Most of us are aware of outdoor air pollution: spend time in any traffic-clogged street, and you can taste the chemicals. Even spring days in the countryside can be spoiled by ozone haze. But a report published earlier this year by the Royal College of Physicians (RCP) and the Royal College of Paediatrics and Child Health (RCPCH) revealed that air pollution is much more than an inconvenience—it is a major health risk. Every Breath We Take: the Lifelong Impact of Air Pollution estimates that outdoor air pollution is responsible for up to 40,000 UK deaths annually. It is linked to cancer, chronic lung and cardiac disease, stroke, diabetes and dementia, plus thousands of additional hospital admissions.

Lifelong impacts
The report emphasises that air pollution has lifelong implications for health, affecting fetal and childhood lung development.

The long-term health effects on vulnerable groups living in polluted areas are particularly worrying, says RCN professional lead for public health nursing Helen Donovan. ‘Air pollution is a major public health issue, often affecting those already disadvantaged by inadequate housing and leading stressful lives with poor diet and lifestyle.

‘As part of an overall drive to improve everyone’s health, the UK must take action to reduce pollution now, ensuring future generations breathe cleaner air.’

Former Nursing Standard

Around 40,000 UK deaths a year are caused by exposure to air pollution, according to a major report, ‘Every Breath We Take: the Lifelong Impact of Air Pollution’. Nurses can help patients understand and minimise the risks to their health.

By Catharine Sadler
Pollution monitoring results should be communicated to the public in an understandable format. Local authorities should protect public health by diverting traffic when pollution levels are high, especially near schools. Hundreds of schools in London are sited in areas exceeding legal nitrogen dioxide levels, with other schools likely to be affected.

As evidence of air pollution’s effects on children’s health mounts, nurses will need to support worried parents, suggests RCN professional lead for children and young people Fiona Smith. ‘Nurses and health visitors should always respond honestly to parents’ concerns, empowering them to voice such issues with their nurse of the year Matthew Hodson, Association of Respiratory Nurse Specialists chair, has no doubt that air pollution is damaging the health of his patients. ‘As a nurse specialist, I have seen how people living with asthma and chronic obstructive pulmonary disease have had their symptoms exacerbated, and their quality of life reduced by poor air quality.’

**Cause of distress**

RCN professional lead for long-term conditions and end of life care Amanda Cheesley says people with respiratory conditions are often aware that high pollution levels can cause them distressing symptoms. She emphasises that action on pollution is needed not just to help these individuals, but to ease the strain on the NHS. The financial cost of air pollution in the UK is more than £20 billion a year, as the RCP and RCPCH report reveals.

‘Failing to tackle this problem will lead to premature deaths, pain and misery for many, and a health system that simply cannot cope with an aging population with multiple, complex conditions,’ says Ms Cheesley.

**Call for action**

Every Breath We Take: the Lifelong Impact of Air Pollution calls for action, including: Leading by example – as a major polluter, the NHS should lead by setting a benchmark for clean air.

Pollution monitoring results should be communicated to the public in an understandable format. Local authorities should protect public health by diverting traffic when pollution levels are high, especially near schools. Hundreds of schools in London are sited in areas exceeding legal nitrogen dioxide levels, with other schools likely to be affected.

As evidence of air pollution’s effects on children’s health mounts, nurses will need to support worried parents, suggests RCN professional lead for children and young people Fiona Smith. ‘Nurses and health visitors should always respond honestly to parents’ concerns, empowering them to voice such issues with their
local councillors or MPs,’ she says. ‘Nurses may also raise public health issues with their local authorities to influence environmental health policies.’

Collecting data
Sharon White, School and Public Health Nurses Association professional officer, adds: ‘While school nurses should continue to encourage children to walk to school, and should keep updated on best practice in avoiding allergy triggers, they may also collect data to take forward to environmental health departments.’

Keeping professionally updated to advise patients how to avoid pollution is part of nurses’ roles. But nurses should also look at their own lifestyles, says Ms Cheesley.

‘As someone whose own asthma is triggered by air pollution, I recommend that patients and nurses adjust

Types of Air Pollution and their Effects on Health

**Particulate Matter (PM)**

A mixture of solids, chemicals and dust, PM includes visible soot or smoke, and minute particles such as pollen grains, diesel and petrol engine emissions, plus dust from road surface tyre friction. Large PMs may irritate the eyes, nose or throat, while smaller particles can reach lower airways, alveoli or possibly the bloodstream, causing inflammation or clot formation. PM pollution is thought to increase hospital admission for chronic obstructive pulmonary disease (COPD), bronchitis, asthma, heart attacks and strokes.

**Nitrogen dioxide**

A major source of smog, nitrogen dioxide comes from diesel cars and power stations. High levels irritate the upper airways and lungs, causing breathing difficulties, cough, asthma and COPD flare-ups. It is most likely to affect children, older people and those with pollen allergies.

**Ozone**

At its highest on warm afternoons, ozone is formed at ground level by the chemical reaction between sunlight and nitrogen dioxide. Often blown into the countryside, ozone irritates the airways of healthy people and those with lung conditions. It reduces lung capacity, causing wheezing and coughing, and often results in increased asthma-related hospital admissions.

How to minimise the health risks of outdoor air pollution

» Air pollution is highest on hot and windless days, or when it is cold and foggy. Check local air pollution levels on the government website, sign up for text alerts or call the helpline at 0800 55 66 77

» If you have a chronic lung and heart condition or are pregnant, limit the time you spend outdoors when pollution levels are high, and keep doors and windows closed until it subsides. But remain active while indoors to gain the health benefits of exercise

» Use public transport or share lifts if possible. If driving is essential, keep car windows closed in heavy traffic, and ensure exhaust systems are well maintained and a diesel particulate filter is in place. If possible, time your journeys to miss the rush-hour traffic. Avoid vigorous exercise near airports, industrial sites and busy main roads

» Stand back from bonfire or barbecue smoke, and contact the local council if this kind of smoke is a regular neighbourhood problem

» Researchers believe most pollution masks are ineffective, and may increase breathing difficulty if uncomfortable. If you find a mask helps prevent runny, sore eyes, throat symptoms or a ‘pollution taste’, ensure it fits well and has a regularly changed, fine filter

» If you have a chronic heart and lung condition such as asthma, keep a symptom diary, ensure your conditions are regularly reviewed by a specialist nurse or GP, and always carry appropriate medications, such as a reliever inhaler.

» If you are concerned about an increase in cardiac or lung symptoms such as wheeze, breathlessness or chest pain when pollution is high, seek medical advice immediately. For mild breathlessness, the British Lung Foundation has launched an online Breath Test to help assess whether you need to see a GP.

Sources: British Lung Foundation, British Heart Foundation