

Transport and Health JSNA

Executive Summary

Air pollution

There are levels of air pollution in Cambridgeshire that impact health, even though most annual averages may not be over Air Quality Thresholds. The East and South East of England have higher background levels of particulates as these regions receive a larger contribution of particulate pollution from mainland Europe. However, there are also hot spots in Cambridgeshire caused by traffic-related pollution, especially in busy urban areas and around arterial and trunk roads such as the A14.

It has been estimated that there were 257 deaths attributable to air pollution in Cambridgeshire in 2010 and that over 5% of Cambridgeshire's population mortality is attributed to air pollution. Air pollution also impacts respiratory and cardiovascular hospital admissions and incidence of respiratory disease. There are higher levels of nitrogen dioxide in the winter months and peaks of larger particulate matter in the spring, which may lead to seasonal health impact.

Small particulates from traffic and other sources can also get into buildings contributing to poorer indoor air quality. Although concentrations of pollutants are lower in level than in ambient (outdoor) air pollution, people spend most of their time indoors and therefore receive most of their exposure indoors.

In England, the most deprived wards experience the highest levels of air pollution and with a high proportion of children living in these areas. It is worth noting that some new developments in Cambridgeshire are sited near to poor air quality areas.

Through the JSNA process, stakeholders have identified several options for addressing air pollution in Cambridgeshire:

- Lower emission passenger transport fleet (eg buses and taxis) and traffic restraint. For example, renewing of small numbers of buses and incentives for low emission vehicles for taxis should reduce emissions. Although previous improvements to vehicle technology had limited real world effect, the new low emission vehicles are either fully electric, with no emissions at point of use, or hybrid vehicles with significantly reduced emissions.
- Modal shift from cars to walking and cycling. Switching journeys from cars to walking, cycling and public transport not only has a large beneficial impact on the individual's health, but a wider benefit to the population health as there are corresponding decreases in overall air pollution levels and, therefore, reduction in harm

- Further investigation into the potential for reducing specific person exposure. While a lower emissions transport fleet and modal shift provide the overall long-term momentum to reduce air pollution, there are measures that may reduce person exposure in the short-term, though the cost effectiveness and practicality of these options needs further investigation:
 - Text alerts to vulnerable patient groups
 - Monitoring measures to improve indoor air quality especially in newer office buildings.
 - Better use of health evidence when assessing the populations exposed in new developments.
 - Further understanding around the seasonal impact of air pollution and potential measures that could reduce this

Active Travel

Active transport or travel is any means of getting from A to B that involves being physically active. In the Transport and Health JSNA, active transport has been restricted to non-leisure or utilitarian walking and cycling including trips to work, trips to school and other non-leisure trips such as to the shops. Fitting physical activity into the working day can be difficult. Active travel to and from work is a good way for many people to get active and work towards the 30 minutes a day target. Increasing physical activity reduces all-cause mortality and reduces ischemic heart disease, stroke and dementia. Those that are most inactive benefit the most, with even small increases in walking and cycling helping health.

Half of work trips are walked or cycled in Cambridge City compared with only one in seven in the rest of the county. In general, the proportion of people who use active transport for work decreases with distance and most notably in those that walk, though cycling rates do not decline until the trip is longer than 5km (3.1 miles).

The proportion of people that walk to work decreases with age though levels remain relatively constant after the age of 40 years. Cycling rates in Cambridge City are high, up to a similar age, after which they begin to decline. However cycling rates in the remainder of Cambridgeshire are fairly static across all age bands, with younger workers no more likely to cycle than older workers.

There are over 18,000 car trips to work in Cambridgeshire that are less than 2km (1.2 miles), with over a 1/3 of these in Huntingdonshire. In Cambridge City, short work trips are less likely to be cycled in the outskirt areas and in wards to the south and east of the city. In Fenland, very few short trips to work are cycled or walked even in town settings such as March and Wisbech.

Traffic cordon data show that walking is more common in the market towns and cycling more common in Cambridge City

In Cambridgeshire, nearly 60% of primary school children walk to school, but only 35.3% of secondary school do. Cycling is much less popular with only 6.7% of primary school and 15.5% of secondary school children cycling to school. Car trips still account for 26.4% of primary school trips and 10-15% of secondary school trips.

