



***Cycling and walking:
is it worth it?***

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public health consultancy

“A cynic is a man
who knows the
price of everything
but the value of
nothing”



“If a medication existed that decreased the risks of chronic disease to a comparable extent, it would undoubtedly become one of the most widely prescribed drugs within the NHS.”

Prof Sir Liam Donaldson

Chief Medical Officer's annual report

2010

Cost estimates

- ◆ Physical inactivity can be estimated to cost a country about €150-300 per citizen per year

RESEARCH REPORT

The burden of physical activity-related ill health in the UK

Steven Allender, Charlie Foster, Peter Scarborough, Mike Rayner

J Epidemiol Community Health 2007;**61**:344–348. doi: 10.1136/jech.2006.050807

See end of article for
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Background: Despite evidence that physical inactivity is a risk factor for a number of diseases, only a third of men and a quarter of women are meeting government targets for physical activity. This paper provides an estimate of the economic and health burden of disease related to physical inactivity in the UK. These estimates are examined in relation to current UK government policy on physical activity.

Methods: Information from the World Health Organisation global burden of disease project was used to calculate the mortality and morbidity costs of physical inactivity in the UK. Diseases attributable to physical inactivity included ischaemic heart disease, ischaemic stroke, breast cancer, colon/rectum cancer and diabetes mellitus. Population attributable fractions for physical inactivity for each disease were applied to the UK Health Service cost data to estimate the financial cost.

Results: Physical inactivity was directly responsible for 3% of disability adjusted life years lost in the UK in 2002. The estimated direct cost to the National Health Service is £1.06 billion.

Conclusion: There is a considerable public health burden due to physical inactivity in the UK. Accurately establishing the financial cost of physical inactivity and other risk factors should be the first step in a developing national public health strategy.

Economic analyses

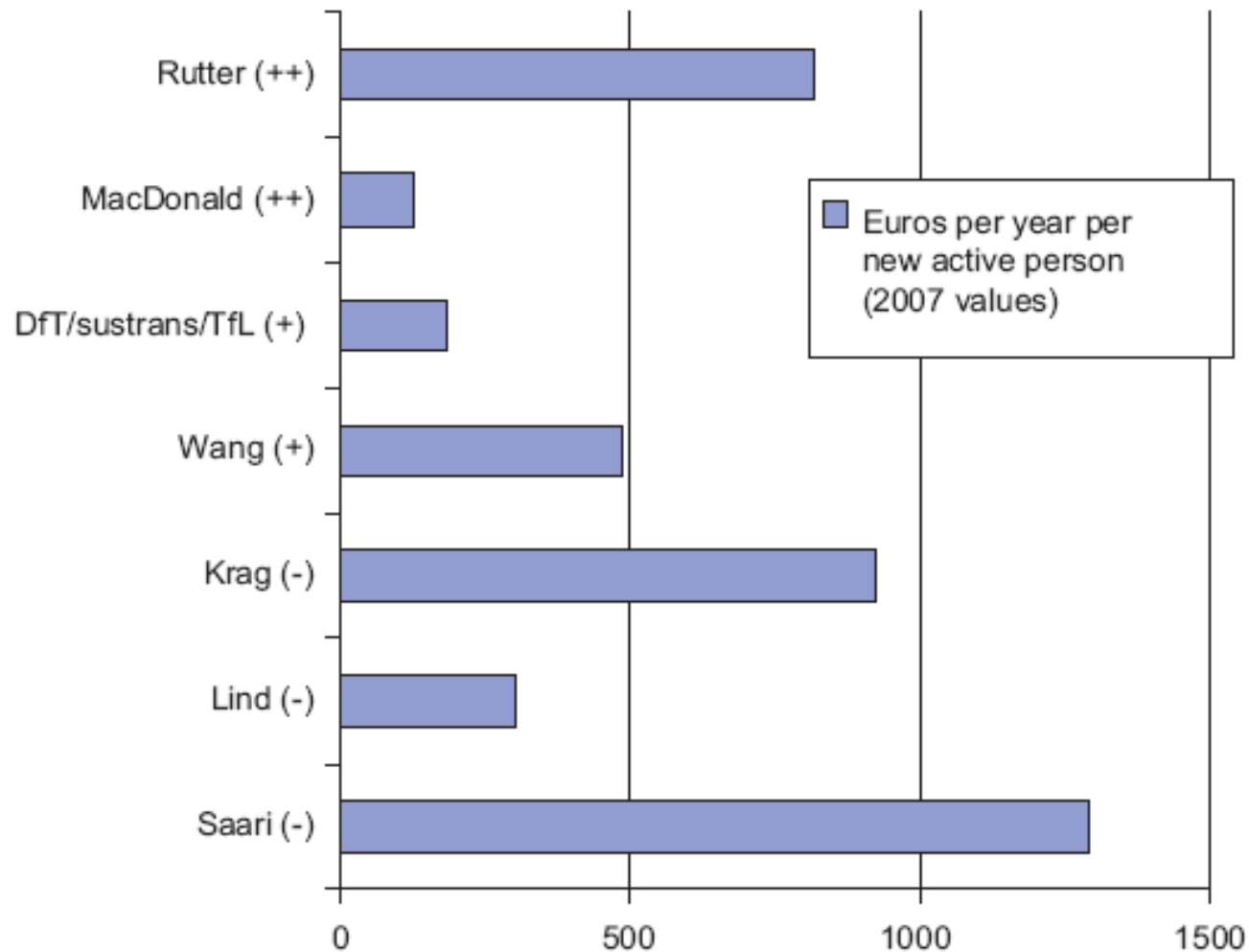
The background of the slide features a blue-tinted image of a ten-dollar bill and several coins. The bill is partially visible, showing the words 'TEN' and 'THE SUM OF'. The coins are stacked, with the top one being a large, dark coin with a circular design.

