

# HEAT TOOL TRAINING – NICK CAVILL

May 17, 2018

Turku, Finland



EUROPEAN UNION  
European Regional Development Fund

# Health Economic Assessment Tool (HEAT) for walking and cycling



World Health Organization  
Region of Europe

Health economic assessment tool (HEAT) for walking and for cycling

Methods and user guide on physical activity, air pollution, injuries and carbon impact assessments



Weltgesundheitsorganisation  
Region Europa

Gesundheitsökonomisches Bewertungsinstrument (HEAT) für Gehen und für Radfahren

Methodik und Benutzeranleitung für Bewertungen der Auswirkungen von körperlicher Betätigung, Luftverschmutzung, Verletzungen und Kohlenstoffemissionen



Organisation mondiale de la Santé  
Région Europe

Outil d'évaluation économique des effets sanitaires (HEAT) liés à la pratique du vélo et de la marche

Méthodologie et guide de l'utilisateur sur l'évaluation de l'activité physique, de la pollution atmosphérique, des traumatismes et de l'impact carbone



# A collaborative project



Federal Ministry for the  
Environment, Nature Conservation  
and Nuclear Safety



MINISTERIUM  
FÜR EIN  
LEBENSWERTES  
ÖSTERREICH



Schweizerische Eidgenossenschaft  
Confédération suisse  
Confederazione Svizzera  
Confederaziun svizra



PHYSICAL ACTIVITY THROUGH  
SUSTAINABLE TRANSPORT APPROACHES

**THE PEP**

Transport, Health  
and Environment  
Pan-European Programme



UNECE



World Health  
Organization  
Europe

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Software development and design: Tomasz Szreniawski, Alberto Castro Fernandez, Ali Abbas, Vicki Copley, Duy Dao

## Expertise involved:

**Epidemiology /  
Public Health**

**Environmental  
Science**

**Air pollution**

**Health  
Economics**

**Transport  
Economics**

**Transport  
Planning**

**Policy making**

**Practice /  
Advocacy**

# For whom was HEAT originally developed?



## 53 Member States:

- Civil servants
- Staff supporting policy makers,
- Officers/experts locally responsible for transport and urban planning
- Large differences in:
  - capacities
  - data availability

# HEAT “core principles”

- Scientific robustness
- Usability
  - Minimal data input requirements
  - Availability of default values
  - Clarity of prompts/questions
  - Design and flow of the tool
- Transparency
  - Approach and assumptions
- Conservative
- Adaptable
- Modular



# What is the HEAT?

- Online tool [www.heatwalkingcycling.org](http://www.heatwalkingcycling.org)
- Designed for transport planners
- Economic assessment of health benefits of walking or cycling
- Effects on mortality 'only'
- Evidence-based
- Transparent
- Adaptable

## *HEAT answers the question:*

If  $x$  people walk/cycle an amount of  $y$  on most days, what is the economic value of the health benefits that occur as a result of the reduction in mortality due to their physical activity?

## *HEAT answers the question:*

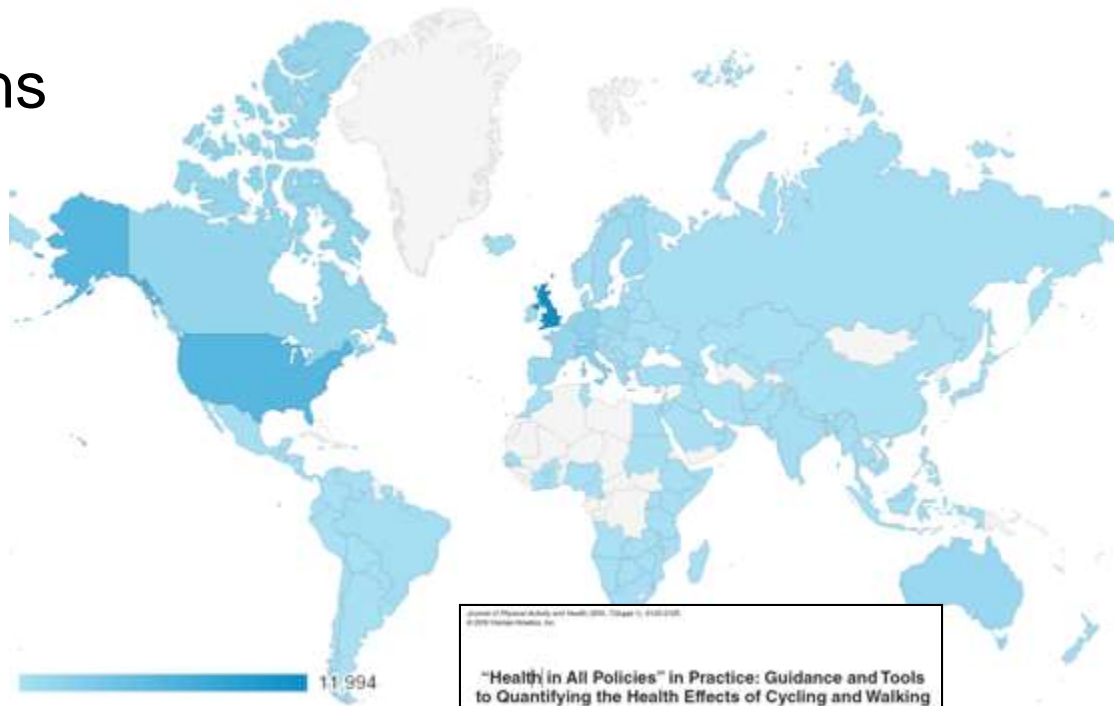
If  $x$  people walk/cycle an amount of  $y$  on most days, what is the economic value of the health benefits that occur as a result of the reduction in mortality due to their physical activity?

