

Physical Activity for Health Research Centre (PAHRC)

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)

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 group, and gender).

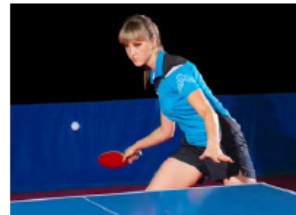
Objective 2 was perhaps the most challenging. We used a pragmatic approach to determine which projects were offering the greatest return on investment in Dumfries and Galloway. We considered the cost weighted against (where available) the 3 critical aspects of (i) number of unique participants or users reached; (ii) number of repeat attendances; 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.



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Physical Activity Promotion in Dumfries and Galloway

Physical Activity Promotion by geographical location

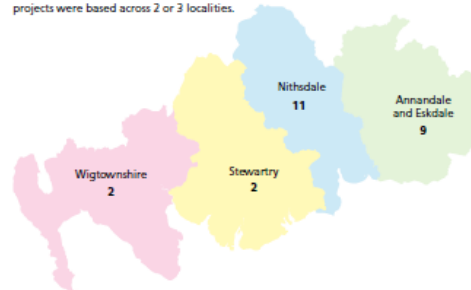
Dumfries and Galloway Physical Activity Alliance led the co-ordination of the evaluation reports for n=52 physical activity promotion projects or strategies for the period 2015-2016. From the returned data Dumfries and Galloway had achieved 700,000 unique engagements (attendances, sessions, etc.) with 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). 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.

However, the most common project type was "regional" with n=25 projects focussed 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.

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THE LANCET

Physical Activity 2016: Progress and Challenges

Progress in physical activity over the Olympic period

James F Sallis, Fiona Bull, Regina Guthold, Gregory W Heath, Shigeru Inoue, Paul Kelly, Adewale L Oyeleke, Pedro C Hallal, for the Lancet Physical Activity Series 2 Executive Committee*

On the eve of the 2012 summer Olympic Games, the first *Lancet* Series on physical inactivity was a global pandemic, and global public health action was urgently needed. Progress on the topics covered in the first Series. In the past 4 years, more countries have reported prevalence of physical inactivity, although evidence of any improvements in prevalence is limited. Emerging evidence on brain health, physical inactivity accounts for about 3·8% of global burden of disease. Increase in research on the correlates of physical activity in low-income and middle-income countries, providing a better evidence base for development of context-relevant interventions. Evidence that physical inactivity was higher in urban (vs rural) residents, which is a cause for concern given trends toward urbanisation. A small but increasing number of intervention studies have provided evidence that community-based interventions can be effective. Although about 100 national physical activity policies or plans, such policies were operational in only about 20 countries. Important barriers to policy implementation that must be overcome before progress can be expected. Despite signs of progress, efforts to improve physical activity levels, to support intervention, and policy implementation are needed, especially among LMICs.



2018 Physical Activity Guidelines Advisory Committee Scientific Report

To the Secretary of Health and Human
Services

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.¹ 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.² 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.³ 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.^{4,5,6} 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

Infographic created by



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



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



7 Sport and recreation

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



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

7



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

Work together to make it happen

Global Advisory Council for Physical Activity (GAPAC) the Advisory Council of the International Society for Physical Activity and Health (ISPAH), NCD Prevention Investments that Work for Physical Activity (Int J Sports Med 2012;33:1078-87)

International Society for Physical Activity and Health

Designed by Chloe Schiphorst

British Journal of Sports Medicine 2016

“There is good evidence of effectiveness for these investments to increase PA if applied at sufficient scale”

Dr Andrew Murray

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

Best Investments for Physical Activity

in Dumfries and Galloway



THE UNIVERSITY
of EDINBURGH

Dr Paul Kelly, Dr Chloe McAdam, Kieran Turner
December 2017

Dumfries
& Galloway



Aim: To use existing data to highlight the existing approaches in Dumfries and Galloway that are providing best return on investment

***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 intervention
2. Duration of intervention
3. Number of participants/reach
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

Legacy?

