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
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 providing a range of services to help our stakeholders take the action required to reduce health inequalities and improve health.

Key messages
- Many preventable problems could be avoided.
- The economic costs of poor health are significant.
- Population health models can help us understand the economic costs of health.
- Preventative interventions are cost-saving and cost-effective.
- Partnership working can reduce overall costs.

Key actions
- Invest in preventative measures that address the social determinants of health.
- Increase preventative services and interventions for all age groups.
- Promote awareness and opportunities that make a real impact to improve the health of the population.
- Monitor the impact of changes in key areas and apply lessons learned to improving the health of the population.
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
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?

Highest

Lowest

£ per Scot

http://www.gov.scot/Topics/Health/Services/Alcohol
http://www.gov.scot/Topics/Health/Services/Smoking
Aims

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

- 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

(Poster in city of Muenster Planning Office, August 2001) Credit: PressOffice City of Munster, Germany
Cost of physical inactivity (£/population) related disease by SHA Foster et al, 2009

Cost of doing Nothing
£14 ~ €16.6
Cost of physical inactivity (£/population) related disease by SHA

Spend in London is 85p per head ~ €1

Foster et al, 2009
Scotland's Spending Plans and Draft Budget 2017-18

### Sport

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

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

PHASE ONE
To identify the economic burden of physical inactivity and appropriate interventions or policies

1. What are appropriate policies and interventions?
2. What are their economic costs and benefits?
3. What are additional costs and benefits of interventions and policies across sectors?

PHASE TWO
To identify the economic costs and benefits for an intervention or policy might need adaption/piloting

1. What is the reach and adoption of the policy or intervention?
2. How effective is it?
3. What are the economic costs and benefits?

PHASE THREE
To identify the economic costs and benefits of full implementation of intervention or policy

1. What are the benefits of pilot intervention studies?
2. What are the benefits and their value across sectors?

PHASE FOUR
To identify the economic costs and benefits of full implementation of intervention or policy at scale

1. What resources are needed to scale up and how do you mobilise these?
2. What are the cross-sectoral economic benefits and costs?
3. What are the economic impacts at a population level?

Adapted from D’Esposito F, Thomas E and Oldenburg B. A practical guide for implementation research to improve the prevention and control of NCDs. WHO, 2016
Phase 2  What are the economic benefits / costs of adaptations and piloting of interventions or policies?

Aim  To identify the economic costs and benefits for an intervention or policy which might need adaption/piloting

Actions  What are the health benefits of pilot intervention studies? What are the benefits and their value across other sectors?


Implications

• 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?

- Highest
- Lowest

(£ per Scot)

http://www.gov.scot/Topics/Health/Services/Alcohol
http://www.gov.scot/Topics/Health/Services/Smoking
What costs Scotland more?

- Alcohol: £900 (£ per Scot)
- Smoking: £55.43
- Traffic congestion: £14.60
- Other: £444

Sources:
- [Health Services: Alcohol](http://www.gov.scot/Topics/Health/Services/Alcohol)
- [Health Services: Smoking](http://www.gov.scot/Topics/Health/Services/Smoking)
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, A Bauman, N Johnson, A Britton, V Rangui, E Stamatakis

Objective To examine whether physical activity (PA) reduce alcohol consumption have involved alcohol risk reducing campaigns and measures aimed at

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 a,b,c,*, Demetra H. Yannitsos a,b, Megan S. Farris a,b, Mattias Johansson d, Christine M. Friedenreich a,b,c

1 Department of Cancer Epidemiology and Prevention Research, Cancer Control Alberta, Alberta Health Services, Canada
2 Department of Community Health Sciences, Cumming School of Medicine, University of Calgary, Canada
3 Department of Oncology, Cumming School of Medicine, University of Calgary, Canada
4 Genetic Epidemiology Group, International Agency for Research on Cancer, Lyon, France

Objective: 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.

Methods: We searched the Embase database for studies up to May 2015. Individual study outcomes were combined using random-effects models. Heterogeneity was quantified using the I² statistic.
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 Sa, Reid Ewing, Dinesh Mohan, Rod McClure, 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 429–826 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 100 000 population).


