impact, a university of nature

### Introduction

Branching Out is an innovative programme for adults with severe and enduring mental health problems. It brings together mental health professionals and outdoor staff to provide a range of nature-based activities to help participants learn strategies to help themselves from long-term mental health problems.

A Branching Out programme lasts for 12 weeks, with a staggered 10 a group of up to 10 participants. The program provides a range of nature-based activities to help participants learn strategies to help themselves from long-term mental health problems. It is an adjunct treatment for those in secondary and tertiary care.

Through the programme of woodland activities, Branching Out helps participants develop coping strategies to maintain positive mental health. It offers participants a chance to learn skills and confidence, to build resilience and to help themselves from long-term mental health problems.

### Methodology

The programme has been evaluated through two survey-based studies: one for 2011-2012 and one for 2014-2015. The 2011-2012 study used 12-point short form surveys, completed by participants both before and immediately after the scheme, with a follow-up survey three months after completion of the programme. The 2014-2015 study used 12-point short form surveys, completed by participants both before and immediately after the scheme, with a follow-up survey three months after completion of the programme. The aim of the 2014-2015 survey was to increase the amount of data available, to see whether a larger sample would show statistically significant effects for QALYs, and to extend the analysis of the programme's cost-effectiveness.

### Results

The main analysis of the changes in QALYs and QALYs delivered through Branching Out is just over £17,000. This compares favourably with the NICE benchmark of £30,000 for an intervention to deliver one QALY. Although it was not possible to collect reliable data on how long its benefits last, this indicates that Branching Out is a cost-effective way to improve mental health.

The 2011-2012 survey showed benefits in Quality-Adjusted Life Years (QALYs), a standard measure used to assess the cost-effectiveness of treatments across the health care sector, but these were not statistically significant. It also showed that the programme was cost-effective when compared with the National Institute for Health and Care Excellence (NICE) guidelines. The aim of the 2014-2015 survey was to increase the amount of data available, to see whether a larger sample would show statistically significant effects for QALYs, and to extend the analysis of the programme's cost-effectiveness.

### Conclusions

The programme delivers benefits to participants and these are particularly for participants with more severe mental health problems before they entered the programme.

There is a statistically significant difference between the QALYs gained in the study and the QALYs gained in the control group. This indicates that the programme is cost-effective when compared with the National Institute for Health and Care Excellence (NICE) guidelines.

Costs of the programme are low and the programme is cost-effective when compared with the National Institute for Health and Care Excellence (NICE) guidelines.

Programme delivery costs per participant are low in 2014-2015, but in 2011-2012 they are £17,000 per QALY.

The programme is cost-effective when compared with the National Institute for Health and Care Excellence (NICE) guidelines. The aim of the 2014-2015 survey was to increase the amount of data available, to see whether a larger sample would show statistically significant effects for QALYs, and to extend the analysis of the programme's cost-effectiveness.

Initial attendance at sessions was high and participants were highly engaged in the programme. This indicates that the programme is cost-effective when compared with the National Institute for Health and Care Excellence (NICE) guidelines.

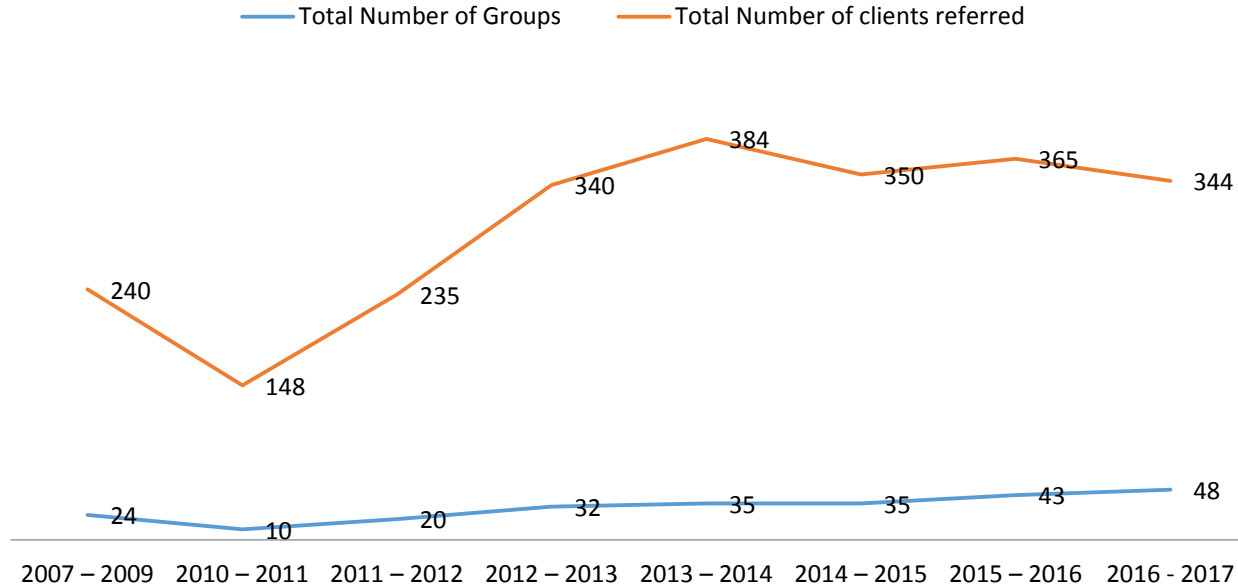
### Contact details

Branching Out Programme Manager  
 Central Scotland Community  
 National Forest  
 Hamilton Glasgow Road  
 Hamilton ML11 0JG  
 Scotland  
 Tel: 01896 4333  
 Email: [branchingout@forestry.gov.uk](mailto:branchingout@forestry.gov.uk)





