Where we’re going....
A health perspective on transport / cars

- 12,000 years of roads
- Advantages – trade, development, communication
- Disadvantages – illness, disease
“Roads seen as a public space, which all citizens had an equal right to. Including children at play.

“What evil bastard would drive their speeding car where a kid might be playing?”
Road traffic crashes…. Killing people since 1896…

“Such a thing should never happen again”

HM Coroner, 1896
What does road traffic do for us?

- Air pollution
- Social isolation / loneliness
- Physical inactivity
- Road traffic
- Inequalities
- Noise

Road traffic:
- Produces
- Encourages

Exacerbates:
- Causes
- Creates

Increases:
- Inequalities

Road traffic injuries:
- Creates
- Encourages

Burden on health and health services

Burden of COVID-19
Where Do the Oceans' Microplastics Come From?
Distribution of sources of microplastics in the world's oceans

- Synthetic textiles: 35.0%
- Car tires: 28.0%
- City dust: 24.0%
- Road markings: 7.0%
- Marine coatings: 3.7%
- Personal care products: 2.0%
- Plastic pellets: 0.3%

Source: International Union for Conservation of Nature
Evidence summary – direct and indirect health effects

References available on request

- Reduced casualties and casualty severity
- Improved air quality
- Increased active travel
- Narrowing of inequalities
- Greater social inclusion
- Reduced noise pollution
- Greater community cohesion and local business viability
- Smoother driving behaviour and lowered emissions
- Lower fuel use
- Reduced fear of road danger / greater freedom to develop independence
Evidence (2)

- **NICE guidance**
  - “Councils should also consider reviewing traffic control measures to ensure that they encourage smooth driving and minimise emissions. These include ensuring that any speed humps are designed to minimise sharp decelerations and accelerations and considering 20 mph zones in residential areas where traffic stops and starts repeatedly”
  - [NICE issues guidance on policies to reduce vehicle emissions | The BMJ](#)
  - [Overview | Air pollution: outdoor air quality and health | Guidance | NICE](#)
Updated estimates of casualty savings
Update of Jones and Brunt (2017), based on casualties reported by STATS19 from 2017 to 2019. Costs based on 2018 DfT estimates; table RAS60001

<table>
<thead>
<tr>
<th>Per annum*</th>
<th></th>
<th>Killed</th>
<th>Serious</th>
<th>Slight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Row</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Crash casualties on roads with a 30mph limit avg pa</td>
<td>30</td>
<td>592</td>
<td>2412</td>
</tr>
<tr>
<td>B</td>
<td>Estimated value of prevention, per casualty, 2018 pricing</td>
<td>1,958,303</td>
<td>220,058</td>
<td>16,964</td>
</tr>
<tr>
<td>C</td>
<td>Estimated value of prevention, for 30mph speed limits, C=A*B</td>
<td>58,749,090</td>
<td>130,274,336</td>
<td>40,917,168</td>
</tr>
<tr>
<td>D</td>
<td>Casualties avoided by introducing 20mph limits - 40% of actual casualties</td>
<td>12</td>
<td>237</td>
<td>965</td>
</tr>
<tr>
<td>F</td>
<td>Total cost savings (£M), F=E_killed+ E_serious + E_slight</td>
<td></td>
<td></td>
<td>92,020,249</td>
</tr>
</tbody>
</table>

*Some figures are rounded
## Air quality effects (original estimates)

<table>
<thead>
<tr>
<th></th>
<th>Deaths</th>
<th>YLL</th>
<th>Costs (£M)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NO\textsubscript{2}</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current</td>
<td>231</td>
<td>2768</td>
<td>£121.70</td>
</tr>
<tr>
<td>20mph</td>
<td>293</td>
<td>3521</td>
<td>£154.80</td>
</tr>
<tr>
<td>Change</td>
<td>Increase 63</td>
<td>Increase 753</td>
<td>Increase £33.1</td>
</tr>
<tr>
<td><strong>PM2.5</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current</td>
<td>386</td>
<td>4629</td>
<td>£203.50</td>
</tr>
<tr>
<td>20mph</td>
<td>269</td>
<td>3230</td>
<td>£142.00</td>
</tr>
<tr>
<td>Change</td>
<td>Decrease 117</td>
<td>Decrease 1400</td>
<td>Decrease £61.5</td>
</tr>
</tbody>
</table>
“Health” advocates for 20mph

- National Institute for Health and Care Excellence (NICE) and the British Medical Association (BMA) have recommended that citywide or town-wide 20 mph limits should be introduced.
- The Faculty of Public Health believes that 20 mph zones and limits are important to mitigate the health impacts of cars.
- Royal College of Paediatrics and Child Health (RCPCH) Wales called for 20 mph limits to encourage children in Wales to be healthy and physically active.
To date, research into the direct and indirect health effects of 20mph has relied on short duration, small area studies.

