



The Prepared Home

Don't let carbon monoxide kill you

What are the symptoms of carbon monoxide poisoning and how can it be treated

Carbon monoxide is an odourless, colourless, tasteless gas that can kill people or just leave them very ill, sometimes for a long time. It is created when something containing carbon is burnt and there is not enough oxygen to create the rather less dangerous carbon dioxide. Just about any fuel contains carbon including gas from the mains or cylinders and any fuel derived from oil including petrol, diesel, engine oil. Even wood and charcoal contain carbon. We have all heard that gas appliances can cause problems but often forget that other fossil fuels can do as well.

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The symptoms of carbon monoxide poisoning

The symptoms of carbon monoxide poisoning include

- headaches
- dizziness
- shortness of breath
- confusion
- nausea
- vomiting
- feeling faint
- visual disturbances
- fatigue and lethargy
- chest pains
- changes in personality
- coma

Some of these symptoms are similar to other illnesses like flu or food poisoning. It is not unknown for people to ignore these symptoms for some time and then when they have tried to leave an enclosed area they have died before they have been able to do so and some have just fallen asleep and not woken up. Other people have suffered low level symptoms for a long time only to find the mystery illness that has plagued them for months to be carbon monoxide poisoning. In such situations they feel may feel rather better when they go away on holiday and it gets worse again when they return. Or problems may arise when a particular appliance is used such as a cooker, water heater and stop when is not used. It is even possible for people to be tested for possible carbon monoxide poisoning and for it not be detected as the concentration of carbon monoxide in their blood goes down so quickly after they leave the premises where they have been affected that it is not detected.

Treating carbon monoxide

The first aid treatment is simple, get the patient out into the fresh air as soon as possible. This needs to be done with care as anyone who enters the premises is at risk of the same problems unless they are wearing breathing apparatus. Carbon monoxide gets into the blood and stops it carrying oxygen so that in effect it asphyxiates people. The level of the problem can only be assessed using a blood test but this can be done by your GP.

In serious cases, oxygen administered in an ambulance or hospital will help the blood to work properly more quickly and the sooner that treatment is administered the less likely it is that there will be any lingering problems. It is not unknown for people to be still experiencing problems 15 years later. If someone has stopped breathing, it will be necessary to administer artificial respiration.

The next step is to let fresh air into the enclosed space by leaving doors and windows open and to stop the production of carbon monoxide by switching everything off or damping it down. However, it is better to go and stay elsewhere for a while if at all possible, preferably not in hospital recovering from the after effects. It is also essential to trace where the carbon monoxide is coming from and deal with the problem. Double check though before moving back in as sometimes there is more than one problem that needs to be fixed and if all the problems are not fixed then you could still end up ill again or even dead.

Some people are more at risk from health problems caused by carbon monoxide. This is one situation where the mother, is not able to protect an unborn child. When blood tests are done the toxic effects rise higher in the child than the mother although they peak later. Treat the mother and the child is treated as well. Those people who already have heart, lungs or circulation problems or anaemia are likely to be more affected.

What you can do to help avoid problems

1 Choosing and installing tools and appliances

- Make sure that the person installing a gas appliance is CORGI registered. It is possible to check the register by ringing **01256 372300** or at least to check their identification card.
- Choose anything that burns fuel with care. It needs to be up to the relevant standards. A new boiler is not only more efficient than an older one but often has more safety features such as a cut off switch so that it will not work if it is not receiving enough fresh air to burn safely.

- Remember though a brand new, well installed appliance can still leak carbon monoxide if it was not made properly.
- It is best to buy appliances from reputable dealers who only sell products that meet the appropriate British or European standards.
- If you must buy a second hand appliance make sure that it has been tested for safety before you take it home. Insist on a written guarantee from the dealer and a copy of the user instructions.

2 Using heaters and cookers

- Make sure all gas appliances and paraffin heaters are adjusted properly.
- Do not cover an appliance or block the air vents.
- Don't use a gas oven to heat the kitchen by leaving the door open.
- Barbecues should not be used in enclosed spaces i.e. don't use them indoors or in a tent boat or caravan.
- Always use the correct fuel for the appliance. So only use paraffin in the paraffin heater and then only if it meets BS2869 CI.
- Don't use an unvented combustion heater in a bedroom, just in case there are problems overnight.
- Make sure that ash from fires is not allowed to build up as this can stop the fire from burning properly, as well as damaging the grate.
- Portable gas heaters need a lot air and should not be used in confined spaces with poor air circulation. Chose heaters made to British standard BS5258 parts 10 11, and BS EN 449 because they have a special device that cuts off the gas supply if the room gets too stuffy.
- Paraffin heaters need plenty of air but still should be kept away from doors and direct draughts. They should be checked regularly to avoid the build up of dust. The wick should be checked in case it becomes choked or dirty. They should be trimmed when necessary with a special wick cleaner that should be available from the same shop as the wicks.
- Take great care when changing gas cylinders. This is best done outside or at the very least with the doors and windows open. It should never be done in such a place where there is no means of escape if a problem arose. Care should be taken to make sure the gas cannot be set alight as the cylinder is changed e.g. the heater should be cold, all pilot lights matches and cigarettes extinguished. If it has to be done indoors all other heaters and electrical appliances should be turned off. The valve on the empty cylinder should be closed before disconnecting the heater and the valve on the new cylinder not opened until the connection to the heater is secure.