## No's of groups and referrals since 2007





## Quantitative evidence using Cost Utility Analysis

- Recent health economic study carried out over 2 years
- Data collected in 2014 and 2015
- Short form 12 questionnaires (self-administered patient questionnaire to measure treatment effectiveness - [www.optum.com](http://www.optum.com))
- Baseline, Post & 3 month follow-up

### Your Health and Well-Being

This survey asks for your views about your health. This information will help keep track of how you feel and how well you are able to do your usual activities.

For each of the following questions, please tick the one box that best describes your answer.

1. In general, would you say your health is:

Excellent	Very good	Good	Fair	Poor
▼	▼	▼	▼	▼
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. The following questions are about activities you might do during a typical day. Does your health now limit you in these activities? If so, how much?

	Yes, limited a lot	Yes, limited a little	No, not limited at all
	▼	▼	▼

• Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf  :  :

• Climbing several flights of stairs  :  :



## Quantitative evidence using Cost Utility Analysis: Results

- Scores converted to SD-6 scores (health state classification utility scores)
- Lower score indicates a worse health state and a higher score indicates improved health state
- Pooled data shows Improvements in scores for physical health, mental health, vitality, social functioning and life role measured.
- Used to calculate cost of Quality-Adjusted Life Years (QALY)
- Pooled data shows a QALY improvement in 51% of participants, and no change in 10% of participants (n=175)
- 2011/12 data shows QALY improvement in 57% and no

### Your Health and Well-Being

This survey asks for your views about your health. This information will help keep track of how you feel and how well you are able to do your usual activities.

For each of the following questions, please tick the one box that best describes your answer.

1. In general, would you say your health is:

Excellent	Very good	Good	Fair	Poor
▼	▼	▼	▼	▼
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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	Yes, limited a lot	Yes, limited a little	No, not limited at all
• Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf	▼	▼	▼
• Climbing several flights of stairs	▼	▼	▼



- One QALY costs £17,300 compared to NICE guidelines of £30,000.
- Completion rate 2007 – 2015 is 70% (2050 participants)
- Adults with moderate to severe & enduring conditions show the most improvement.

Focus groups (2007) reported 5 areas of improvement:

1. Mental wellbeing
2. Physical health
3. Daily structure and routine
4. Transferable skills acquisition
5. Social skills and networking





# Branching Out Economic Study

- The cost of one QALY delivered through Branching Out is £17,300
- NICE benchmark of £30,000 for intervention to deliver QALY gain
- Branching Out is a cost-effective way to improve mental health



Details of the programme are available at [www.forestry.gov.uk/branchingout](http://www.forestry.gov.uk/branchingout)

# Other Green Prescription programmes



*"I came with trepidation,  
but went away with  
a spring in my step."*

*"The power of the senses  
is a strong trigger for  
memories and being in the  
woodland is a complete  
sensory experience."*

**To book a place please contact the ranger service  
Forestry Commission Scotland Rangers**  
Gordon Harper 07798 668 125 or  
Julie Hamilton 07876 508 586  
E-mail: [scottishlowlands@forestry.gsi.gov.uk](mailto:scottishlowlands@forestry.gsi.gov.uk)

**For research enquiries contact**  
Jim Small's 0779 6938 403

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 **Forestry Commission Scotland**  
Coimisean na Coilltearachd Alba

## Woodland Activity Programme



For People with  
Early-Stage Dementia



*Be part of our  
woodland story,  
a tale of adventure  
and exploration.*

Callendar Wood, Falkirk  
July–September 2016

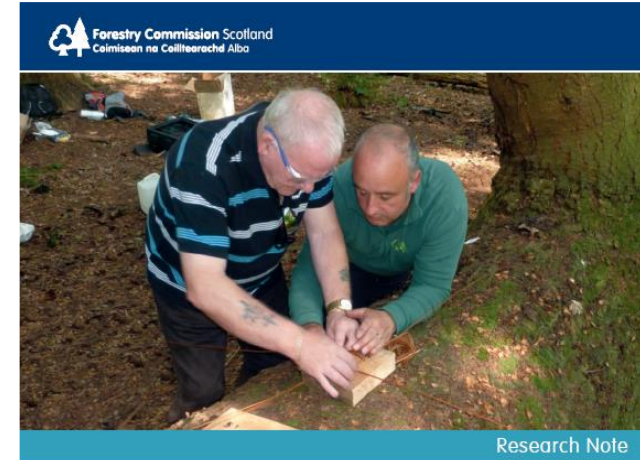


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## Benefits for people with dementia and their carers:

- Being treated as equals
- Improvements in self-esteem
- Increased confidence
- Increased socialisation
- Mental restoration
- Connection to the past life experiences
- A sense of togetherness
- New and innovative service that complements traditional therapeutic interventions



## Forests as places of mental well-being for people with dementia

Mandy Cook

June 2015

This Research Note is based on a PhD research study 'Forests as places of mental well-being: the meaning and use of urban forests by people with early-stage dementia'. The study examines and develops ways for people with dementia (especially those in the early stages) to engage with nature, and with other people, in the context of trees, woodlands and forests. Initial results from the study found that a pilot programme of activities, led by Forestry Commission Scotland rangers in an urban woodland setting, provided an overwhelmingly positive experience for people with early-stage dementia, by offering meaningful experiences that contributed to well-being and feelings of self-worth. The woodland environment also provided a 'library' of resources and stimulation. The programme helped people with early-stage dementia remain active and connected within the community, enabling them to maintain their independence for as long as possible, and provided support for carers. Such programmes can be seen as a new and innovative way of engaging with people with early-stage dementia, which could complement traditional therapeutic interventions. As the Note stresses, an 'end of the road' approach to people with dementia is no longer acceptable. We need to explore more ways of providing care with an emphasis on empowerment and maintaining the best possible quality of life. It is hoped that this Note will provide a valuable resource, not only for people who manage woodlands and other green spaces, but also for health-care professionals.



Forestry Commission Scotland  
Coimisean na Coilltearachd Alba

# Questions?





Questions directed to:

[nathalie.moriarty@forestry.gov.uk](mailto:nathalie.moriarty@forestry.gov.uk)

Website:

[www.forestry.gov.uk/branchingout](http://www.forestry.gov.uk/branchingout)

Photography:

Forestry Commission Picture Library  
& Andrew MacDonald

[www.exhibitscotland.com](http://www.exhibitscotland.com)



# Frances Bain



FOR A HAPPIER,  
HEALTHIER SCOTLAND

# The Social Return on Investment of Health Walks

Frances Bain, Manager, Paths for  
All

[Frances.bain@pathsforall.org.uk](mailto:Frances.bain@pathsforall.org.uk)

## Our vision

We want to create a happier, healthier Scotland, where increased physical activity improves quality of life and wellbeing for all.

## Our focus

We want to get Scotland walking:

**Everyone.  
Everyday.  
Everywhere.**

## Our themes

**Walking for health**

**Active environments**

**Active travel**

**Communications and policy**



paths  
for all

FOR A HAPPIER,  
HEALTHIER SCOTLAND

# Health Walks





FOR A HAPPIER,  
HEALTHIER SCOTLAND

# Find a Health Walk



Live Active Dunbarton



Health Walk Project

Live Active Dunbarton

Local Authority

West Dunbartonshire

Contact Details

John McKeown – Live Active Advisor

01389 608429

[john.mckeown@west-dunbarton.gov.uk](mailto:john.mckeown@west-dunbarton.gov.uk)

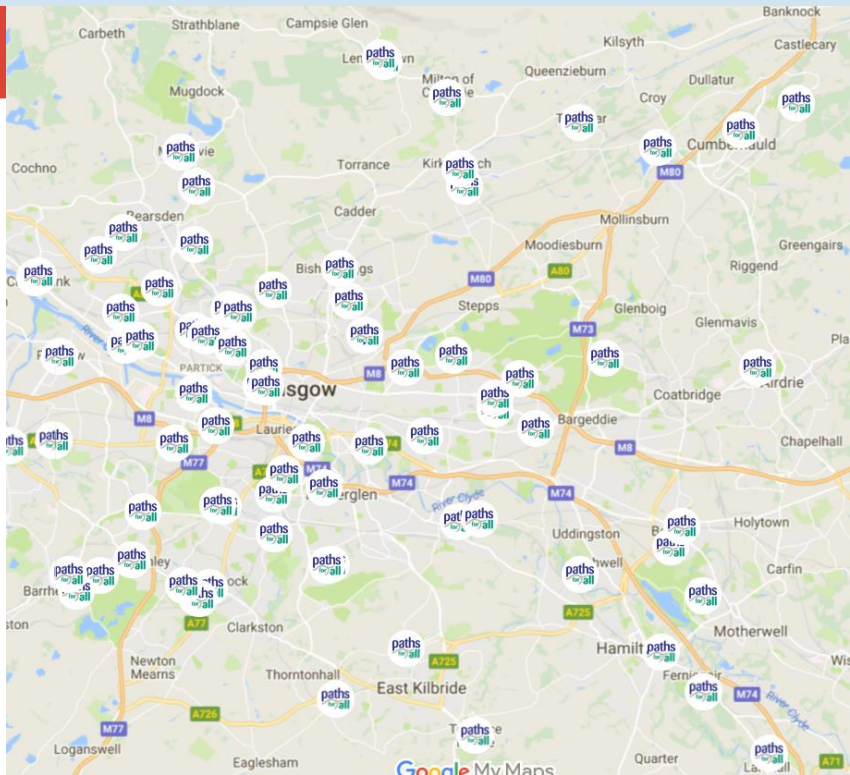
Meadow Sports Centre, Dumbarton, G82 2AA

Web address for Walk Info

<http://www.west-dunbarton.gov.uk/leisure-parks-events/west-dunbartonshire-leisure/live-active-scheme/>

Walk Name

Dunbarton Health Walk





# Physical Health

Nan, Tomintoul Health Walk

*"What a difference it  
has made."*

*I could hardly walk  
before as I was in so  
much pain."*

#HealthWalks





FOR A HAPPIER,  
HEALTHIER SCOTLAND

# Mental Health



FOR A HAPPIER,  
HEALTHIER SCOTLAND

“It has turned me from a non-person into a worthwhile person. It’s helped me, and I now help others.”

