# Cycling and Health

## THIS BRIEFING COVERS

The health crisis; the health benefits of physical activity in general and of cycling in particular; risks v benefits; cycling and injury to other road users; linking health and transport; safety equipment for cyclists.

## HEADLINE MESSAGES

- Cycling is excellent exercise. It helps people meet recommended physical activity guidelines, improves their physical and mental health and their well-being, while reducing the risk of premature death and ill-health.
- Cycling is far more likely to benefit an individual's health than damage it; and the more cyclists there are, the safer cycling becomes – the 'safety in numbers' effect.
- Cycling fits into daily routines better than many other forms of exercise, because it doubles up as transport to work, school or the shops etc. It's easier than finding extra time to visit the gym and far less costly.
- Lack of exercise can make people ill. It can lead to obesity, coronary heart disease (CHD), stroke, cancers, type 2 diabetes and other life-threatening conditions.
- Unlike driving, cycling causes negligible harm to others, either through road injuries or pollution. This makes it a healthy option not just for cyclists, but for everyone else too.

## KEY FACTS

- Cycling to work is linked with a 45% lower risk of developing cancer, and a 46% lower risk of cardiovascular disease (CVD), compared to commuting by car or public transport.
- The health benefits of cycling outweigh the injury risks by between 13:1 and 415:1, according to studies. The figure that is most often quoted is 20:1 (life years gained due to the benefits of cycling v the life-years lost through injuries).
- Boys aged 10-16 who cycle regularly to school are 30% more likely to meet recommended fitness levels, while girls who cycle are seven times more likely to do so.
- In England, physical inactivity causes around 37,000 preventable premature deaths p.a. amongst people aged 40-79. In 2015, there were 525 thousand admissions in NHS hospitals where obesity was recorded as a factor.
- In England (2015), over one in five children in Reception, and over one in three children in Year 6 were measured as obese or overweight.
- Without action, 60% of men, 50% of women and 25% of children could be obese by 2050 in the UK, at a cost of £10 billion p.a. to the NHS.

## Cycling UK VIEW

- Policy makers should recognise cycling as a healthy and convenient means of transport and recreation that could easily be incorporated into the ordinary day-to-day activity of millions of adults and children.
- There is good evidence that cycling's health benefits far outweigh the risks involved and that the more people who cycle, the safer it becomes – the 'safety in numbers' effect.
- Cycling is also a benign mode of transport causing negligible harm to others. Hence a switch from motorised travel to cycling would improve road safety for all by reducing road danger.
- Locally and nationally, public health/transport/planning policies, strategies and guidance should be mutually supportive in promoting and facilitating cycling as active travel; and they should clearly steer professionals towards cross-sector working. This will help tackle the serious, costly and growing crisis of physical inactivity and the health problems associated with it.
- Directors of Public Health (England) should take advantage of their position in local authorities to engage transport, town and spatial planning and other council departments (e.g. leisure and tourism) more closely in promoting cycling as active travel and recreation.
- The NHS and its providers should actively promote cycling to their own employees, to the people in their care, and to the general public; and they should invest in measures to support it (e.g. patient referral schemes, cycling facilities at sites as part of travel plans etc.).
- Transport and planning decisions should be 'health checked' to maximise the potential for positive impacts on active travel and minimise negative impacts. Tackling hostile road conditions is a priority because they put existing cyclists at risk and deter many others including children and young people.
- Placing the onus solely on cyclists to protect themselves from injury does not tackle the risks they face at source. Health professionals should therefore remain cautious about cycle safety campaigns that focus on personal protective equipment.

## BACKGROUND INFORMATION

### 1. The health crisis

Lack of exercise is associated with a range of health problems, including obesity, cardiovascular disease (CVD), stroke, cancers, type 2 diabetes, Alzheimer's disease and other serious conditions.

#### a. Physical inactivity/sedentary behaviour:

- In the UK, around 11.8 million women and 8.3 million men are not active enough.[1]
- In England, over a quarter of adults (11.3m) are classified as inactive (i.e. they take fewer than 30 minutes of physical activity a week).[2] In Scotland, almost two-fifths of adults are physically inactive; in Wales over two-fifths; and in Northern Ireland almost half.[3]
- In England, one in five of 40 to 60 year-olds (3m people), are physically inactive.[4]
- c37% of coronary heart disease (CHD) deaths are linked to physical inactivity.[5]
- Physical inactivity has been identified as the fourth leading risk factor for global mortality, causing c3.2 million deaths globally a year.[6]
- A briefing published by the Institute of Economic Affairs concludes: *"The rise in obesity has been primarily caused by a decline in physical activity at home and in the workplace, not an increase in sugar, fat or calorie consumption."* [7]
- Academics calculate that eliminating inactivity in Europe would cut mortality rates by nearly 7.5%, or 676,000 deaths (eliminating obesity would cut rates by 3.6% - around half as much).[8]
- The number of children meeting the recommended amount of physical activity for healthy development and weight drops by 40% as they move through primary school.[9]

