

Health Promotion Strategies for Physical Activity (with a focus on policy).

Prof. Catherine B. Woods
Physical Activity for Health Research Centre
University of Limerick

PA_fH

Physical Activity *for* Health
HRI Research Cluster
University of Limerick

EASO



CatherinebWoods
Catherine.Woods@ul.ie



**UNIVERSITY OF
LIMERICK**
OLLSCOIL LUIMNIGH

July 14th 2022

Overview

Physical Activity for Health, UL
PA and NCD prevention
The I-PARC experience
The PEN experience
Take home messages for EASO



QUIZ

Take home message 1

Take home message 2

Take home message 3

Take home message 4

Take home message 5

Take home message 6

Take home message 7

Take home message 8

Take home message 9

PAfH

Physical Activity *for* Health
HRI Research Cluster
University of Limerick



Prof Catherine Woods



Prof Alan Donnelly



Dr Ciaran
MacDonncha



Prof Susan Coote



Dr James Green



Dr Brian Carson



Dr Matthew Herring



Dr Roisin Cahalan

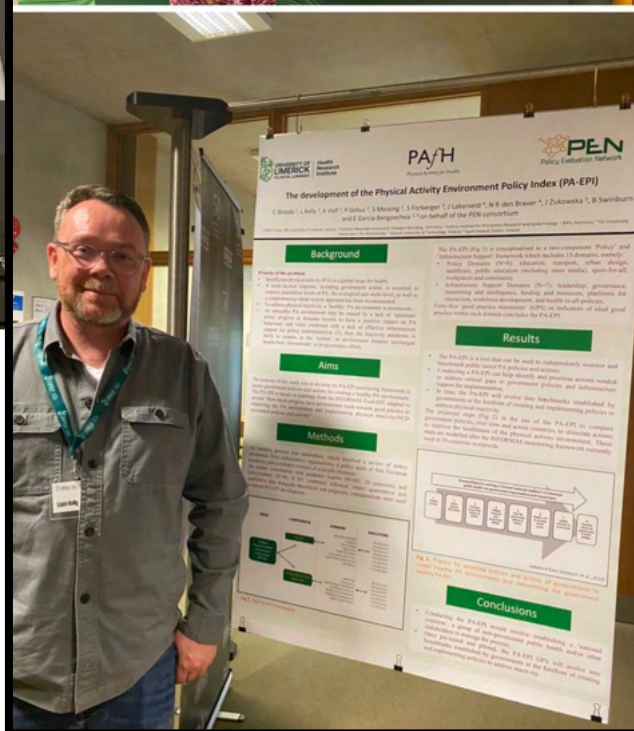


Dr Elaine Murtagh

- Established April 2019, the PAfH cluster aims to build an **international hub of excellence** in the area of PAfH research.
- 9 core academic staff across multiple disciplines.
- In the last 12 months:
 - **69** peer reviewed publications
 - 6 grant applicants, generated **3.3 million** euro in funding.



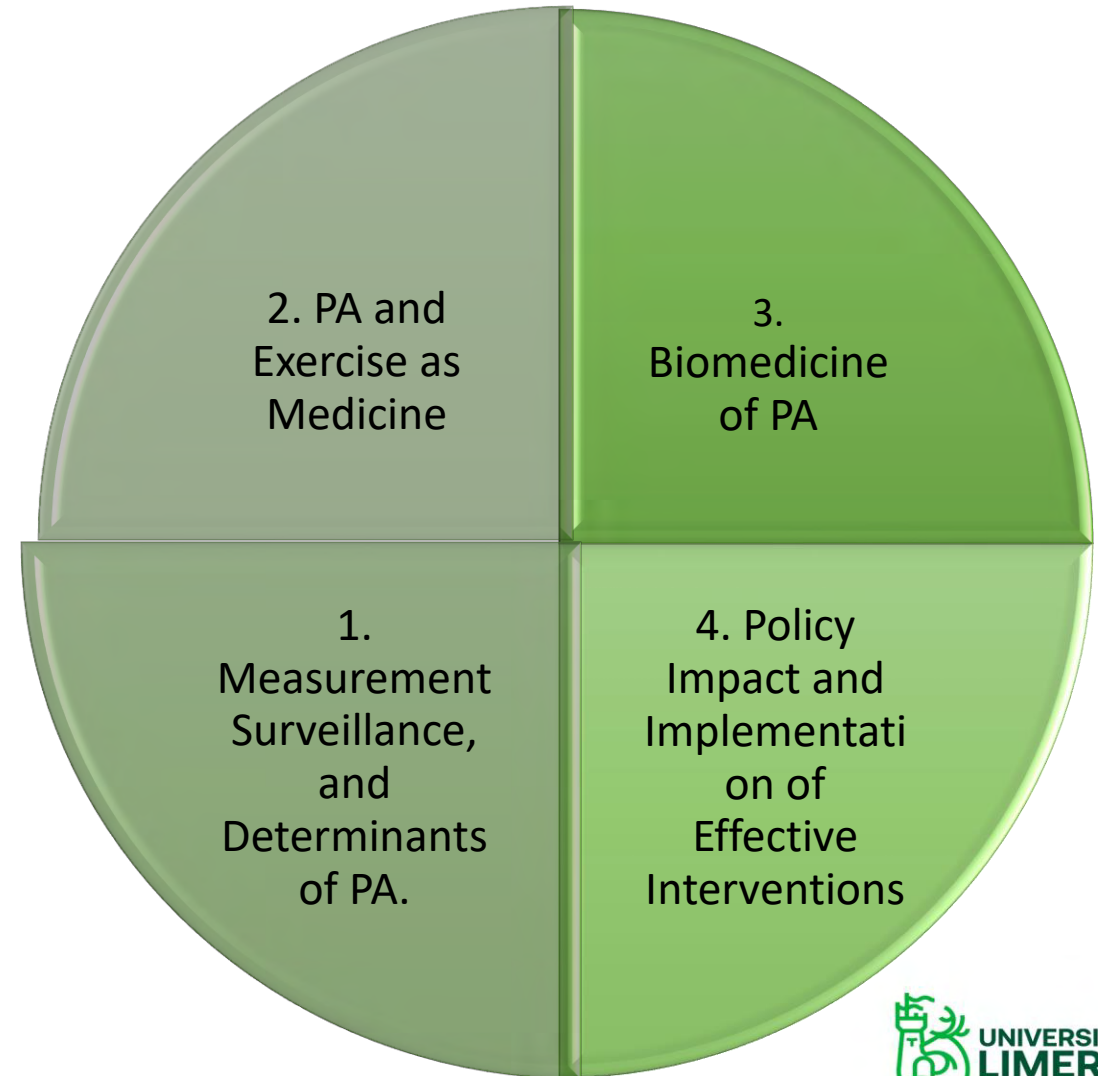
Programme manager,
Dr Bláthín Casey.



PAfH's Pillars, Objectives and Research Themes



 @PAfH_UL



Take Home Message 1:

Become part of a good team...
Physical Activity Research requires a
multi- and interdisciplinary approach.



Noncommunicable diseases

71%

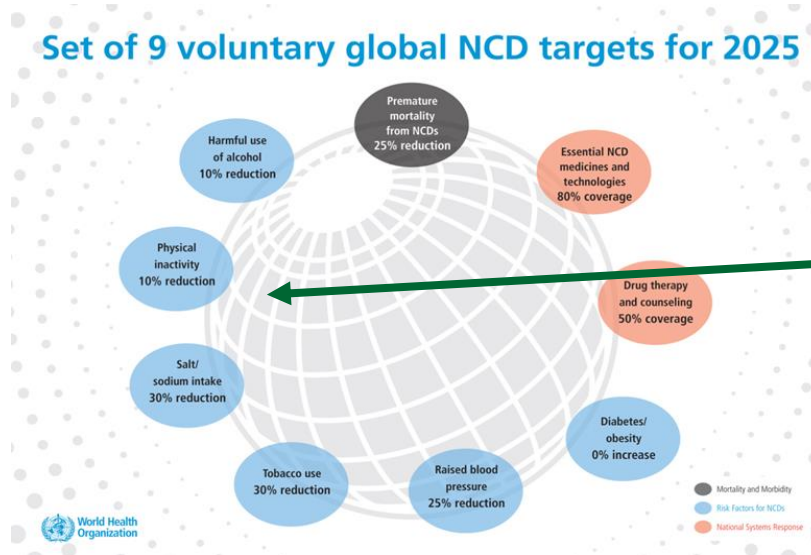
of all deaths are due to Noncommunicable diseases (NCD's)

41 Million

deaths each year are due to NCDs

15 Million

Are premature deaths each year (that is between ages of 30-70 years)



10% reduction in inactivity by 2025

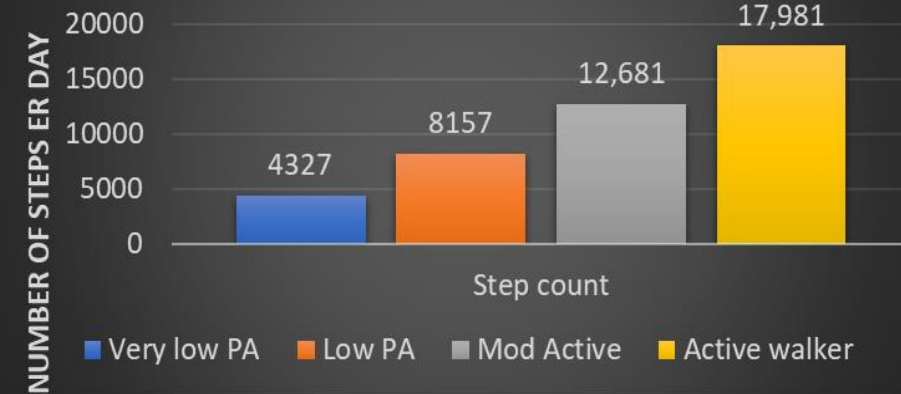




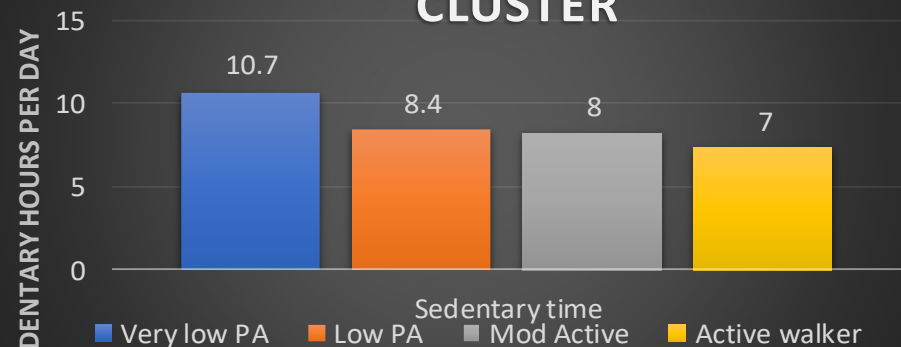
4 activity profiles (N=485):

- Very low PA (10.3%)
- Low PA (60.8%)
- Moderately active (22.9%)
- Active Walkers (6%)

Step count by cluster



DAY TIME SEDENTARY BY CLUSTER



O'Regan et al. Pilot and Feasibility Studies (2019) 5:88
<https://doi.org/10.1186/s40814-019-0473-y>

STUDY PROTOCOL

Open Access

An evaluation of an intervention designed

to help inactive adults become
with a peer mentoring comp
protocol for a cluster random
trial of the Move for Life pro

Andrew O'Regan^{1*}, Liam Glynn¹, Enrique Garcia Bengoechea²,
Andrew W. Murphy², Stephen Gallagher², Paddy Gillespie², John
John Sweeney¹⁰, Mo Foley-Walsh¹¹, Geraldine Quinn¹², Kwok Ng
Catherine Woods²