In general, 3 year follow-up over a large area (e.g. all Wales) is needed to demonstrate casualty effects.

Air pollution is very difficult to analyse / attribute within small areas due to pollution dispersing. Even if air pollution effects can be studied and attributed to an area, demonstrating health effects would need many, many years of follow-up (possibly 10 or more years) and would be impossible to disentangle from other contributing factors.

This is also likely to be true of physical inactivity, obesity and noise.
Evaluation

KPIs

- 3 speed related – compliance, mean speeds, 85th percentile
- Vulnerable pedestrian and cyclist casualties (children, older people) by deprivation fifth, sex and urban / rural
- Attitude to active travel
- Vehicle / pedestrian yields
- Local NO$_2$
- Carbon emissions
- Change in journey times
- Public opinion
Harms associated with 20mph

• Critically, research to date has identified no obvious harms associated with 20mph
• At worst, it is generally accepted, based on short term follow up, that 20mph does not increase air pollution compared with 30mph (TEAG, 2013)
  o Given that this is based on short term data, if modal shift to more active travel is encouraged by 20mph, then over longer periods, air quality will improve
Links to WFGA
Taken from Jones and Brunt (2017)

<table>
<thead>
<tr>
<th>Goal</th>
<th>Description</th>
<th>Contribution of 20 mph limits to WFGA</th>
</tr>
</thead>
<tbody>
<tr>
<td>A prosperous Wales</td>
<td>Innovative, productive, low-carbon society. Recognises limits of global environment and uses resources efficiently and proportionately. Develops a skilled and well-educated population in an economy which develops wealth and provides employment opportunities, allowing people to take advantage of the wealth generated through securing decent work.</td>
<td>Improved motorised traffic flow increased walking and cycling due to fewer crashes, more time and space between vehicles and reduced fear of speeding traffic; local economies more viable and socially resilient; improved public transport and commercial vehicle flow. Increased productivity with less ill health.</td>
</tr>
<tr>
<td>A resilient Wales</td>
<td>Nation maintains and enhances a biodiverse natural environment with health functioning ecosystems that support social, economic and ecological resilience and the capacity to adapt to change.</td>
<td>As above, and improved air quality enhancing the natural environment and supporting ecological resilience.</td>
</tr>
<tr>
<td>A healthier Wales</td>
<td>A society in which physical and mental well-being is maximised and in which choices and behaviours that benefit future health are understood.</td>
<td>As above, and improved cardiorespiratory health linked to improved air quality; improved general health linked to reduced noise pollution, reduced obesity and increased physical activity due to more active travel and outdoor play; improved mental health linked to all of above.</td>
</tr>
<tr>
<td>A more equal Wales</td>
<td>A society that enables people to fulfil their potential.</td>
<td>As above and reduced inequalities since more deprived areas have greater ranges of traffic speeds and vehicle types.</td>
</tr>
<tr>
<td>A Wales of cohesive communities</td>
<td>Attractive, viable, safe and well-connected communities.</td>
<td>As above and improved social cohesion and connectedness.</td>
</tr>
<tr>
<td>A Wales of vibrant culture and thriving Welsh language</td>
<td>A society that promotes and protects culture, heritage and the Welsh language and which encourages people to participate in the arts, and sports and recreation.</td>
<td>As above and increased walking, cycling and outdoor play.</td>
</tr>
<tr>
<td>A globally responsible Wales</td>
<td>A nation which, when doing anything to improve the economic, social, environmental and cultural well-being of Wales takes account of whether doing such a thing may make a positive contribution to global well-being and the capacity to adapt to change.</td>
<td>As above, and increased active travel, decreased fossil fuel use and reduced impacts of climate change.</td>
</tr>
</tbody>
</table>

Danny Dorling
Halford Mackinder Professor of Geography, University of Oxford
If you could do just one thing to reduce health related inequalities….?

“One of the cheapest and most effective methods for improving public health today”

“In contrast to how many die being struck by a car, cars almost certainly kill far more people through the pollution they cause, the exercise they rob us of and, possibly, also through the wars that are fought over the oil to power them. Reducing speeds from 30mph to 20mph is a small step towards mitigating these wider harms”
Why is 20mph so important post-COVID19?
As well as sustainable mobility generally

• Lowering the baseline / NHS recovery / preventing the preventable
• Increased active travel / home working – how are these maintained?
• Encouraging active travel to increase physical activity and improve health and well-being (mental and physical)

• Confidence in using public transport decreased, but no evidence of virus spread
• Concern that people will “retreat” to their cars
Conclusions

- 20mph has no obvious negative effects
- Wide range of direct and indirect health benefits
- Can “speed up” the COVID-19 recovery
- Potential to be the most significant PH intervention since the smoking ban