- ◆ Cost effectiveness
- ◆ Cost-utility analysis
- ◆ Cost-benefit analysis

Cost effectiveness

- ◆ Intervention has to be effective
- ◆ Expenditure (cost) per unit of outcome (effect)
- ◆ Eg cost per person active
- ◆ Cost per new walker
- ◆ Not cost per session; cost per attendance

Value of a new cyclist: selected studies



Economic analyses of transport infrastructure and policies including health effects related to cycling and walking: A systematic review[☆]

Nick Cavill*, Sonja Kahlmeier, Harry Rutter, Francesca Racioppi, Pekka Oja



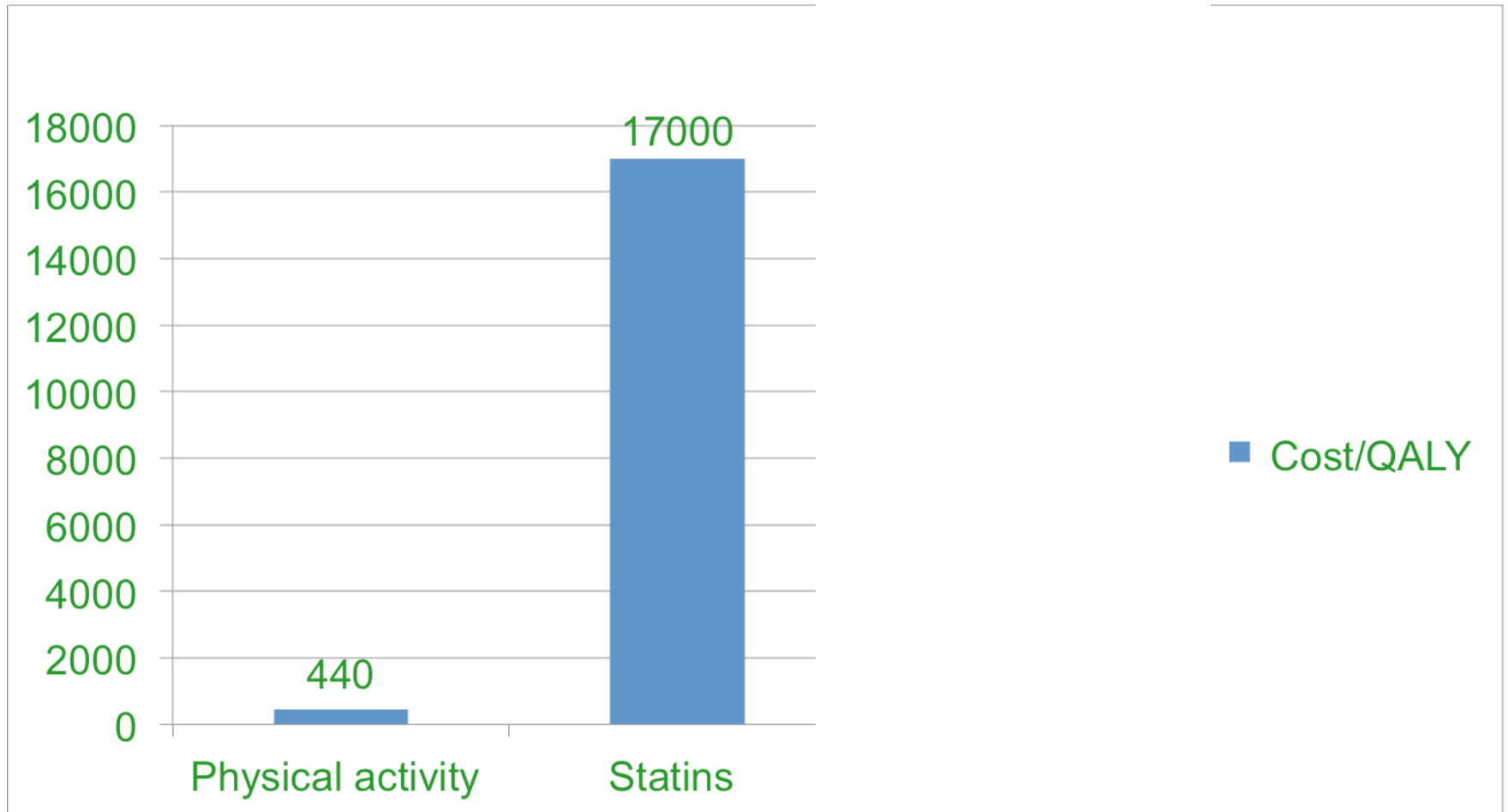
Cost utility analysis

- ◆ Sub-set of cost-effectiveness
- ◆ Common in health economics
- ◆ Ratio between cost of intervention and the value of the health it produces
- ◆ Measured in terms of years of full healthy life lived by the beneficiaries
- ◆ Cost per Quality-Adjusted Life Year QALY