During the JSNA process, stakeholders have highlighted that to ensure success of active travel interventions we need to move away from categorising modes of travel (motorists, cyclists and pedestrians) and focus rather on the interplay of these modes of transport. It was emphasised that by separating modes of travel, environments that promoted safe and efficient transport for all could not be achieved and that a culture of cars versus cycles would continue. This culture, of one mode of transport working against another, needs to be addressed and changed to create respectful travel environments.

At the stakeholder event, it was emphasised that an initial focus modal shift on densely populated towns and cities may be a preferred starting point. This could be achieved by targeting achievable wins such as car parking on edges of villages, rather than building large cycle paths in very rural areas. Further emphasis was placed on targeting the least active thereby helping to reduce health inequalities – in addition, the health gains for the least active are in relative terms greater than for those who are more physically active.

Potential next steps should therefore focus on the following concepts:

- **Improving safety and perception of safety** – addressing issues around immediate environments of cycle and walkways to encourage walking and cycling.
- **Infrastructure** - providing the right physical environment for people to walk and cycle especially focusing on reducing the distance by bicycle or walking compared to other modes of transport.
- **Culture** - tackling the different barriers that prevent people being active, taking into account social and economic inequalities, age and disability and understanding the cultures of those who will benefit the most.
- **Further assessment of data and intelligence** to enable targeting of initiatives.

Access to transport

The availability and accessibility of means of transport is important as an enabler of access and travel to services and social opportunities. Expert opinion and local stakeholders argue that transport is a gateway to participation and a vital element in the prevention of isolation and loneliness.

Transport barriers are not experienced equally through the population. Factors that may make people vulnerable to transport barriers include:

- Those who may be social excluded (or in lower socioeconomic groups).
- Those living in rural areas.
- Those without cars or stopping driving.
- Those lacking the knowledge or skills and confidence to use available modes of transport.

There is international evidence to suggest that transport barriers are a contributory cause of missed and cancelled health appointments, delays in care, and non-compliance with prescribed medication. These forms of disrupted and impaired care are associated with adverse health outcomes.

The economic costs (time and money) of accessing health care are borne by those with the highest attendance of health services due to the nature of their conditions, and travelling the furthest distances. There is evidence that making these journeys, and parking in particular, incurs some stress and anxiety.

In Cambridgeshire, there are wards where there are high numbers of vulnerable people, with limiting conditions, many in households without access to a car, living at a long distance from health services and where this may impact access to services. These flagged wards are often associated with deprived areas and sometimes with outskirts of towns and cities as well as rural areas. There are important differences in the challenges in travelling to health services in the market towns and rural areas of the County, compared with the provision of transport and access issues in Cambridge City; these may benefit from separate consideration.

Local stakeholders feel that there is considerable complexity in planning and making journeys by public and community transport in Cambridgeshire. There are wider access issues in reaching and benefitting from public and community services, including the distance to bus stops and using buses, frequency of services, and the cost of journeys. The limited options on destinations and times of services, or the necessity of making advance bookings for other services, do not fully meet peoples' desires or needs to get out and about. This can hamper timely and appropriate travel to health care.

Community transport schemes provide an important contribution to journeys to health services, particularly to hospital appointments. Many schemes report concerns about meeting increasing demands on their services. Hospital patient transport and public transport are also local assets but detailed data was not available.

An example of successful mapping and partnership work has been underway in Fenland, led by the District Council. This approach has enabled targeted work to address issues in transport and access to health care for local residents.

Through the JSNA process stakeholders have identified several options for addressing transport disadvantage in Cambridgeshire:

- A system-level perspective on health and transport planning, specifically ensuring that transport issues are given sufficient prominence within the Cambridgeshire and Peterborough Clinical Commissioning Group System Transformation programme.
- The exploration of additional bus provision or novel alternatives to increase the levels of non-private transport option. This could include more effective use of current assets such as school buses or taxis
- Alternative models of supporting health, benefitting from opportunities such as integrated care and telehealth and digital solutions in reducing need to travel to health services.
- The exploration of additional bus provision or novel alternatives to increase the current levels of non-private transport option.
- Further analysis of travel to GP practices and other forms of health services, including out of hours' services, and more detailed qualitative inquiry work with local residents who face transport barriers in travelling to health services.

Contributors and Acknowledgements

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We are grateful for the contributions from a variety of local stakeholders. The following stakeholders attended either of the stakeholder workshops, provided information or feedback.