3 Using tools and appliances

- Do not keep the car engine running in the garage any longer than is absolutely necessary.
- Don't use petrol or diesel powered engines in enclosed spaces. This includes lawnmowers and other garden tools, chain saws, generators and any other tool that you put petrol or diesel in. Remember opening doors and windows may slow down build up of carbon monoxide but it does not stop it, so eventually anyone in that area will be affected.
- Take care to make sure exhaust from engines does not come into an enclosed space from outside.

- Spare gas cylinders should be stored upright and outside if possible. They should never be stored in basements, near drains, under the stairs or in a cupboard containing electrical meters or electrical equipment.

4 Possible warning signs

Generally fires, heaters or anything else that is burning gas, coal, wood, petrol or any other fossil fuel could be giving out carbon monoxide if they are not working as it should be or used to do. There are some visible warning signs that something needs checking.

- Yellow or brown staining around or on appliances.
- Sooty marks
- Gas appliances should have flames that are blue or possibly have a touch of yellow. A largely yellow or orange flame is a sign of problems.
- The pilot light blows out frequently.
- A coal or wood fire burns slowly or goes out.
- Fires are difficult to light or smoke comes out into the room.
- A water heater is not heating water the way it was
- The boiler that once heated the house without any problems struggles to do what it used to do easily.

5 Checking tools and appliances

- Gas appliances should only be serviced by people who are CORGI registered. They should be able to prove this by showing an identification card and it is also possible to check with CORGI by phone on **01256 372300** If it is difficult to find someone who is CORGI registered then ring CORGI and they will help you find a registered installer.
- If you suspect anything wrong with an appliance or tool that could produce carbon monoxide switch it off (including the pilot light) and get it checked as soon as possible.
- If something has been declared unfit for use by a CORGI registered installer then DO NOT use it until it has been repaired.
- Arrange for proper servicing and maintenance of anything that burns coal, gas or paraffin. Remember though that they will probably not automatically check for problems with carbon monoxide. The best time to do this is during the summer. Do not even attempt this unless you have the proper knowledge, skills or tools to do the job. The chimney still needs sweeping when smokeless fuel is used.
- Flues and chimneys need to be well connected and inspected annually. They need to be cleaned so that they are not blocked by debris, bird nests or soot. Better still, put a guard over the chimney to stop birds from building nests that could caused problems. Make sure all creeping plants do not encroach on the chimney. Remember though you might still have problems if your neighbour does not maintain their chimney and carbon monoxide leaks into your home from their chimney.
- Ventilation is essential as this replaces the fresh air that is used up by the burning process. Make sure there are no blockages to the air flow. This includes regularly checking the flue to see if it has been moved or has been blocked by debris or even birds nests. This also means that vents that have been installed in windows etc. should not be blocked. Take extra care when fitting double glazing as this often reduces the draughts which have helped avoid problems previously.

- Check for leaks in flues and chimneys. If there is any sign of loose masonry on the chimney get it fixed.
- Remember that a professional can check an appliance on one day and it can develop a problem the following day. They may not even detect a problem immediately so take care.
- The flexible hose and connections on portable gas heaters can be checked by brushing soapy water on them. If they leak take the heater and the cylinder into the open air and don't use until the faulty part has been replaced.

6 Extra information for tenants

The Gas Safety (Installation and Use) Regulations 1998 place duties on gas consumers, installers, suppliers and landlords.

Landlords are required to

- Ensure gas fittings and flues are maintained in a safe condition.
- Ensure an annual safety check is carried out on each gas appliance/flue. Before any new lease starts, you must make sure that these checks have been carried out within one year before the start of the lease date, unless the appliances in the property have been installed for less than 12 months, in which case they should be checked within 12 months of their installation date.
- Have all installation, maintenance, and safety checks carried out by a CORGI registered gas installer.
- Keep a record of each safety check for 2 years.
- Issue a copy of the safety check record to each existing tenant within 28 days of the check being completed, or to any new tenant before they take up residence (in certain cases there is an option to display the record). If the landlord refuses to agree to this legal requirement contact the Health and Safety Executive Gas Safety advice line on **0800 3000363**
- By law most landlords are responsible for making sure that appliances and flues they provide for tenants' use are maintained in good order and checked for safety at least every twelve months. They must also keep a record of the safety checks and issue it to you, the tenant. If you live in, or are about to move into, rented accommodation, your landlord must provide you with a copy of the safety checks. If you own the appliance, you are responsible for its maintenance and safety checks.
- By law anyone carrying out work on gas appliances or fitting as part of their business must be competent and registered with CORGI. Always check the installer your landlord is using is a CORGI registered installer. They should carry a current registration certificate or a CORGI ID card.
- By law you must not use any gas appliance or fittings you know or suspect to be unsafe. Through CORGI, HSE has asked all registered installers to disconnect any gas appliance which is so dangerous as to be a threat to life if it is used. If your Landlord's installer asks your permission to disconnect such an appliance it will be in the interests of your own safety, and that of others, to agree. Before you use this appliance again, make sure it is repaired by a CORGI-registered gas installer.
- By law only a competent person can carry out work on gas appliances or fittings. Do-it-yourself work on gas appliances or fittings could be dangerous and is likely to be illegal. Your landlord is legally responsible for making sure that things like gas boilers are safe to use.

