The Bristol Twenty Limit Evaluation (BRITE) Study

A public health evaluation of the introduction of 20mph speed limits across the city of Bristol, UK.

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Summary

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Background

• 20mph speed limits are increasingly used as a part of a safer systems approach.
• In the UK, more than 400 urban roads became 20 mph roads between 1991 and 1999 (ROSPA, 2017).
• First UK city-wide implementation was in Portsmouth in 2007.
• Slower traffic speeds are associated with a variety of public health benefits.
Background

- In 2010, 2 pilot schemes introduced by Bristol City Council
- In 2012, the 20mph speed limit was introduced across the city
- Six phases/geographical areas on a rolling basis
- Completed September 2015
- Sign-only policy
Aim

To evaluate the impact of the roll-out of 20mph speed limits across the city of Bristol.

Holistic public health approach utilizing a range of data sources

First rigorous city-wide evaluation

Commissioned by Bristol City Council to feed into the review of 20mph limits in Bristol

October-December 2017

Data Sources

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<td>Vehicle speeds:</td>
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Why evaluate?

“Transparent and consistent reporting is required to determine the most in/effective components of 20mph zones and limits”

Cleland et al, 2019
Vehicle Speeds
Stepped wedged study design

- Pragmatic study design (robust evaluation despite political or logistical constraints);
- Several clusters (areas) and steps (phases) of implementation;
- Initial period: no clusters are exposed to the intervention;
- Regular, randomized clusters receive the intervention;
- Each cluster contributes observations under both control and intervention observation periods (Hemming et al., 2015).
Methods

• Quasi stepped-wedge design:
  o Clusters not randomized; Steps not regular; Initial step missing
  o In each area there was control group (30mph)
• Individual vehicle speed: 36,973,090 single observations
• General Linear Mixed Model
Results

City-wide pre-intervention mean speed was 27.1mph

• Unadjusted city-wide change in speed after the intervention was a reduction of 4.7mph (20mph streets)
• Adjusted speed reduction of 2.66mph (95%CI -2.67, -2.65, p<0.001)
• Speed reductions varied by area
• Speed reduction was larger during:
  o Weekends (-2.9mph vs -2.5mph)
  o Summer months (-2.9mph vs -2.5mph)
• Day and night speed reductions were equivalent
• Possible spill-over effect on 30mph roads; 1.3mph reduction
• City-wide post-intervention mean speed was 23.7mph
Road traffic casualties
Results

- Descriptive analyses showed that annual post-intervention rates of injuries in each Bristol area tended to be lower than the respective injury rate before the limits were introduced.
- Study design limited ability to assess causality
- Follow on analysis has found a statistically significant reduction in fatal injuries across the city, and a general trend in reduction of overall injuries.
Attitudes and behaviour
Attitudes and behaviour

• Clear majority support remains in Bristol for 20mph speed limits, with 62% supporting such limits on residential roads and 72% on busy streets.
• However, there is cynicism in Bristol about lack of enforcement of 20mph limits, a lack of compliance from “other drivers” and an increased readiness to report that it is sometimes okay to drive above the posted speed limit on residential roads.

• Walking and cycling to work in Bristol has increased between 2010 and 2015.
• Increase in children in Bristol walking or cycling to school during the period under study.
The way ahead....2020 onwards
Acknowledgements

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