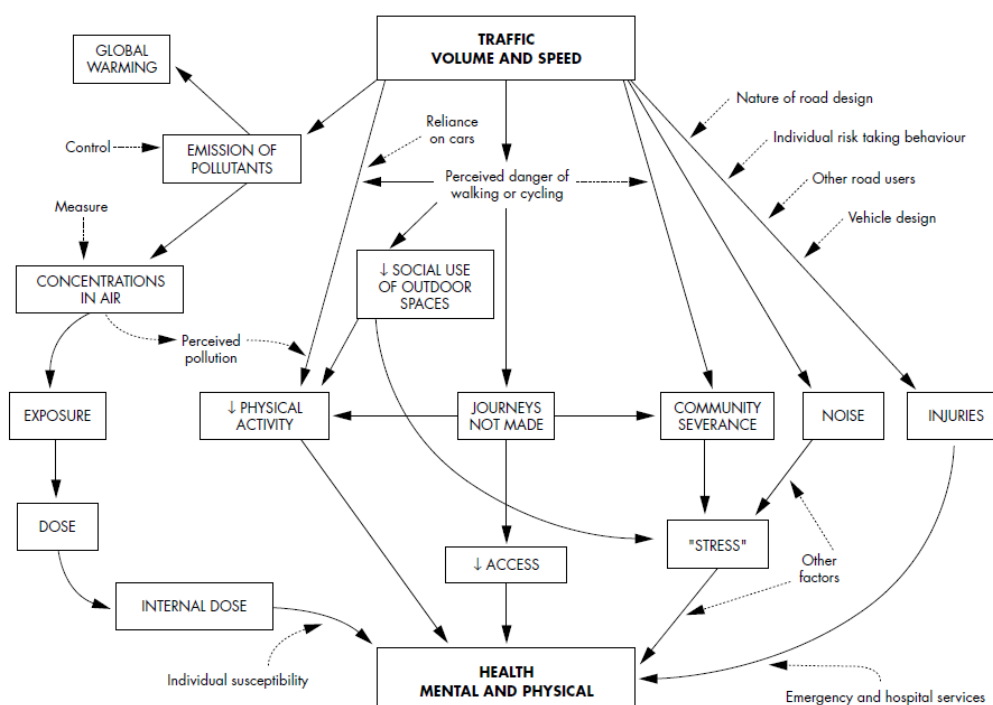
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Transport and Health JSNA Overview

How transport can impact health?

Transport is a complex system affected by infrastructure, individual characteristics and behaviours and can have broad impact on health. Joffe¹ (2002) developed a map (Figure 1) showing the transport components that could be linked to health outcomes. These include issues such as air and noise pollution, road design, impact on physical activity, road injuries and access, illustrating the diverse nature of the policy areas that are related to transport and may have a direct or indirect impact on health.

Figure 1 Diagram of pathways from transport policy to health outcomes.



Source: Joffe 2002

This has led to the development of integrated models of transport and health which aim to quantify the impact of transport policies and initiatives on health. A recent Department for Transport report² on “Investing in Cycling and Walking: the Economic Case for Action” provides a basic methodology for assessing initiatives emphasising the wider impact that transport can have on health and recommends that the following benefits are assessed by local authorities:

- Physical activity
- Absenteeism
- Journey quality
- Road Safety
- Environment

- Decongestion and indirect tax
- Time saving impact

More specific information on the precise health benefits of transport policies have been modelled by the Centre for Dietary and Activity Research (CEDAR) using an Integrated Transport Health Impact Modelling Tool³ (ITHIM) which models the impact of changing modes of travel on overall health, from inputs such as:

- Population information on age, sex and burden of disease.
- Changes in active travel by age and sex.
- Changes in transport fatalities and serious injuries.
- Changes in pollution exposure and impact.

The ITHIM modelling tool has been used to estimate the specific health benefit of cycling scenarios in England⁴, showing the greatest health benefits in ischemic heart disease, stroke and other cardiovascular disease. There are also health benefits for Type-2 diabetes, depression, dementia, colon and breast cancer. Increases in the number of pedestrians and cyclists is likely to affect the number of road traffic injuries and who is injured, as the risk of being injured or killed is higher for pedestrians and cyclists than car drivers⁵. In Cambridgeshire, the figures indicate that although the risk to an individual cyclist has reduced over the past ten years, there has been an increase in cyclist casualties due to an increase in the number of cyclists⁶.