**Official NHS physical activity guidelines:**

- Children and young people aged 5-18: at least an hour of physical activity every day, which should range between moderate activity and vigorous activity;
- Adults aged 19-64: at least 150 minutes of moderate aerobic activity every week; OR 75 minutes of vigorous aerobic activity; OR a mix of moderate/vigorous aerobic activity every week.
- ***Cycling or fast walking counts as 'moderate aerobic activity'.***

## b. Obesity:

- The UK comes 6th in a list of 35 countries' obesity rates, both for adults and children aged 3-17 (percentage of the population).[10]
- According to a world-wide study of BMI (body mass index - a measure of whether someone is a healthy weight for their height), men in the UK had the 10th and women the 3rd highest in Europe.[11]
- In England in 2015:[12]
  - 58% of women and 68% of men were overweight or obese. Obesity prevalence increased from 15% in 1993 to 27% in 2015.
  - Over one in five children in Reception, and over one in three in Year 6 were measured as obese or overweight.
  - There were 525 thousand admissions in NHS hospitals where obesity was recorded as a factor
- Forecasts (2015) from the World Health Organisation (WHO) say that, in 2030: 33% of women in the UK will be obese (26% in 2010) and 63% overweight (59% in 2010); for men, 73% will be overweight (70% in 2010) and 36% obese (26% in 2010).[13]
- In 2007, the Government-commissioned Foresight report predicted that without action 60% of men, 50% of women and 25% of children would be obese by 2050 in the UK. [14] Seven years on, the National Obesity Forum said it was *"entirely reasonable to conclude"* that the report's determinations *"while shocking at the time, may now underestimate the scale of the problem."* [15]
- Obesity can lead to type 2 diabetes, CHD, some cancers, stroke, depression and low self-esteem.[16]

## c. Cardiovascular disease (CVD)[17]:

- CVD (an umbrella term for all diseases of the heart and circulation, including CHD, stroke and heart failure), causes more than a quarter of all deaths in the UK each year (around 160,000). An estimated 7 million+ in the UK are living with CVD.
- Nearly one in seven men and one in eleven women die from coronary heart disease (CHD).

## d. Type 2 diabetes:

- Around 4.5 million people are living with diabetes in the UK, with 90% of those affected having type 2 diabetes, which is often associated with obesity. [18]
- Academic research published in 2014 found that in England: *"The prevalence rate of prediabetes increased from 11.6% to 35.3% from 2003 to 2011".* [19]
- The increasing prevalence of diabetes globally prompted the World Health Organisation to publish a major report on the subject in 2016.[20]

## e. Asthma, bronchitis and other respiratory diseases:

Car dependency not only has an adverse impact on levels of physical activity, but is also a significant source of pollutants that are known to be harmful to respiratory health, e.g. nitrogen oxides and particulate matter. Outdoor air pollution is linked to around 40,000 deaths a year in the UK. [21] For more on air quality, see Cycling UK's briefing: www.cyclinguk.org/campaigning/views-and-briefings/air-quality

### f. Alzheimer's disease:

Research has found that physical inactivity is a significant risk factor for Alzheimer's disease worldwide. In fact, it is the highest 'population-attributable risk' for the condition in the USA (21%), Europe (20.3%), and the UK (21.8%).[22]

### g. The economic impact:

- The Foresight report projected that NHS costs attributable to overweight and obesity would double to £10 billion per year by 2050, if nothing is done to tackle it. It estimated that the wider costs to society and business would reach £49.9 billion per year (at today's prices). [23]
- Research for AstraZeneca reports that: *"CVD was responsible for a cost of €18.9billion* [over £15bn] *in 2014, which represents 1.4% of the UK's GDP. As elsewhere, an increase in the cost from CVD is expected by 2020, to €23.1 billion."*[24]
- Sickness absence costs UK business around £29bn annually.[25]
- Cycle commuters take one day less sick leave on average each year, estimated to save UK business around £83m.[26]
- Each year, healthcare costs relating to CVD are around £9 billion a year, and it costs the UK economy around £19 billion.
- Physical inactivity/sedentary behaviour is estimated to cost the UK as much as £1.2 billion a year,[27] and physical inactivity the European economy over €80 billion per year.[28]

## 2. Cycling as active travel

**Cycling UK view:** Policy makers should recognise cycling as a healthy and convenient means of transport and recreation that could easily be incorporated into the ordinary day-to-day activity of millions of adults and children.

