



University of Zurich

Institute of Social and Preventive Medicine

Economic Health Benefits of the Benefits of Walking or Cycling Associated with New or Existing Walking or Cycling Infrastructure: Results from HEAT (Health Economic Assessment Tool) Studies in Europe and the US

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Thanks to: Nick Cavill, Dushy Clarke, Hywell Dinsdale, Ric Fordham, Charlie Foster, Thomas Götschi, Paul Kelly, Francesca Racioppi, Harry Rutter, Pekka Oja

Symposium: Importing and Exporting Intervention Strategies: Tools and Initiatives for Global PA. ACSM Annual Meeting and World Congress on Exercise is Medicine, San Francisco, 30.05.2012

Comparison of inhabitants' physical activity behaviour in Zermatt (Community 1), Crans-Montana und Verbier

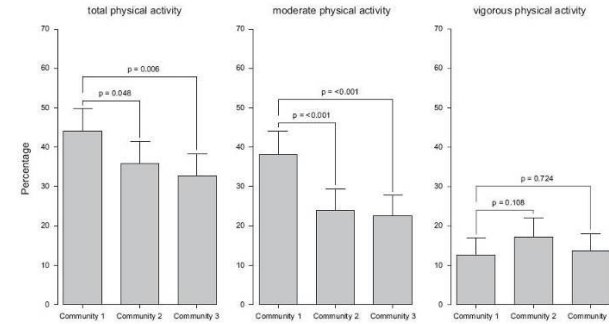


Fig. 1. Age- and sex-adjusted prevalence of sufficient total, moderate and vigorous physical activity by community.

Thommen Dombois O, Braun-Fahrlander Ch, Martin-Diener E. Comparison of adult physical activity levels in three Swiss alpine communities with varying access to motorized transportation. Health & Place, 2007; 13(3): 757-66

4. Primary health care systems

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

3. Urban design regulations and infrastructure

2. Transport policies and systems

1. „Whole-of-school“ programmes

5. Public education

6. Integrated community-wide programmes

7. „Sport for all“ systems and programmes

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

GAPA, a council of the International Society for Physical Activity and Health ISPAH
www.globalpa.org.uk



Conference and Network Meeting of HEPA Europe Amsterdam, 10.-13.10.2011



In conjunction with the annual meeting of Agita Mundo, the Global Network for Physical Activity Promotion

Co-sponsored by World Health Organization, European Union, City of Amsterdam, ISPAH



World Health Organization
REGIONAL OFFICE FOR Europe



HEPA Europe
European network for the promotion of health-enhancing physical activity

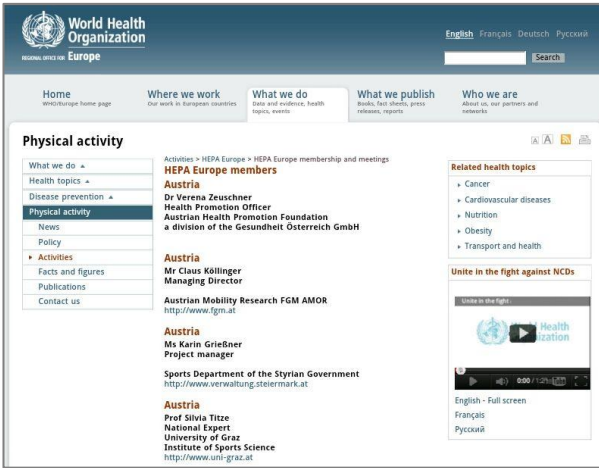
Seventh annual meeting of HEPA Europe
European network for the promotion of health-enhancing physical activity

Report of a WHO meeting
12-13 October 2011
Amsterdam, Netherlands



Activity reports and work programmes in the reports of the annual meetings

www.euro.who.int/hepa



The screenshot shows the WHO Europe website with a navigation menu and a main content area. The 'Physical activity' page is highlighted in the left sidebar. The main content area lists HEPA Europe members and activities for Austria, including Dr Verena Zeuschner, Mr Claus Köllinger, Ms Karin Griebner, and Prof Silvia Tizze.