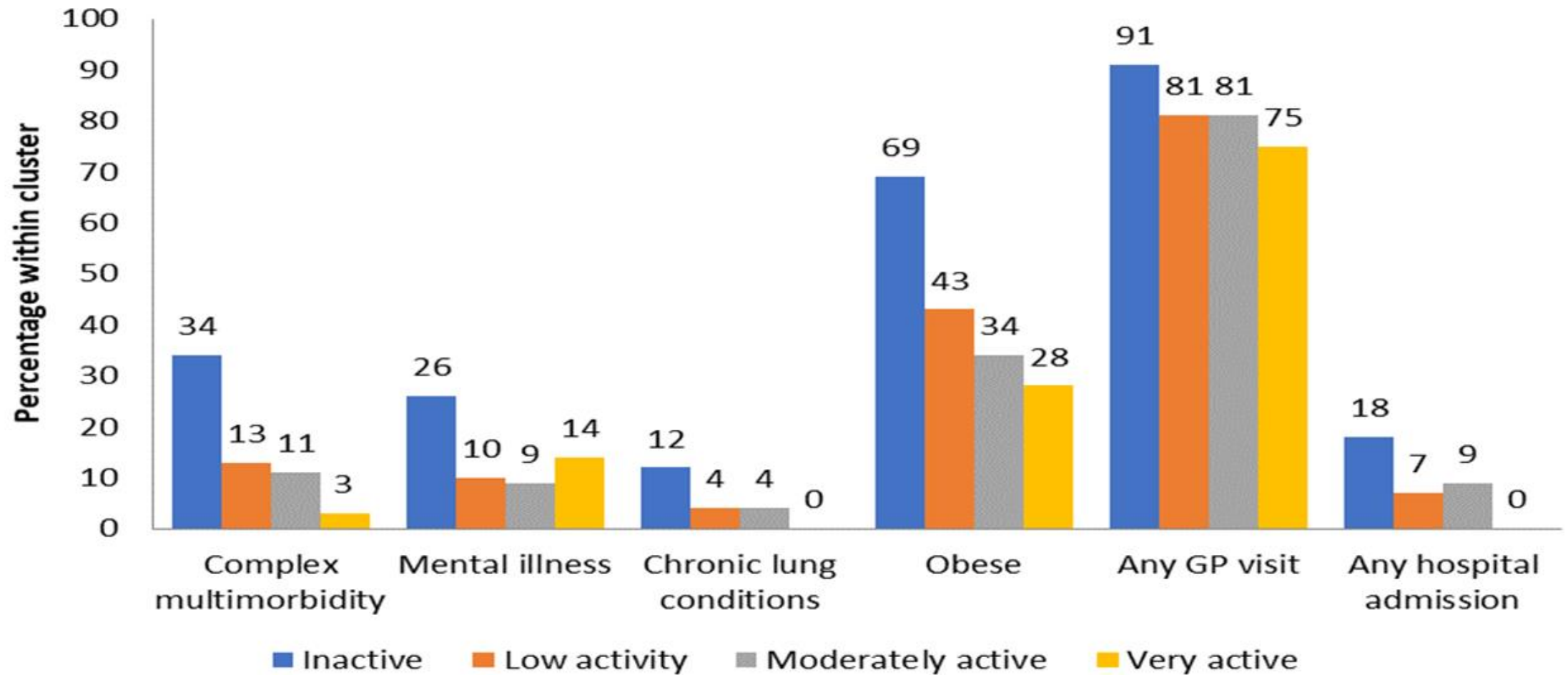


Contents lists available at ScienceDirect
Preventive Medicine Reports
journal homepage: www.elsevier.com/locate/jpmr

A cluster analysis of device-measured physical activity behaviours and the association with chronic conditions, multi-morbidity and healthcare utilisation in adults aged 45 years and older

Andrew O'Regan^{a,*}, Ailish Hannigan^a, Liam Glynn^a, Enrique Garcia Bengoechea^b,
Alan Donnelly^b, Grainne Hayes^b, Andrew W. Murphy^c, Amanda M. Clifford^d,
Stephen Gallagher^c, Catherine B. Woods^b

PA, Chronic Disease and Healthcare Usage



Take Home Message 2:

Regular health enhancing physical activity has multiple benefits for the individual, for society and for sustainability

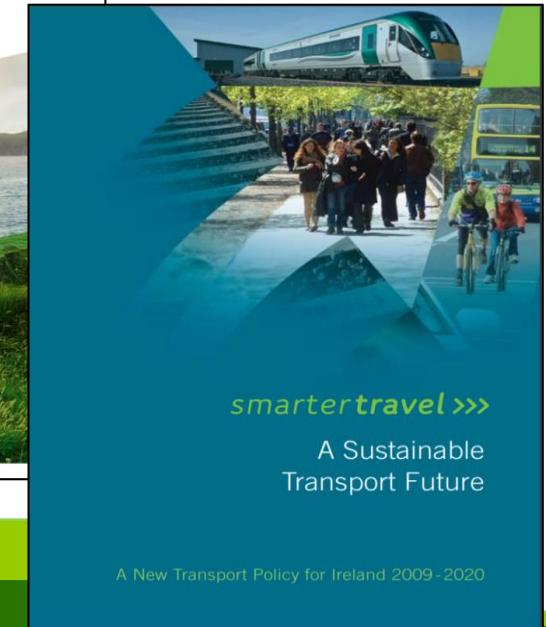
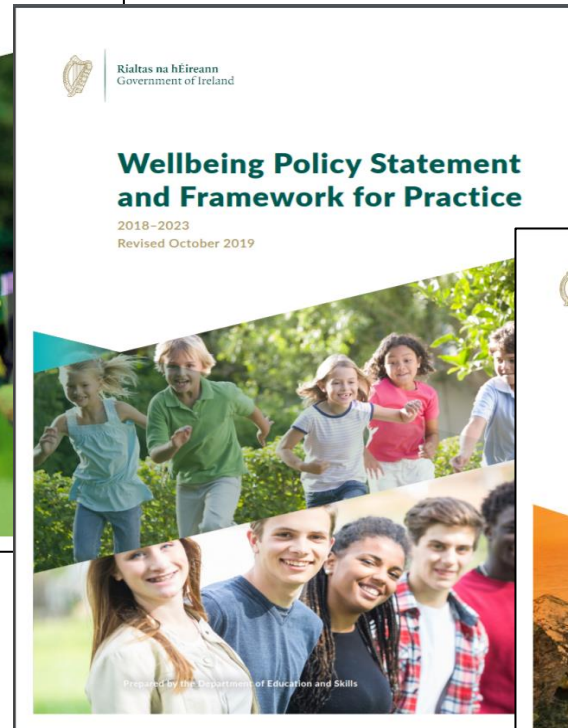
Moving from inactive to low active confers benefit



National policies support increased population physical activity



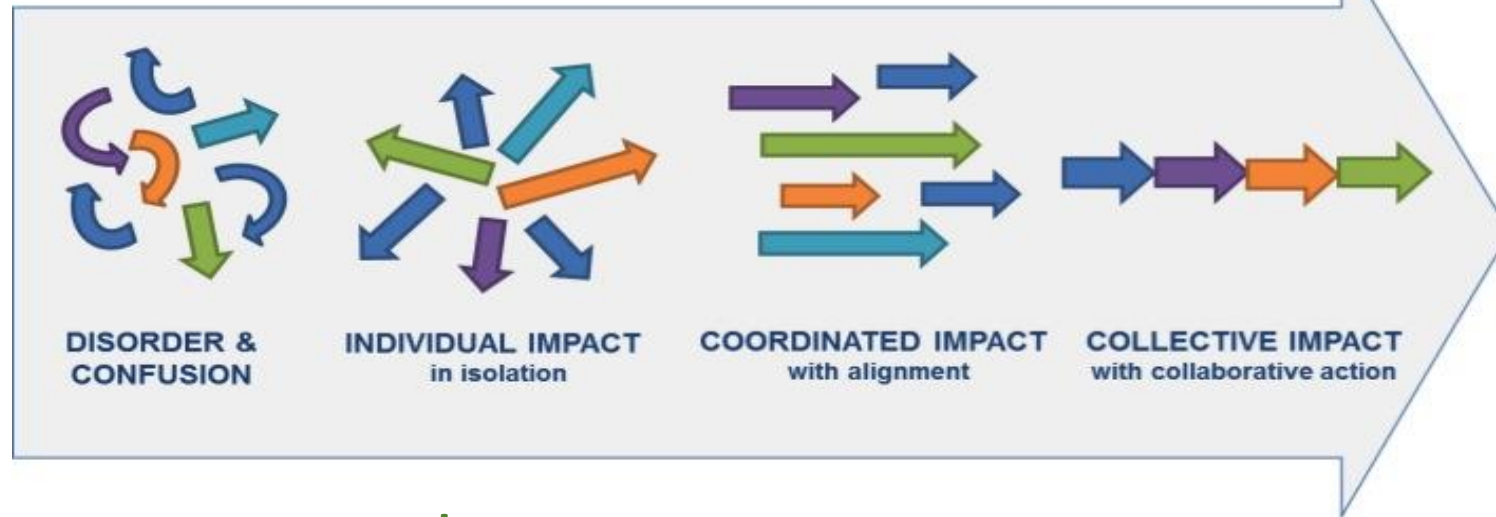
Rialtas na hÉireann
Government of Ireland



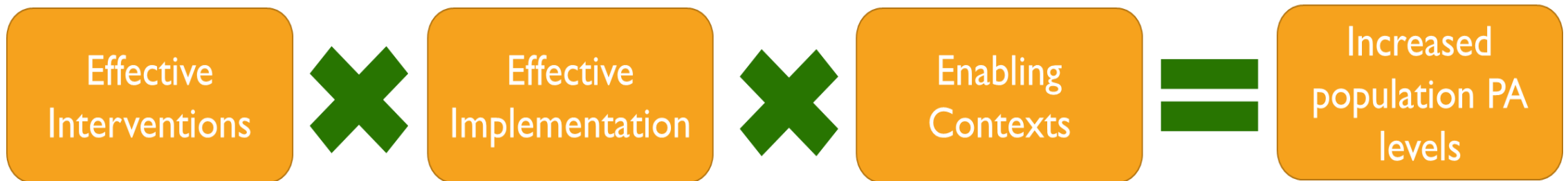
Each policy has:

- Vision
- Targets
- Multiple Sectors are involved.

Increase population levels of physical activity



Moving Forward...



The Irish Physical Activity Research Collaboration



I-PARC Vision

I-PARC fosters insight, intelligence and innovation to enable more people in Ireland to be more active, more often.

I-PARC involves multiple stakeholders, across **Policy, Practice** and **Research**, who work together to:

1. Identify gaps on how to develop and deliver best practices and **seek ways to bridge these gaps**.
2. Enable and **support solutions** to increase physical activity in Ireland.
3. **Share learnings from research and best-practice** in a systematic and easily accessible way.
4. Establish mechanisms for **demonstrating the impact of I-PARC**.



Systems Based Approaches: What is it and why is it relevant to physical activity promotion?

1 day workshop Event Description

Systems based approaches are an innovative area of science with real potential for a positive influence, but a better understanding is needed. This 1-day workshop will include international speakers who will provide an introduction to the systems based approach and how it can aid the promotion of physical activity.

The event will provide an opportunity to learn about the systems based approach and develop an understanding of the multiple factors within the complex system of physical activity promotion. A combination of talks, interactive discussions and a panel discussion will be included on the day.

The event is suitable for all practitioners, researchers, academics and policy makers who play a role in the promotion of population levels of physical activity and have a desire to learn more about the systems based approach.

Event Information

Date - 28th January 2020

Time - 10:30 TO 16:00 Registration opens at 10:00

Invited Speakers



Prof. Adrian Bauman
University of Sydney



Dr. Andrew Milat
NSW Ministry of Health



Dr. Nick Cavill
Cavill Institutes

Panel Discussion
involving members of



“Getting Ireland Active”—Application of a Systems Approach to Increase Physical Activity in Ireland Using the GAPPA Framework

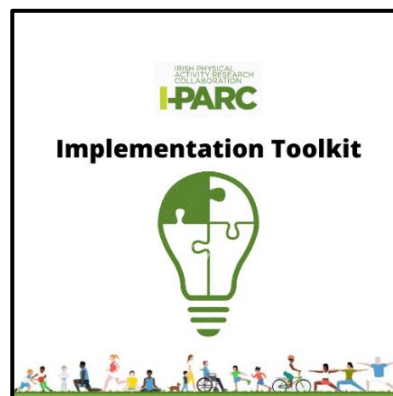
Joseph J. Murphy, Fiona Mansergh, Marie H. Murphy, Niamh Murphy, Benny Cullen, Sarah O'Brien, Stephen Finn, Grainne O'Donoghue, Niamh Barry, Shirley O'Shea, Kevin M. Leyden, Peter Smyth, Jemima Cooper, Enrique G. Bengoechea, Nick Cavill, Andrew J. Milat, Adrian E. Bauman, and Catherine B. Woods

Physical activity (PA) promotion is a complex challenge, with the Global Action Plan on Physical Activity (GAPPA) endorsing a systems approach and recommending countries assess existing areas of progress which can be strengthened. This paper reports a process facilitating a systems approach for identifying current good practice and gaps for promoting PA in Ireland. Elements of participatory action research were enabled through 3 stages: (1) aligning examples of actions from Irish policy documents (n = 3) to the GAPPA, (2) workshop with stakeholders across multiple sectors, and (3) review of outputs. Data collected through the workshop were analyzed using a deductive thematic analysis guided by the GAPPA. The policy context in Ireland aligns closely to the GAPPA with the creation of Active Systems the most common strategic objective across policy documents. Forty participants (50% male) took part in the systems approach workshop, which after revision resulted in 80 examples of good practice and 121 actions for greater impact. A pragmatic and replicable process facilitating a systems approach was adopted and showed current Irish policy and practices align with the GAPPA “good practices.” The process provides existing areas of progress which can be strengthened, as well as the policy opportunities and practice gaps.