### a. The health benefits of physical activity

- In 2009, the then Chief Medical Officer said of the potential benefits of physical activity: *"If a medication existed which had a similar effect, it would be regarded as a 'wonder drug' or 'miracle cure."*[29]
- Being physically active can decrease the risk of CVD by 33% and the risk of stroke by 31%; and, in the UK, if all inactive people become active, 10.5% of CHD cases could potentially be prevented.[30]
- Physical activity has a beneficial effect on mental health and psychological well-being and it helps treat clinical depression, anxiety and stress.[31]
- Research has shown that bouts of physical activity may help children pay more attention at school.[32] There is also a significant positive relationship between physical activity, improved cognitive performance and academic achievement.[33]
- Parents say being active makes most 5 to 11 year-olds feel happier (79%), more confident (72%), and more sociable (74%); nearly all children say they like being active (93%), and are mainly motivated by having friends to join in and more activities to choose from.[34]
- Research suggests that 'weekend warriors', i.e. people who perform all their exercise in one or two sessions a week rather than adhere to official NHS guidelines (see box on p3), are still doing enough to reduce their risk of all-cause, CVD, and cancer mortality.[35]

**The NHS says:**
"Exercise is the miracle cure we've always had, but for too long we've neglected to take our recommended dose. Our health is now suffering as a consequence.
This is no snake oil. Whatever your age, there's strong scientific evidence that being physically active can help you lead a healthier and even happier life."
www.nhs.uk/Livewell/fitness/Pages/whybeactive.aspx

## b. The advantages of cycling as a form of physical activity

*"I believe that encouraging more people to engage in active travel, such as walking and cycling, is crucial to improving the health of the nation and reducing the prevalence of obesity."*
Prof Dame Sally C Davies, Chief Medical Officer, Annual Report, Surveillance Volume, 2012: On the State of the Public's Health. 2014.
www.gov.uk/government/uploads/system/uploads/attachment_data/file/298297/cmo-report-2012.pdf

Cycling is close to being an ideal form of exercise because:

- It doubles up as transport, which means that most people can readily incorporate it into their daily lives. There's no need to spend money on working out at a gym or find extra time for it, and it's an inexpensive way of getting about in the first place. Moreover, if physical activity becomes a routine part of an individual's day-to-day life, it is easier for them to maintain it as a regular habit.
- It contributes to fat loss: how many calories it uses up depends on a cyclist's weight, age and how fast they cycle but, generally speaking, a fairly leisurely rider will dispose of around five calories or so a minute.
- It is aerobic, using major muscle groups in the legs and causing the heart rate and respiration to increase in order to supply the muscles.
- Cycling takes the body's weight off the legs, exerting much less pressure on the joints than in running, for example. This makes it a good form of exercise for people with joint problems.
- In contrast with such activities as dancing and most sports, cycling is low-skill. Although the prospect of riding on Britain's roads may appear challenging to a non-cyclist, it is essentially an enduring and quickly learnt ability, with training schemes to help (see www.bikeability.org.uk).
- For those who find sports-orientated or recreational activity off-putting, commuter cycling, or cycling to school or the shops, may be an acceptable and convenient alternative.[36]
- Being in greenspaces has been shown to have health benefits, with added benefits for those who access them actively, i.e. by walking or cycling.[37]
- It is a low cost form of exercise, making it a possibility for most people.
- National clinical guidelines recommend cycling as a beneficial physical activity for children. [38]

**The World Health Organisation says:**
"Regular moderate intensity physical activity – such as walking, cycling, or participating in sports – has significant benefits for health. For instance, it can reduce the risk of cardiovascular diseases, diabetes, colon and breast cancer, and depression. Moreover adequate levels of physical activity will decrease the risk of a hip or vertebral fracture and help control weight."
www.who.int/topics/physical_activity/en/

## c. Evidence for the health benefits of cycling/active transport:

- Research, published in the BMJ in 2017, found that cycling to work is linked with a 45% lower risk of developing cancer, and a 46% lower risk of cardiovascular disease (CVD), compared to commuting by car or public transport. This was a large study involving 264,337 people in the UK.[39]
- Another large study in Denmark concluded that "*Commuter and recreational cycling was consistently associated with lower risk of T2D [type 2 diabetes] in Danish adults. Our results also provide evidence that late-in-life initiation of or continued engagement in cycling lowers risk of T2D*".[40]
- Studies show that: cycle commuting improves fitness in men and women and is inversely associated with body mass index, obesity, triglyceride levels, blood pressure, and insulin level in men; and that people who commute actively have significantly lower BMI than their counterparts who use public transport.[41]
- A study of around 73,000 men and 83,000 women found that mixed public and active transport commuters had significantly lower BMI and body fat than their car-only counterparts.[42]
- A Dutch study found that employees who cycle regularly to work are less frequently ill, with on average more than one day per year less absenteeism than colleagues who do not cycle to work. The authors calculated that between them employers in the Netherlands could save around 27 million Euros in terms of absenteeism if they encouraged more people to cycle.[43]
- An examination of data for 14 countries, all 50 US states and 50 of the largest US cities, found that walking and cycling help tackle physical inactivity, obesity and diabetes.[44]
- Health economists have found significant associations between overall psychological wellbeing and active travel compared to car travel. For instance, car commuters were at least 13% more likely to feel constantly under strain or unable to concentrate than those who cycled or walked to work, and the longer drivers spent on their daily commute, the worse they felt in psychological terms.[45]
- A study from Canada found that employees who cycled to work were less stressed when they arrived than their car-driving counterparts.[46]
- Over a period of nine years, a study of male civil servants found that those who cycled for at least an hour a week (or 25 miles in a single week) experienced less than half the non-fatal and fatal coronary heart disease of the others.[47]
- A population-wide study in Copenhagen found that, compared with those who cycled regularly to work, people who did not had a 39% higher mortality rate, regardless of whether or not they sometimes took part in other physical activities at other times.[48]
- A study predicting the consequence of 100,000 people taking up regular cycle commuting calculated that 50 fewer deaths would result per year (health benefits and reduced road casualties aggregated), the equivalent of 1,660 life years.[49]
- Academics have calculated that cycling prevents about 6,500 deaths each year and adds half a year to life expectancy in the Netherlands. These health benefits correspond to more than 3% of the Dutch gross domestic product.[50]
- Research into six different types of sport/exercise found significant reductions in all-cause mortality for cycling, swimming, racquet sports and aerobics (but not for football and running). [51]
- People who cycle regularly in mid-adulthood typically enjoy a level of fitness equivalent to someone 10 years younger[52] and their life expectancy is two years above the average.[53] (The latter finding is also borne out by an unpublished analysis of Cycling UK members' obituaries).