Debbie, Volunteer Walk Leader



# Social Health

'The group is a bit like walking as a team. I've got to know half the village community through this group. The refreshments at the end are especially welcome'

Walk It Borders - Walker



# What's SROI?

- SROI measures social, environmental and economic change from the perspective of those who experience or contribute to it.
- It can be used to identify and apply a monetary value to represent each change that is measured.
- This enables a ratio of cost to benefits to be calculated.

# What did we do?

- Engaged Greenspace Scotland
- 3 SROI's with Health Walk Projects in Glasgow, Stirling and the Borders
- Theory of Change model produced
- Stakeholder surveys, interviews and focus groups
- Processed the data
- Produced and promoted the report

# The SROI Process

Principle	Description
<b>Involve stakeholders</b>	Inform what gets measured and how this is measured and valued by involving stakeholders
<b>Understand what changes</b>	Articulate how change is created and evaluate this through evidence gathered, recognising positive and negative changes as well as those that are intended or unintended
<b>Value the things that matter</b>	Use financial proxies in order that the value of the outcomes can be recognised. Many outcomes are not traded in markets and as a result their value is not recognised
<b>Only include what is material</b>	Determine what information and evidence must be included in the accounts to give a true and fair picture, such that stakeholders can draw reasonable conclusions about impact
<b>Do not over-claim</b>	Only claim the value that organisations are responsible for creating
<b>Be transparent</b>	Demonstrate the basis on which the analysis may be considered accurate and honest, and show that it will be reported to stakeholders
<b>Verify the result</b>	Ensure independent appropriate assurance

# What did we find out?

## **Increase in:**

- Physical health
- Mental health
- Social contacts
- New experiences
- Close relationships
- Sense of satisfaction
- Cultural understanding
- Community capacity

- Self esteem
- Feeling of safety in greenspace

## **Reduction in:**

- Medications
- Demand for care services
- falls

# What did we find out?

- Glasgow - It was found that every £1 invested generated around £8 of benefits. (By applying a sensitivity analysis, or varying any assumptions made in the calculation, the value of the benefits derived ranges from £7 to £10).
- Stirling/Borders - £1 invested generates around £8/9 of benefits. With a ranges from £7 to £10.



# How has it helped?

- Continued Investment – National and Local
- Profile of projects
- Promotes holistic model of health
- Supports preventative spend agenda
- Opportunity for Physical Activity interventions to have benefits across sectors and policy streams



# Chris Topping

***VALUING PHYSICAL ACTIVITY AND THE ECONOMIC  
IMPACT OF INACTIVITY WORKSHOP***

**NICE physical activity return on  
investment (ROI) tool: An example from  
Dumfries & Galloway**

**Chris Topping**

Dumfries and Galloway Council / NHS Dumfries and Galloway

22<sup>nd</sup> March

# Presentation Overview

- Context for return on investment (ROI) work in Dumfries & Galloway (D&G)
- ROI in practice using the NICE physical activity tool
- Key findings, learning and wider impact from ROI
- Wider health economic approach in D&G
- **A practitioner experience**

# D&G Context - Why ROI?

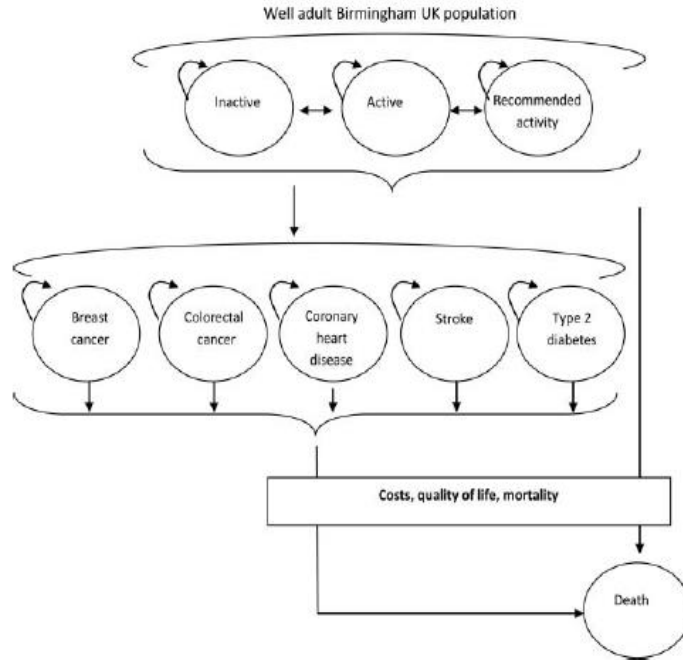
- Be Active Birmingham: Cost effective data helped sustain intervention
- Place a monetary value on interventions (*health behaviour change data is often not enough*)
- Increasingly important in decision making (investment and disinvestment)
- Evidence that public health and physical activity interventions are highly cost effective