Keywords: collaboration, methods, participatory action research, pragmatic



Scan to download
the full paper



REVIEW

Open Access

Barriers and facilitators to implementing community-based physical activity interventions: a qualitative systematic review



Jemima Cooper¹, Joey Murphy¹, Catherine Woods^{1,2*} , Femke Van Nassau³, Aisling McGrath⁴, David Callaghan⁵, Paula Carroll⁴, Paul Kelly⁶, Niamh Murphy⁴, Marie Murphy⁷ and Irish Physical Activity Research Collaboration (I-PARC)



Scan to download
the full paper



3 more papers in review on Evaluation, Implementation and Social Network Analysis

Take Home Message 3 & 4

Determinants to Interventions to
Implementation to Context

Effective Interventions X Effective
Implementation X Enabling Context

More than just the science...

Changing policy and practice requires
process





Physical Activity
Environment Policy Index (PA-EPI)
Development

The PA-EPI: a tool for evaluation and benchmarking of the implementation of public policies to create a healthy physical activity environment

Authors: Catherine B. Woods¹; Liam Kelly¹; Kevin Volf¹; Aurelie van Hoya¹ Peter Gelius²; Sven Messing²; Sarah Forberger³; Jeroen Lakerveld^{4,5}; Nicole den Braver^{4,5}; Joanna Zukowska⁶; Enrique García Bengoechea¹ on behalf of the PEN consortium

1. Physical Activity for Health, Health Research Institute, University of Limerick, Limerick, Ireland. 2. Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen, Germany. 3. Leibniz Institute for Prevention Research and Epidemiology – BIPS, Bremen, Germany. 4. Amsterdam Public Health Research institute, The Netherlands. 5. Upstream Team, Amsterdam UMC, VU University Amsterdam, The Netherlands. 6. Faculty of Civil and Environmental Engineering, Gdansk University of Technology, Gdansk, Poland.

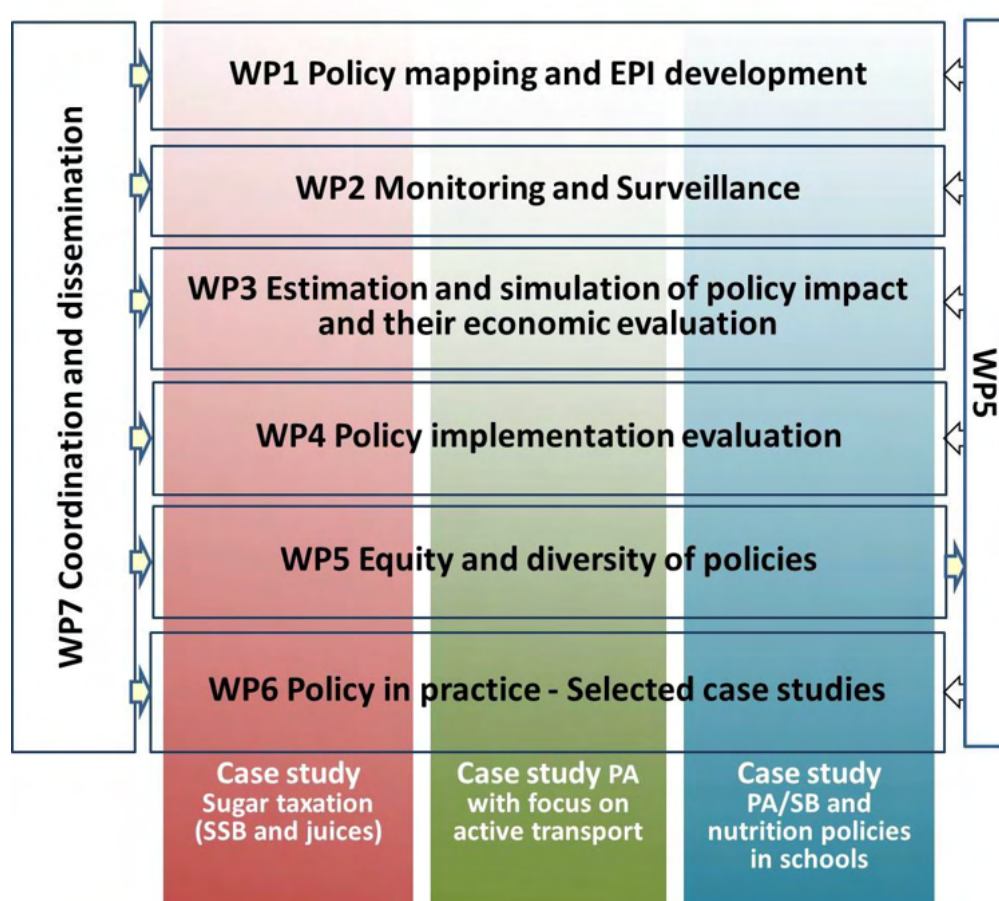
Aim

- Establish a **multi-disciplinary research network** for the **monitoring, benchmarking and evaluation of policies** that affect dietary and physical activity as well as sedentary behavior **with a standardized approach across Europe**

Country (N=8)	Number of partners (N=28)
France	2
Germany	9
Ireland	3
Italy	2
Netherlands	5
Norway	2
Poland	4
New Zealand	1

PEN's vision is to provide Europe with tools to **identify, evaluate and benchmark policies** designed to directly or indirectly address **physical inactivity, unhealthy diets and sedentary behaviour** while accounting for existing health inequalities.

PEN Work Packages



← WP1, Task 1.2

To build on existing work and develop the Physical Activity Environment Policy Index (PA-EPI).

Rationale

- WHO GAPPA 2018-2030 target of a 15% relative reduction in the prevalence of populations physical inactivity by 2030, and linked the promotion of physical activity (PA) to achievement of the UN's SDGs¹.
- A multifaceted response, including **government action**, is essential to achieve this target.
- Documented **good progress at a country level** regarding the introduction of national policies for PA².
- **Minimal progress on addressing** population levels of physical **inactivity**².
- In part, due to a **lack of 'upstream' policy progress** in effective domains.
- In part, due to a **lack of effective infrastructure support** for policy **implementation**.
- We are unlikely to reach the WHO target, if the '**system**' or '**environment**' remains **unchanged** despite our best 'downstream' or programmatic efforts.

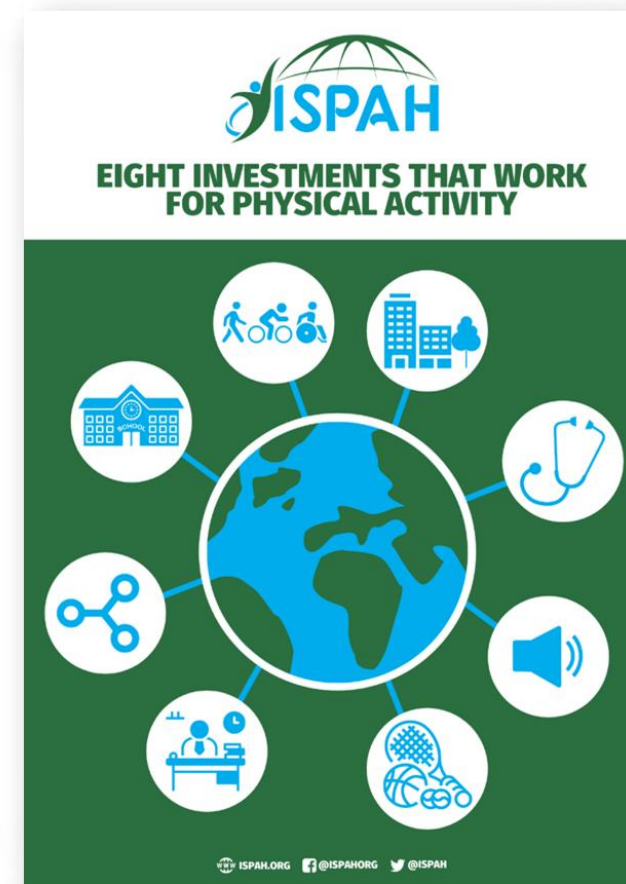
Effective Policy Intervention is Essential

Develop the Physical Activity Environment Policy Index (PA-EPI)

- The PA-EPI is a tool for evaluation and benchmarking of the implementation of public policies to promote PA and create a healthy PA environment.
- The PA-EPI can help policymakers determine:
 1. Where their county is now in relation to the implementation of PA policies.
 2. What is possible to change.
 3. Provides pathways on how to reach goals to address critical implementation gaps.
 4. Provides a mechanism for documenting progress.

Methodology for PA-EPI development

1. Build on existing work
2. Scientific literature reviews
3. Review of relevant policy documents from international or supranational organisations and agencies (e.g., WHO, ISPAH, UNESCO)
4. Expert & Policymaker review



Methodology for PA-EPI development

1. Build on existing work
2. Scientific literature reviews
3. Review of relevant policy documents from international or supranational organisations and agencies (e.g., WHO, ISPAH, UNESCO)
4. Expert & Policymaker review



School SLR (3035 to 25 included studies)



- Transport
 - (In press: Journal of Transport & Health)
- Sport & Recreation
 - (In review: International Journal Sport Policy and Politics)
- Public Education & Mass Media
 - (In press, European Journal of Public Health)

Summary

“Policy interventions are not to be confused with other types of programme or environmental interventions; policy interventions provide the framework in which the programmes or environmental changes are tendered, developed, financed or implemented”

Gelius P, Messing S, Goodwin L, Schow D, Abu-Omar K. What are effective policies for promoting physical activity? A systematic review of reviews. *Prev Med Rep.* 2020;18:101095.

Name	Description
Intervention	The policy, programme or environmental change used to promote PA.
PA Programme	Specific opportunities for the purpose of increasing PA behaviour, attitudes or knowledge in a target population for a defined period of time.
PA Environment	Relevant physical and social school environment that are hypothesized to support change in PA behaviour.
PA Policy	Decisions, plans and actions enforced by national or regional governments, or their equivalents (at local school level) which may directly or indirectly impact PA.
Policy Domain	Settings in which policies are implemented e.g. primary schools, secondary schools or combined primary/secondary schools.
Policy Level (relevant to schools)	Laws, National/District and School-level codes and regulations, and Guidelines.
Policy Area	Settings for policy actions within the school-setting e.g. physical education, sports, etc.
Policy Action	Policy actions are defined as actual options selected by policymakers. They are specific actions put into place by any level of government and associated agencies to achieve the PA objective directly or indirectly. They may be written into broad strategies, action plans, official guidelines/notifications, calls to action, legislation, or rules and regulations. An action may have its own exclusive policy document, or may be part of a larger document.

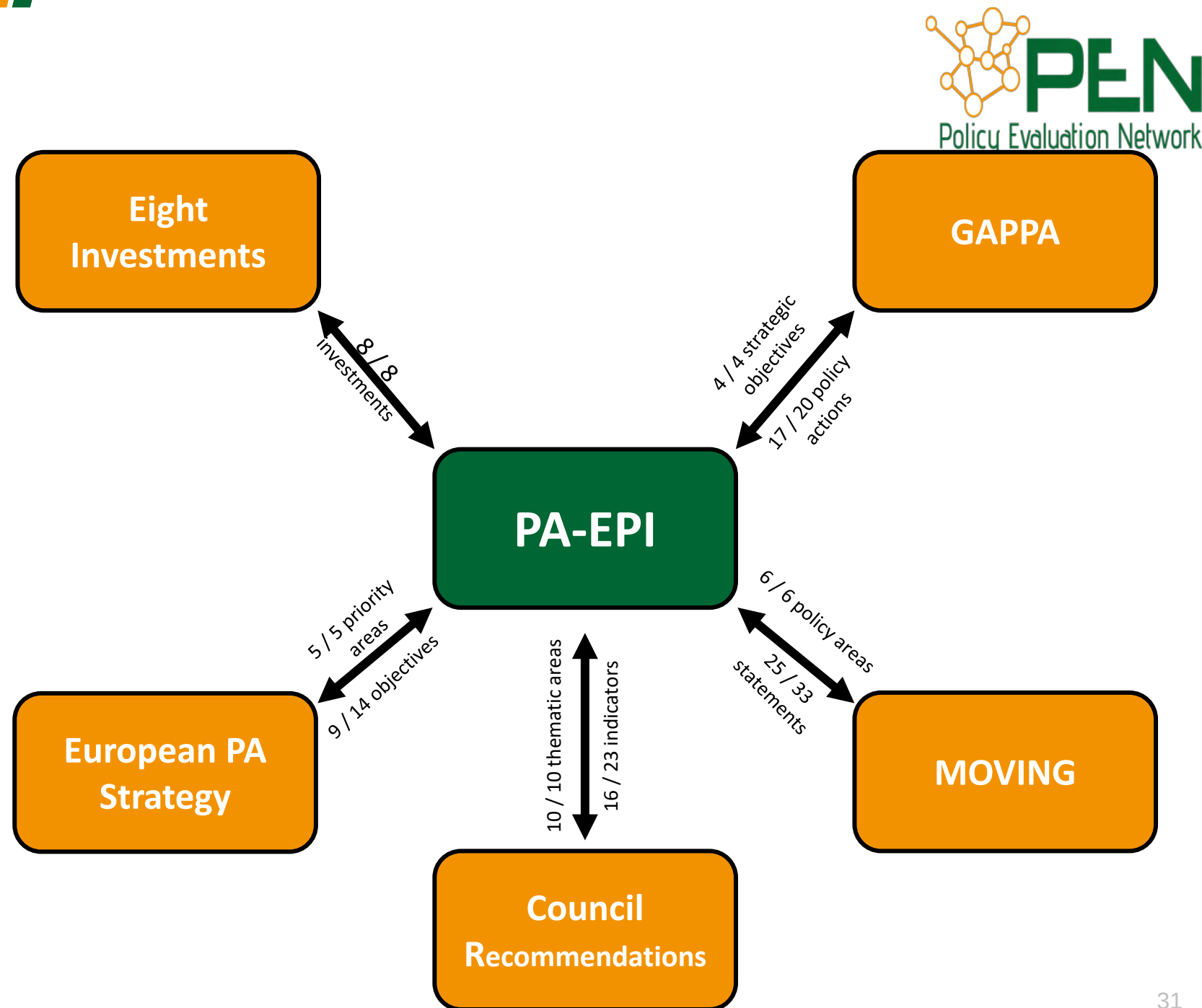
Take Home Messages 5 & 6

5. Policy interventions are different to programme or environmental interventions
6. Evidence of policy impact on PA behaviour within the scientific peer reviewed literature exists, but is limited.