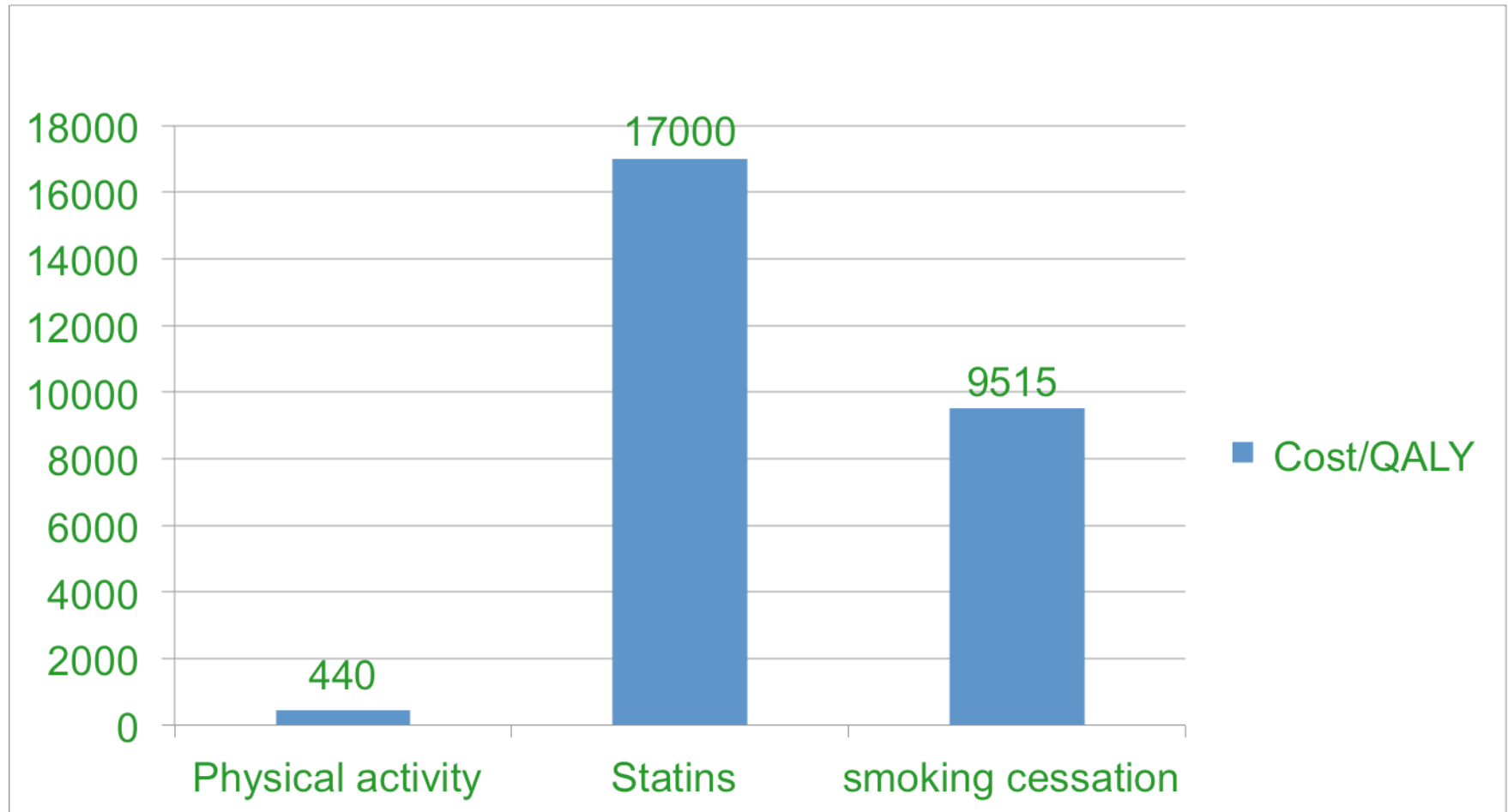
NICE: comparing interventions



NICE: comparing interventions



NICE: comparing interventions



Cost benefit analysis

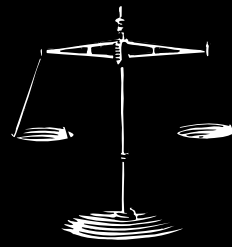
- ◆ Compares costs and benefits
- ◆ Direct comparison
- ◆ Benefits need to be valued
- ◆ Very common in transport economics
- ◆ Benefit:cost ratio (BCR)
- ◆ $BCR > 1$ makes it worthwhile
- ◆ Cost of life (cost of death)





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





Costs	Benefits
Construction	Congestion
Maintenance	Journey ambience
Inconvenience	CO2
Casualties	Casualties
Environmental	Mortality
	Absenteeism
	Morbidity

What is the HEAT?