Detectors as early warning devices

It is possible to get carbon monoxide detectors. These are not a substitute for taking sensible precautions to avoid problems. They do however detect problems and save lives.

1 Choosing a detector

There are two varieties, one is simply a card and the other looks more like a smoke alarm. The card is so simple and cheap that some organisations give them to students in rented accommodation and other high risk groups. The idea is that you watch for the colour to change on the card. These are better than nothing, although they are not as reliable as the more expensive kind.

The other kind can be purchased from a DIY store for about £30. This device makes a noise when it detects a problem. Some models have a sensor to detect the carbon monoxide which is covered to start with but when this is removed it starts to deteriorate and it needs replacing on a regular basis. It is advisable that they conform with the relevant British Standard i.e. BS7860 which can be seen by the presence of the BSI kitemark. Alarms which reach this standard also must have a built in fault and test function.

Like any other safety device it is useful to do some research beforehand to see what varieties are available and what reputable organisations recommend and why. It is possible to buy ones which are battery operated and ones which are run off the mains. Not being able to remove the batteries can be a distinct advantage in some circumstances but it means it cannot be used if there is a power cut and this can be a time when it is even more important to check for problems with carbon monoxide. A battery operated alarm can be installed without the services of an electrician.

2 Positioning the detector

- Carbon monoxide spreads itself evenly and fairly quickly throughout the house.
- A detector installed outside the bedrooms gives the occupants a chance to wake up and leave the house in case of problems. One of the leaflets distributed by the government expresses the risk of dying in your sleep from carbon monoxide very clearly.
- Older people tend to stay in one room because it is easier to keep one room warm and anyway they cannot move around as well as they once could. There should be a detector in this room.
- Other good places include rooms where there are appliances that might cause problems although not within 10 feet of such appliances.
- They should be placed on or near the ceiling.
- There is no point in putting detectors in dead air spaces, crawl spaces, room corners, peaks of vaulted ceilings or behind curtains where carbon monoxide might not reach
- Avoid places where the air is fast moving, such as near a ceiling fan or a fresh air vent because that could mask carbon monoxide build up.
- Household chemicals could possible cause false alarms so these should be stored well away from carbon monoxide detectors.

3 Testing the detector

Whatever device you use it needs to be checked regularly to see if either it has changed colour or if its sensor needs changing. One of the problems is that carbon monoxide detectors are harder to test than smoke alarms however, it is still important to test them following the manufacturer's instructions, in other words don't lose the instruction booklet. This is a booklet that needs to be kept in a safe place. If the detector is battery operated then the battery needs changing at least once a year. A carbon monoxide detector should be tested every week. Battery operated detectors should give a warning when the batteries are low but they should be replaced every year anyway. If you use a plug in model, do not switch it off on the wall.

4 Believing what the detector says

If a detector does find a problem they have to be believed. It is easy to ignore the warning given because often it is the only sign that there is a problem. If a carbon monoxide detector does give a warning then it is essential to run some checks rather than just saying that it is false reading because there is no other sign of any problems. If it is not possible to run the checks immediately, turn off all potential sources of creating carbon monoxide until you can find a qualified and experienced professional to check for problems. In the meantime make sure the premises are vented to give any carbon monoxide present a way out and if anyone who is experiencing any symptoms receives medical help.

Useful telephone numbers

HSE Gas Safety Advice Line	0800 300 363
Solid Fuel Association	0800 600 000
Oil Firing Technical Association	01737 373311
Corgi	01256 372300

Don't forget that Environmental Health Department of your local council will also be able to offer guidance.

Further information

[Health and Safety Executive](#) This link will take you to the page where the information on tenants and landlords came from. When I printed this page out it came to about 20 pages but right at the very end there is a sample letter that could be sent to a landlord to ask him to see the safety check record.

[DTI Safety Booklets](#) This link will take you to a page where you can download pdf versions of booklets on various aspects of home safety that have been published by the Department of Trade and Industry. These include three booklets that concentrate on the dangers of carbon monoxide, namely Danger! Fires Need Air, Killed in Her Bed and Carbon Monoxide Kills.

[Carbon Monoxide: the forgotten killer](#) This is a letter sent out from the department of health to general practitioners (and others) in September 1998. It includes a summary of how to diagnose and treat carbon monoxide poisoning.