www.euro.who.int/hepa

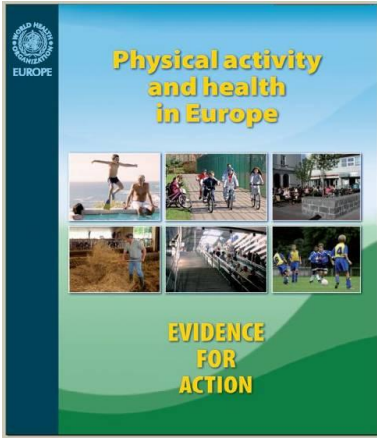


COLLABORATION BETWEEN THE HEALTH AND TRANSPORT SECTORS IN PROMOTING PHYSICAL ACTIVITY: EXAMPLES FROM EUROPEAN COUNTRIES

WHO EUROPE

WHO Regional Office for Europe


www.euro.who.int/hepa



Physical activity and health in Europe

EVIDENCE FOR ACTION

1. Why is physical activity important for health?
2. What is known about current levels of physical activity and inactivity?
3. What factors and conditions influence physical activity?
4. What can the health sector and others do to increase physical activity?



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Cavill N, Racioppi F, Kahlmeier S. Physical Activity and Health in Europe. Evidence for Action. Copenhagen: WHO, 2006.

Promotion of walking and cycling for different sectors

Goals	Sectors
Reduce emissions of: -air pollutants -greenhouse gases -noise	Environment Health
Reduce congestion	Transport
Reduce road traffic injuries	Transport, Health
Reduce investments in infrastructure for more cars	Transport
Improve accessibility and quality of urban life	Transport, Health
Complement technical improvements to vehicles / fuels	Transport
Increase physical activity	Health
Promote tourism	Tourism / leisure industry
Creation of new jobs	Economy, welfare, labour

Role of the health sector

While action on physical activity often lies in the domain of professionals in sectors such as urban planning, transport and sport, the health sector can make a unique and important contribution. In particular, it should provide leadership or stewardship for the subject of physical activity. Because it is such a multidisciplinary issue, the danger is that it will fall between the cracks, with no one sector taking responsibility. The health sector is best placed to forge the right alliances and to take forward effective action.

Cavill N, Racioppi F, Kahlmeier S. Physical Activity and Health in Europe. Evidence for Action. Copenhagen: WHO, 2006. www.euro.who.int/hepa

Role of the health sector

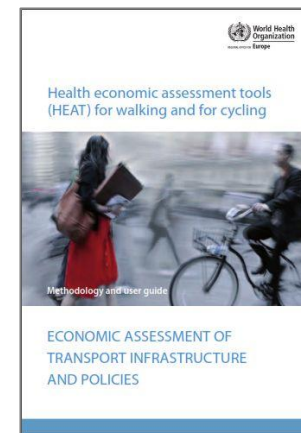
In addition to this broad leadership role, the health sector can take the lead in six areas:

- making physical activity part of primary prevention;
- documenting effective interventions and disseminating research;
- demonstrating the economic benefit of investing in physical activity;
- connecting relevant policies;
- advocacy and exchange of information;
- leading by example.

Cavill N, Racioppi F, Kahlmeier S. Physical Activity and Health in Europe. Evidence for Action. Copenhagen: WHO, 2006. www.euro.who.int/hepa

The approach of HEAT Cycling and Walking

- addressed to transport planners and decision makers
- easy, practical tools
- quantifying the health benefits of reduced mortality associated with regular physical activity due to cycling or walking



Systematic reviews on effects of cycling and walking

•Cycling

- **Longitudinal study in Copenhagen** (Andersen et al. *Arch Intern Med.* 2000)
 - 3h bike commuting per week*
 - RR 0.72 for total mortality

•Walking

- **Meta-analysis of 9 longitudinal studies** (update of Hamer et al. *Br J Sports Med.* 2008)
 - 29 mins. walking per day*
 - RR 0.78 for total mortality

* Corrected for co-variables including leisure time physical activity

The development of HEAT Cycling and Walking

- Systematic reviews of the literature
- Development of options and guidance for more harmonized methodology
- Development and test of draft tools
- Consensus meetings with international advisory groups



- Development of final tools:
 - guidance document
 - systematic review
 - online tool HEAT walking and cycling
 - publication on applications
 - booklet (->)



HEAT
Health Economic Assessment Tool for Cycling and for Walking

HEAT - Introduction
Welcome to the WHO/Europe Health Economic Assessment Tool (HEAT).
This tool is designed to help you conduct an economic assessment of the health benefits of walking or cycling by estimating the value of reduced mortality that results from specified amounts of walking or cycling.