Methodology

1. Build on existing work
2. Scientific literature reviews
3. Review of relevant policy documents from international or supranational organisations and agencies (e.g., WHO, ISPAH, UNESCO)
4. Expert & policy maker review

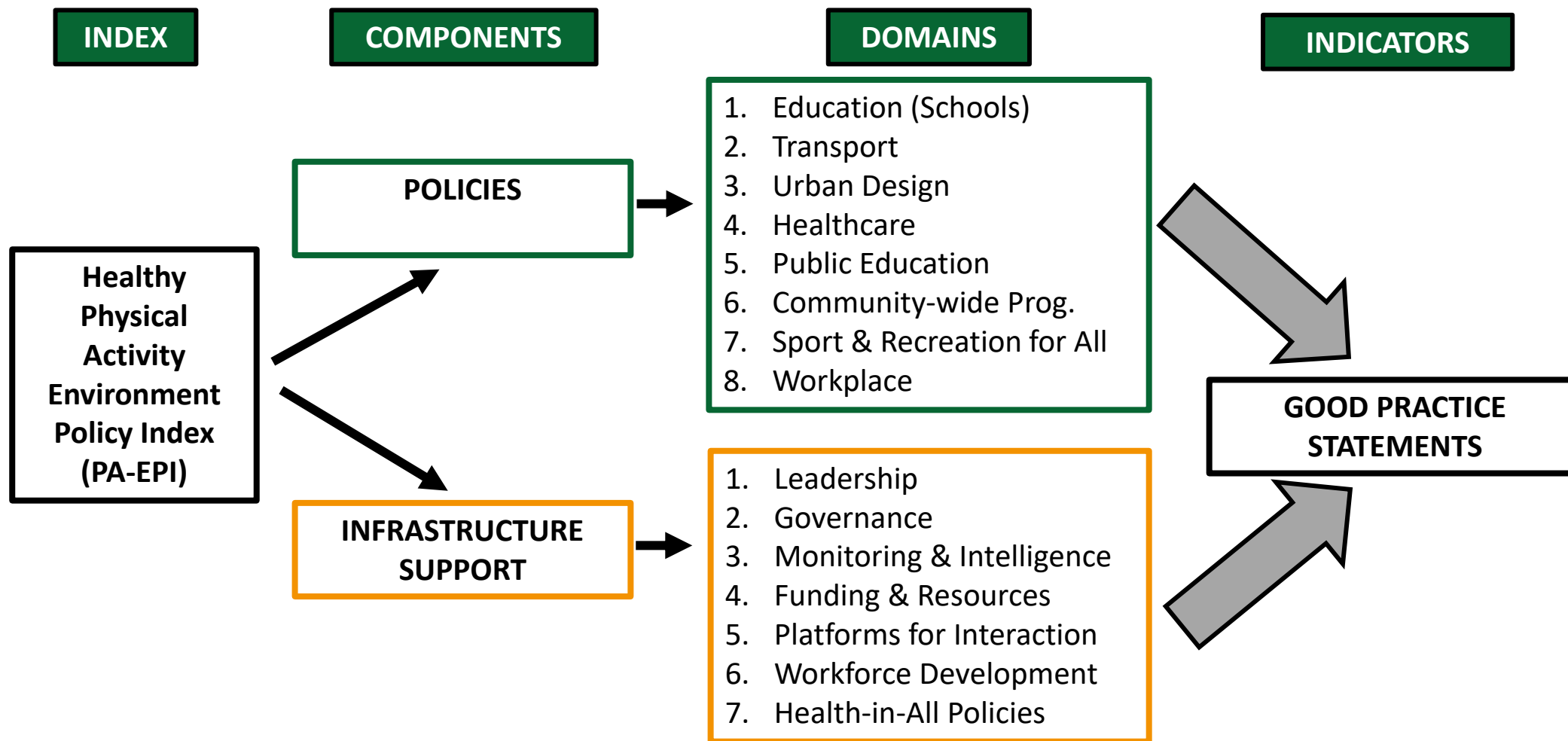


Take Home Message: 7

If you are seeking to influence policy
know the value and importance of
Grey Literature and monitoring
systems



PA-EPI Prototype



Methodology for PA-EPI development

1. Build on existing work
2. Scientific literature reviews
3. Review of relevant policy documents from international or supranational organisations and agencies (e.g., WHO, ISPAH, UNESCO)
4. Expert and policy maker review.

Stage 1 (Academics) Development of Good Practice Statements (GPS)

101 Experts Invited to Partake

- **72% (n=73)** Replied to Invite
- **71% (n=52)** Fully Completed Review
- **19% (n=14)** Partially Completed Review
- **10% (n=7)** Declined
- Experts from 20 Countries with 885 Comments

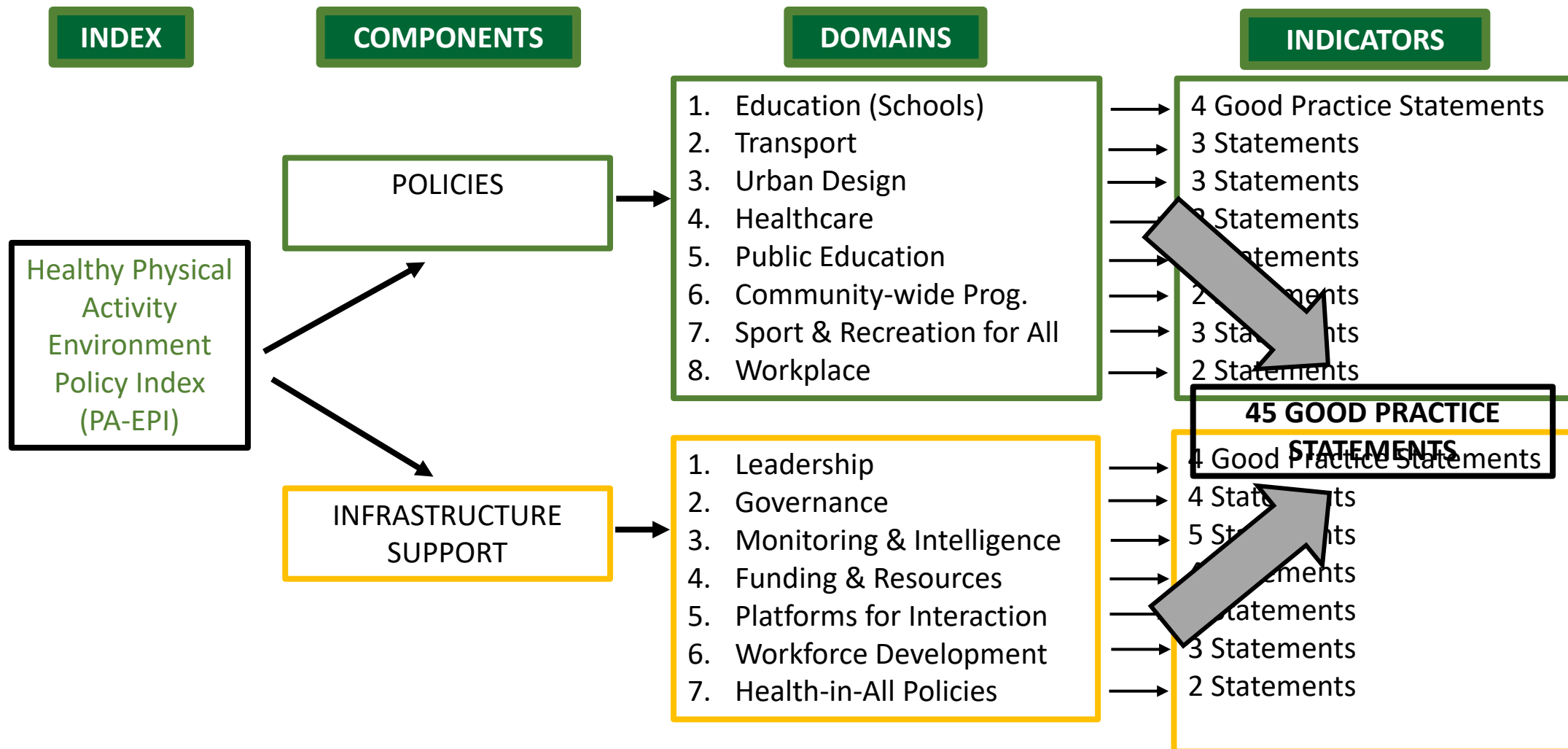
Stage 2 (Phase 1) Academics Review GPS

- **66** Experts from Stage 1 invited
- **75% (n=50)** participated

Stage 2 (Phase 2) Policymakers Review GPS

- **40** Policymakers, **4** EU countries across all **8** policy domains

PA-EPI Framework



PA-EPI: Education Domain (Example)

E01
Physical education

E02
School-related physical
activity

E03
Shared use agreements to
utilise school spaces

E04
Safe active travel

PA-EPI: Education Domain (Example)

E01

Evidence-informed, quality mandatory physical education that promotes and supports the ideals of equity, diversity and inclusion and adheres to defined standards is part of the curricula in all schools.

E02

School-related physical activity

E03

Shared use agreements to utilise school spaces

E04

Safe active travel

PA-EPI: Indicator E04

E01

Evidence-informed, quality mandatory physical education that promotes and supports the ideals of equity, diversity and inclusion and adheres to defined standards is part of the curricula in all schools.

E02

National and/or subnational initiatives are in place to promote and support school-related physical activity both at school and in other settings. These initiatives should employ an inter-sectoral approach and collaborative multi-agency partnerships (e.g., links with out-of-school sports clubs, active breaks/recess, walking clubs).