# Context – The Intervention

- Be Active Upper Nithsdale (BAUN)
- Free access to 2 leisure centres and selected third sector physical activity programmes for adults 50+ and carers (16 +)
- Multi-agency grant funded – Putting You First
- Delivered - August 2014 – March 2016
- DG4 postcode - 2,071 adults 50+ and 598 carers
- DG4 categorised as area of relative deprivation

# Planned Methodology

- Replicate the cost-effectiveness of a study of Be Active Birmingham
- Permissions to use Birmingham University participant Survey
- Building a Markov model is highly complex



# Actual Methodology

## NICE Physical Activity Tool

- Practical, evidenced based and publicly available
- Measures to UK guidelines
- **Community level** (and individual level)
- Adaptable - customisable to local populations
- Data requirements to populate – low burden
- Metrics met public health requirements
  - Expected return by: healthcare, productivity and transport
  - QALY
- Comparison with other D&G intervention



## Population-level Interventions (Basic)

Use the below options to include or exclude the groups of interventions from analyses. As they are population-level interventions, the allocation of your population to individual programmes is non-cumulative but you can view/edit the details of the individual interventions by clicking the 'Advanced' button at the bottom of the page.

### Community-based Interventions for Adults

[Find out more](#)

A group of interventions in a community setting targeting adults aged 16 and over. These include Mass media campaigns, walking programmes, cycling programmes and multicomponent programmes.

### Environmental Interventions for Adults

[Find out more](#)

A group of environmental interventions aimed at promoting physical activity in adults aged 16 and over. These include cycling routes, transport schemes, urban planning initiatives, natural environment strategies and building design.

### Workplace Interventions (Adult Subpopulation)

[Find out more](#)

A group of interventions available to adults in employment (aged

## Parameter Menu

Enter a custom name for your user-defined location (Max. 50 characters):

Geographical data

LA  CCG

User-defined data

Set as default location

Children

Adults

Adult Subpops

Adult population size (16+)

**The recommended level of physical activity for adults is 150 minutes or more per week**

% meeting guidance ("active")

% LOW active (30-149mins per week)

% INACTIVE (0-29mins per week)

[View working age subpopulation >](#)

### Overview

Total adult population (16yrs+):

Moderate activity adult population:

Low activity adult population:

Inactive adult population:

# BAUN Methodology

- Research Timeline: July 2014 - August 2015
- 3 stage quantitative research design
  - Leisure card data
  - Self-report questionnaire
  - **Return on Investment**

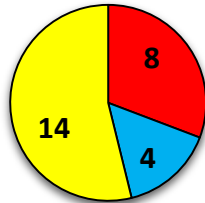


# Data Input – Essential Information

- Total intervention cost / cost per participant
- Participant numbers (adults 16+)
- Change in physical activity levels (moderate)
- Before and after intervention physical activity levels
  - Survey instrument matches ROI measure (e.g. intensity)
- Further segmentation by working age population