The tool can be used in a number of different situations, for example:

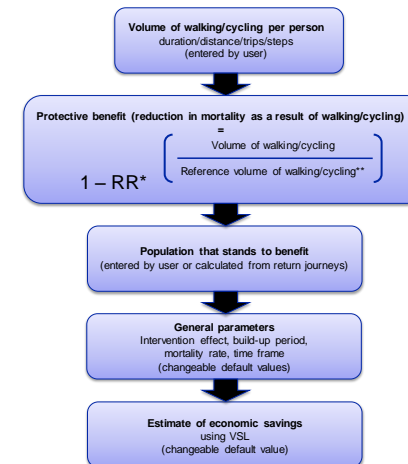
- when planning a new piece of cycling or walking infrastructure. HEAT attaches a value to the estimated level of cycling or walking when the new infrastructure is in place. This can be compared to the costs of implementing different interventions to produce a benefit-cost ratio (and help to make the case for investment)
- to value the reduced mortality from past and/or current levels of cycling or walking, such as in a specific workplace, across a city or in a country. It can also be used to illustrate economic consequences from a potential future change in levels of cycling or walking.
- to provide input into more comprehensive economic appraisal exercises, or prospective health impact assessments. For example, to estimate the mortality benefits from achieving targets to increase cycling or walking, or from the results of an intervention project.

More information is available at <http://www.euro.who.int/HEAT>

- Start using HEAT for walking
- Start using HEAT for cycling

www.euro.who.int/HEAT

Basic functioning of HEAT



*RR = relative risk of death in underlying studies (walking: 0.78; cycling: 0.72)
** Volume of cycling per person calculated based on 3 hours/week for an estimated 36 weeks/year at an estimated speed of 14 km/hour in Copenhagen. Volume of walking based on 29 minutes/day at 4.8 km/hour.

HEAT for Cycling illustrated in its former Excel version

The screenshot shows the 'Health Economic Assessment Tool for Cycling' spreadsheet. It is organized into three main steps:

- Step 1: enter year data (all users must fill in the red fields)**: Includes fields for 'Number of trips per day' (10,000) and 'Mean trip length (km)' (4).
- Step 2: check the parameters**: Includes fields for 'Mean number of days cycled per year' (124), 'Proportion of trips that are one part of a return journey' (0.9), 'Proportion undertaken by people who would not otherwise cycle' (0.5), 'Mean proportion of working age population who die each year' (0.005847), 'Value of life (in Euros)' (EUR 1'500'000), and 'Discount rate' (5.0%).
- Step 3: read the economic savings resulting from reduced mortality**: Shows calculated values for 'Maximum annual benefit' (EUR 7'287'900), 'Average annual benefit' (EUR 7'287'900), and 'Population parameters used to calculate results' (2750 people stand to benefit).

www.euro.who.int/hepa

HEAT for Cycling illustrated in its former Excel version

Step 1: enter your data (all users must fill in the red fields)

Number of trips per day	10'000
Mean trip length (km)	4

Step 2: check the parameters

Mean number of days cycled per year	124
Proportion of trips that are one part of a return journey (or 'round trip')	0.9
Proportion undertaken by people who would not otherwise cycle	0.5
Mean proportion of working age population who die each year	0.005847
Value of life (in Euros)	EUR 1'500'000
Discount rate	5.0%

Population parameters used to calculate results

Population that stands to benefit	2750
Mean proportion of working age population who die each year	0.005847
Expected deaths in the local population	16.08
Protective benefit, according to actual distance traveled	0.17
Lives saved	2.81

HEAT Applications

- Since May 2011:
 - over 2.500 visits
 - from almost 60 countries
- Part of official transport assessment toolbox:
 - in 2 countries (Sweden, England)
 - under consideration in 1 more (France)
- Applied in project evaluations, status quo and scenario analyses

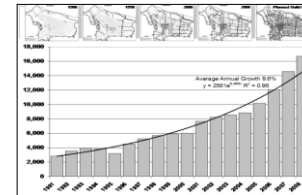


www.euro.who.int/HEAT



Example 1: Portland, Orgegon, US

- Increase of cycling 1991-2008: 400%
- Infrastructure investments 1991-2008: \$57 Mio.
- New bike trips per day (average): 9000
- Lives saved per year: 6
- **Mean annual benefit / year: \$26 Mio.**



Götschi T. Costs and Benefits of Bicycling in Portland, Oregon. JPAH 2011, vol. 8, supplement. Jan: S49 – S58.