Public Health England's Physical Activity Tool brings together data at local level for the whole of England on physical activity, including walking and cycling, as well as data on related risk factors and conditions such as obesity and diabetes. https://fingertips.phe.org.uk/profile/physical-activity

- Boys aged 10-16 who cycle regularly to school are 30% more likely to meet recommended fitness levels, while girls who cycle are seven times more likely to do so.[54]
- Research that looked at the benefits of a shift from car to active transport concluded that the health benefit due to physical activity is by far the biggest positive and that: *"the benefits of bicycling completely overwhelm any concern over pollution exposure of bicyclists."*[55]
- UK research found that people who took up cycling as a new activity gained the greatest benefits at the outset, but fitness continued to improve as they increased their cycle use. Reduced body fat was also noted, particularly among those who were overweight or obese at the outset of the trial.[56]

**Assessing the benefits – the Health Economic Assessment Tool for Cycling (HEAT)**

HEAT, a free on-line tool from the World Health Organisation, helps calculate how much cycling saves from reductions in mortality, i.e. if x people cycle or walk y distance on most days, what is the economic value of mortality rate improvements?
The tool can be used to: plan a new piece of cycling or walking infrastructure; value the mortality benefits from current levels of cycling or walking (e.g. to a particular workplace); provide input into cost-benefit analyses / health impact assessments etc. www.euro.who.int/HEAT

## 3. Risk v benefits of cycling and 'safety in numbers'

**Cycling UK view:** There is good evidence that cycling's health benefits far outweigh the risks and, indeed, that more people who cycle, the safer it becomes – the 'safety in numbers' effect.

Some assume that cycling is a high-risk activity and that promoting it for health puts more people in danger than it benefits. This view has long been dismissed by health experts. For instance, in its 1992 report, *Cycling: Towards Health and Safety*, the British Medical Association concluded that *"Even in the current hostile traffic environment, the benefits gained from regular cycling are likely to outweigh the loss of life through cycling accidents for the current population of regular cyclists."* [57]

The author of this report, Mayer Hillman, subsequently estimated that the life years gained due to the health and fitness benefits of cycling in Britain outweighed the life-years lost through injuries by a factor of around 20:1,[58] a figure since used by the UK Government. [59] [60]

More recent studies have also weighed up the health costs and benefits of cycling. Unlike Hillman's calculation, some of these take account of pollution, as well as injury risks. The affect that pollution has on cyclists is not entirely certain: it seems to depend on the cyclist's speed and hence their breathing rate – see our briefing on air quality for more: www.cyclinguk.org/campaigning/views-and-briefings/air-quality. However, if pollution effects are omitted, the health benefits are estimated to outweigh the injury risks by between 13:1 and 415:1 (see table on next page).