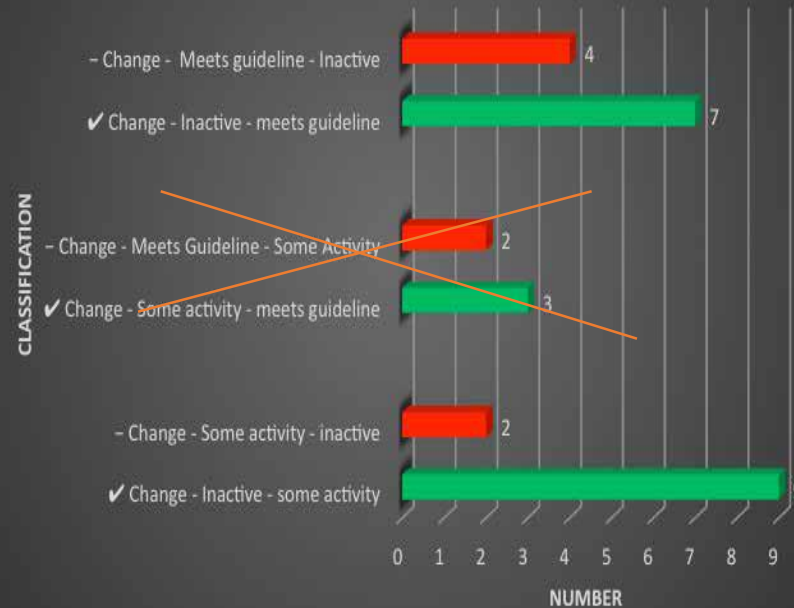
# Calculating ROI - Metrics

## No Change in Physical Activity Level Classification - Time 1 v Time 2



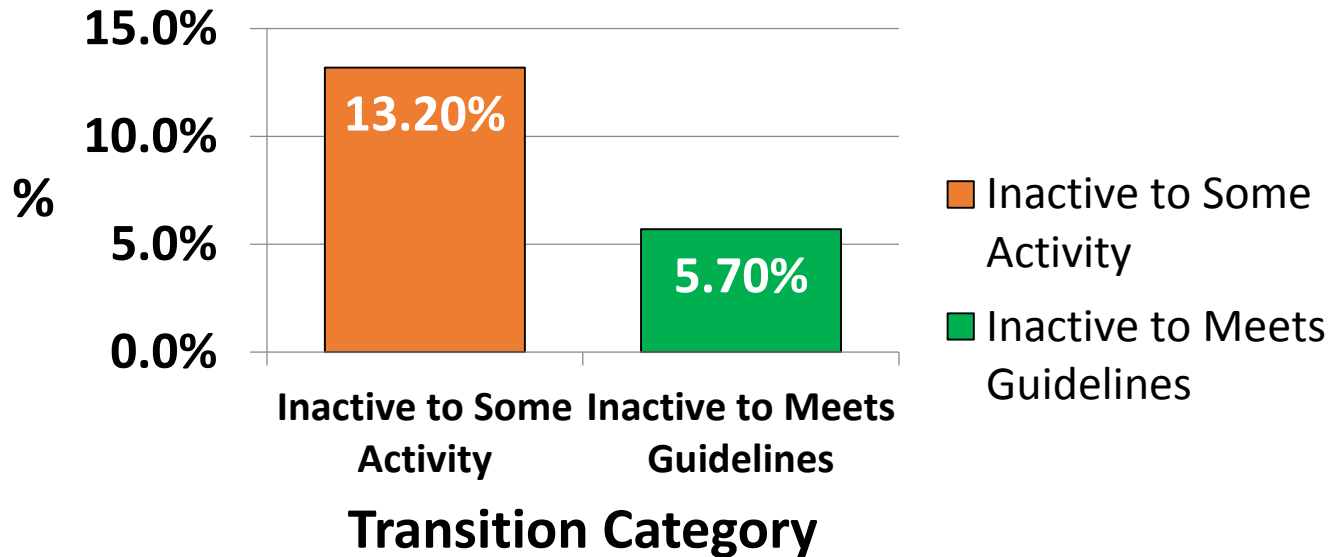
- No Change - Inactive
- No Change - Some activity
- No Change - Meets Guideline

Figure 1: Changes in Physical Activity Level Classification - Time 1 v Time 2



# Calculating ROI - Metrics

## Physical Activity Transitions (Moderate & Vigorous)



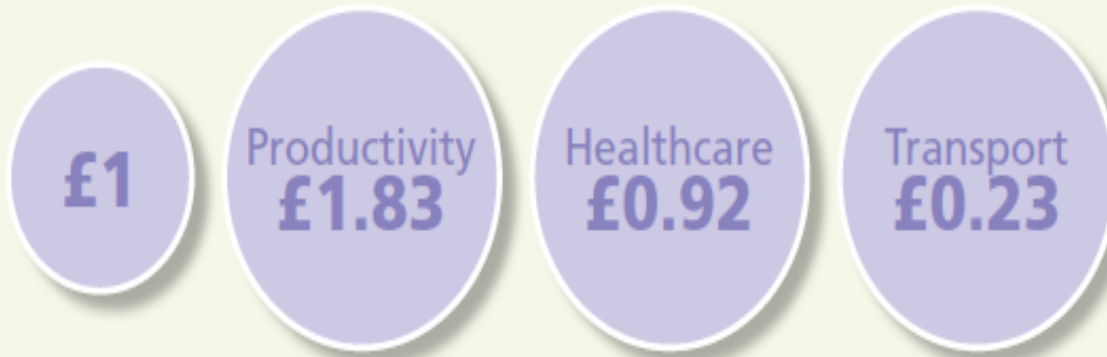
# BAUN – Intervention Results

- 311 individuals registered
- Compared to 2013/14 (no intervention)
  - 73.3% increase in facility attendances
- Female physical activity increased\*
- Male physical activity decreased
- Carers physical activity increased