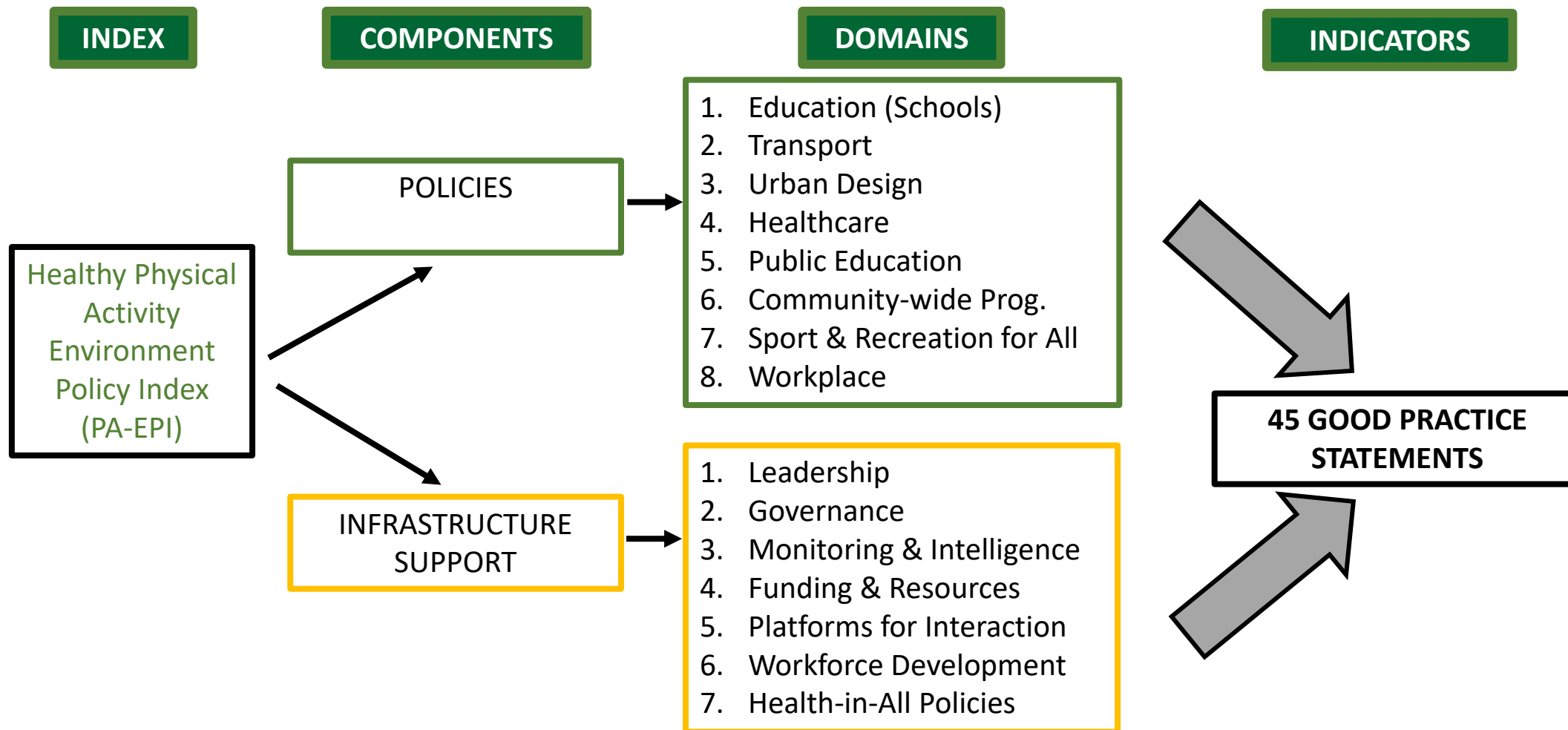
E03

There are shared use agreements that utilise school spaces. Community access is supported by initiatives to promote and support opportunities for physical activity for all persons outside of normal school hours.

E04

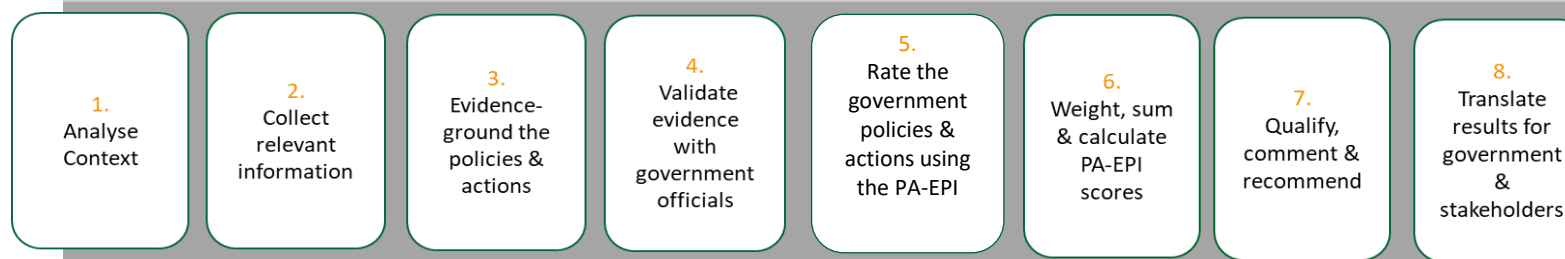
National and/or sub-national policies are in place to promote and support safe active travel to and from school.

PA-EPI Framework

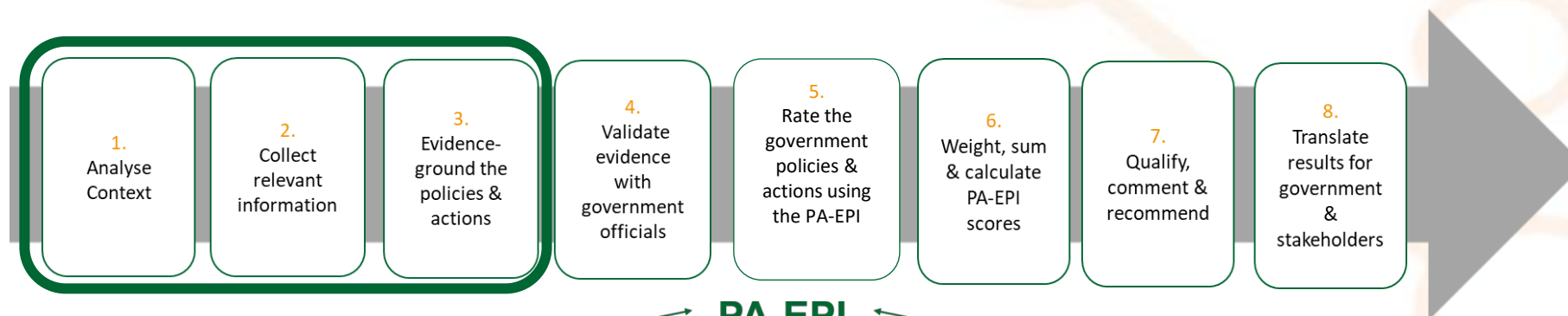


PA-EPI Implementation: A multi-step process

Process driven by existing or formed 'national coalition' of informed public health non-government organisations and researchers



PA-EPI Implementation: A multi-step process



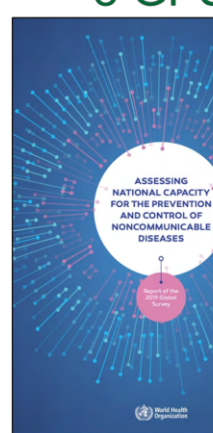
PA-EPI

11 GPS



HEPA
PAT

8 GPS



NCD Country
Capacity
survey



17 GPS



MOVING
database

33 GPS



GAPPA
Monitoring
Framework



PA-EPI & Policy Monitoring Tools

Overlap with indicators used in existing monitoring tools and systems:

- MOVING database (CO-CREATE)
- HEPA Monitoring Framework survey (EU/WHO)
- NCD Country Capacity Survey (WHO)
- HEPA PAT (WHO)
- GAPPA Monitoring Framework (WHO)

39 out of 45 PA-EPI Good Practice Statements (87%)

Policy domains

Education (Schools)	E01*	E02	E03	E04
Transport	T01*	T02	T03	
Urban design	UD01	UD02	UD03	
Healthcare	H01	H03		
Mass media	MM01	MM02		
Community	C02	C03		
Sport	SP01	SP02	SP03	
Workplace	W01	W02		

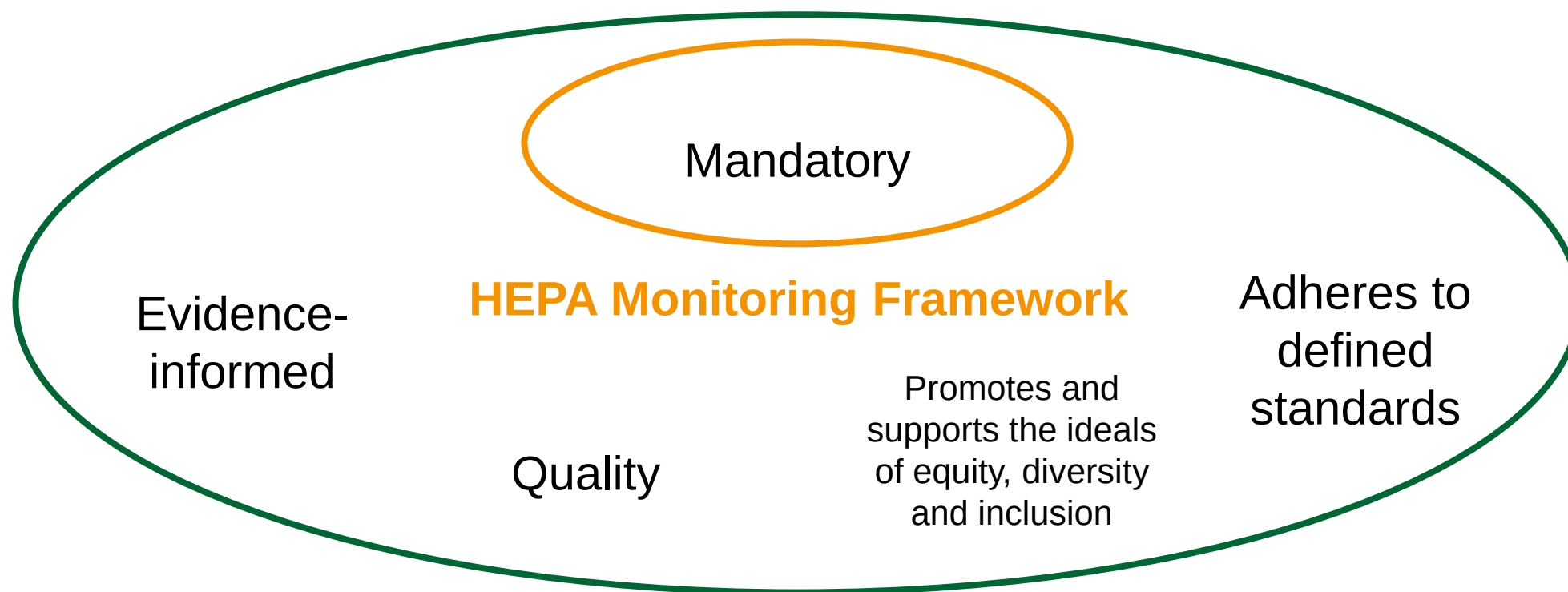
Infrastructure domains

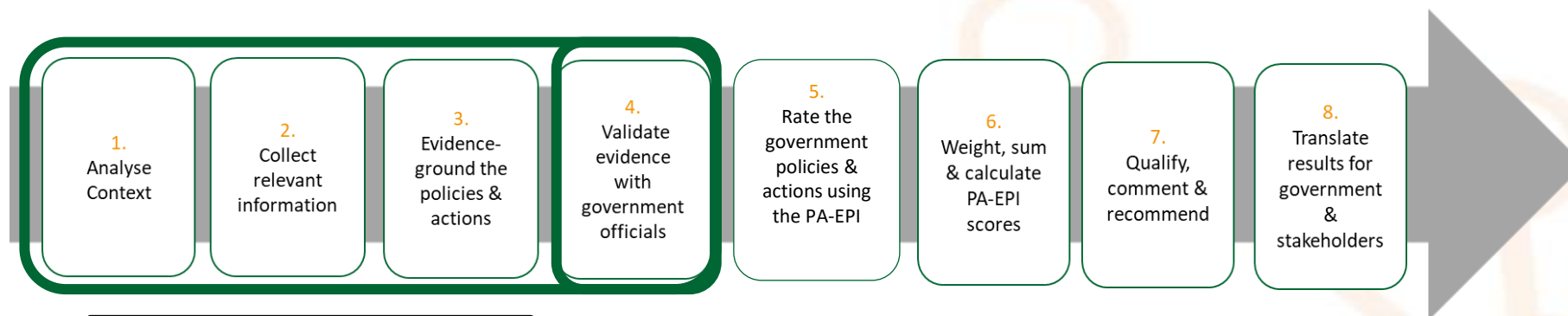
Leadership	L01	L02	L03	L04*
Governance	G01	G02	G03	G04
Monitoring and intelligence	MI01	MI02	MI03	MI04
Funding and resources	FR01	FR02	FR03	FR04
Platforms for interaction	PI01	PI03		
Workforce development	WD01	WD02	WD03	
Health in all policies	HIAP01	HIAP02		

* PEN SIMPLE modules developed

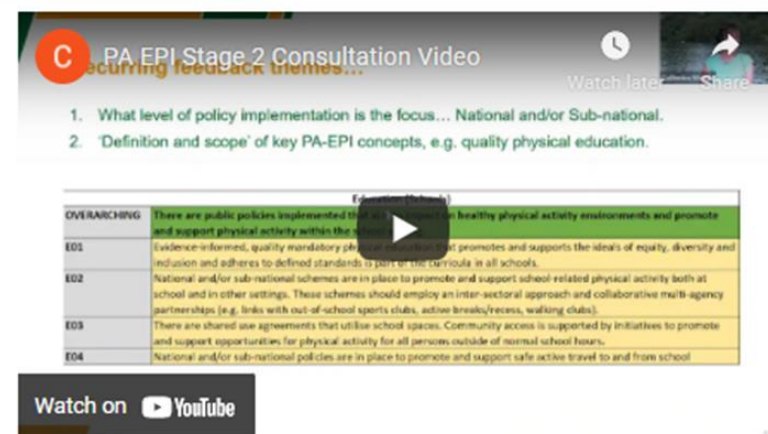
PA-EPI & Policy Monitoring Tools: Example