- ◆ Online tool www.heatwalkingcycling.org
- ◆ Economic assessment of health benefits of walking or cycling
- ◆ Reduced mortality 'only' (though this is 70% + of total benefits)

Collaborative project

Core group

Harry Rutter, Sonja Kahlmeier, Nick Cavill, Hywell Dinsdale, Thomas Götschi, Charlie Foster, Paul Kelly, Dushy Clarke, Pekka Oja, Richard Fordham, Dave Stone, Francesca Racioppi

Contributors

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THE PEP

United Nations Economic Commission for Europe (UNECE)
World Health Organization Regional Office for Europe (WHO / Europe)

*Transport, Health and Environment
Pan-European Programme*



WHO / Europe



United Nations



HEAT approach

- ◆ Practical tool designed for transport planners
- ◆ Recognises importance of economic analysis in transport: benefit-cost ratio is king
- ◆ Evidence-based
- ◆ Transparent
- ◆ Adaptable
- ◆ ‘Do once and share’

“for a given volume of walking or cycling within a defined population what is the economic value of the health benefits?”

Applications

- ◆ Project website visited over 13,000 times;
- ◆ 129,000 page views
- ◆ Modelling; interventions; ‘steady state’
- ◆ Method adopted by UK and Austrian governments

Journal of Physical Activity and Health, 2010, 7(Suppl 1), S120-S125
© 2010 Human Kinetics, Inc.

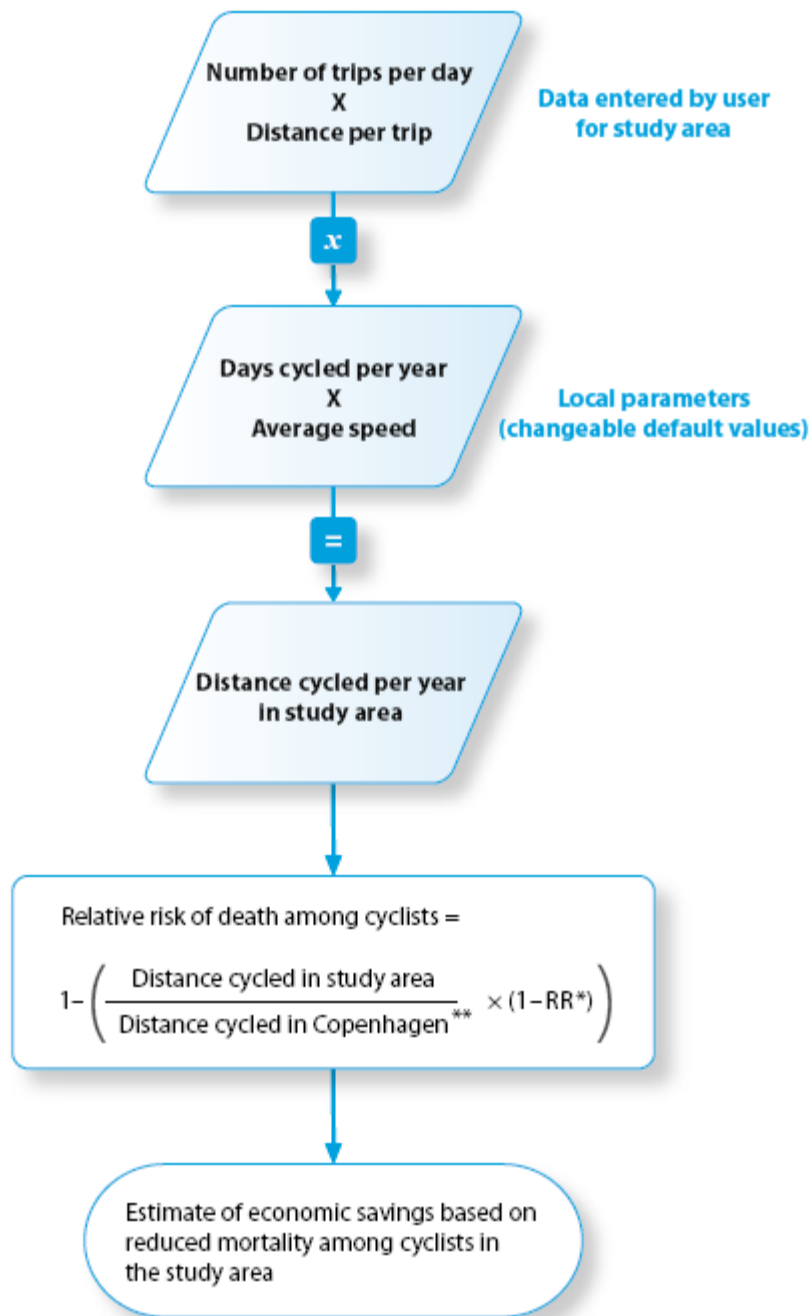
“Health in All Policies” in Practice: Guidance and Tools to Quantifying the Health Effects of Cycling and Walking

