The new WHO Health Economic Assessment Tool for Walking and Cycling –

a sneak preview

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A collaborative project

Expertise involved:

- **Epi / Public Health**
- **Environmental Science**
- **Air pollution**
- **Health Economics**
- **Transport Economics**
- **Transport Planning**
- **Policy making**
- **Practice / Advocacy**
A collaborative project

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What is the (existing) 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
What can you use it for?

• **Project evaluation**: new or old projects
  – Value of health benefits of investments

• **Assess current use**
  – What is walking/cycling worth now in my city, region, country?

• **Modeling projected future walking/cycling**
  – How much value walking/cycling can have…

**PASTA**
Physical Activity Through Sustainable Transport Approaches
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 carbon effects?
Basic functioning of the new HEAT 4.0

User inputs

What do you want to assess?
- Walking and/or cycling
- Impacts (Physical activity, air pollution, crash risk, carbon emissions -> motorized modes)
- Time and spatial scale

Data inputs
- Volumes of travel
  Duration/distance/trips/steps
- New: Frequency / Mode share/shift
- Population size

Adjustment of data inputs
- New vs. reassigned
- Shifted from other modes (carbon)
- For transport or recreation (AP, carbon)
- In traffic vs. away from traffic (AP)

Calculation parameters
- Changeable default values
  (Uptake period, trip/step length, speeds, mortality rate, air pollution level)
- Other background values

Physical activity benefit
Reduced mortality risk from walking and/or cycling

\[(1 - RR)^\times \left(\frac{\text{Local vol. of active mode}}{\text{Reference vol. of active mode}}\right)\]

Air pollution risk
Mortality risk when walking and/or cycling

\[(1 - RR^\times) \times \left(\frac{\text{AP exposure of active mode users}}{\text{Reference AP exposure}}\right)\]

Crash risk
Mortality risk when cycling\(\dagger\).

\[
\left(\frac{\text{Countrywide fatal crashes}}{\text{Countrywide vol. of active mode}}\right) \times \left(\frac{\text{Local vol. of active mode}}{\text{carbon emission factors}}\right)
\]

Carbon
Reduction in emissions from substituting motorized modes

Local vol. of active modes shifted from motorized modes × carbon emission factors

Monetization
Value of statistical life (VSL) or Social costs of carbon (SCC)

Reduced mortality/carbon emissions
Aggregated
Mode and pathway specific

\(\dagger\) RR = relative risk of death in underlying studies (walking: 0.89 and cycling: 0.90).

\(\dagger\dagger\) relative risk of death per 10 µg/m³ increase in PM2.5 in underlying studies (1.07)

\(\dagger\) walking module work in progress
Interested?

• We need testers of the new HEAT
• AND feedback on the old HEAT
• Online tool – early October
• Test, play, complete feedback survey
• Come and see us or email nick@cavill.net
www.heatwalkingcycling.org

Nick@cavill.net

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The question
If 1,000 people start to cycle for 10 minutes per day, what is the economic value of the health benefits that occur as a result of the reduction in mortality due to their physical activity (and increase in mortality due to crash risk)?