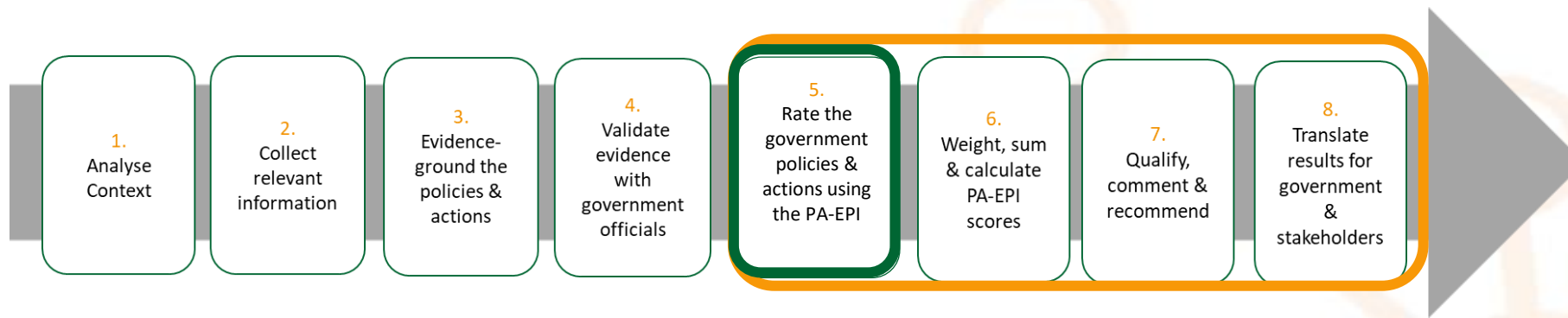
PA-EPI Good Practice Statement E01: Physical education in school curricula





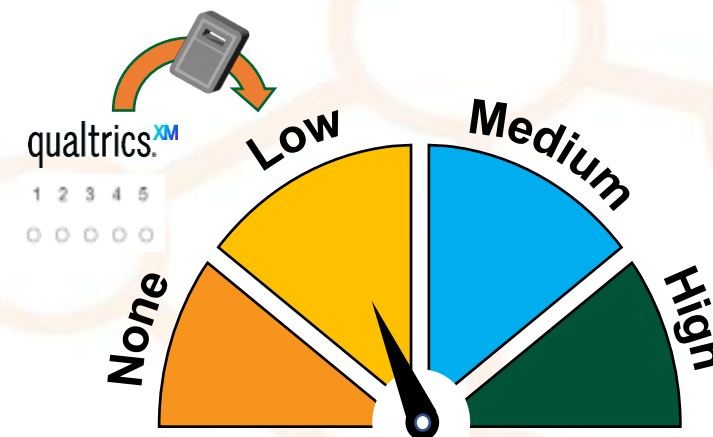
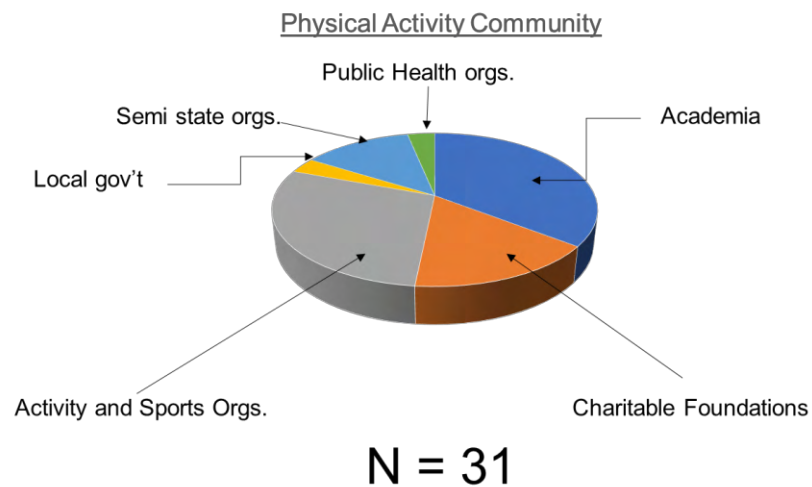
The following video gives an overview of the purpose of this consultation and the methodology used in the development of the PA-EPI.





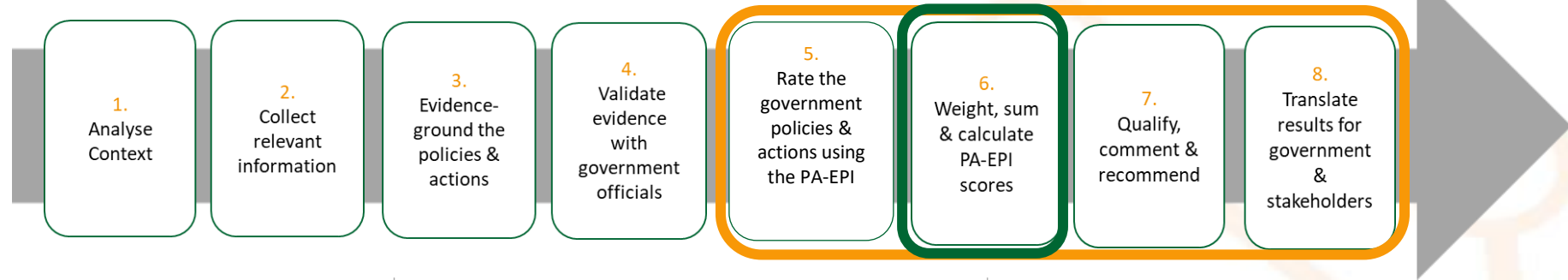
Physical Activity Community
“A Mobilization of Bias”

National Coalition

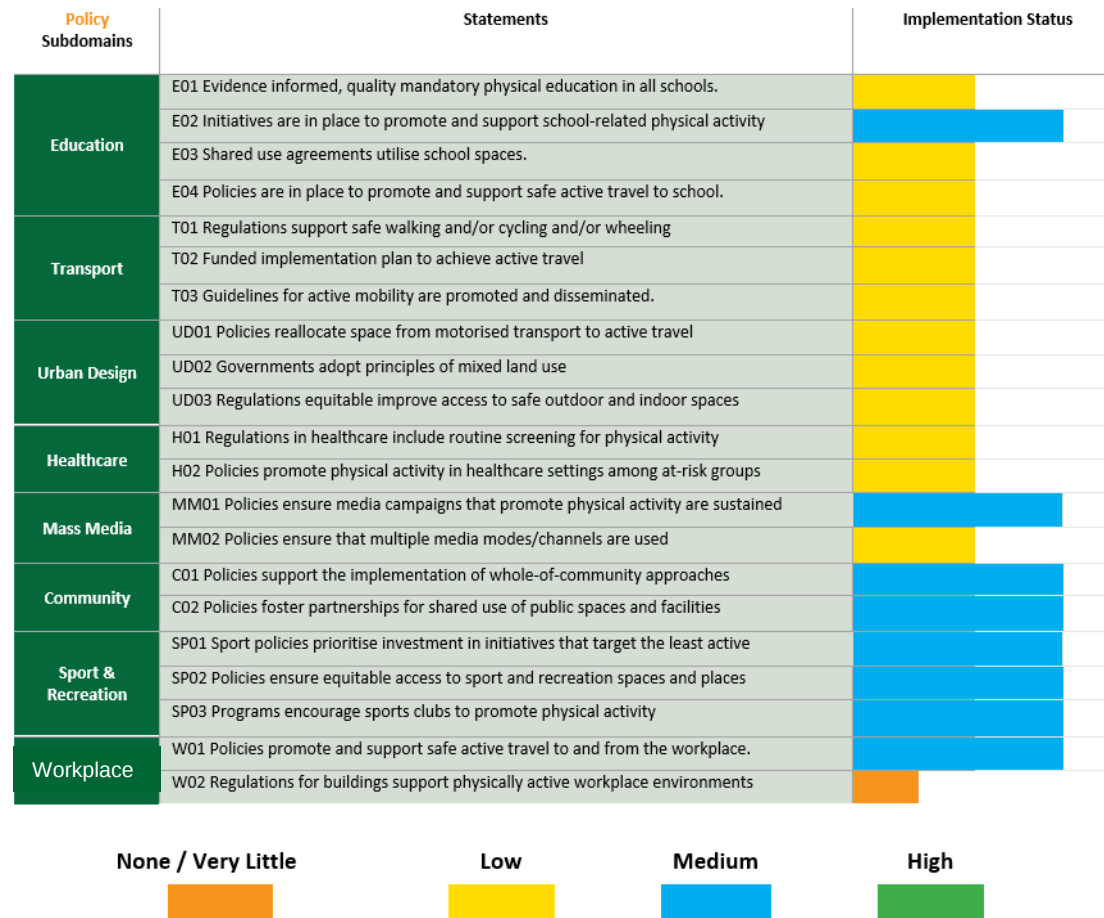


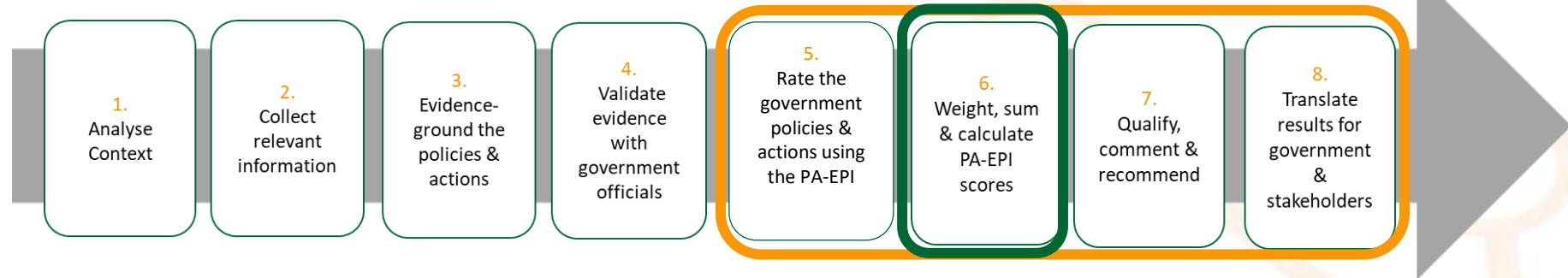
Response rate: 81% (n=25/31)

Fully completed survey: 64% (n=16/25)
Partially completed survey: 24% (n= 6/25)
Decline to participate 12% (n=3/25)

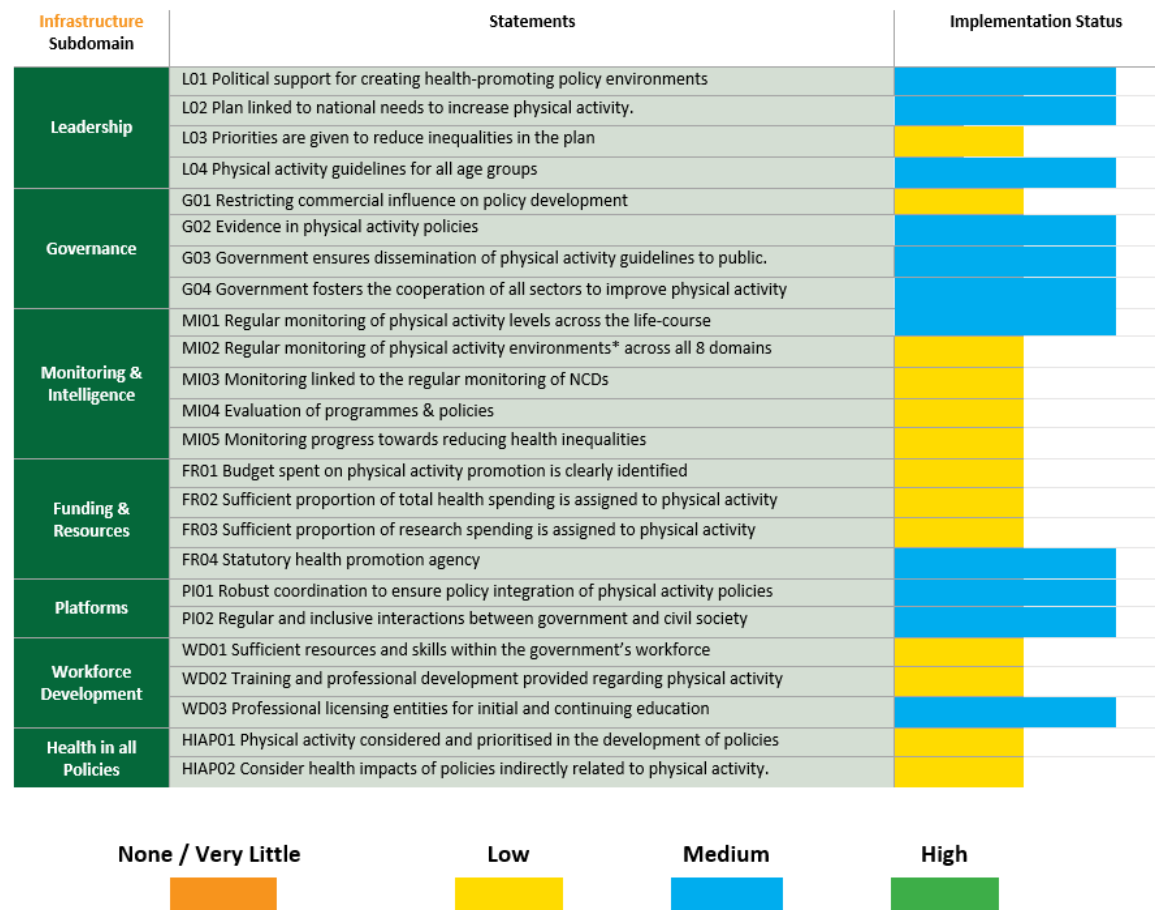


Policy Component (Example of Ireland)

