NATIONAL INSTITUTE FOR HEALTH AND CARE EXCELLENCE

Guideline scope

Air pollution: outdoor air quality and health

Topic

The Department of Health in England has asked NICE to produce guidance on reducing the ill-effects of outdoor air quality on health. It will focus on how local authorities can reduce exposure to air pollution from road traffic.

This guideline will be used to develop a NICE quality standard on air pollution.

Who the guideline is for

- Local authority staff working in:
  - environmental health
  - transport
  - planning
  - public health.

It may also be relevant for:

- Healthcare professionals in primary and secondary care.
- Employers in all sectors.
- People working in:
  - the voluntary sector and non-governmental organisations
  - education.
- The general public.

NICE guidelines cover health and care in England. Decisions on how they apply in other UK countries are made by ministers in the Welsh Government, Scottish Government, and Northern Ireland Executive.

Equality considerations

NICE will carry out an equality impact assessment during scoping. The assessment will:

- list equality issues identified, and how they have been addressed
- explain why any groups are excluded from the scope, if this was done.

1 What the guideline is about

1.1 Who is the focus?

Groups that will be covered

- Everyone, but with a particular focus on people who live in towns, cities or other road-traffic-related air pollution 'hot spots'.

1.2 Activities, services or aspects of care

Key areas that will be covered

Interventions delivered by local authorities to reduce road-traffic-related emissions by: reducing overall mileage; altering the type of fuel used or driving style; aiding dispersion or deposition of pollutants; and altering personal behaviour to reduce exposure to pollutants. This includes:

1. Environmental change and development planning:
   - developing public transport routes and services
   - developing routes and facilities to support low emission modes of transport
   - using barriers, including trees and foliage
   - using dust suppressants, such as calcium magnesium acetate.
2. Traffic management, enforcement, and financial incentives and disincentives:
   - traffic management systems and signal coordination
   - charging zones, including low emission zones
   - parking restrictions and charges.

- ‘idling’ restriction and charges

3 Initiatives, aimed at local authority employees or members of the public, providing information, advice, education or developing skills for:

- personalised travel planning, including awareness raising and education to encourage people to use alternatives to a car.
- fuel choice, including zero-emission vehicles
- driver training, for example how to avoid heavy acceleration or braking and excessive speed
- route choice.

1.3 Economic aspects

We will take economic aspects into account when making recommendations. We will develop an economic plan that states for each review question (or key area in the scope) whether economic considerations are relevant, and if so whether this is an area that should be prioritised for economic modelling and analysis. We will review the economic evidence and carry out economic analyses, using public sector and/or societal perspectives, as appropriate.

1.4 Key issues and questions

While writing this scope, we have identified the following key issues, and key questions related to them:

1 What environmental interventions or planning control intervention (such as route design, low emission facilities, barriers or dust suppressants) are effective and cost effective at reducing peoples exposure to traffic-related air pollution?

2 What traffic management, enforcement or financial incentives or disincentives that local authorities can impose (such as signal coordination, parking charges or traffic zoning schemes) are effective and cost effective at reducing the publics exposure to traffic-related air pollution?

3 Are personalised travel planning interventions effective and cost effective at reducing individual or population exposure to road traffic-related air pollution?

4 Are initiatives to provide information, education and training on fuel, vehicle or route choice, and driving styles (such as avoiding heavy acceleration or braking) effective and cost effective at reducing the production of air pollution and the public's exposure to it?

5 All key questions will also identify whether the impacts vary for different population groups, whether there is evidence of any adverse effects such as road injuries as a result of the interventions, and the context in which interventions should be delivered.

The key questions may be used to develop more detailed review questions, which guide the systematic review of the literature.

1.5 Main outcomes

The main outcomes that will be considered when searching for and assessing the evidence are:

1 Health outcomes from road-traffic-related air pollution.

2 Traffic-related air pollution levels:

- background levels
- hotspots
- personal exposure
- total emissions.

3 Factors that together contribute to road-traffic-related air pollution levels:

- types of vehicles used in England (percentage of vehicles using diesel, petrol and other fuels)
- vehicle mileage
- fuel economy.

2 Links with other NICE guidance and NICE Pathways

2.1 NICE guidance

NICE guidance that will be incorporated unchanged in this guideline

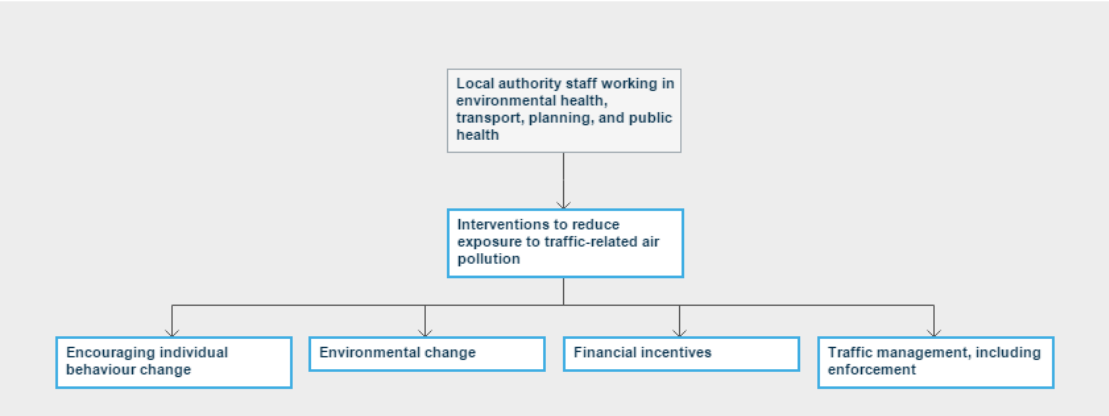
- Physical activity and the environment (2008) NICE guideline PH8
- Walking and cycling (2012) NICE guideline PH41

