

Transport & health

Briefing statement

Summary

This briefing describes the association between transport and health. It is not intended to be an exhaustive resource but a signpost to key issues such as increasing active travel to raise physical activity levels. The statement outlines evidence-based interventions and recommendations and suggests key publications and organisations as a 'next step' to understanding and tackling this complex issue.

Introduction

Transport includes road, rail, water and air. This briefing focuses on road transport as this is where the greatest opportunities for improving public health lie. Road transport includes the moving of people and goods via a range of means including private cars, public transport, freight vehicles, walking and cycling. Roads are not only used for transport but also as places for living, working and leisure, creating a complex system in which both beneficial and deleterious effects on health can arise. Road transport provides access to opportunities for education, work, social contacts and leisure. It can facilitate physical activity as part of everyday life through walking and cycling, enabling people to maintain good health and to help prevent conditions including obesity, circulatory disease, diabetes and some cancers.

Conversely, motorised road traffic threatens health both directly, through injury and pollution, and, more insidiously, by promoting inactivity, limiting independence, producing greenhouse gases and disrupting social networks in heavily trafficked streets.

Transport and planning policies can also be a barrier to good health, making it harder or more dangerous for people to be physically active and interfering with access to healthcare and other essential services. Changes to transport policies at a national and local level which prioritise active travel have huge potential to improve the health of the population and reduce health inequalities.

Evidence

Since the 1970s, travel by bicycle, bus and on foot have declined in the UK. Travel by car has increased beyond replacing those journeys formerly taken by other modes, as people travel longer distances and more frequently. The increasing affordability and convenience of car travel have led to the decentralisation of urban activities (eg. out-of-town shopping centres) with the consequence of a rise in the need to travel by car to access employment and services in a reinforcing cycle.

Since 2005, the distance travelled by car has declined, most likely due to economic decline, but levels of walking and cycling have also remained low over recent years. Increasing motor traffic congestion in urban areas has



What is active travel?

Active travel focuses on physically active modes of transport, such as walking and cycling, as a means of transport and travel, rather than using cars or trains. This approach has the key benefits of increasing levels of physical activity, improving physical and mental health and wellbeing, lowering air and noise pollution and promoting sustainable travel through lower carbon emissions.

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increased exposure to health hazards such as air and noise pollution for those walking and cycling, making these the least appealing transport choices for those who can choose.¹

The current road transport system in the UK contributes to a number of health hazards and health inequalities, particularly in urban areas; poverty is strongly correlated with air pollution, noise and injuries. More disadvantaged areas tend to have a higher density of roads and traffic, leading to impaired air quality, higher noise levels and higher collision rates. Transport can also influence access to education, employment, housing and green space – all important determinants of health and wellbeing. Social exclusion, due to dependence on public modes of transport in areas where there is an infrequent or expensive service, adds to the inequitable impact of community severance, injuries and pollution.²

Physical inactivity

There is an urgent need to increase physical activity levels in the UK. Moving people from being physically inactive to physically active is the biggest potential public health benefit of transport policies, through promoting a modal shift to active travel. The UK's chief medical officers recommend that adults achieve a minimum of 150 minutes per week of moderate intensity physical activity (such as walking), but activity levels are low and overestimated by individuals. The Health Survey for England in 2008 found that 40% of men and 28% of women in England thought they were achieving minimum recommended levels of physical activity. However, objective measures of those reporting their activity levels, found much lower levels of moderate-intensity activity were actually undertaken.³ It is also recommended that children do between one hour and several hours per day, and again the Health Survey for England found that this was the case in only 32% of boys and 24% of girls. Physical activity levels also decline with age and are lower among females, minority ethnic groups (particularly South Asian groups) and low-income households.

