Air pollution created in the home and from outside can cause and exacerbate health conditions

Life threatening conditions, including COPD, CVD and asthma, will be aggravated by air pollution sources in the home, and could lead to acute events and even mortality. Patients and those caring for them can take simple steps in the home to reduce indoor air pollution and improve the management of their conditions.

Patients with the following conditions are most affected

- People with atopic conditions, including asthma
- Chronic obstructive pulmonary disease
- Cardiovascular diseases
- Immunocompromised people
- Anaemia
- Older people, children, expecting parents

Questions to ask

- Do you burn candles or incense, or wood or coal for heating or do you smoke?
- Is there dampness or black mould at home?
- Do you have a carbon monoxide alarm and monitor at home?
- When was your gas boiler serviced?
- How often do you change bedding?
- Do attacks happen when you're cooking or frying or vacuuming, or when you're in particular rooms at home?
- Do you keep your home well ventilated, opening windows every day?

Further reading and resources

There's more simple information and tips on keeping the air fresh at home in the **"Keep the air fresh at home"** leaflet for patients.

For detailed information review the official NCE and UK Health Security Agency guidance:

- NHS England air pollution bite-size training All our Health: Air Pollution (quicklink 530-0119)
- NICE Clinical Knowledge Summary on Carbon monoxide poisoning and the UKHSA Carbon Monoxide toxicological overview
- UK HSA Guidance on Understanding and addressing the health risks of damp and mould in the home
- NICE Guidance Indoor air quality at home and the Visual Summary
- NICE Guidance Asthma: diagnosis, monitoring and chronic asthma management
- NICE Guidance 12 SQ-HDM SLIT for treating allergic rhinitis and allergic asthma caused by house dust mites
- NICE Guidance collection on eczema

Scan QR code to access a full list of guidance links.

Love Clean Air

Indoor air pollution can aggravate serious pre-existing conditions

Simple changes at home can help prevent acute events and chronic symptoms

A briefing for medical professionals

What indoor air pollutants are a concern?

Indoor air pollutants that can cause acute or even fatal events, or worsen chronic symptoms are:

- Carbon monoxide
- Black mould
- Dust mites and their faeces
- Particulates from smoke and combustion
- Condensation and humidity, which encourage growth of black mould and dust mites
- Some household chemicals also cause bronchial irritation.

These risks are additive. When multiple issues are present, clinical impacts are more likely.

How can medical practitioners help?

During consultations consider whether:

- Chronic symptoms, like asthma, headaches or nausea, could be linked to indoor air pollution, particularly if no other cause is identified
- Patients that present with worsening respiratory or cardiac symptoms without clear infectious or allergic cause, could be exposed to indoor pollution. Poorly ventilated, damp homes make this more likely
- Check if patients and carers are aware of home air pollutants. Encourage them to ventilate homes, reduce damp, and get digital carbon monoxide alarms. Share the patient leaflet **"Keep the air fresh at home."**

Detailed advice on risks

Condensation and Humidity

These cause damp which permits black mould and dust mites to grow.

To reduce condensation and humidity:

- Cook, boil water, bathe and shower with extractor fans on
- Air rooms and the home daily
- Dry clothes in well ventilated rooms
- Dehumidifiers can offer temporary relief
- Humidity monitors help manage damp
- Open windows when safe, don't block vents
- Ensure good ventilation every day.

Mould and Dampness

Black mould (*Stachybotrys chartarum*) causes 5,000 asthma cases and 8,500 lower respiratory infections annually (UKHSA). It poses serious risks to individuals with atopic conditions, immunocompromised patients, those with COPD, older people, children and pregnant mothers. Effects range from respiratory illness to death.

To reduce mould and dampness:

- Keep humidity low through ventilation
- Wipe condensation from surfaces
- Cook with lids on and use ventilation
- Shower with door closed and extractor fan on
- Consider digital humidity meters; combined humidity/carbon monoxide detectors (BS EN 50291) cost around £20
- Awaab's Law requires landlords to fix significant mould urgently.

Dust, Dust Mites and their faeces

Strong allergens triggering asthma, eczema and rhinitis; 80% of asthmatics are sensitised, significantly affecting severity.

To control dust mites:

- Maintain humidity in the 30-50% range by airing bedrooms and bedding
- Change bedding weekly, wash at 60°C, if possible hot tumble dry. Air the mattress by leaving bedding turned down when not in use
- Cook and shower with open windows, cooker hoods and extractor fans on. Dry clothes outside or in rooms with extractor fans
- Regularly vacuum carpets, especially in homes with pets, using HEPA filters
- Asthma, eczema and rhinitis should be treated according to guidance. NICE has approved a treatment for difficult dust mite allergies.

Carbon Monoxide

NICE reports carbon monoxide poisoning is underdiagnosed. High exposure causes 40 deaths annually and 4,000 A&E attendances annually.

Symptoms of carbon monoxide exposure are often non-specific but headaches are present in 90% of cases. Other symptoms include dizziness, flushing, nausea and confusion. Delayed effects can occur up to 40 days after exposure.

To minimise carbon monoxide risks:

- Check monitors. If there's an alarm or 10ppm or higher, take action and seek medical help
- If monitor shows carbon monoxide at chronic levels, urgently improve ventilation and service gas boilers and gas cookers immediately
- If no monitor installed, fit a BS Kitemark or EN 50291-certified digital alarm, showing levels
- Digital alarms with BS EN 50291-1 cost around £20, often with a humidity meter
- Service fuel-burning appliances annually
- NICE offers guidance on diagnosis, full clinical features and key questions for patients.

Burning at home - cooking, candles, incense

These release particulates and nitrogen dioxide. Particulates irritate airways, enter the bloodstream and accumulate in tissues, exacerbating CVD, COPD and lung cancer. Sources include cooking, gas boilers, wood burning stoves, open fires, candles and incense. Nitrogen dioxide from combustion irritates airways and triggers asthma.

Other risks

- Household chemicals, like cleaning sprays and scent diffusers, can irritate the lungs.
- DIY or building work, which generate or release dust or release VOCs from paints.

Good ventilation is the simplest solution

- Encourage patients to air rooms and homes regularly, even if highly insulated
- Encourage use of extractor fans, opening of windows when safe to do so, and avoid blocking of vents.