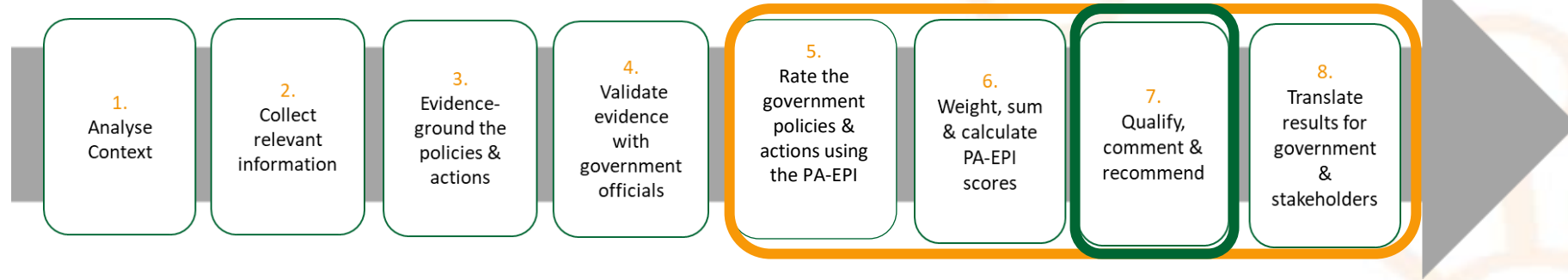




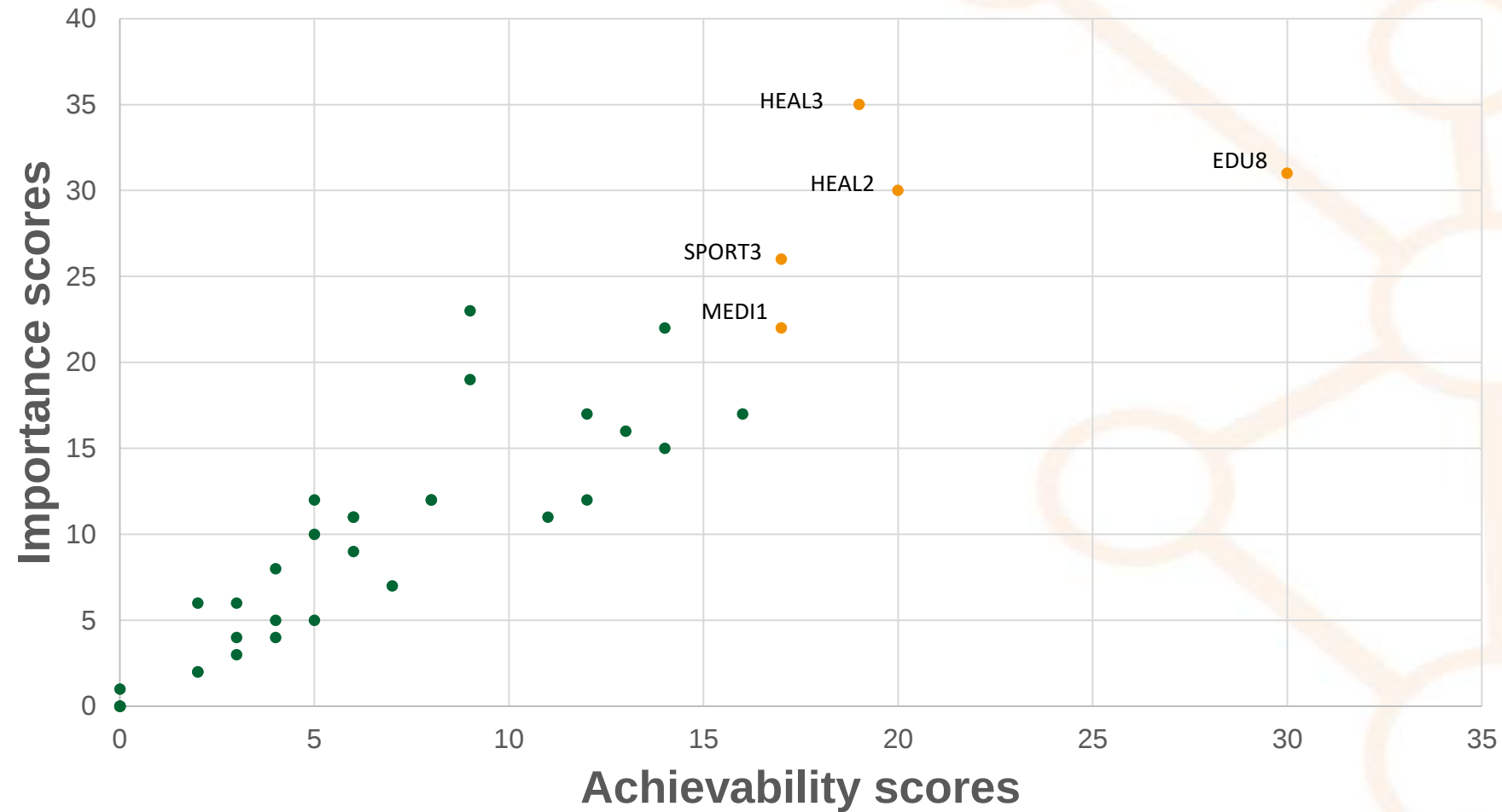
Infrastructure Support Component (Example of Ireland)



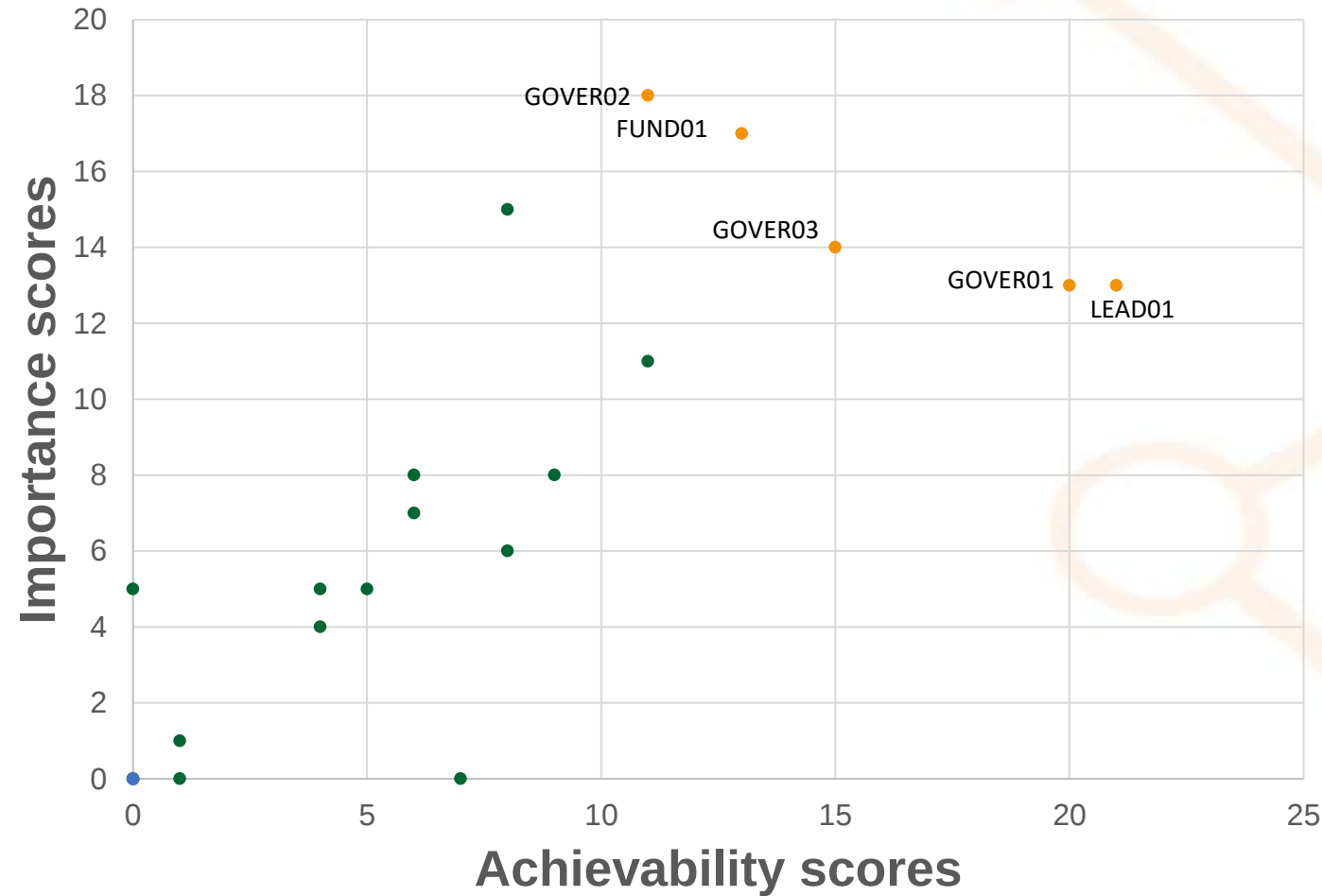
PA-EPI Workshop



Prioritisation of Implementation Recommendations: Policy Domain



Prioritisation of Implementation Recommendations: Infrastructure Support Domain



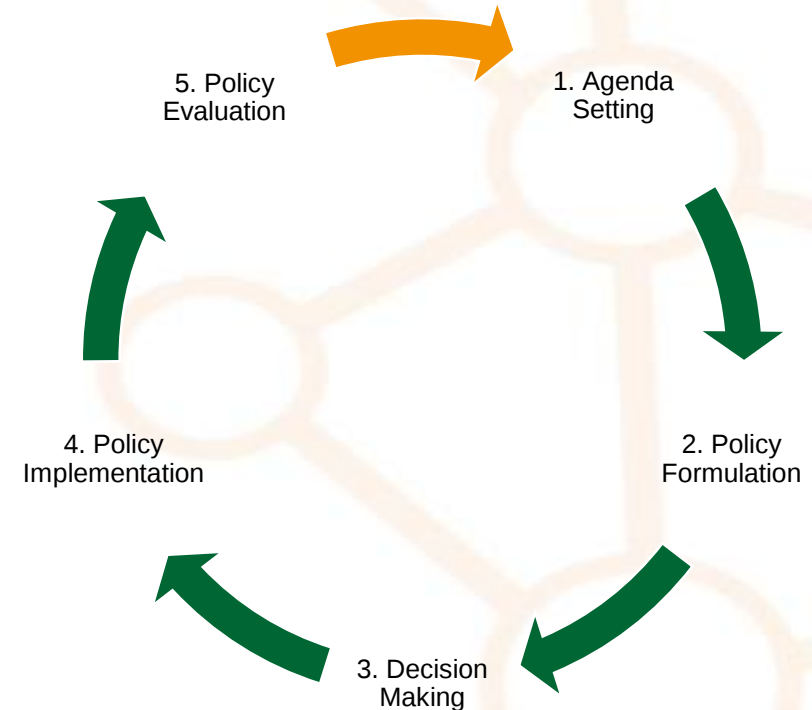
Benchmarking

Final Step

8. Translate
results for
government
and others

“Too many studies focus on supplying scientific evidence to reduce uncertainty; focus instead on increasing demand for evidence”

(Cairney and Oliver, 2017)



Policy Cycle (adopted from Howlett et al., 2009)

Take Home Message: 9

Co-creation of policy is a core objective of the PA-EPI.

This drives the policy cycle and makes room for improved implementation and (hopefully) evaluation as its impact on PA is strengthened.



