MRC/CSO Social and Public Health Sciences Unit Consultation Response

Title of consultation
The National Transport Strategy (NTS) Review – Call for evidence.
Name of the consulting body
Transport Scotland.
Link to consultation
https://www.transport.gov.scot/media/35871/nts-call-for-evidence-april-2017.pdf
Why did the MRC/CSO Social and Public Health Sciences Unit contribute to this consultation?
The Unit has research expertise on environment and health, which are influence by transportation and covered by this call for evidence. This is an important opportunity to inform this national call for evidence and respond directly to the government.
Our consultation response
The MRC/CSO Social and Public Health Sciences Unit, University of Glasgow is an interdisciplinary group of sociologists, anthropologists, psychologists, epidemiologists, geographers, political scientists, public health physicians, statisticians, information scientists, trial managers and others. The Unit receives core-funding from the Medical Research Council and the Chief Scientist Office in the Scottish Government Health and Social Care Directorates, as well as grant funding for specific projects from a range of sources. We conduct research to understand the determinants of population health and health inequalities, and to develop and test interventions to improve health and reduce inequalities, using a wide variety of methods including qualitative research, the collection, linkage and analysis of social survey and routinely collected data, evidence synthesis, randomised controlled trials and natural experimental studies. Further information about the Unit is available at http://www.glasgow.ac.uk/sphsu We have responded to questions 2 and 4, relating to transport mode choice and demand, and active travel (walking and cycling). **Transport mode choice and demand** *2. To what degree are travel behaviours such as mode choice (including freight transport) and demand amenable to intervention? Which policy interventions change behaviours or demand and why? What does research tell us about the types of interventions that fail to change behaviours, particularly over the long term?* *Evidence relating to transport satisfaction, mode choice and journey destination* Earlier this year we published the findings of a thirteen year study describing changes in

Transport Satisfaction from 1997 to 2010 in West Central Scotland, showing that satisfaction with transport had risen during the 13 year period[1]. Our study found that journey satisfaction increased more among those who travelled using public transport, active modes or by multiple than those who travelled by car; highlighting that continued efforts should be made to promote these more active transport modes, which have potential to impact on health. The likelihood of transport satisfaction showed a greater increase from 1997 to 2010 among retired people compared to those in employment or full time education. From 1st April 2006 the Scottish Government introduced the 'Scotland-wide Free Bus Travel Scheme for Older and Disabled People'; the data suggest that this may have contributed to the increase in transport satisfaction for public transport, particularly among retired people for whom barriers such as the cost of travel have been removed.

Active travel (e.g. walking and cycling)

4. What does the evidence suggest are the best ways to achieve improved health outcomes from active travel? What are the most important constraining factors to the uptake of active travel that can be targeted by policy in the Scottish context?

Evidence relating to the evaluation of new transport infrastructure, active travel and road traffic accidents

Relating to both *questions 2 and 4*, researchers at SPHSU and the University of Cambridge, conducted a natural experiment intervention study evaluating the impact of the 5-mile M74 motorway extension in the South of Glasgow[2]. The motorway extension opened in June 2011 and one of the key economic arguments for its construction, by the then Scottish Government, was that the motorway would reduce road traffic on local streets and thus improve road safety; subsequently, reducing road traffic accidents and increasing active travel (walking and cycling). We described trends in road traffic accidents[3] and examined changes in active travel[4] in the area surrounding the motorway extension, a comparator area, a control area and the wider Glasgow City region.

Our results showed that during both the construction and following its opening, the M74 motorway extension did not alter the already decreasing trajectory of road accidents. This research found that the M74 motorway extension did not produce any changes in the proportion of individuals actively travelling in the area compared to the comparator and control area, or the wider city region. Importantly, the M74 motorway extension did not include any direct investment in walking or cycling infrastructure, or promotion of these modes, to encourage cycling or walking in and around the local area. However, qualitatively, study participants did describe changes to the experience of actively travelling locally brought about by changes to surface traffic volume, and in one area where a pedestrian footbridge associated with the new road actually overcame existing areas of severance, this was appreciated. The fact that there was no new active travel infrastructure (other than replacing a single footbridge, which did receive positive feedback from residents) could be considered as the key explanatory factor as to why the new M74 extension

[1] Olsen JR, Macdonald L & Ellaway A (2017) Changes over time in population level transport satisfaction and mode of travel: A 13 year repeat cross-sectional study, UK. *J Transp Health.* Online advanced publication https://doi.org/10.1016/j.jth.2017.03.012.

[2] Ogilvie, D et al (2017) Health impacts of the M74 urban motorway extension: a mixed-method natural experimental study. *Public Health Res* 5(3)

[3] Olsen, JR, Mitchell, R, Mackay, DF, Humphreys, DK & Ogilvie, D (2016) Effects of new urban motorway infrastructure on road traffic accidents in the local area: a retrospective longitudinal study in Scotland. *J Epidemiol Community Health* 2016:70 pp1088-1095

[4] Olsen, JR, Mitchell, R & Ogilvie, D (2016) Effects of new motorway infrastructure on active travel in the local population: a retrospective repeat cross-sectional study in Glasgow, Scotland. *Int J Behav Nutr Phys Act* 13(77) pp1-10

did not produce any increases in active travel by people living near the M74 extension compared to people living near existing transport structures and the wider city region.

