Transport for a Healthy Future

Assoc. Prof. Simon Kingham
Dept of Geography and GeoHealth Laboratory
University of Canterbury

Share an Idea Transport “Move” Expo
Christchurch Art Gallery Foyer and Auditorium
Wednesday 1st June 2011

Change in mode
- Cycling
- Walking
- Public Transport
- Reduce SOVs

Climate Change
- Let’s assume it is happening

Peak Oil

Climate Change
- Climate change and peak oil are real problems
- Potentially technology could solve them
  - But:
    - probably won’t
    - not in time
    - at a cost society won’t want to pay
- But other major problem – HEALTH
  - Technology cannot solve them
  - Behaviour change is the key
The benefits of active & PT travel

- Physical activity
- Social capital

Source: Saladin, 2009, Bicycles, kitchen-gardens, health, economy, and urban planning, Velo-City Conference, Brussels.

Global mortality and physical activity

Source: Saladin, 2009, Bicycles, kitchen-gardens, health, economy, and urban planning, Velo-City Conference, Brussels.

The benefits of active travel

- Are transport-active countries healthier?

Who cycles most?


**Figure 1.** Bicycle share of trips in Europe, North America and Australia (percentage of total trips by bicycle).

**Figure 8.** Women’s share of total bike trips in Australia, the USA, the UK, Canada, Denmark, Germany and the Netherlands (2004-2006).


**Figure 18.** Traffic rates and non-fatality rates in the Netherlands, Denmark, Germany, the UK and the USA (2004-2005).

Overall health impacts

- Multiple health impacts
  - Pollution dose (0.8-40 days lost)
  - Traffic accidents (5-9 days lost)
  - Physical activity (3-14 months gained)
- Plus, societal benefits
  - Reduced congestion, RTAs, pollution, greenhouse gases

"On average, the estimated health benefits of cycling were substantially larger than the risks relative to car driving for individuals shifting their mode of transport"

- de Hartog et al, 2010, Do the health benefits of cycling outweigh the risks? EHP 118, 8, 1109-1116.

Economics

<table>
<thead>
<tr>
<th>Health benefits</th>
<th>Valued PER YEAR of cycling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value of loss of life</td>
<td>£11.16 for 16-44 year olds</td>
</tr>
<tr>
<td></td>
<td>£9.99 for 45-64 year olds</td>
</tr>
<tr>
<td></td>
<td>£242.07 for 65 year olds and over</td>
</tr>
<tr>
<td></td>
<td>£5.77 average</td>
</tr>
<tr>
<td>NHS savings</td>
<td>£28.30 for all cyclists</td>
</tr>
<tr>
<td>Productivity gains</td>
<td>£47.88 all cyclists</td>
</tr>
<tr>
<td>Total health benefits</td>
<td>£127.56 for 16-44 year olds</td>
</tr>
<tr>
<td></td>
<td>£125.51 for 45-64 year olds</td>
</tr>
<tr>
<td></td>
<td>£156.44 average</td>
</tr>
<tr>
<td>Child health and injury</td>
<td>Not quantified</td>
</tr>
</tbody>
</table>

Source: Cycling England, 2007, Valuing the Benefits of Cycling

What do we need to do?

- “Substantial increases in bicycling require an integrated package of many different, complementary interventions, including infrastructure provision and pro-bicycle programs, supportive land use planning, and restrictions on car use”


Cycle Demonstration Towns

- Cycling England
  - Investment in 6 towns
  - Aylesbury
  - Brighton & Hove
  - Darlington
  - Derby
  - Exeter
  - Lancaster and Morecambe
  - £5 per head matched by TLAs

Source: Cycling England, 2007, Valuing the Benefits of Cycling
Cycle Demonstration Towns – 3 yr results

- average increase in cycling across all six towns of 27%
  - result of more people starting to cycle, or returning to cycling again, not just the result of cyclists using their bikes for more trips
- Cycling to school has more than doubled where towns invested most in children
- Cycling investment generates town-wide increases in physical activity
- These results were not found in comparable towns, & growth matches the cycling growth rates in London
- Investment in cycling pays back at least 3:1
  - each £1 invested, value of decreased mortality is £2.59

What sort of cycle infrastructure?

1. What do non-cyclists want?
   - Separation from traffic
     - Significantly more attractive than anything else
     - Consistency at junctions

2. What is safest?
   - Some research argues against separation
     - We HAVE to attract new cyclists (overall health benefit far greater than debatable increased accident risk)
   - More cyclists = safer
   - Pollution exposure significantly reduced with separation
     - Cyclist exposure on road less than car drivers
     - Behind parked cars 50% less than on road

What can’t cycling do?

- Carry all our freight
- Carry all our people
- Solve climate change
- Solve sedentary-related health problems


Kingham S, Koorey G and Taylor K, 2011, Assessment of the type of cycle infrastructure required to attract new cyclists. NZTA Report TRV08/05.
What can cycling do?

- Carry a lot more people
- Reduce congestion
  - Free roads up for freight
  - Free roads up for non-cyclable journeys
- Help reduce CO\(_2\) emissions
- Reduce pollution emissions (PM, CO, NO\(_2\), UFP etc.)
- Improve physical activity and reduce sedentary-related health problems
- Save $$$

What about PT?

- Activity levels
- PT travel includes walking
- Canadian research shows "a transit trip involves 1250 steps, required to access and egress the network as well as to transfer between routes or modes"
- A round trip (2500 steps) "account for 25% of the recommended volume of physical activity per day"
- Social capital

Economic benefits of PT

- Every US$1bn spent on PT produced 16,419 job months
- Every US$1bn spent on highway infrastructure produced 8,781 job months

  - 'What we learned from the stimulus’ report (report based on US Congress House of Representatives Transportation and Infrastructure committee) Jan 2010.

Take home messages

- Active travel and PT is good for health
  - Lots of evidence
- Active travel and PT is good economic sense
  - Lots of evidence
- Safety is important, but not at expense of broader health benefits
  - More cyclists and pedestrians is crucial
- Don’t over engineer cycle infrastructure
  - Consistency is important