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

http://www.gov.scot/Topics/Health/Services/Smoking
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)
Thanks to
Dr Nick Townsend
Dr Wilby Williamson

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

charlie.foster@bristol.ac.uk
@FosteratBristol
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

22nd March
Physical Activity for Health Research Centre (PAHRC)

<table>
<thead>
<tr>
<th>Key Areas of Research</th>
</tr>
</thead>
<tbody>
<tr>
<td>The promotion of walking</td>
</tr>
<tr>
<td>Reducing sedentary time</td>
</tr>
<tr>
<td>Physical activity in children and adolescent girls</td>
</tr>
<tr>
<td>Physical activity for people with medical conditions</td>
</tr>
<tr>
<td>The role of the environment in physical activity promotion</td>
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</tbody>
</table>

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

Prof Nanette Mutrie
MBE
**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](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 Group (PARAG) based at the University of bath to carry out a review of the evidence and provide guidance on the most cost-effective interventions to promote physical activity.

The research focused on the development of an investment framework that could be used to support local authorities in prioritising physical activity investment. The framework was developed through a review of existing evidence and a series of workshops with local stakeholders.

The framework aims to help local authorities to:
- Identify the most cost-effective interventions for promoting physical activity.
- Prioritise investments based on the potential for impact.
- Ensure that investments align with the needs and aspirations of the local population.

Physical Activity Promotion in Dumfries and Galloway

Physical Activity Promotion by Geographical Location

Dumfries and Galloway Physical Activity (PA) promotion projects are funded through various sources, including local authority funding, grant funding, and partnerships with organisations such as Sportscotland.

The table below provides an overview of the number of projects by geographical location:

<table>
<thead>
<tr>
<th>Number of Projects</th>
<th>Region</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dumfries and Galloway</td>
</tr>
<tr>
<td></td>
<td>Dumfries</td>
</tr>
<tr>
<td></td>
<td>Galloway</td>
</tr>
<tr>
<td></td>
<td>Total</td>
</tr>
</tbody>
</table>

Recommendation 1: Establish a project monitoring system across the entire Dumfries and Galloway region, to better understand the geographical spread of projects.

Recommendation 2: Develop a guide for local authorities on how to effectively promote physical activity projects.

Recommendation 3: Increase investment in physical activity projects in areas with lower levels of participation.

Recommendation 4: Collaborate with local partners to develop innovative approaches to physical activity promotion.

However, the most cost-effective project type was “engaged” with high participation rates, while the least cost-effective were “non-engaged.” Among these projects, the majority (75%) were non-engaged, while 25% were engaged. Although these proportions varied by location, they remained consistent across the region.
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 death due to non-communicable disease (NCD) worldwide - heart disease, stroke, diabetes and cancer - and each year contributes to over three million preventable deaths. 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 shrinking increase in child and adult obesity, not only in developed countries but also in many developing countries. Substantial scientific evidence supports the importance of physical activity as a risk factor for NCD independent of other risk factors, smoking and alcohol.

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 aging, 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.

Increasing population-wide participation in physical activity is a major health priority in most high and middle-income countries and is a priority for countries in lower income countries struggling against social and economic conditions. The Toronto Charter for Physical Activity (May 2009) specifies the direct health benefits and co-benefits of increasing levels of physical activity in policies and programs to improve levels of physical activity. Already translated into 11 languages, the Toronto Charter makes a strong call for increased action and greater investment in 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 WHS Global Strategy for Diet, Physical Activity and Tobacco.

There is strong evidence to guide the implementation of effective approaches to increase physical activity. Investing in physical activity will require countries to commit to a combination of strategies aimed at the individual, social, cultural, environmental and policy environments of inactivity. Physical activity is influenced by policies and practices in education, transportation, parks and recreation, media and business, and specific sectors of society need to be involved in the solutions. There is a clear need to inform, mobilize and support individuals and communities to be active in ways that are safe, accessible and enjoyable.