| Estimates of the health benefit of cycling : injury reduction disbenefit | | | | |
|---|---|---|---|---|
| **Authors (date)** | **Location(s)** | **Basis for comparison** | **Headline findings** | **Benefit : disbenefit** |
| Hillman (1992)[61] (not online) | Great Britain | Ratio of life-years gained through health benefits of cycling v life years lost to cycling injuries | Health related life-years gained outweigh injury-related life-years lost by **20:1** | **20:1** |
| De Hartog et al (2010)[62] | Netherlands | Gains and losses per person per annum for adults aged 18-64 who switch a regular car commute to cycling. Weighs up life-years gained per year through health benefits of cycling, versus life years lost to cycling injuries and pollution. | Average mortality gains/ losses:<br>• Physical activity benefits: range 3-14 months, ave. 8 months (c245 days)<br>• Injury disbenefits: range 5-9 days (ave. 7 days)<br>• Pollution disbenefits: range 0.8-40 days, ave. 21 days).<br><br>Summarised here.[63] | 245:7= **35:1**<br>N.B. with pollution disbenefits to individuals, = c9:1, but this omits pollution benefits to society |
| Woodcock et al (2009)[64] | London (the study also considers Delhi) | Various sustainable travel scenarios, one of which ("increased active travel") is a doubling of walking and an 8-fold increase in cycling, with corresponding reductions in car use. Weighs up both mortality effects and "disability adjusted life years" (DALY) effects per million of population due to increased physical activity, injuries and pollution; also the societal benefits of reduced pollution and CO2 emissions. | Impacts per million population annually under the "increased active travel" scenario in London:<br>• Physical activity benefits: 528 deaths averted, saving 5496 life-years; plus a reduction of 2245 life-years impaired by disability, a saving of 7742 DALYs.<br>• Air pollution net benefits (n.b. societal benefits of reduced air pollution outweigh the pollution disbenefits for individuals who switch from car to active travel): 21 deaths averted, saving 200 life-years, plus 200 DALYs.<br>• Traffic crashes: net loss of 11 lives and 418 life-years, plus an increase of 101 life-years impaired by disability, a cost of 519 DALYs. | Ratio for mortality: 5496 : 418 = **13:1**<br><br>Ratio for DALYs: 7742 : 519 = **15:1**<br><br>(N.B. Including pollution effects to individuals and society makes little difference to these ratios). |
| | | | | *Cont./* |

| Cont./ Estimates of the health benefit of cycling : injury reduction disbenefit | | | | |
|---|---|---|---|---|
| Rabl & de Nazelle (2012)[65] | Data from several EU cities | Considers annual value of mortality benefits and disbenefits for each individual who switches a regular short (5km one-way) car commute to cycling. Weighs up life-years gained per year through health benefits of cycling, versus life years lost to cycling injuries and pollution, also societal benefits of reduced pollution. | Ave. annual value of benefits per person switching from car to cycle:<br>• Physical activity benefits, $1310<br>• Public health benefits from reduced pollution, $33<br>• Individual disbenefits from increased pollution, $19<br>• Individual disbenefits from injuries, $53.<br>See Table 5 of report. | 1310 : 53 = **24:1**<br><br>(N.B. ratio including pollution effects to individuals and society is c19:1). |
| Rojas-Ruede et al (2011)[66] | Barcelona | Calculates the overall mortality-related impacts of Barcelona's "BICING" hire-bike scheme in terms of life-years gained through health benefits of scheme-users switching from car travel to cycling, versus life years lost to cycling injuries and pollution. Also considers CO2 savings. | Life years gained and lost annually by BICING scheme users:<br>• Deaths averted due to physical activity, 12.46<br>• Deaths due to pollution: 0.13<br>• Deaths due to injury: 0.03.<br><br>Summarised here. [67] | 12.46 : 0.03 = **415:1**<br><br>(N.B. ratio including pollution effects to individuals is 77:1. Pollutant effects to society not assessed). |

- **Safety in Numbers**

A growing body of evidence suggests that cyclists gain from 'safety in numbers' i.e. increased cycle use is associated with a lower risk per km cycled.[68] Estimates also suggest that doubling cycle use would result in only a 25-30% increase in cyclist fatalities, representing a 35-40% drop in risk per cyclist.[69]

The causal mechanism for this has not been established, but a likely explanation is that the more cyclists there are on the roads, the more 'cycle aware' drivers become. It may also be that increased cycle use means that a greater proportion of drivers are cycle users too, with a better understanding of cyclists' safety – a phenomenon established by research.[70]

The safety in numbers effect is even stronger where conditions for cycling have improved, and/or traffic speeds reduced – London, York and Leicester are both among several European towns and cities that have increased cycle use while at the same time reducing casualties in absolute terms.

For more on 'safety in numbers' and the evidence for it, see www.cyclinguk.org/safetyinnumbers
See also *Safety in Numbers for Cyclists in England: Measuring the Effect* (Road Safety Analysis, 2016)
http://roadsafetyanalysis.org/2016/11/cycling-safety-in-numbers-research/

## 4. Cycling and injury to other road users

**Cycling UK view:** Cycling is a benign mode of transport causing negligible harm to others. Hence a switch from motorised travel to cycling would improve road safety for all by reducing road danger.