Example 2: Austria

National goal:

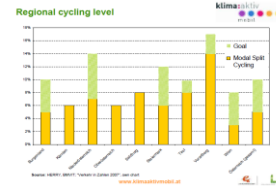
doubling of the cycling modal share from 5% (2006) to 10% (2015)

- Modal share 2010: 7%
- Average distance: 2 km
- Lives saved: 824
- Mean annual benefit / yr.: € 812 Mio.

Investments (2006-2010):

- €20 Mio. of direct project funding
- ca. €95 Mio. total investments

<http://www.klimaaktiv.at/article/archive/11995/>



Example 3: North-East Active Travel Group and Sustrans, UK

• Modelling of potential value of investment in active travel

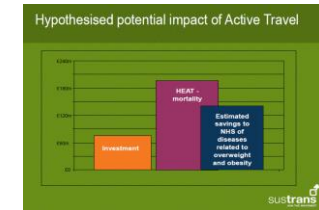
- reducing obesity
- **increasing physical activity – HEAT**
- other non-health related savings

• Presented at seminar with senior health and transport professionals

• Demonstrating potential economic benefits of active travel interventions catalyzed strong reaction

• Agreement to fund project on active school travel

• Subsequently, £5mio. of investment in sustainable transport from Local Sustainable Transport Fund secured



Journal of Physical Activity and Health, 2010, 7(Suppl 1), S120-S125
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“Health in All Policies” in Practice: Guidance and Tools to Quantifying the Health Effects of Cycling and Walking

American journal of preventive medicine – in review

Developing a tool for estimating the economic impact of reduced mortality due to increased cycling: the Health Economic Assessment Tool (HEAT)

Journal of Urban Health – in press

Author: *The health benefits outweigh the costs of mass recreational programs for Ciclorrutas program.*

ABSTRACT

Our promising public health interventions for promoting physical activity. The Ciclorrutas is a regular nonstructural-community based program in a closed for motorized transport, allowing exclusive access to individuals and physical activity. The objective of this study was to conduct an analysis of physical activity of the Ciclorrutas program of Bogota and Mexico City in Mexico and San Francisco in the United States. The dis-

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Land Use and Trans

Costs and Benefits of Bicycling in Portland, O

Thomas Gotto

Background: Promoting bicycling has great potential to improve opportunity exists with regard to the annual and effectiveness objective of this study is to assess how costs of Portland’s year health and other benefits. **Methods:** Costs of investment plan benefits, health care cost savings and value of statistical life cost health and other benefits. **Results:** Costs of investment plan benefits, health care cost savings and value of statistical life cost health and other benefits. **Conclusions:** This first of its kind cost-benefit analysis of investment in bicycling in a US city shows that such efforts are cost-effective, even when only a limited selection of benefits is considered.

HEAT Lessons

• HEAT is an effective public health approach

- Focus on levers: benefit-cost ratio is king in transport sector
- Fosters action outside as well as within the health sector
- Relevant for working upstream as well as for local action

• HEAT is an effective advocacy tool

- Brings active mobility into the horizon of transport and urban planners

• Strengths:

- Evidence-based
- Conservative
- Transparent
- Adaptable
- “Do once and share”
- “Plug in” to comprehensive economic valuations studies of transport investments

HEAT challenges

- Necessary input data more often than expected not available
 - more guidance / new tools for monitoring walking & cycling
- Requires additional tools to produce comprehensive assessments of transport and urban planning initiatives
- Savings do not occur in transport sector
- Requires further development for:
 - inclusion of other health effects (mortality only)
 - other outcome metrics more appealing to other audiences (e.g. QALYs, DALYs)
 - integration with other exposures (e.g. injuries, air pollution)

Core group:

Nick Cavill, Dusty Clarke, Hywell Dinsdale, Ric Fordham, Charlie Foster, Thomas Götschi, Sonja Kahlmeier, Paul Kelly, Francesca Racioppi, Harry Rutter, Pekka Oja

Contributors:

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HEPA Europe: European network for the promotion of health-enhancing physical activity
THE PEP: Pan-European Programme Transport, Health and Environment

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University of Graz, Austria
Natural England
Swiss Office of Public Health
European Commission / DG Sanco

www.euro.who.int/HEAT



Announcing the 8th Annual Meeting and Symposium of
HEPA Europe in Cardiff, Wales.

Getting to the grassroots: Using the 'green'
environment to promote physical activity.

Date: 26th – 27th September 2012.

Symposium venue: The Millenium Stadium,
Cardiff.

Meeting Venue: Cardiff University (tbc)

Hosts: The Physical Activity & Nutrition Networks
for Wales (Public Health Wales).