Reasonable and pragmatic assumptions

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

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

Best Investments for Physical Activity

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International Society for Physical Activity and Health

Designed by Chloe Schiphorst


British Journal of Sports Medicine 2016

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Physical Activity Promotions

Project Name	Lead Agency	Purpose	Project Type	Age	Location
Active Dalbeattie - Core Path 20 Project	Multi-Agency Community Partnership	Multi-agency community partnership infrastructure project to connect and increase community usage of Dalbeattie Forrest (Core Path 20) by local residents and visitors to the area	Urban design and natural environment	Intergenerational	Stewartry
Active Schools	sportscotland / Dumfries and Galloway Council	"Active Schools provides additional and higher quality opportunities to take part in sport and physical activity before school, during lunchtime and after school, and to develop effective pathways between schools and sports clubs in the local community".	School and Education	5 to 18	Regional
Active Travel Maps	Dumfries and Galloway Council	Design and circulation of maps promoting and facilitating active and sustainable travel in all towns in Dumfries and Galloway that have a town bus service	Transport	Intergenerational	Regional
Active Travel Strategy	Dumfries and Galloway Council	A Strategy to increase walking and cycling throughout the region with a focus on functional trips	Transport	Intergenerational	Regional
Annan Swimming Pool	Dumfries and Galloway Council	Local Authority operated Swimming Pool	Leisure	Intergenerational	Annandale & Eskdale
Babes in the Woods	Bump Baby and Beyond	"Free outdoor play sessions for under 5's and their parents/carers in and around Dumfries. Child led, fun and muddy"	Leisure	Under 5 (and families)	Combination of 1-3 localities
Be Active Upper Nithsdale	Dumfries and Galloway Council	A pilot programme to determine whether free access to a cross-sector physical activity programme would increase levels of physical activity and improve wellbeing at community level. The programme was open to all older adults (50 plus) and carers (16 plus) living in the DG4 postcode area.	Leisure	65+	Nithsdale
Beat the Street Annan	Intelligent Health	A community-wide intervention that delivers health, wellbeing and active travel outcomes by	Urban design and natural environment	Intergenerational	Annandale & Eskdale

Best Investments for Physical Activity
in Dumfries and Galloway



THE UNIVERSITY OF Dumfries
Dr Paul Sully, Dr Oliver McAdam, Kirsten Turner
December 2017

Dumfries & Galloway



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, 2015⁹. The over-65s population is likely to grow by 21% by 2020 /46% by 2035¹⁰.

⁹ National Records for Scotland, (2015). Dumfries & Galloway Council Area – Demographic Factbook. National Records for Scotland. Available from: <http://www.nrscotland.gov.uk/information/councils-facts-data/facts/dumfries-and-galloway-factbook.pdf>
¹⁰ National Records for Scotland, (2011). Census: Aggregate data (Scotland). UK Data Service Census Support. Available from: <http://www.scotlandscensus.gov.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

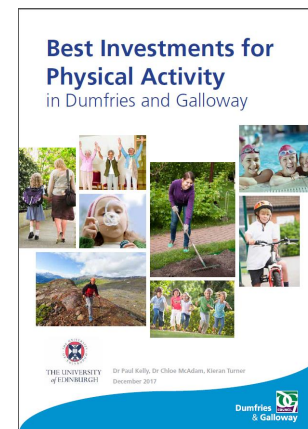


Best Investments for Physical Activity in Dumfries and Galloway



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 MAKE
SIMPLE ECONOMIC COMPARISONS
BETWEEN A CYCLE PATH AND A WEIGHT
MANAGEMENT PROGRAMME***

Project Name	Lead Agency	Purpose	Project Type	Age	Location
Give Everybody Cycle Space Campaign	Cycling Scotland	A road safety awareness campaign designed to remind anyone driving how much space they should give people on bikes when overtaking – at least as much space as you give a car. It aims to create high levels of driver awareness around people on bikes to make Scotland's roads more cycle friendly.	Mass Media	Intergenerational	Annandale & Eskdale
Exercise Referral	Dumfries and Galloway Council	Exercise Referral is a specific / formalised programme whereby a health professional refers a patient to a fitness programme. To increase physical activity levels amongst sedentary clients in identified practices.	Health and Social Care	19+	Annandale & Eskdale
Core Paths Programme	Dumfries and Galloway Council	Core paths are key public access routes identified region-wide. Core paths are maintained to a reasonable condition and signposted.	Urban design and natural environment	Intergenerational	Regional
Babes in the Woods	Bump Baby and Beyond	"Free outdoor play sessions for under 5's and their parents/carers in and around Dumfries. Child led, fun and muddy"	Leisure	Under 5 (and families)	Combination of 1-3 localities

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>

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Physical activity has comprehensive health benefits across the lifespan. It promotes health growth and development in children and young people, helps to prevent unhealthy 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 80% of the world population are exposed to health risks due to inactivity.² Research consistently shows participation in physical activity to major health priority in most high and middle income countries and a rapidly emerging priority in lower income countries.

The Toronto Charter for Physical Activity (May 2010) outlines the direct health benefits and cost benefits of investing in public and program to increase levels of physical activity.³ Already translated into 17 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 legislation; (3) programs and interventions; and (4) partnerships.