Compared to motor vehicles, cyclists put others at negligible risk. Cycling is not responsible for unhealthy levels of pollution, and cyclists cause very few injuries to other road users:

- From 2011 to 2015 (GB), the vast majority - 98% - of pedestrian KSIs (killed or seriously injured) collisions in an urban area (i.e. where pedestrians are most likely to be) involved a motor vehicle.[71]
- In 2015, out of the 14,964 collisions involving a car and cycle (all areas), no car occupant died. Forty-four cyclists were killed, however.[72]

For more facts see: Cycling UK's *Cycling & Road Safety: an overview*; *Cyclists' Behaviour and the Law;* and *Cycling & Pedestrians*, both at www.cyclinguk.org/campaignsbriefings

## 5. Health and transport: making the links

**Cycling UK view:**

- Locally and nationally, public health and transport/planning policies, strategies and guidance should be mutually supportive in promoting and facilitating cycling as active travel; and they should clearly steer professionals towards cross-sector working. This will help tackle the serious, costly and growing crisis of physical inactivity and the health problems associated with it (e.g. obesity, heart disease etc).
- Directors of Public Health (England) should take advantage of their position in local authorities to engage transport, town and spatial planning and other council departments (e.g. leisure and tourism) more closely in promoting cycling as active travel and for recreation.
- The NHS and its providers should actively promote cycling to their own employees, to the people in their care, and to the general public; and they should invest in measures to support it (e.g. patient referral schemes, cycling facilities at sites as part of travel plans etc.).

The concept of 'active travel' has evolved over the past few years in response to the damage that physical inactivity is doing to public health. 'Joined up' health and transport policies/strategies and cross-sectoral expertise are reflecting this, but more needs to be done to make sure that the link is consistently forged and action taken to reinforce it at both national and local level.

In recent years, much of the responsibility for promoting public health (i.e. policies aimed at preventing ill health and injury, as distinct from treatment) has been devolved from the NHS to local authorities.

### a. England

The *Health and Social Care Act 2012*[73] created the framework for major reform of the NHS. It devolved significant responsibility for public health from national to local government, allowing for closer working partnerships between local health and transport/planning professionals, and with local voluntary and community groups. Measures to encourage people to try out alternatives to driving – or 'smarter choices' (e.g. cycle training programmes, individualised travel planning, events, workplace challenges etc.) – lend themselves particularly well to this ground level, cross-sector approach. For more on smarter choices, see www.cyclinguk.org/campaignsbriefings.

**Public Health England:** set up under the *Health and Social Care Act*, this body is an executive agency which exists "to protect and improve the nation's health and wellbeing, and reduce health inequalities." It provides leadership and delivers integrated services to protect the public's health and lead on data collection to show whether the aims of the *Public Health Outcomes Framework* are being met (see p10). In 2014, the agency published *Everybody active, every day: a framework to embed physical activity into daily life*.[74] It makes numerous references to cycling and effective interventions that help encourage and promote it. www.gov.uk/government/organisations/public-health-england.

**Healthwatch** is essentially an independent consumer champion for both health and social care. Local Healthwatches in every area England are useful contacts for local cycling advocates keen to promote active travel for its health benefits. www.healthwatch.co.uk/find-local-healthwatch

**English local authorities:** the *Health and Social Care Act* requires local authorities to promote and provide for healthy living *"whether by helping individuals to address behaviour that is detrimental to health or in any other way."*

Authorities discharge this responsibility through the local Director of Public Health (whom they employ directly), in conjunction with a Health and Wellbeing Board which upper tier and unitary councils are obliged to set up (although there is nothing to stop second tier councils doing the same). The Board's role is to understand their community's needs, agree priorities and encourage people who commission health services to work in a more joined up way. Besides the DPH, other Board members include a local Healthwatch representative and councillors, and they are free to expand their membership to the charity or voluntary sectors.

The Boards have to produce a *Joint Strategic Needs Assessment* (JSNA) to drive local commissioning and also develop a *Joint Health and Wellbeing Strategy* (JHWS) on how best to these needs.

The Government's guidance on JSNAs and JHWSs encourages integration between services, including transport. It says:
- *"JSNAs can also be informed by more detailed local needs assessments such as at a district or ward level; looking at specific groups (such as those likely to have poor health outcomes); or on wider issues that affect health such as employment, crime, community safety, transport, planning or housing."*
*"JHWSs can help health and social care services to be joined up with each other and with health-related services, such as housing, transport, the economy or the environment."* [75]

## b. Scotland, Wales and Northern Ireland

The reforms made by the *Health and Social Care Act 2012* apply almost exclusively to England, because the management of the health service in Scotland, Wales and N Ireland is devolved.

However, the principle that all health boards/trusts throughout the UK should work in close partnership with those responsible for making decisions about local transport and planning, is vital everywhere. This is the best way to help the public engage in healthy, active travel.