Spending prolonged periods completely inactive (sedentary behaviour) is becoming increasingly recognised as an important contributor to chronic conditions including type 2 diabetes and cardiovascular disease,⁴ even in physically active people.⁵ Increased car travel has increased the duration people are routinely spending inactive and is also suppressing walking, cycling and active outdoor play by children due to the increased risk of injury, real and perceived, for pedestrians and cyclists. To accommodate increasing demand for using and storing cars and declining demand for walking and cycling, investment

in walking and cycling infrastructure – such as footpaths and cycle pathways – has declined. Low density land-use patterns have developed which in turn restrict access by active modes of transport. Consequently, a transport network has developed which increases sedentary behaviour and reduces opportunities to be physically active. Active forms of travel, such as walking and cycling, are effective ways of integrating and increasing levels of physical activity into everyday life for the majority of the population at little personal or societal cost, and they have the additional benefits of being the most sustainable and efficient forms of transport. Using public transport also increases physical activity as most passengers walk (or cycle) at one or both ends of each journey.⁶

Air pollution

Long-term exposure to air pollutants, particularly small particulates (PM_{2.5}, PM₁₀), from road traffic has been found to decrease life expectancy by an average of six months, due to an increased risk of cardiovascular morbidity and mortality. Prenatal exposure to air pollution is associated with a number of adverse outcomes in pregnancy, including low birth weight, intrauterine growth retardation, and an increased risk of chronic diseases in later life. Individuals with pre-existing circulatory and/or respiratory disease and the very young and the very old are much more susceptible to the acute effects of air pollution which exacerbate disease and cause premature deaths, extra or early hospital admissions and acute asthma attacks. People who reside or work near busy roads or airports⁷ are at particular risk of exposure to the health harms of air pollution. Areas of high deprivation are known to suffer a greater burden from air-pollution-related morbidity and mortality.⁸

Road transport is also the source of almost one quarter of the UK's CO₂ emissions and is thus a major contributor to greenhouse gas emissions, consequent global climate change and the adverse health impacts that will result.

Noise pollution

Transport-related noise pollution (predominantly from roads, railways and airports) can adversely affect the cardiovascular system (including increasing blood pressure and myocardial infarction), mental health and school performance in children. Socially disadvantaged people are more likely to live near busy roads and are at greater risk of the negative effects of noise pollution.⁹

Road traffic collisions

While the UK has seen an overall long-term decline in the number of road users killed or seriously injured, there were still more than 200,000 reported road

casualties in 2011, of which 23,000 were serious and 1,901 were fatal. These are wrongly thought to affect vulnerable road users, such as pedestrians and cyclists, disproportionately: the risks for cyclists in particular are exaggerated. Children from social class V have five times the mortality rate from road traffic as children from social class I. Most pedestrian injuries occur on built-up roads in towns and cities, and the risk is greatest when car use is at its highest (eg. during peak commuting hours). The greatest risk for cyclists is associated with crossing junctions.¹¹

Mobility difficulties

In 2005, mobility difficulties affected 14% of adults of whom 45% were aged 70 years and over: they made fewer trips by foot, by rail and as a driver, and 8% had difficulty travelling to a doctor or hospital. Mobility difficulties are five times more common in the poorest quintile compared with the most affluent.

Rural road transport

Rural communities may suffer less from congestion and pollution problems (except for ozone) but often have to contend with more limited access to services and an inadequate provision of active travel infrastructure and public transport networks. This is associated with increased levels of car use and lower levels of physical activity. Rural dwellers with poor access to public transport and without access to a car are at an increased risk of social exclusion. Only 70% of rural households are within 15 minutes of a shop selling groceries and only 50% within 15 minutes of a GP, compared with over 90% and over 80% respectively in urban areas.

Co-benefits

Road transport systems with high levels of active travel, such as cycle and footpaths, and low levels of motorised transportation have a number of societal, economic and environmental benefits including climate change adaptation and mitigation, biodiversity, reduced congestion and increased community cohesion and social interaction.

Public health approach to road transport and health

The underpinning principle of a public health approach to tackling the complex health issues relating to transport should be a modal shift away from cars and towards walking, cycling and public transport. This would reduce the harms of the road transport system, enhance the benefits to individuals, society and the environment, reduce inequalities and help carbon reduction. To achieve this modal shift, increasing proportions of the population would need to consider

the most convenient, pleasant and affordable option for short journey stages to be walking and cycling, and for longer journey stages to be cycling and public transport.