New HEAT options - How much do **air pollution** or **crashes** affect these results? - What are the effects on the emissions of **carbon**?



# Worldwide use

- Project website visited about 40,000 times by over 26,000 visitors since 2011
- Variety of applications



1. United Kingdom
2. United States
3. Italy
4. Germany
5. Canada
6. France
7. Australia
8. Finland
9. Poland
0. Spain
1. Belgium
2. Sweden
3. Netherlands
4. Switzerland
5. Denmark

*Journal of Physical Activity and Health*, 2010, 7(4): 410-418.  
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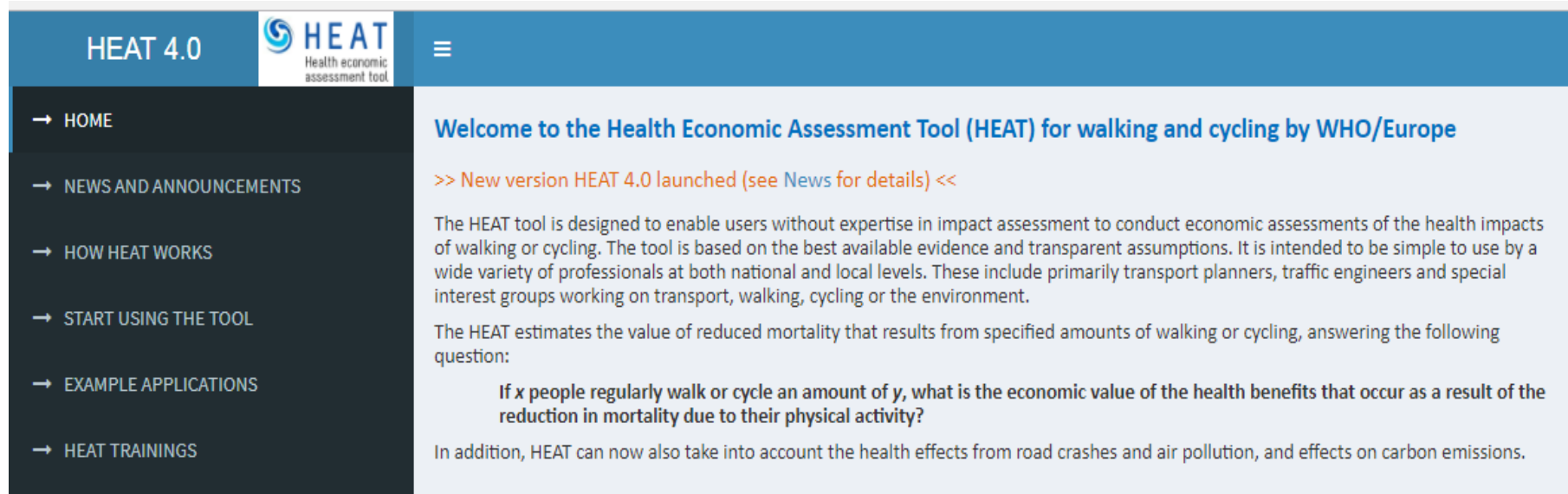
**“Health in All Policies” in Practice: Guidance and Tools to Quantifying the Health Effects of Cycling and Walking**

Sorja Kahveer, Francesca Racioppi, Nick Cavill, Harry Rutter, and Pekka Oja

**Background:** There is growing interest in “Health in All Policies” approaches, aiming at promoting health through policies which are under the control of nonhealth sectors. While economic appraisal is an established practice in transport planning, health effects are rarely taken into account. An international project was carried out to develop guidance and tools for practitioners for quantifying the health effects of cycling and walking, supporting their full appraisal. **Development process:** A systematic review of existing approaches was carried out. Then, the products were developed with an international expert panel through an evidence-informed building process. **Products and applications:** Methodological guidance was developed which addresses the most challenging practitioners’ concerns in the quantification of health effects from cycling and walking. A “Health Economic Assessment Tool (HEAT) for cycling” was developed which is being used in several countries. **Conclusions:** There is a need for a more consistent approach to the quantification of health benefits from cycling and walking. This project is providing guidance and an illustrative tool for cycling for practical applications. Results show that substantial savings can be expected. Such tools illustrate the importance of considering health in transport policy and infrastructure planning, putting “Health in All Policies” into practice.