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

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

- PA environment
- SES
- Age, gender
- Income
- Family and friends

Behavioural risk factor (exposure)
Low physical activity

Disease risk factor (intermediate)
e.g. raised blood pressure

Disease outcome
e.g. cardiovascular disease or mortality
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

1. Communication and public education
   Consistent public education, including use of mass and social media

2. Transport and the environment
   Transport policies and systems that prioritise walking, cycling and public transport

3. Urban design and infrastructure
   Provide safe and equitable access for recreation and physical activity across the life course

4. Healthcare and health education
   Ensure assessment and advice about physical activity is a routine part of healthcare services

5. Education
   Make regular physical activity in schools and places of learning normal

6. Community-wide programs
   Work with communities to provide appropriate local solutions, aiming to mobilise large numbers of people

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

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

Work together to make it happen
Principle Findings - Best Investments for Physical Activity in Dumfries and Galloway

In this 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.

**School and Education**

Of the schools-based approaches, offering opportunities and infrastructure for a range of sports and physical activities before and after school for the 5-18 year old is seen to offer the best return on investment as demonstrated by the Accent Schools - Annual Programmes and (The Schools Sport Partnership) while those approaches can be expensive to setup and run, their sustainable use in terms of location and project planning could result in excellent returns.

It would be noted that other emerging and innovative education projects offer good return on investment as well. An evaluation into the impact of the Qualitymark programme in long term sports behaviour could be considered beneficial and could include groups who had never been involved in sport, but were also less expensive to run and might better cater to different needs.

**Transport**

The Arches project provided on-site information for Transport Scotland which represents 3 good return on investment in terms of reach, however, data is now needed on how many people used this information and report back to local project which improves public transport in Dumfries and Galloway in good condition compared to the cost, but to fully understand the return on investment, the number of those who started cycling for health or recreation is critical.

**Recommendation 1:** Continue school-based provision of active and healthy school projects to add sustainability and conduct an assessment of equality of access. Conduct process evaluation to assess delivery improvements.

**Recommendation 2:** Assess school-based projects with potential for scale-up.

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**Table 3: Types of Activity promotion in Dumfries and Galloway**

<table>
<thead>
<tr>
<th>Project age</th>
<th>Number of projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 5 years</td>
<td>3</td>
</tr>
<tr>
<td>Children and adolescents (generally 5-18 years)</td>
<td>94</td>
</tr>
<tr>
<td>Adults (generally 18-64 years)</td>
<td>15</td>
</tr>
<tr>
<td>Older adults (75+ years)</td>
<td>2</td>
</tr>
<tr>
<td>In total</td>
<td>110</td>
</tr>
</tbody>
</table>

In terms of gender, 46% of the 52 projects (46%) were open to all, with one project for females and one for males. Of the 32 projects open to all, 2 had a female only component, and 1 had a specific aim to target and service female. This suggests there are opportunities for improving and flexibility of gender, while acknowledging that specific approaches and targeted recruitment may be required.

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

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

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## List of Recommendations

<table>
<thead>
<tr>
<th>Number</th>
<th>Recommendation</th>
<th>Investment/Promotion Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Establish a project monitoring system across the entire Dumfries and Galloway Region, to better understand the geographical spread.</td>
<td>Demographic Location</td>
</tr>
<tr>
<td>2</td>
<td>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.</td>
<td>Type of Physical Activity</td>
</tr>
<tr>
<td>3</td>
<td>We recommend a renewed focus on for provision of physical activity promotion that is contextually relevant in older adults 65 years and older.</td>
<td>Age and Gender</td>
</tr>
<tr>
<td>4</td>
<td>We recommend a renewed focus on for provision of physical activity promotion that is contextually relevant in early years (under 5).</td>
<td>Age and Gender</td>
</tr>
<tr>
<td>5</td>
<td>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.</td>
<td>School and Education</td>
</tr>
<tr>
<td>6</td>
<td>Assess school-based projects with potential for scale up.</td>
<td>School and Education</td>
</tr>
<tr>
<td>7</td>
<td>Evaluate existing transport projects for impact beyond reach, to understand the return on investment they may offer.</td>
<td>Transport</td>
</tr>
<tr>
<td>8</td>
<td>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.</td>
<td>Urban design, infrastructure and Natural Environment</td>
</tr>
<tr>
<td>9</td>
<td>We recommend a strategic focus on lasting urban and natural infrastructure and successful place making with legacy potential. Particularly those projects which could benefit all in society. This may require long sighted projections and evaluations to assess the true value.</td>
<td>Urban design, infrastructure and Natural Environment</td>
</tr>
<tr>
<td>10</td>
<td>Physical activity promotion within primary and secondary schools 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 diseases.</td>
<td>Health and Social Care</td>
</tr>
</tbody>
</table>
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