Recommendations from the National Institute for Health and Care Excellence (NICE)¹² include:

- ensuring that people can easily access local services on foot or bicycle
- ensuring that new developments prioritise physically active lives, including walking and cycling
- prioritising pedestrians and cyclists by restricting motor vehicle access, reallocating road space, employing selective road-user charging, traffic calming and safe routes to schools
- high-standard, comprehensive, safe and attractive walking and cycling networks accessing schools, other public facilities, workplaces, shops, social destinations, public open spaces and campus sites and ensuring new sites are laid out to encourage walking and cycling.

The Association of Directors of Public Health's Active Travel manifesto calls for:¹³

- setting ambitious targets for increases in walking/cycling, and publishing a strategy to meet them
- investing at a realistic level, ie. committing 10% of transport budgets to walking and cycling
- creating safe, attractive walking and cycling conditions, with coherent high-quality networks linking all everyday destinations, so that walking and cycling are faster and more convenient than motor travel
- making 20mph or lower speed limits the norm for residential streets, those used by shoppers, tourists and others, those close to schools or public buildings and those important for walking and cycling or children's play
- tackling bad driving, through improved driver training, awareness campaigns and stronger laws
- a 'health check' for every transport and land-use decision, focusing on walking and cycling and other aspects of health.

Other transport policies that would enhance people's health and reduce inequalities include:

- inverting the current traffic hierarchy so that walking is at the top followed by cycling then public transport and private car use is at the bottom
- improvements in public transport, particularly pricing policies that are fair

- joined up systems for transport interchanges that result in proper networks, not isolated services (eg. buses/cycle routes that go to train stations, buses and trains that can carry bikes and pushchairs, cycle parking at transport interchanges)
- access to an integrated, frequent national public transport network available within walking distance of most workplaces and places of residence and within cycling distance of all
- changes to language (eg. reverse the 'subsidy' of public transport and the 'investment' in roads)
- street environments and transport interchanges designed to meet the needs of people aged eight to 80 wanting to travel independently, including those with physical disabilities
- reducing the legal limit for blood alcohol concentration to 20mg/dl and including randomised/roadside breath tests.

Policy context

In the 1950s and '60s, there was a major programme of road building including motorways and trunk roads across England. At the same time, the British Rail network was substantially reduced in scope as a result of the Beeching Report, with the closure of many stations and branch lines. In the 1970s, an oil crisis increased petrol costs and increasing awareness of the environmental impacts of motor traffic led to a reduction in road building. In the 1980s and '90s, the bus services and rail network were deregulated and some major new roads were completed such as the M25 and M40. Car numbers have increased steadily while the costs of motoring have steadily decreased and are now lower than in 1980. Meanwhile, the cost of rail and bus transport has increased and is now 37% higher in real terms than in 1980. Use of rail travel declined from a peak in 1964 to a low in 1982, but began rising again in the mid-1990s, and, by 2004/05 the number of rail journeys was similar to the number in 1964. Policy initiatives that seek to moderate vehicle movement were first suggested in the Smeed Report in the 1960s yet, taxation aside, very few preventive initiatives have been implemented. A major change in travel patterns in recent years has been the dramatic increase in the availability of cheap airline travel.¹⁴ The Government's Carbon Plan commits to decarbonisation, which can be aided by a modal shift away from private car use.¹⁵

Recommendations for actions by public health professionals

- Lobby local MPs and councillors to implement policies

which will deliver a modal shift away from cars in favour of walking, cycling and public transport

- Meet the local authority transport planning team and identify ways of working with them to deliver a modal shift away from cars in favour of walking, cycling and public transport
- Develop and implement NHS travel plans which deliver a modal shift away from cars in favour of walking, cycling and public transport
- Implement the policies advocated by FPH, NICE and the Association of Directors of Public Health
- Disseminate good practice, including reducing the need to travel
- Assess the potential health impacts (including effects on inequalities) of local and regional transport policies and major transport projects
- Work with local authority planners and other key partners on new residential developments to ensure that the most convenient, sustainable, active and affordable option for short journey stages will be walking and cycling, and for longer journey stages cycling and public transport. (see FPH's *Built Environment and Physical Activity* statement detailed below)
- Work with healthcare providers to promote active travel as a convenient and sustainable means of maintaining good health and recovering from illness.
- In England, use Health and Wellbeing Boards and local health and wellbeing strategies to include and promote public health and active travel, as well as influence planning and transport policies
- Follow the recommendations in the FPH position statement on *The Built Environment and Physical Activity* to integrate public health considerations into the design, delivery, adaption and maintenance of the built environment.

