

Health Economic Assessment Tool (HEAT) for walking and cycling

HEAT for walking and cycling is a user-friendly, evidence-based tool for professionals and policymakers interested in valuing the health benefits of walking and cycling.

Estimating the economic value from reduced mortality

What are the health benefits of national, subnational or local cycling or walking programmes?
How can we quantify the health benefits?
Which cycling and walking measures provide the largest health benefits?
How much are they worth economically?

What does HEAT do?

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

- assessing current (or past) levels of cycling or walking, such as showing the value of cycling or walking to a specific workplace, in a city or country;
- assessing changes over time, such as comparing before-and-after situations or scenario A versus scenario B (such as with or without measures taken) or achieving targets to increase cycling or walking;
- evaluating new or existing projects, including calculating benefit- cost ratios (to support policy and decision-making and to make the case for investment).



Find the tool and more at www.heatwalkingcycling.org
Now including e-biking!

Who is HEAT for?

Transport planners use economic assessments, such as benefit-cost ratios, as **a standard tool to support policy and funding decisions**. Such appraisals are increasingly being applied to cycling and walking schemes. However, they often do not take full account of the impacts of transport interventions on health. HEAT has already been applied in a range of countries in Europe, the Americas, Asia and Africa. How about your country? HEAT can also be useful to interest groups working on transport, walking, cycling or the environment. Health economists, and physical activity and health professionals can build evidence for cycling and walking.

How was the tool developed?

HEAT is an open-ended project coordinated by WHO and supported by an intersectoral group of experts in a consensus-finding process. These experts were specifically selected to represent an interdisciplinary range of professional backgrounds and expertise, including health and epidemiology, air pollution, carbon emissions, road safety, health economics, transport economics, a practice and/or advocacy perspective, and policy development and implementation. **The tool is based on the best available evidence** and assumptions were made, where necessary, in a fully transparent way. The tool is being continuously improved, expanded and further developed.

How does it work?

The tool estimates the societal value of reduced premature mortality that results from regular walking or cycling (as regular cycling or e-biking – including bike sharing) in adults, based on a meta-analysis of relative risk data from published studies. This risk reduction is applied to the amount of walking or cycling entered by the user, also considering the effects of air pollution and traffic crashes. This data can be based on duration, distance, trips or (for walking) steps. Finally, the tool produces an estimate of societal economic value from the calculated reduction in premature deaths, as well as discounted and average annual figures. The carbon effects can also be calculated and assessed economically.

Some examples:

United Kingdom

A workplace cycling promotion project in England leading to over 20 000 employees taking up cycling again resulted in a benefit-cost ratio of over 7:1, due to increased life expectancy from regular cycling.¹

Spain

Another study in Catalonia, Spain, estimated that if adults who are currently not reaching the minimum recommended levels of physical activity, would replace at least one short car trip per day by walking, this would result in economic savings of about € 200 million each year due to the reduction in mortality.²

Canada

An analysis of planned bicycle infrastructure investments in Canadian cities between 2016 and 2020 yielded benefit-cost ratios of between 1.7:1.0 (Victoria) and 2.1:1.0 (Halifax) in a moderate scenario, and between 3.9:1.0 (Victoria) and 4.9:1.0 (Halifax) in the most ambitious scenario, with 9–18 premature deaths prevented and a reduction of 87 000–142 000 tonnes of carbon over a 10-year time horizon.³

1 Cyclists' Touring Club (CTC). Programmes to promote cycling – evidence for NICE from CTC. Guilford: CTC; 2012 (www.nice.org.uk/guidance/ph41/documents/expert-testimony-3-ctc2, accessed 27 September 2023).

2 Olabarria M, Pérez K, Santamaría-Rubio E, Novoa AM, Racioppi F. Health impact of motorised trips that could be replaced by walking. Eur J Public Health. 2013;23(2):217–22. doi: 10.1093/eurpub/cks015.

3 Whitehurst DGT, DeVries DN, Fuller D, Winters M. An economic analysis of the health-related benefits associated with bicycle infrastructure investment in three Canadian cities PLoS ONE. 2021;16(2):e0246419. doi: 10.1371/journal.pone.0246419.