Sonja Kahlmeier, 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 extensive consensus finding process. **Products and applications:** Methodological guidance was developed which addresses the main challenges practitioners encounter 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 application. 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





What can I use it for?

- ◆ Planning new projects
 - ◆ Value the estimated use of the scheme
- ◆ Evaluating past projects
 - ◆ Value of health benefits of increased use
- ◆ Modelling
 - ◆ Projections of future levels
- ◆ Assessments of current use
 - ◆ Eg how much is walking or cycling worth in my city?

What data do I need to start?

- ◆ Number of people affected
- ◆ Data on levels of walking/cycling
- ◆ Average duration or distance walked/cycled

Read the user guide!

- ◆ http://www.euro.who.int/__data/assets/pdf_file/0003/155631/E96097.pdf
- ◆ Link on www.heatwalkingcycling.org
- ◆ Background
- ◆ Methods
- ◆ Assumptions
- ◆ Tips



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assessment](#)[Previous Assessments](#)[Acknowledgement
HEAT for walking](#)[Acknowledgement
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Scope for the use of HEAT Walking

1) This tool is designed for habitual behaviour, such as walking for commuting, or regular leisure time activities. Do not use it for the evaluation of one-day events or competitions (such as walking days etc.), since they are unlikely to reflect long-term average activity behaviour. HEAT is meant to be applied for walking of at least moderate pace (i.e. about 3 miles/ hour or 4.8km/hour). Walking at this speed requires an energy expenditure that is considered to be necessary for health benefits.*

2) HEAT is designed for populations aged approximately 20-74 years. If the age distribution in the assessed population is significantly different (much younger, much older) HEAT may over or under estimate the resulting benefits. In such cases, it is important to adjust the mortality rate which depends strongly on the age of the assessed population. However, HEAT should not be applied to populations of children, very young adults, or older people, since the relative risk used by HEAT does not include these age groups.

3) Studies on the benefits of physical activity for decreasing premature mortality have typically been conducted in the general population where very high levels of physical activity are uncommon. Thus, the exact shape of the dose-response curve is uncertain above physical activity levels that are the equivalent of perhaps 2 hours of brisk walking per day. Therefore, the tool may not be suited for very high levels of occupational walking (e.g. mail personnel) which go beyond activity levels common in an average adult population.

If you have comments on the HEAT please email to
info@heatwalkingcycling.org

Next step

- Start new assessment

More information

[Acknowledgements](#)[show...](#)

More information on the
relative risk estimate
used in HEAT for
walking

[more...](#)



HEAT for walking

Q1: Single or before /
after

HEAT > for walking > Q1: Single or before / after

HEAT for walking

Q1: Your data: amount of walking from a single point in time, or before and after an intervention

- Single
- Before and after

Next step

- Next question
- Back

Hints & Tips

If you select 'Single', you will be asked to enter data on levels of walking only once.

If you select 'Before and after', the tool will prompt you to enter two sets of walking data.

The difference in levels of walking between the pre- and post-measures will be used to calculate the health benefits and associated financial savings.