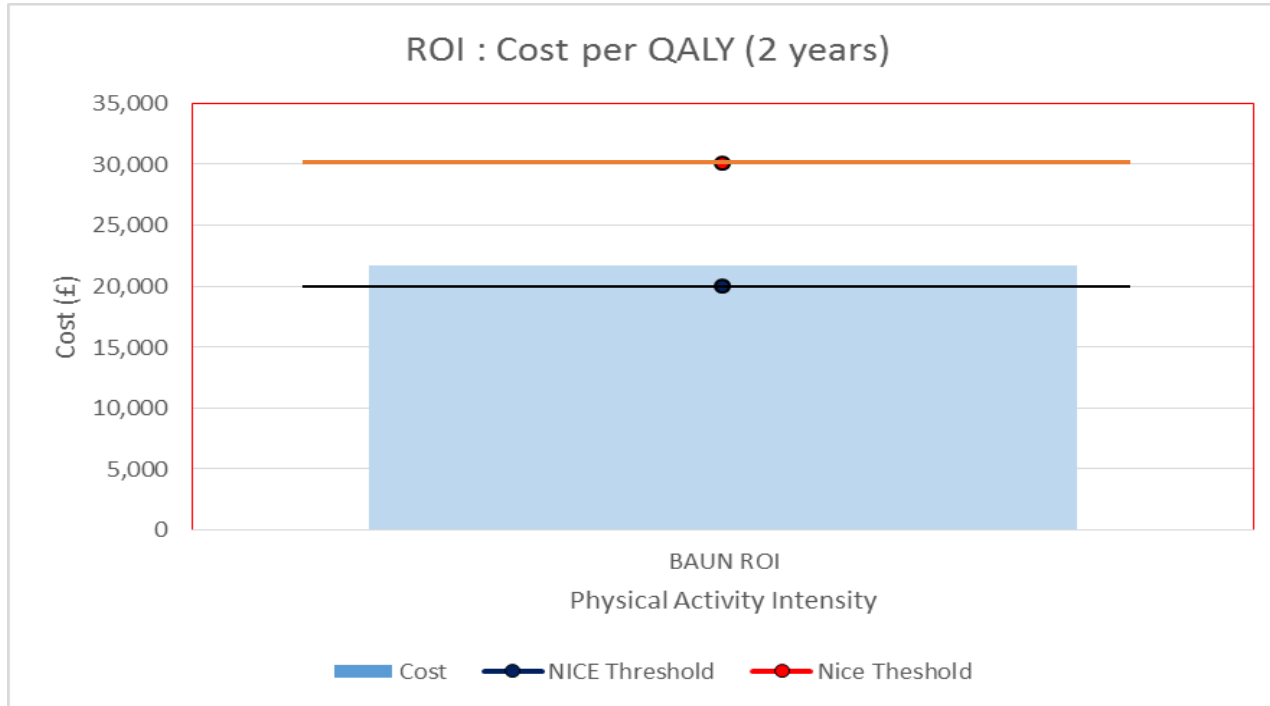
*statistically significant\**

# BAUN ROI - Results

For every £1 spent on BAUN, after 2 years, savings of £2.99 were generated:



# BAUN ROI - Results



- BAUN not cost effective in comparison to other physical activity interventions



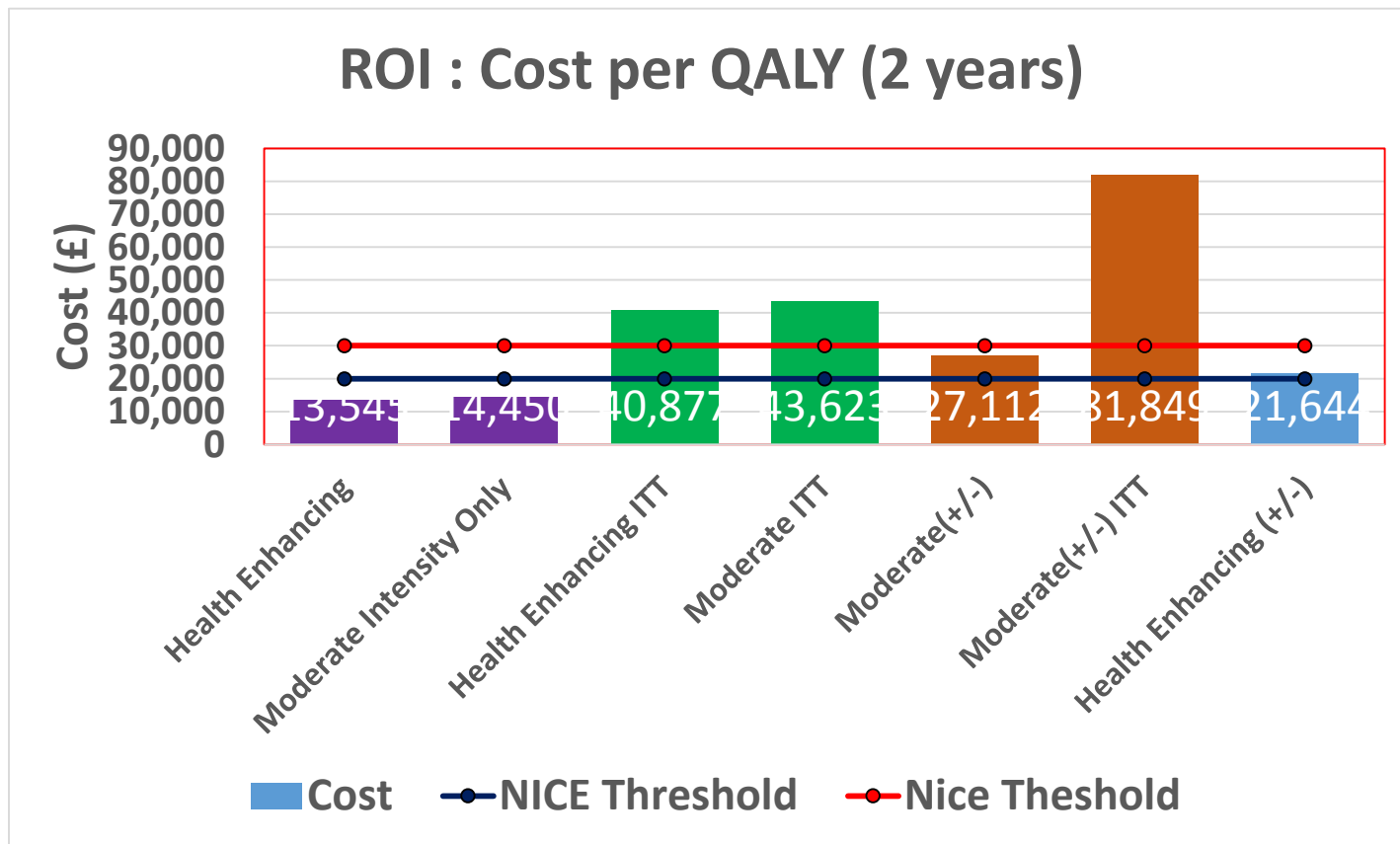
# BAUN - Legacy Impact

- BAUN ended in March 2016
- Increased community use of leisure facilities continued
- Get Active launched in DG4 in early 2016
  - Test low cost fitness membership
  - 174 members by April 2016 (baseline: 50)
- Club DG – **regional** lower cost fitness membership scheme launched with over 1,000 new members
- Unclear to the extent ROI influenced legacy

# ROI - Conclusion and key learning

- Economic modelling can be difficult even with a custom built tool
- NICE model gives clear outputs demonstrating cost savings (or not) - *however, this is not always the full story*
- NICE tool has some limitations (e.g. marginal increase not included, no population subgroups)
- Tool is easy to use, has low number of data fields and provides simple reports- *however, method for entering data may differ altering results (sample, physical activity transitions etc)*
- **Seek help/clarification** when required

# Data Input - Different Results



# Valuating Physical Activity - D&G

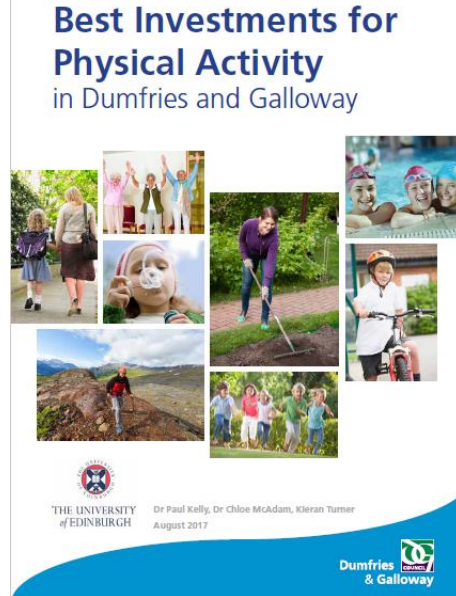
- Health economic data is important to the strategic physical activity approach in D&G
- Health behaviour change and economic data is presented together where practical
- Evidencing economic effectiveness is integral in decision making (investment/disinvestment)
- Initially used for single interventions now regional level in D&G

# Individual Intervention ROI- Beat the Street

	Dalbeattie 2015		Dumfries 2017	
	ROI over 2 years	ROI over 5 years	ROI over 2 years	ROI over 5 years
QALY	16	16	22	
Productivity	£7.73	£7.80	£7.11	£16.87
Transport	£4.71	£11.17	£1.69	£4.01
Healthcare	£1.94	£4.60	£6.75	£6.81
<b>Total (£)</b>	<b>£14.38</b>	<b>£23.57</b>	<b>£15.55</b>	<b>£27.69</b>

# Regional Approach

- Review of physical activity projects to identify those providing best ROI
- Pragmatic methodology included:
  - Project cost weighted against: participants reached, repeat attendances and duration
  - Utilisation of existing infrastructure
  - Legacy of ongoing impact
- 52 projects reviewed
  - 700,000 unique engagements
  - Cost of £2.1 million



# Impact in Practice

- 21 local recommendations developed
- Developed to agreed principles – “*are intervention processes and outputs measurable? (e.g. cost)*”
- Ambition of 5% rise in physical activity levels by 2023 (equal to 5,494 people becoming active).
- Value placed on 5% increase using HEAT Tool
- Senior leader **approval** for implementation
- Development of evaluation tool – link to health economic tool inputs

# Demonstrating Economic Impact

HEAT: Economic value of increasing physical activity in D&G

Percentage change in meeting PA guidelines	Number becoming active	Change in annual premature mortality rate	Total economic benefit after 5 years	Total economic benefit after 10 years
1%	1,099	0.23	£1,853,000	£5,636,000
5%	5,494	1.17	£9,266,000	£28,175,000
10%	10,987	2.34	£18,529,000	£56,345,000

World Health Organisation Regional Office for Europe. (2014).  
“Health economic assessment tools (HEAT) for walking and for cycling”





# Conclusions & Next Steps

## Conclusions:

It's not just about the money...

## Next steps:

Share:

- Presentations from today
- Economics of Prevention paper
- NICE ROI Tool



# Evaluation

To what extent did you find today useful?



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