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

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

<table>
<thead>
<tr>
<th>Region</th>
<th>Number of projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annandale and Eskdale</td>
<td>9</td>
</tr>
<tr>
<td>Nithsdale</td>
<td>11</td>
</tr>
<tr>
<td>Stewartry</td>
<td>3</td>
</tr>
<tr>
<td>Wigtownshire</td>
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Best Investments for Physical Activity in Dumfries and Galloway
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!
Any questions?

p.kelly@ed.ac.uk

@narrowboat_paul

March 2018
Investment in physical activity
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.

BUILDING A WORLD CLASS SPORTING SYSTEM FOR EVERYONE IN SCOTLAND

RESOURCES

LOCAL AND NATIONAL PARTNERS

SPORT

TIME

INVESTMENT

EQUALITIES AND INCLUSION

PEOPLE DEVELOPMENT

COLLABORATION AND IMPACT

ENABLERS

PEOPLE

PLACES

PROFILE

ENVIRONMENTS

CLUBS & COMMUNITIES

SCHOOLS & EDUCATION

PERFORMANCE SPORT

OUTCOMES

PARTICIPATION

PROGRESSION

PRIORITY FOR IMPROVEMENT 2015/2019

Putting sport first

sportscotland
the national agency for 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

- Children
- Older Adults
- Adults

Active
Physical Activity Domains

- **Active Travel**: 100 → 50 → 0
- **Rec. Walking**: 100 → 50 → 0
- **Dance**: 10 → 5 → 0
- **Sport**: 100 → 50 → 0
- **other exercise**: 100 → 0
- **Visit Outdoors**: 100 → 50 → 0
10% Method

Scottish Local Government Financial Statistics

sportscotland annual reports

Scottish Budget Spending Review
Expenditure in Sport

Real terms

£1,000,000
£900,000
£800,000
£700,000
£600,000
£500,000
£400,000
£300,000
£200,000
£100,000
£-


-26%
What is the split now?

Local Authority

sportscotland
Local Authority Expenditure

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

- £30,000,000
- £25,000,000
- £20,000,000
- £15,000,000
- £10,000,000
- £5,000,000
- £-

% of LA expenditure going to Sport

- 3.2%
- 3.4%
- 2.9%
- 5.0%
- 4.0%
- 3.0%
- 2.0%
- 1.0%
- 0.0%

Year

- 2008/09
- 2009/10
- 2010/11
- 2011/12
- 2012/13
- 2013/14
- 2014/15
- 2015/16

Putting sport first

sportscotland
the national agency for sport
Projection

Sport

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<td>2017/18</td>
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Public sector investment 2015 (£m)

- Local Government
- sportscotland
- PE (estimate)
- Sustainable and active...
- Sustrans
- Scottish Government...
- Cycling Scotland
- Creative Scotland -...
- Paths for All - Active...
- Paths for All - Smarter...
- Paths for All - SNH
Expenditure in Physical Activity

Real terms

- £200,000
- £400,000
- £600,000
- £800,000
- £1,000,000
- £1,200,000

2008/09 to 2015/16

- 20% decrease from 2012/13 to 2015/16
**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
• 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’
- Mental AND physical

Better value
- Integrated approaches
- More in the community
- Changes for diagnostic and elective services
- New models

NB: Self management is crucial as is social care and support for people with disabilities
Active and Independent Living Programme

AHPs working in partnership to enable healthy, active and independent lives by supporting personal outcomes for health and wellbeing

Health and wellbeing

Workforce

Awareness

Research and innovation

Access

Partnership

Allied Health Professions Co-creating Wellbeing with the people of Scotland
Wellbeing approaches across the life-course
Move and improve/Eat well/Make Every communication count