**Keywords:** economic assessment, transport, physical activity, Europe

# [www.heatwalkingcycling.org](http://www.heatwalkingcycling.org)



The screenshot shows the homepage of the HEAT 4.0 website. The header is dark blue with the text 'HEAT 4.0' and the logo 'HEAT Health economic assessment tool'. A navigation menu on the left lists: HOME, NEWS AND ANNOUNCEMENTS, HOW HEAT WORKS, START USING THE TOOL, EXAMPLE APPLICATIONS, and HEAT TRAININGS. The main content area has a light blue background and features a welcome message, a news announcement about HEAT 4.0, a description of the tool's purpose, a key question it addresses, and a note about new features like road crashes and air pollution.

HEAT 4.0

HEAT  
Health economic  
assessment tool

→ HOME

→ NEWS AND ANNOUNCEMENTS

→ HOW HEAT WORKS

→ START USING THE TOOL

→ EXAMPLE APPLICATIONS

→ HEAT TRAININGS

## Welcome to the Health Economic Assessment Tool (HEAT) for walking and cycling by WHO/Europe

>> [New version HEAT 4.0 launched \(see News for details\)](#) <<

The HEAT tool is designed to enable users without expertise in impact assessment to conduct economic assessments of the health impacts of walking or cycling. The tool is based on the best available evidence and transparent assumptions. It is intended to be simple to use by a wide variety of professionals at both national and local levels. These include primarily transport planners, traffic engineers and special interest groups working on transport, walking, cycling or the environment.

The HEAT estimates the value of reduced mortality that results from specified amounts of walking or cycling, answering the following question:

**If  $x$  people regularly walk or cycle an amount of  $y$ , what is the economic value of the health benefits that occur as a result of the reduction in mortality due to their physical activity?**

In addition, HEAT can now also take into account the health effects from road crashes and air pollution, and effects on carbon emissions.

# Applications

# Parnu, Estonia



- Valuation of use of new cycle routes
- Assumed 230 cyclists per day, 50% of whom were new to the route
- Average annual benefit of €112,000
- Results used to secure funding to build a new 4km pathway to create a complete circular route
- Results also supporting the development of a master plan, and a strategic environmental assessment

# Glasgow, UK

- Centre for Population Health
- Valued existing levels of cycling in Glasgow
- Strong data-led approach
  - Travel to work from 2001 census
  - Annual cordon counts
- Mean annual benefit €3.5-€4.6m pa
- Extensive media coverage and political interest



# Boston, USA

- Boston Metropolitan Area Planning Council used HEAT to support a HIA of proposals to increase fares and cut services on public transport
- Valued decreases in regular walking due to the proposals
- 9-14 additional deaths per year; €57m-€89m per year
- Important addition to policy analysis



# Modena, Italy

- Valued future increases in cycling on new path
- Part of PHAN project
- Anticipated increase in cyclists of 1,091
- Annual benefit €414,000.
- Results of HEAT were used to help secure agreement for the new cycling path





# Palma, Spain

- The Ministry of Health valued potential increases in regular walking
- Mobility survey
- Annual benefits: €32.1 million



- HEAT calculations were used to inform policy makers and technicians about the health and economic benefits of walking and to promote the project.

# Kuopio, Finland

- Valued cycling among city employees
- Data from online survey
- Average annual benefit €396,000- €7.6m
- Results used to help secure agreement for the promotion of commuter cycling, especially during winter



Table 2. Benefits and Costs of Cycling Demonstration Towns

<b>Impact</b>	<b>Estimate of benefits and costs over 10 year period (£m, 2007 prices and values)</b>
Reduced mortality	Benefit of £45 million
Decongestion	Benefit of £7 million
Reduced absenteeism	Benefit of £1-3 million
Amenity	Benefit of £9 million
Accidents	Disbenefit of £0-£15 million
<b>TOTAL BENEFITS</b>	<b>£47-64 million</b>
Costs	£18 million
Benefit-Cost Ratio	2.6 – 3.5

Physical activity accounted for >70% of benefits

# Conclusions

- Multiple applications
- Extremely positive feedback
- Much use for advocacy; some evidence of policy input
- Challenges:
  - Finding data
  - Interpreting findings
  - Persuading policymakers
- More applications needed!



“I thought of that while riding my bicycle.”

Albert Einstein,  
on the theory of  
relativity