2.2 NICE Pathways

When this guideline is published, the recommendations will be added to NICE Pathways. NICE Pathways bring together all related NICE guidance and associated products on a topic in an interactive topic-based flow chart.

A draft pathway outline on air pollution, based on the draft scope, is included below. It will be adapted and more detail added as the recommendations are written during guideline development.

Air pollution overview



3 Context

3.1 Key facts and figures

The major human sources of air pollution are the combustion of fuels for heat, electricity and transport. The term ‘road-transport-related air pollutants’ in this

document primarily covers particulate matter[1], nitrogen oxides and ozone. Road transport is a major source, accounting for 31% of nitrogen oxides, 18% of PM_{10} and 19.5% of $PM_{2.5}$ emissions in the UK.

Road-transport-related air pollution causes respiratory and cardiovascular illness and death. Particulate pollution is associated with an effect on mortality equivalent to nearly 29,000 deaths at typical ages of death in 2008 in the UK, or a total of 340,000 life-years lost. This is equivalent to shortening everyone's life expectancy by 6 months. However, it may not affect everyone equally. For example if the deaths mainly occur in people with heart disease, this might be equivalent to around 2 years of life lost for each person affected. The Committee on the Medical Effects of Air Pollution notes that these assumptions remain 'speculative'. See The mortality effects of long-term exposure to particulate air pollution in the United Kingdom (Public Health England) for an explanation of the mortality data.

The health impact of $PM_{2.5}$ pollution from human activities in the UK has been estimated to cost between £8.5 billion and £18.6 billion a year (using 2005 data and an approach based on willingness to pay to avoid the health effects of air pollution) (Ambient air quality UK Parliament).

Over recent decades there has been a reduction in air pollutant emissions. However, in 2013 in the UK, levels of nitrogen dioxide exceeded the EU directive limit for the protection of human health in 38 out of 43 zones.

Many deprived areas are urban and tend to have high concentrations of nitrogen dioxide and PM_{10}, both predominantly from road transport. Ozone concentrations tend to be higher in rural areas (although the compounds involved in ozone formation come from road transport).

Children (aged 14 and under) and older people (65 and older) are more susceptible than average to the effects of air pollution (Air quality and social

[1] Particulate matter is usually classified according to the diameter of the particles. PM_{10} refers to particulate matter up to 10 microns, $PM_{2.5}$ is matter up to 2.5 microns.

deprivation in the UK: an environmental inequalities analysis Department of Environment, Food and Rural Affairs).

Addressing air pollution, for instance by encouraging people to walk and cycle rather than drive, can help people to become fitter and healthier. It can also help reduce greenhouse gases that contribute to climate change. Climate change is linked to increased risk of extreme weather and other events that have an adverse effect on health, such as floods, heatwaves and the spread of some infectious diseases.

3.2 Current practice

Local authorities are required to review and assess air quality against the objectives set out in the UK's Air Quality Strategy (see below) every 3 years (with progress reports in intervening years). Where this shows that levels have been exceeded, the local authority must declare an air quality management area (AQMA) and develop an action plan to tackle the problems.

Most AQMAs have been in response to emissions associated with road transport and actions tend to focus on road-transport-related activity. This includes: creating clean or low emission zones, traffic management schemes and work with other authorities (such as the Highways Agency).

3.3 Policy, legislation, regulation and commissioning

The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (Department for Environment, Food and Rural Affairs) sets out UK air quality standards and objectives for reducing levels of health-threatening pollutants. All these standards, except those for ozone and polyaromatic hydrocarbons, are subject to regulations under the Environment Act 1995 and many are the result of the UK incorporating European law.

The EU sets legally binding limits for levels of major air pollutants under an ambient air quality directive.

In the UK, the Department for Environment, Food and Rural Affairs is responsible for national and local air quality, working with other departments including the Department of Health and the Department of Transport.

The UK's Air Quality Strategy sets objectives for reducing: particulate matter, nitrogen dioxide, ozone, sulphur dioxide, polyaromatic hydrocarbons (benzo[a]pyrene), benzene, 1, 3 butadiene, carbon monoxide, lead and ammonia.

Part IV of the Environment Act 1995 requires all local authorities in the UK to review and assess air quality in their area.

This guideline will support the development of effective and cost effective interventions to address air quality. It will also help to demonstrate the positive health outcomes of tackling air pollution locally.

4 Further information

This is the draft scope for consultation with registered stakeholders. The consultation dates are 15 July to 12 August 2015.

The guideline is expected to be published in May 2017.

You can follow progress of the guideline.

Our website has information about how NICE guidelines are developed.