Also, the connection between cycling/walking and health has been officially recognised in a variety of official documents produced by the devolved administrations. A few examples are listed below:

**Scotland:**

- Transport Scotland's *Long term vision for active travel in Scotland 2030* has a number of objectives, including *'better health and safer travel for all'*. To achieve this, it advocates: *"Environments in which walking and cycling are easy choices will be safer for everyone, promote healthy living choices, treat and prevent disease and reduce health inequalities."*[76]
- Scotland's *National Performance Framework* includes an indicator to "Increase the proportion of journeys to work made by public or active transport".[77]
- Scotland's obesity strategy (2010) also commits to *"create environments that make walking and cycling part of everyday life for everyone ..."* [78]

**Wales:**

- In 2016, the Welsh Assembly Government published *An Active Travel Action Plan for Wales*, following the *Active Travel (Wales) Act* 2013.[79] The aim is to create 'active travel nation' to realise a range of benefits, not least improved health through higher levels of physical activity.

**Northern Ireland:**

- Northern Ireland's strategy to combat overweight and obesity for 2012-2022 looks at cross-sectoral action and 'delivery partners', and concludes that *"… a combination of urban design, land use patterns, and transportation systems promotes walking and cycling, which helps create active, healthier, and more liveable communities. It is therefore vital that those with an influence on these wider sectors are part of the process, and buy into the need to deliver on this agenda."* [80]

For more on the structures, policies and strategies of the health services in devolved UK countries see:

- www.scot.nhs.uk/
- www.wales.nhs.uk/
- www.hscni.net/

- **NICE (National Institute for Health and Clinical Excellence)**

Set up in 1999, NICE is responsible for developing quality standards and other guidance for social care in England. It produces evidence-based guidance on medical care and the best ways to encourage healthy living, promote wellbeing and prevent disease. These include briefings relating to physical activity, including both behavioural and environmental interventions (e.g. exercise referral schemes or 'cycling on prescription'[81]) etc. www.nice.org.uk/guidance/lifestyle-and-wellbeing/physical-activity

In practice, much of NICE's guidance is used throughout the UK.

An appendix to the BMA's report on transport and health (see p16) summarises relevant NICE recommendations, while NICE lists briefings that are particularly relevant for local government at www.nice.org.uk/about/what-we-do/our-programmes/nice-advice/local-government-briefings

- **Directors of Public Health** (DsPH)

English DsPH and their staff work within local authorities to help them discharge their public health functions, putting them in a strong position to engage more effectively with transport, planning and other departments.

Cycling UK recommends that DsPH efforts to promote active travel focus on the following areas:

- Influencing key local transport and planning policies, plans and assessment processes to ensure they are 'health-checked' (see p14);
- Promoting or supporting active travel for the population in their areas and specifically for key target groups, e.g.: school pupils, employees, health patients, people with disabilities, other disadvantaged groups and communities;
- Monitoring the impact of transport/active travel policies on physical activity & public health;
- Promoting physical activity to the NHS's own employees, as well as its patients;
- Ensuring that hospitals and other health services are easily accessible by active travel, with safe and convenient cycle access, parking etc.

> "The suppression of active travel in the UK is associated with generally higher levels of physical inactivity and sedentary lifestyles. This in turn can contribute to higher levels of morbidity and mortality through an increased risk of clinical disorders such as cardiovascular disease, overweight and obesity, metabolic disorders, and some cancers."
>
> ***Healthy transport = Healthy lives. BMA 2012. http://bma.org.uk/transport***

- **NHS and medical practitioners**

With c1.5 million employees, the NHS is the largest employer not just in Britain but in the whole of Europe. It has an obvious interest in promoting healthy travel, both to the public and to its staff.

The NHS Sustainable Development Unit has been set up to help the NHS fulfil its potential as a sustainable healthcare service. It promotes cycling and walking both as physically active travel and as sustainable, low carbon forms of transport. www.sduhealth.org.uk/

Doctors, practice nurses and other medical staff are in a good position to 'prescribe' cycling to patients to help them overcome problems that threaten their health, or recover from episodes of illness (e.g. heart attacks). There may be organisations locally who can support such referrals with gentle, led rides. A study published in 2017, however, suggests that too many GPs struggle to advise patients about physical activity or use the tools available. The authors suggest that this needs tackling.[82]

**Healthy New Towns** is an NHS England initiative (announced March 2016) involving ten new housing developments, aiming to tackle a variety of health and care challenges, including obesity, dementia and community cohesion. The project brings together clinicians, designers and technology experts to look at healthcare delivery in the 'demonstrator' towns. Linking the design of the built environment with modern health and care services is part of their remit.
www.england.nhs.uk/ourwork/innovation/healthy-new-towns/

## h. The role of transport and planning professionals

**Cycling UK view:** Transport and planning decisions should undergo a 'health check' to maximise the potential for positive impacts on active travel and minimise negative impacts. Tackling hostile road conditions is a priority because they put existing cyclists at risk and deter many others including children and young people.

Practitioners and politicians who make transport and planning decisions exercise a significant influence over the type of transport people choose for any given journey and, in turn, on how active and healthy their travel proves to be. Not only should these professionals and elected members work towards tackling hostile road conditions – caused, for example, by poor road layout, high speeds, lorries, or planning decisions that increase motor traffic volumes – but they should also ensure that cycling is a logical, convenient and attractive way of accessing local destinations/services (e.g. town centres, leisure facilities, employment centres, housing developments etc).