To summarise: Key characteristics of the PA-EPI



Assess the
extent of
implementation
of government
policies and
actions



Create a
policy index to
assess the
healthiness of
the physical
activity
environment

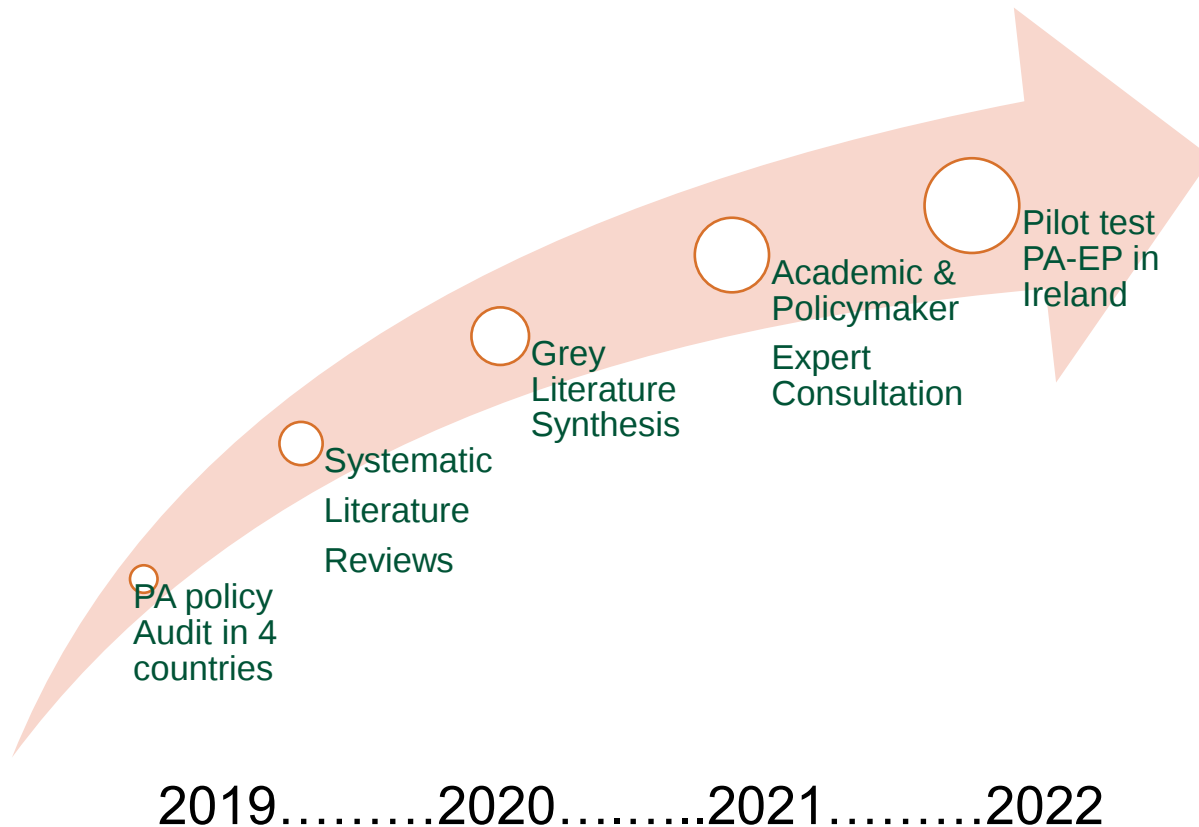


Provide
countries with
concrete
examples of
international
best practice



Potential for
country
comparison
and
benchmarking
of government
policies

Current Status



Next Steps

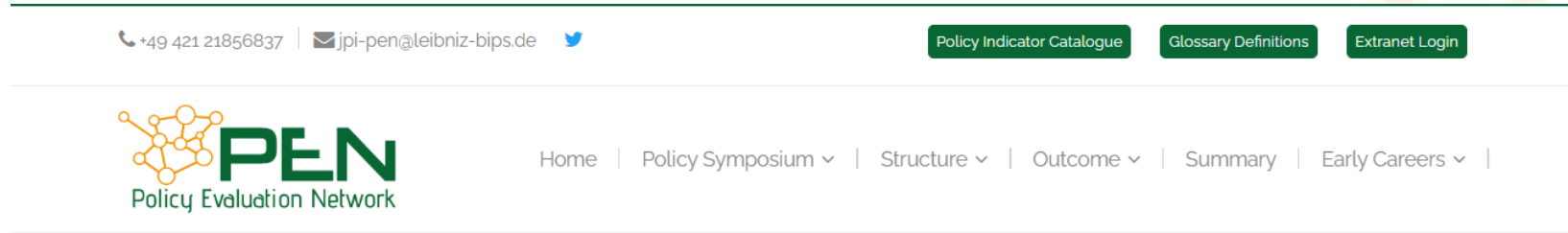
- The PA-EPI can help governments determine:
 - Where they are now?
 - What is possible to change?
 - Provide pathways to reach goals
 - A mechanism for showing progress.
- Conduct the PA-EPI in multiple countries to identify and prioritise actions needed to address critical gaps in government policies and infrastructure support for implementation.

PA-EPI: Next Steps

In time, the PA-EPI will evolve into benchmarks established by governments at the forefront of creating and implementing policies to address physical inactivity.

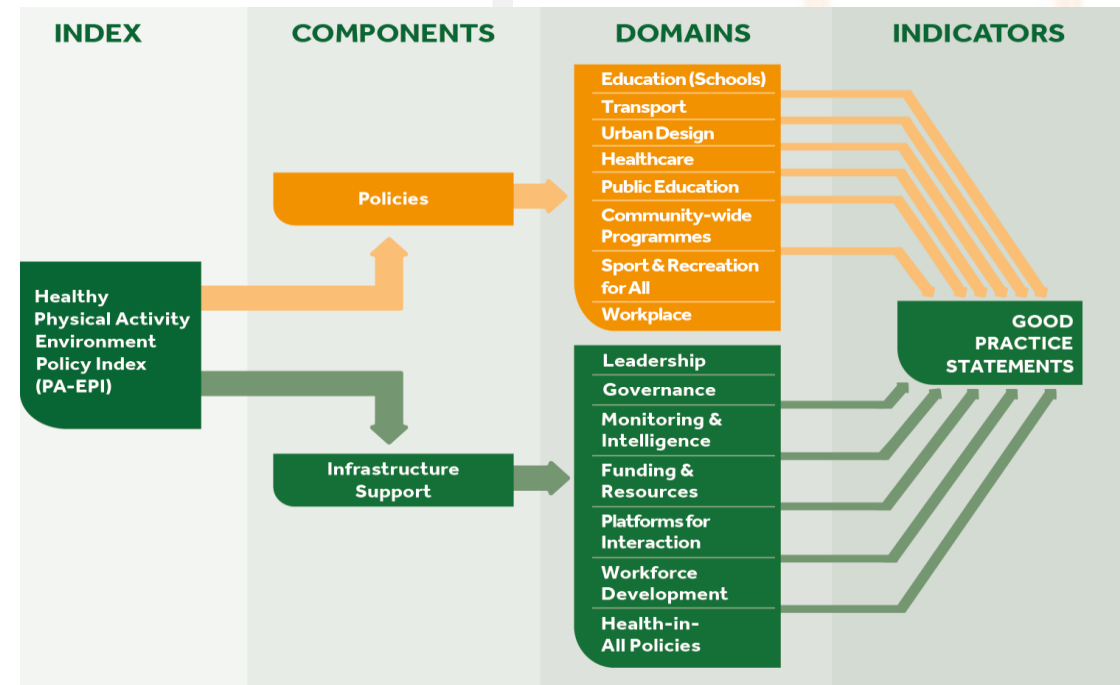
Country-specific adaptations might be necessary to account for differences in political culture, to achieve a maximum of stakeholder involvement to build policy capacity, and to ensure high-level political support for an adequate policy response.

PA-EPI Website / Expression of Interest



The Physical Activity Environment Policy Index (PA-EPI)

1. What is the PA-EPI? / Why is it Important?
2. How PA-EPI was developed
3. The resulting PA-EPI framework / Good Practice Statements
4. Applying the PA-EPI framework
5. Expression of Interest Form
6. Resources
7. Acknowledgment



<https://www.jpi-pen.eu/pa-epi.html>

TEAM SCIENCE

MULTIPLE
BENEFITS OF PA

Effective
Interventions,
Implementation &
Enabling Context

POLICY &
PRACTICE =
PROCESS

POLICY
PROGRAMME
ENVIRONMENT

TERMINOLOGY

SCIENTIFIC
EVIDENCE BUT
LIMITED

GREY LITERATURE
IS VITAL

CO-CREATION
TO GENERATE
DEMAND

References

- Lakerveld J, Woods C, Hebestreit A, Brenner H, Flechtner-Mors M, Harrington J, et al. **Advancing the evidence base for public policies impacting on dietary behaviour, physical activity and sedentary behaviour in Europe: The Policy Evaluation Network promoting a multidisciplinary approach.** Food Policy. 2020; 96. [Link](#)
- Kelly L, Volf K, Garcia E, Woods C. **Systematic Review Examining the Evidence for Impact of School Policies on Physical Activity.** PROSPERO. 2020; CRD42020156630. [Link](#)
- Forberger S, Luszczynska A, Nanna L, Meshkovska B, Łobczowska K, Scheller D, et al. **Analyzing Public Health Policy Implementation Processes – a Systematic Map.** OSF. 2020. [Link](#)
- Volf K, Kelly L, García Bengoechea E, Casey B, Gobis A, Lakerveld J, et al. **Policy Evaluation Network (PEN): Protocol for systematic literature review examining the evidence for impact of policies on physical activity.** HRB Open Res. 2020; 3:62. [Link](#)
- Woods CB, Volf K, Kelly L, Casey B, Gelius P, Messing S, et al. on behalf of the PEN consortium. **The evidence for the impact of policy on physical activity outcomes within the school setting: A systematic review.** J Sport Health Sci. 2021. [Link](#)
- Messing S, Forberger S, Woods C, Abu-Omar K and Gelius P. **Politik zur Bewegungsförderung in Deutschland (Policies to promote physical activity in Germany).** Bundesgesundheitsblatt. 2021. [Link](#)
- Gelius P, Messing S, Forberger S, Lakerveld J, Mansergh F, Wendel-Vos W, et al. **The added value of using the HEPA PAT for physical activity policy monitoring: A four-country comparison.** Health Res Policy Sys. 2021; 19:22. [Link](#)
- Garnica Rosas L, Mensink GBM, Finger J, Schienkiewitz A, Lange C, Do S, et al. on behalf of the PEN consortium. **Selection of key indicators for European policy monitoring and surveillance for dietary behaviour, physical activity and sedentary behaviour.** Int J Behav Nutr Phys Act. 2021; 18:48. [Link](#)
- Łobczowska K, Banik A, Romaniuk P, Forberger S, Kubiak T, Meshkovska B, et al. **Frameworks for implementation of policies promoting healthy nutrition and physically active lifestyle: systematic review.** Int J Behav Nutr Phys Act. 2022; 19:16. [Link](#)
- Łobczowska K, Banik A, Brukalo K, Forberger S, Kubiak T, Romaniuk P, et al. **Meta-review of implementation determinants for policies promoting healthy diet and physically active lifestyle: application of the Consolidated Framework for Implementation Research.** Implementation Science. 2022; 17:2. [Link](#)
- Woods, CB, Kelly, L., Volf, K., Gellius, P, Messing S. et al. on behalf of the PEN consortium. **The first steps to benchmarking PA policy: The development of a comprehensive physical activity environment policy index (PA-EPI)** European Journal of Public Health (In Press).
- Den Braver, N., Froberger, Sl., et al. on behalf of the PEN consortium. **The impact of mass media on physical activity: a review of reviews with a policy perspective** European Journal of Public Health (In Press).
- Volf, K., Kelly, L., Lakerveld, J., denBraver, N., et al. on behalf of the PEN consortium. **Evidence of the impact of Sport Policies on physical activity and sport participation: A systematic mixed studies review** Social Science & Medicine (In review)
- Zukowska, J., Gobis, A., Krajewski, P. et al. on behalf of the PEN consortium. **Which transport policies increase physical activity of the whole of society? A systematic review** Journal of Transport and Health (in review).

Acknowledgements

We would like to thank our Policy Evaluation Network (PEN colleagues), in particular, **Dr. Janas Harrington, Dr. Maartje Poleman, Dr. Anna Gobis**. We would also like to acknowledge the support of the **INFORMAS research group**, especially **Prof. Boyd Swinburn and Dr. Stefanie Vandevijvere**. We would also like to thank the academic experts and the policymaker experts who took part in our online consultation.

The PEN project is funded by the Joint Programming Initiative (JPI) “A Healthy Diet for a Healthy Life”, a research and innovation initiative of EU member states and associated countries. The funding agencies supporting this work are (in alphabetical order) Germany: Federal Ministry of Education and Research (BMBF); Ireland: Health Research Board (HRB); Italy: Ministry of Education, University and Research (MIUR); The Netherlands: The Netherlands Organisation for Health Research and Development (ZonMw); New Zealand: University of Auckland, School of Population Health; Norway: Research Council of Norway (RCN); and Poland: National Centre for Research and Development (NCBR). Additionally, the French partners acknowledge support through the Institute National de la Recherche Agronomique (INRA).



<https://www.jpi-pen.eu/pa-epi.html>