However, in scenarios where there is strong encouragement of cycling and changes to infrastructure to raise cycling levels to those similar to the Netherlands, models actually show a reduction in road traffic injuries due to changes in infrastructure, road speed and a reduced number of cars on the road (Woodcock 2013). Other benefits include lower levels of air pollution due to the switch from car to cycling and walking and a consequent reduction in harm from air pollution.

What is the focus of the Transport and Health JSNA?

Due to the complexity of the impact of transport on health the Cambridgeshire Transport and Health JSNA has restricted its focus to the health impact of the following sections:

- Air pollution
- Active Transport
- Access to Transport

The JSNA is relevant to priorities 3 and 5 of the Health and Wellbeing Strategy 2012-17:

- Priority 3: Encourage healthy lifestyles and behaviours in all actions and activities while respecting people's personal choices.
- Priority 5: Create a sustainable environment in which communities can flourish.

For each section, this JSNA provides:

1. **Key Findings.**
2. **Introduction:** background evidence of the health impact.
3. **Local Data:** analysis of local Cambridgeshire data.
4. **Local Views:** a summary of patient and stakeholder views.
5. **Addressing Local Needs:** an assessment of effective interventions, local assets and future options.

How has the Transport and Health JSNA been produced?

A scoping paper was submitted and approved by the Health and Wellbeing Board on 2 October 2014, agreeing the focus on the three priority areas.

A Transport and Health JSNA stakeholder workshop was held on 19 November 2014 and was well-attended with approximately 35 representatives from Cambridgeshire County Council, District Councils, NHS organisations, academic groups, 3rd sector organisations and Healthwatch. The aim of this workshop was to:

- Encourage engagement, discussion and awareness of issues amongst stakeholders.
- Identify how the JSNA will be used by the stakeholders.
- Get further detail around key issues for the three priority areas.
- Identify potential sources of information/data for the JSNA.

Feedback from this event significantly shaped the specific focus for each priority area.

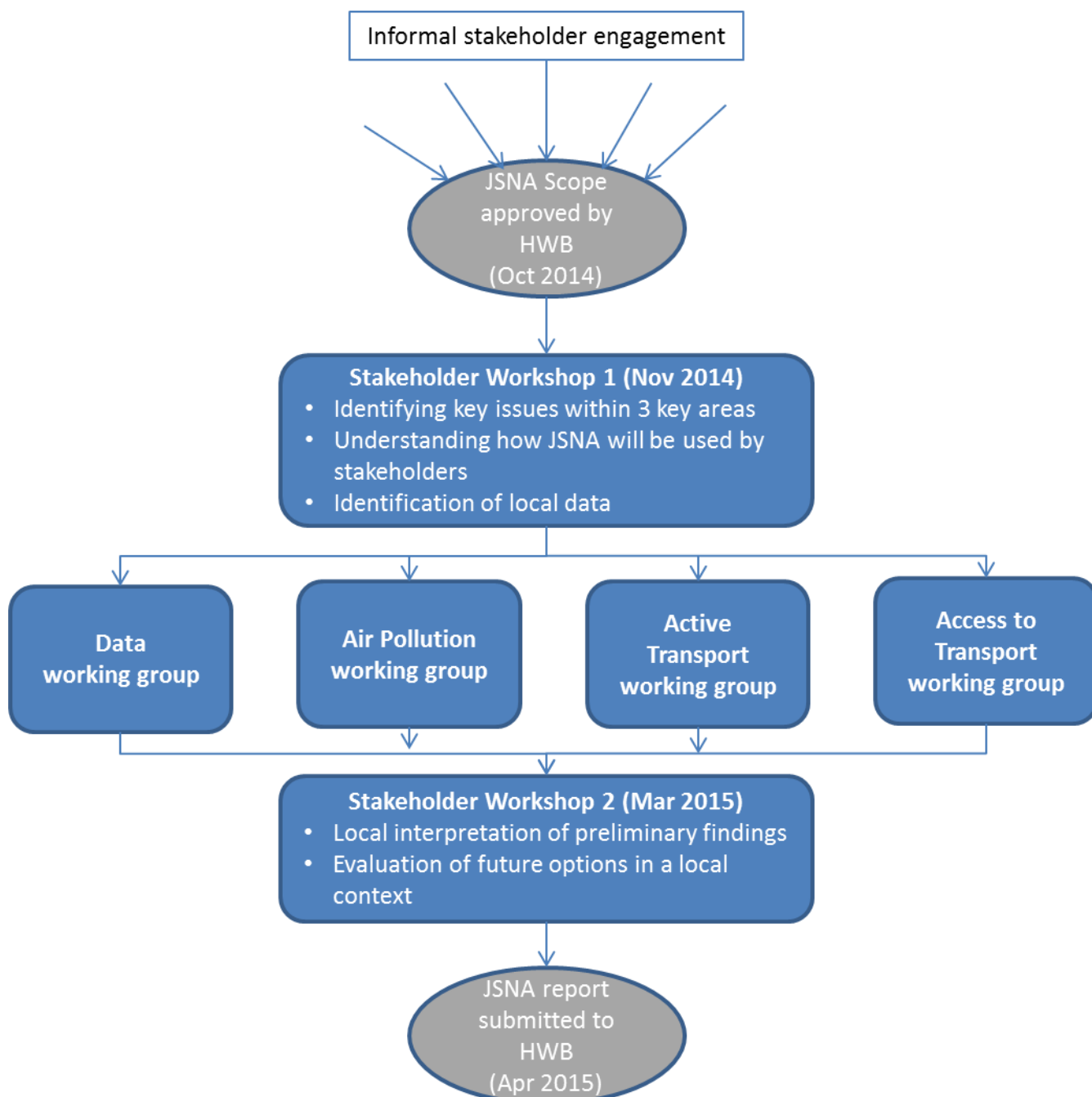
Four working groups were subsequently created for data analysis, air pollution, active transport and access to transport. These working groups had significant input from Cambridgeshire County Council (Public Health and Economy, Transport and Environment Services), District Councils, NHS, 3rd Sector organisations and the Centre for Dietary and Activity Research (CEDAR), University of Cambridge.