- **Promoting active travel**

**Cutting car use / traffic volume:** a DfT-commissioned review of the evidence on the links between transport, physical activity and health says that: *"In order to increase levels of physical activity, it is necessary to reduce use of the car."* [83] Replacing as many car journeys as possible by cycling and walking will not only help make people more active as part of their everyday lives, but also contribute to reduced traffic volumes, making cycling and walking more attractive.

**Cycle-friendly infrastructure:** the highway network and its junctions must be planned, designed and improved with cyclists in mind.

**Lower speeds:** high speed also deters people from cycling, so implementing lower speed limits, especially 20 mph in urban areas, is also vital.

**Law enforcement:** policing and penalising bad driving is equally essential, so effective traffic law and enforcement has a major role to play too.

**Smarter choices:** as mentioned above, smarter choices encourage people to try out alternatives to driving - (e.g. cycle training programmes, individualised travel planning, events, workplace cycle challenges etc). Any funding that local authorities put towards these measures is well-spent.

**Built environment:** NICE has produced evidence-based recommendations on how to improve the physical environment to encourage physical activity.[84] They recommend:

- Ensuring planning applications for new developments always prioritise the need for people to be physically active as a routine part of their daily life.
- Ensuring pedestrians, cyclists and users of other modes of transport that involve physical activity are given the highest priority when developing or maintaining streets and roads.
- Planning and providing a comprehensive network of routes for walking, cycling and using other modes of transport involving physical activity.
- Ensuring public open spaces and public paths can be reached on foot, by bicycle and other modes of transport involving physical activity.

The three-year *cycle BOOM* study led by Oxford Brookes University into how older people in the UK experience cycling and how this affects independence, health and wellbeing, concluded that "cycling has the potential to improve physical and mental health in the older population, however, participants reported that a number of factors including poor and unsupportive infrastructure and fear of injury from other traffic, had a negative impact on their cycling experience."
www.cycleboom.org

- **Health checks**

In the interests of facilitating active travel, decision makers should introduce the practice of 'health checking' every transport and land use proposal to ensure that it will not impact adversely on active travel and, ideally, encourage it.

For more on cycle-friendly transport policy, traffic law and enforcement, road safety, & infrastructure, and planning see
www.cyclinguk.org/campaignsbriefings

*Obesity and the environment: increasing physical activity and active travel* (Public Health England / Local Government Association (LGA), Nov 2013), sets out the range of legislative and policy levers that local authorities have at their disposal to create places where people are supported to maintain a healthy weight. It reinforces the message that public health professionals should work with their colleagues across local authorities.
www.gov.uk/government/uploads/system/uploads/attachment_data/file/256796/Briefing_Obesity_and_active_travel_final.pdf

## 6. Safety equipment for cyclists

**Cycling UK view:** Placing the onus solely on cyclists to protect themselves from injury does not tackle the risks they face at source. Health professionals should therefore remain cautious about cycle safety campaigns that focus on personal protective equipment.

While health sector bodies naturally want to prevent injuries from cycling, they should fully consider the possible negative impacts of any cycle safety awareness campaign that appears to 'dangerise' it. This approach could easily have a net disbenefit for public health by deterring people from cycling.

If the health benefits of cycling outweigh the disbenefits by 20:1 (see p7, section 3), then a cycle safety campaign (e.g. to promote helmet wearing) would have a net disbenefit if it deterred more than one person from cycling for every 20 who continued (i.e. if it decreased cycle use by more than 4.7%), even if the safety intervention were 100% effective at preventing all cycling injuries.[85] Obviously, the maximum threshold for avoiding a net public health disbenefit could be much lower if the safety intervention is only partially effective at reducing only a limited subset of cycling injuries (e.g. head injuries only).

For more on the public health impacts of promoting helmet wearing or moves to make it compulsory, see: www.cyclinguk.org/campaignsbriefings

As mentioned above, tackling the causes of hostile road conditions at source helps protect cyclists from injury and encourages more people to take up cycling. This, combined with high quality cycle training, is far more effective than focusing on protective accessories for cyclists.

## FURTHER READING / WEBSITES

- National Institute for Clinical Excellence (NICE) 'pathway' guidance on physical activity: http://pathways.nice.org.uk/pathways/physical-activity ; *Promoting and Creating Built and Natural Environments that encourage and support physical activity.* NICE. Jan 2008. https://www.nice.org.uk/guidance/ph8
- *Tackling Obesities: Future Choices.* Foresight. 2007 www.bis.gov.uk/foresight/our-work/projects/current-projects/tackling-obesities/reports-and-publications
- *The 1st Physical Activity Almanac.* 2016. Global Observatory for Physical Activity (includes 'country cards' giving details about each country to help them meet their physical activity goals). http://www.globalphysicalactivityobservatory.com/

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