Starting well
Living and working well
Ageing well

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

Activities of Daily Living

- Run half a mile
- Hike several miles
- Walk on a slippery surface
- Walk a brisk mile
- Run to catch a bus
- Carry and climb stairs
- 3 flights inside
- 1 flight outside
- Get up from the floor
- Walk several blocks
- Get up from low couch

Rehab/reablement

Compensation

Care and support

Time since starting on ‘curve’

Cognitive
Risk
Health
Connections
Care
### NATIONAL LIFECURVE 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 e.g. Partner, family, friends
- ☐ I live alone
- ☐ In sheltered accommodation or a residential home (e.g. care home)

Do you have any communication support needs?
- Yes
- No
- N/A

E.g. hearing or low vision aid, interpreter, large print, easy-read, communication aid.

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 e.g. grandchildren/nieces/nephews

Is your home suitable for your needs? Please tick only one option:
- Yes
- No
- Both—i.e. care for someone and I have a carer

Are you a carer? Please tick only one option:
- Yes
- No
- Both—i.e. care for someone and I have a carer

How would you describe your emotional wellbeing today?
- ☐ 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
- Myself, family member or friend
- A member of social work staff
- 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.
Part 2: Office Use Only (to be completed by member of staff)

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

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<th>Persons CHI number:</th>
<th>Date Survey Completed</th>
<th>(DD / MM /YY):</th>
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<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>Postcode*</td>
<td></td>
<td></td>
</tr>
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<td>State your AHP</td>
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<tr>
<td>profession:</td>
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<tr>
<td>Band / Grade</td>
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<tr>
<td></td>
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<td>with HCPC [tick which]?</td>
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<td>State Service type - Refer to checklist</td>
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<td>Name of NHS Board:</td>
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<tr>
<td></td>
<td>Diagnostic Test</td>
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Thank you for completing the survey
What will the data collection process be?

**Boards & Partnerships**
- Deliver all Surveys to Strathclyde Uni

**Strathclyde University**
- Input all survey results into electronic system
- Generate a unique identifier for each survey response
- Send ISD Data Set containing CHI and Unique Identifier only
- Delete CHI from all data sets

**ISD**
- Link CHI data to SOURCE data

**Scottish Government**
- Send Scot Gov. unit level cost information plus unique identifier
- Link cost data with survey response data using unique identifier and undertake analysis
Link costed data to support economic argument for prevention/early intervention

- Decline in fitness
- Loss of ADL/IADL capabilities
- Need for full-time care
- Early mobility loss
- Need for some care (family/professional)
- Need for full-time residential care
National Results N=15,000
## Lifecurve score across Scotland

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# Heat Map of current activity by AHP Profession

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<th>Profession</th>
<th>Life Curve Score</th>
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<td>Radiographer (therapeutic)</td>
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<td>Orthoptist</td>
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## Lifecurve Survey Age Profile

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<td>100</td>
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<td>110</td>
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</table>
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

<table>
<thead>
<tr>
<th>SIMD</th>
<th>SMR 1</th>
<th>SMR 4</th>
<th>Outpatients</th>
<th>A&amp;E</th>
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<td></td>
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<tr>
<td>SIMD 4</td>
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<td>SIMD 5</td>
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<td>SIMD 6</td>
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<td>SIMD 7</td>
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<td>SIMD 8</td>
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<td>SIMD 9</td>
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<tr>
<td>SIMD 10</td>
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</tbody>
</table>

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
Total 508,500 items
Emotional Wellbeing in one area

Acute/hospital based services

- 11% bad or very bad
- 22% are ok
- 67% good

Community/rehab services

- 13% very bad or very poor
- 27% ok
- 40% good
- 20% poor
MSK Intervention Type

64% Treatment
31% Assess
How do we engage with people around physical activity?