Evidence relating to environmental quality, active travel and physical activity.

A number of studies, with colleagues at the Centre for Research on Environment, Society and Health (CRESH) at the Universities of Glasgow and Edinburgh, explored the extent to which environmental quality affects levels of and inequalities in, both active travel and other forms of physical activity. Rates of active travel vary by socio-economic position, with higher rates generally observed among less affluent populations[5]. Aspects of both social and built environments have been shown to affect active travel. Little research has explored the influence of physical environmental characteristics, and less has examined whether physical environment affects socio-economic inequality in active travel. This study explored income-related differences in active travel in relation to multiple physical environmental characteristics, including air pollution, climate and levels of green space, in urban areas across England[6]. The likelihood of making an active trip among the lowest income group appeared unaffected by physical environmental deprivation; 15.4% of their non-recreational trips were active in both the least and most environmentally-deprived areas. The socio-economic gradient in active travel seems independent of physical environmental characteristics. For physical activity conducted for recreational purposes, there is a strong relationship with the natural physical environment: those living in the least deprived physical environments are most likely to engage in physical activity. However, for utilitarian physical activity, physical activity whose primary purpose is not the activity itself, we observed increased levels in the most environmentally deprived areas.

Evidence relating to neighbourhood walkability.

A number of studies based in the US, Canada, and Australia, have found evidence of associations between built environment and mode of transport to school, and links between active travel and deprivation. Within our SPHSU study on walkability around primary schools[7], we gathered data on built environment attributes previously linked to active travel, that is, street/path connectivity, and dwelling density, and created a composite 'walkability score' for primary school catchment areas across urban Scotland[4]. We divided areas into quintiles of income deprivation (from Q1: least deprived to Q5: most deprived) and explored whether poorer areas exhibit lower walkability scores than more affluent areas, or vice versa. We found that built environment features that aid walking within Scotland as a whole, and Glasgow in particular, follow different spatial patterns by income deprivation. When looking at school catchment areas within Scotland overall, dwelling and intersection densities, in a combined walkability score, were lowest within the most affluent areas around urban primary schools and highest within Q3 (middling quintile). Within one particular Local Authority, Glasgow City, the poorest areas displayed lower walkability scores, while Q2 (second least deprived quintile) showed the highest mean scores. In other words, for Scotland generally more affluent areas were less supportive of walking, while in Glasgow specifically more deprived areas were less 'walkable'. Disparities in composite walkability scores, according to deprivation, emphasize the need for specific areas to be allocated resources to improve opportunities for active transport; it is clear from the variation in country-wide and regional findings, within this study, that strategy to improve neighbourhood supports for active transport to school should focus on smaller geographical areas, such as neighbourhoods with varying social disadvantage within Local Authorities. Those involved in developing local

[5] Shortt, NK. et al (2014) Integrating Environmental Justice and Socioecological Models of Health to Understand Population-Level Physical Activity. *Environ Plan A* 46(6) pp1479-1495

[6] Rind, E et al (2015) Are income-related differences in active travel associated with physical environmental characteristics? A multi-level ecological approach. *Int J Behav Nutr Phys Act* 12(73) pp1-10

[7] Macdonald, L., McCrorie, P., Nicholls, N. and Ellaway, A., (2016) Walkability around primary schools and area deprivation across Scotland. *BMC public health 16*(1), pp328.

authority urban and transport policies should work towards providing improved street connectivity on school routes and ensure that catchment areas do not extend too far from schools.

When was the response submitted?

13 July 2017

Find out more about our research in this area

Neighbourhood and Communities Programme
http://www.glasgow.ac.uk/researchinstitutes/healthwellbeing/research/mrccsosocialandpublichealthsciencesunit/programmes/neighbourhoods/

Informing Healthy Policy Programme
http://www.glasgow.ac.uk/researchinstitutes/healthwellbeing/research/mrccsosocialandpublichealthsciencesunit/programmes/policy/#/

Transport, Housing and Well-being in West Central Scotland Study (THAW)
http://thaw.sphsu.mrc.ac.uk/

Centre for Research on the Environment, Society and Health (CRESH)
https://cresh.org.uk/

Who to contact about this response

Contributors (alphabetical order)
Mrs Laura Macdonald[1]
Prof Richard Mitchell[1]
Dr Amy Nimegeer[1]
Dr Jonathan Olsen[1]

[1]MRC/CSO Social and Public Health Sciences Unit, University of Glasgow.

Contact for further enquiries:
Dr Jonathan Olsen
MRC/CSO Social and Public Health Sciences Unit
Neighbourhood and Communities Programme
University of Glasgow
200 Renfield Street
Glasgow
G2 3QB
0141 353 7539
jonathan.olsen@glasgow.ac.uk
www.glasgow.ac.uk/sphsu