There is strong evidence to guide the implementation of effective approaches to increase physical activity.^{4,5} Having documented health benefits, physical activity has inspired countries to commit to a combination of strategies aimed at the individual, social-cultural, environmental and policy dimensions of inactivity.

Physical activity is influenced by policies and practices in education, transportation, parks and recreation, media and business, as multiple sectors of society need to be aligned to be successful. There is a clear need to align, initiate and support individual 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.

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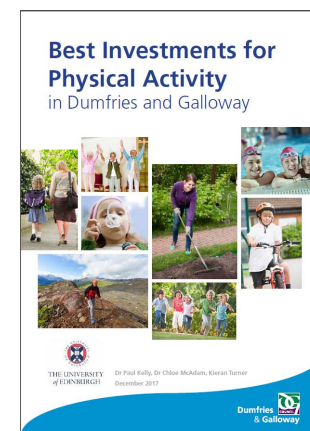
1 www.globalpa.org.uk/indicator.html

***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

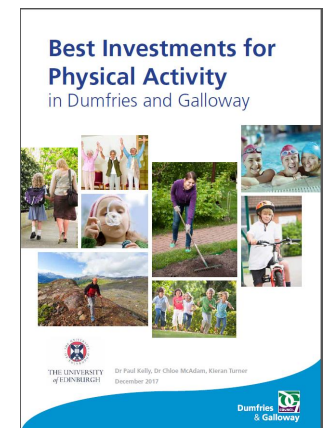
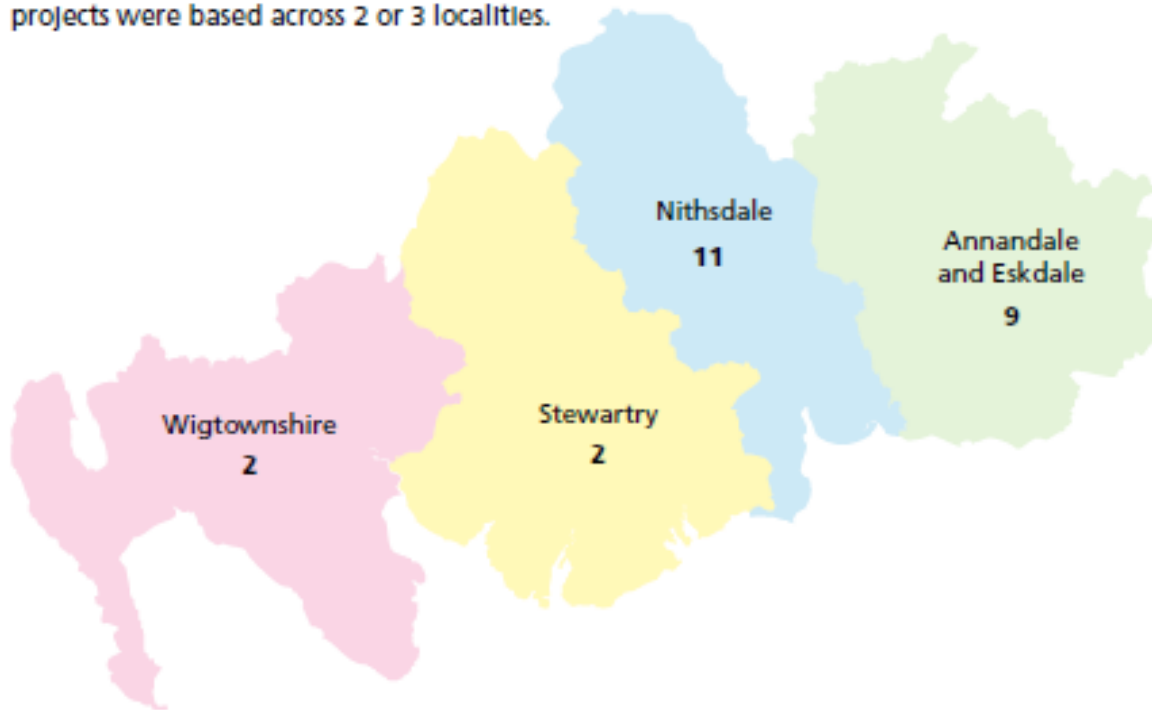
Project type	Number of projects
School and Education	8
Transport	4
Urban design, Infrastructure and Natural Environment	6
Health and Social Care	9
Mass Media	1
Sport	5
Leisure	17
Workplace	2



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 Wigtonshire). 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
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2-3 Localities	5
All Localities	22



Million Dollar question...

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 Research Centre (PAHRC)

PHYSICAL ACTIVITY FOR HEALTH

Any questions?

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March 2018



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Lecturer in physical activity and health
#physicalactivity