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About FPH

FPH is the leading professional body for public health specialists in the UK. It aims to promote and protect the health of the population and improve health services by maintaining professional and educational standards, advocating on key public health issues and providing practical information and guidance for public health professionals.

RESOURCES

- Summary of the links between health and transport: British Medical Association, 2012, *Healthy transport = healthy lives*. <http://bma.org.uk/transport>
- Comprehensive overview of evidence for the range of health issues relating to transport: Mindell JS, Watkins SJ, Cohen JM (eds). *Health on the Move 2: Policies for health-promoting transport*. Stockport: Transport and Health Study Group, 2011. <http://www.transportandhealth.org.uk>
- Review of the evidence on physical activity and transport which finds the key means of increasing physical activity is through reducing car use while retaining accessibility: Mackett, RL & Brown B. *Transport, physical activity and health: present knowledge and the way ahead, 2011*. <http://www.ucl.ac.uk/news/pdf/transportactivityhealth.pdf/>
- Evidence and policy recommendations for inequalities and transport: Sustainable Development Commission, 2011.
- Fairness in a car-dependent society. <http://www.sd-commission.org.uk/publications.php?id=1184>
- Online tool to estimate the economic savings from increasing walking and/or cycling: World Health Organization. *Health Economic Assessment Tool for walking and cycling*. WHO Copenhagen, 2011. <http://www.heatwalkingcycling.org/>
- Policy background, evidence and guidance on health impact assessment for transport and health: Douglas M, Thomson H, Jepson R, Hurley F, et al (eds). *Health Impact Assessment of Transport Initiatives: A Guide*. NHS Health Scotland Edinburgh, 2007. <http://www.healthscotland.com/documents/2124.aspx>
- Several National Institute for Health and Care Excellence (NICE) guidance documents relate to active travel; this is summarised in their pathway for local authorities. <http://pathways.nice.org.uk/pathways/physical-activity/local-strategy-policy-and-commissioning-for-physical-activity#content=view-node%3Anodes-transport>
- *Promoting and creating built or natural environments that encourage and support physical activity*. London: NICE, Public Health Guidance 8, 2008. <http://www.nice.org.uk/Guidance/PH8>
- *Promoting physical activity in the workplace*. London: NICE, Public Health Guidance 13, 2008. <http://www.nice.org.uk/Guidance/PH13>
- *Physical activity and children*. London: NICE, Public Health Guidance 17, 2009. <http://www.nice.org.uk/Guidance/PH17>
- *Prevention of CVD at a population level*. London: NICE, Public Health Guidance 25, 2010. <http://www.nice.org.uk/Guidance/PH25>
- A useful resource for policy recommendations and related policy documents on this subject: Sustrans. *Take action on active travel: why a shift from car dominated transport policy would benefit public health*. Bristol, 2010.

Resources explaining the operation of laws that could enable, or place limits on, local government and community activity that affects the healthiness of a place, including case studies of how others have used the regulatory environment to promote physical activity:

- UK Health Forum Healthy Places website: <http://www.healthyplaces.org.uk/enabling-active-travel/>
- Living Streets website: <http://www.livingstreets.org.uk>
- 20's Plenty for Us website: <http://www.20splentyforus.org.uk>

Transport data:

- *Transport Statistics Great Britain: 2010 edition*. London: Department for Transport (2011). http://www.dft.gov.uk/statistics/releases/road-accidents-and-safety-annual-report-2010/2010/d.org/alcohol_misuse

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4. British Heart Foundation National Centre for Physical Activity and Health. 2012. *Sedentary behaviour evidence briefing*. Loughborough University.
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15. Mindell JS, Cohen JM, Watkins S, Tyler N. 2011. Synergies between low carbon and healthy transport policies. *Proceedings of the Institution of Civil Engineers – Transport*. 164, 127-39.