Effect of Structured Physical Activity on Prevention of Major Mobility Disability in Older Adults (The LIFE Study Randomized Clinical Trial)

- 817 given a health education programme
- 818 given a specific exercise programme

- could walk 400 yards for at least 2.6 years longer
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 Programme

MOVE to IMPROVE

TAKE THE BALANCE CHALLENGE

THE SUPER SIX

age Scotland

Care Inspectorate

later Life Training

GCU Glasgow Caledonian University
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
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 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 outdoor activities, which are used as a vehicle to help participants learn strategies that can maintain positive mental health. It runs as an adjacent 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 10-point Likert scale 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 study 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 attrition rate to the full survey, the benefits for QALYs in the 2014-2015 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 under £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
No’s of groups and referrals since 2007

- **Total Number of Groups**
- **Total Number of clients referred**

![Graph showing the number of groups and referrals from 2007 to 2017](image)
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)
- Baseline, Post & 3 month follow-up
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 change in 10% of participants
• 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

Woodland Activity Programme
For People with Early-Stage Dementia

To book a place please contact the ranger service
Forestry Commission Scotland Rangers
Conlan Harper 07798 668 125 or
Julie Hamilton 07798 608 186
Email: scottishlowlands@forestry.gov.uk

For research enquiries contact:
Jim Small 07798699419

Callendar Wood, Falkirk
July-September 2016
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
Questions directed to:

nathalie.moriarty@forestry.gov.uk

Website:

www.forestry.gov.uk/branchingout

Photography:
Forestry Commission Picture Library
& Andrew MacDonald

www.exhibitscotland.com

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Frances Bain
The Social Return on Investment of Health Walks

Frances Bain, Manager, Paths for All
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:


Our themes

Walking for health
Active environments
Active travel
Communications and policy
Health Walks
Find a Health Walk

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
Meadow Sports Centre, Dunbarton, G82 2AA

Web address for Walk Info

Walk Name
Dunbarton Health Walk
Nan, Tomintoul Health Walk

"What a difference it has made.

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

#HealthWalks
“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
'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

<table>
<thead>
<tr>
<th>Principle</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Involve stakeholders</td>
<td>Inform what gets measured and how this is measured and valued by involving stakeholders</td>
</tr>
<tr>
<td>Understand what changes</td>
<td>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</td>
</tr>
<tr>
<td>Value the things that matter</td>
<td>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</td>
</tr>
<tr>
<td>Only include what is material</td>
<td>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</td>
</tr>
<tr>
<td>Do not over-claim</td>
<td>Only claim the value that organisations are responsible for creating</td>
</tr>
<tr>
<td>Be transparent</td>
<td>Demonstrate the basis on which the analysis may be considered accurate and honest, and show that it will be reported to stakeholders</td>
</tr>
<tr>
<td>Verify the result</td>
<td>Ensure independent appropriate assurance</td>
</tr>
</tbody>
</table>
What did we find out?

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

**Reduction in:**
- Self esteem
- Feeling of safety in greenspace
- 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

22nd 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

New 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
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
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)
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
- CDG
- User-defined data

Set as default location

Children

Adults

Subpops

Overview
Total adult population (16yrs+): 2,071
Moderate activity adult population: 626
Low activity adult population: 468
Inactive adult population: 977
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)

- Inactive to Some Activity: 13.20%
- Inactive to Meets Guidelines: 5.70%

Transition Category:
- Inactive to Some Activity
- Inactive to Meets Guidelines
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:

- Productivity: £1.83
- Healthcare: £0.92
- Transport: £0.23
• 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

ROI: Cost per QALY (2 years)

Cost (£)

Cost

NICE Threshold

Nice Theshold

Health Enhancing

Moderate Intensity Only

Health Enhancing ITT

Moderate ITT

Moderate(+/−)

Moderate(+/−) ITT

Health Enhancing (+/−)

Cost

NICE Threshold

Nice Theshold
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

<table>
<thead>
<tr>
<th></th>
<th>Dalbeattie 2015</th>
<th>Dumfries 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ROI over 2 years</td>
<td>ROI over 5 years</td>
</tr>
<tr>
<td>QALY</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Productivity</td>
<td>£7.73</td>
<td>£7.80</td>
</tr>
<tr>
<td>Transport</td>
<td>£4.71</td>
<td>£11.17</td>
</tr>
<tr>
<td>Healthcare</td>
<td>£1.94</td>
<td>£4.60</td>
</tr>
<tr>
<td><strong>Total (£)</strong></td>
<td><strong>£14.38</strong></td>
<td><strong>£23.57</strong></td>
</tr>
</tbody>
</table>
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**

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

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?

😊 0 1 2 3 4 5 6 7 😊