A second Transport JSNA stakeholder workshop was held on 24 March 2015 with approximately 30 representatives from the same organisations as the first workshop. The aims were to:

- Share and discuss key data findings with stakeholders.
- Gain greater local interpretation of the data based on local stakeholder knowledge.
- Share some of the background evidence around future options gathered during the JSNA process.
- Evaluate future options in a local context and identify those that should be highlighted in the JSNA.

The stakeholders provided excellent local insight around the data findings with suggestions significantly shaping the Local Data and Local Views sections. The stakeholders also identified future options that they wished to be highlighted in the Cambridgeshire Transport and Health JSNA. These form the basis of the Addressing Local Need sub-sections.

Figure 2 Process used to produce the Cambridgeshire Transport and Health JSNA



Ways of accessing information from this JSNA

This JSNA provides evidence and information on Transport and Health in Cambridgeshire. The information in this JSNA is available in this full report, in separate section reports and also in searchable form on the CambridgeshireInsight website (www.cambridgeshireinsight.gov.uk).

Much of the local data and information is available on at least a ward level, and the datasets and maps are available online at www.cambridgeshireinsight.gov.uk. This allows users to have specific local information on air pollution, active transport patterns and access to transport/health service patterns to use in future strategies, commissioning and initiatives.

¹ Joffe M, Mindell J, *A framework for the evidence base to support Health Impact Assessment*, *J Epidemiol Community Health* 2002;56:132–138

² Department for Transport, *Investing in Cycling and Walking: the Economic Case for Action*, 2015. Available at <https://www.gov.uk/government/publications/cycling-and-walking-the-economic-case-for-action>

³ Woodcock J, Givoni M, Morgan AS. *Health impact modelling of active travel visions for England and Wales using an Integrated Transport and Health Impact Modelling Tool (ITHIM)*. *PLoS One* 8. 2013.

⁴ Lovelace R, Woodcock J, *Modelling uptake of cycling and associated health benefits*. 2014. Available at <http://robinlovelace.net/publications/health-benefits-cycling-uptake.pdf>

⁵ Department for Transport Statistics, *Reported road casualties-Great Britain*, 2013. Available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/357380/ras30070.xls

⁶ Report on Pedal Cyclist and Motorcyclist Casualties, CCC Highways and Community Infrastructure Committee, March 2015