▸ **HEAT for walking**

Q1: Single or before /
after

Q2a: Walking data type

HEAT ▸ for walking ▸ Q2a: Walking data type

HEAT for walking

Q2: Enter your pre-intervention walking data

The HEAT model requires an estimate of the average duration spent walking in the study population in order to calculate the corresponding health benefit (based on a relative risk from a review of the epidemiological literature on the health benefits of walking). This duration can be entered directly, if available (and this is the most direct data entry route), or calculated based on the distance, number of steps, or number of trips.

- Duration (average time walked per person)
- Distance (average distance walked per person)
- Steps (average number of steps taken per person)
- Trips (average per person or total observed across a population)

Next step

- Next question
- Back

**HEAT for walking**

Q1: Single or before /
after

Q2a: Walking data type

Q4: Distance

HEAT > for walking > Q4: Distance

HEAT for walking**Q4: Average distance walked**

Enter the average distance walked per person:

Is this for an average day, week, month or year?

Next step

- Next question
- Back

**HEAT for walking**

Q1: Single or before /
after

Q2a: Walking data type

Q4: Distance

Q7: Population

Walking Summary

HEAT > for walking > Walking Summary

HEAT for walking**Summary of walking data****Review your entered data****Pre-intervention walking data**

Average distance walked per person per day in km: **5.00**

This level of walking is likely to lead to a reduction in the risk of mortality of: **40.19 %**

Total number of individuals regularly doing this amount of walking: **2000**

This amount of walking seems very high for a long term daily average that is maintained across a population. Are you sure you want to continue with this value?

Next step

- Next question
- Back

**HEAT for walking**[Q1: Single or before / after](#)[Q2a: Walking data type](#)[Q4: Distance](#)[Q7: Population](#)[Walking Summary](#)[Q2b: Walking data type](#)[Q4: Distance](#)

HEAT > for walking > Q4: Distance

HEAT for walking**Q4: Average distance walked**

Enter the average distance walked per person:

 km

Is this for an average day, week, month or year?

Next step

- [Next question](#)
- [Back](#)

HEAT online training to users

- ◆ Format
 - ◆ Live online demonstration
 - ◆ Live Q&A with experts
 - ◆ Through WebEx
- ◆ Who, how, when?
 - ◆ Monthly for 1 hour
 - ◆ Nick and Christian (plus occasional guest star)
- ◆ Over 180 registered participants (for the first 4 trainings)
- ◆ Recorded, documented
- ◆ Provides valuable info on how people use HEAT and what they struggle with most

The HEAT for walking and cycling has been produced by the WHO Regional Office for Europe, in conjunction with a range of international experts.



<http://www.euro.who.int/HEAT>

To use the tool and find out more visit
<http://www.euro.who.int/HEAT>



Transport planners often economic assessments, such as cost-benefit ratios, to justify policy and funding decisions. Such appraisals are increasingly being applied to cycling and walking schemes. However, these often do not take account of the benefits to health.

The HEAT for walking and cycling is a practical online tool for professionals interested in assessing the health benefits of transport schemes. The tool estimates the value of reduced mortality that results from regular walking or cycling.

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

1. When planning a new piece of cycling or walking infrastructure. HEAT attaches a value to the

Health Economic Assessment Tool (HEAT) for Walking and Cycling

Estimating the economic savings from reduced mortality



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Conclusions

- ◆ Identifies a major public health issue and uses effective lever to promote it
- ◆ Works outside traditional health care paradigm to achieve health gain
- ◆ Addresses needs of the target sector, not health sector
- ◆ Highly influential
- ◆ Cheap and sustainable
- ◆ Effective demonstration of using evidence to drive practice



Over the next few years, as budgets in health become much tighter, it would be easy to see spending on physical activity as a luxury which could be foregone. That would be a big mistake. It should be seen by all commissioners as a necessity to secure health improvements in our population and in so doing reduce the need for many people to have to use our health services in a much more costly way.

**Richard Sumray, Chair,
NHS Haringey**