

CO-Gas Safety: independent, registered charity

30 Year Anniversary Report 25.01.1995 to 25.01.2025

Introduction and thanks from Stephanie Trotter, OBE, President, Trustee & Director

It has been a huge privilege to carry out the work of running this charity since the launch at the House of Commons on 25th January 1995.

Every survivor/victim or family member has been immensely kind and helpful. Some have joined us and worked very hard as trustee/directors. Without their efforts we wouldn't have been able to do our work at all.

Paul Overton and his family have always been particularly helpful, and Paul has been with us as a trustee (and later also our treasurer) almost since his beloved stepdaughter Katie tragically died in 2003. I knew Jim Lambeth when he ran the GuikdAssociation and admired his attitude. Jim was always on the side of prevention and understood firsthand how these tragedies could and should be prevented. Sue Westwood is the most recent addition to our trustees/directors (but has still been with us for nine years!) and I can always rely on her for sensible, businesslike and honest answers. This is hugely appreciated, as is her kind support and laughter. She is also good at social media etc and introduced us to Concept 4, who made our one-minute film and Sarah Wilson, who made our animation. Sue looks so well, it's easy to forget how injured she is.

We benefited from much advice from gas experts, particularly the late Harry Rogers, Roland Johns (retired British Gas investigator and trainer) and Ben Kuchta (a rising star in the gas industry).

Jonathan Kane, of Kane International, has been a constant support almost since the charity started, first with industry advice and later with much-needed funds. Even today with ease of communications by email etc., there is still the need to pay for media alerts, travel expenses, stationery, print cartridges and computer services etc. or we could not exist.

We also thank the Corfu parents for insisting on a donation of £50,000 from Thomas Cook, and an anonymous donor who generously gave the charity £100,000.

We'd also like to thank all the Coroners and their officers who have filled up our forms and sent us much needed information. We know how busy they are, and we much appreciate their help.

Thank you to Frank Brehany, Consumer Champion, formerly a police officer then a solicitor. His expertise, integrity and friendship have been invaluable, not only to me, but to the charity.

We've been very lucky with the paid part-time help we've had to compile our data. At first for many years this was Jo Richards, a personal friend, who rescued me from under a heap of newspaper cuttings (and thankfully took them away), then Beverley Squire, a highly qualified nurse and for many years now, Jennifer Wood, who was a copy editor and makes sure anything I write is improved. She is also good at techie stuff and drawing pictures of CO alarms etc.

John O’Leary, paper engineer and artist has been invaluable to us in order to get the messages across. I’d also like to thank Chihiro, a winner of our schools’ poster competition when only aged 12, and who later very kindly drew a cartoon which helped to explain what the gas emergency service do not do and what landlords do, (which we wish they didn’t), which makes diagnosis for medics so difficult.

Last, but not least, I thank my husband John Trotter, retired solicitor and senior partner of Bates Wells & Braithwaite, who has supported me with occasional free legal advice and endless moral support and domestic work. He helps to lighten the atmosphere.

To all those many people who have helped this small charity, a huge thank you.

After a very quick summary of the background of gas safety, I’m going to go through the deaths that have made the most impact on us from the prevention point of view. It is worth noting that it isn’t just gas that causes CO. Any faulty heating or cooking appliance powered by carbon-based combustible fuel (coal, wood, oil, diesel, petrol, paper or gas etc.) can emit CO. Please download our leaflet <https://www.co-gassafety.co.uk/resources/leaflet-about-carbon-monoxide-poisoning/> and read it.

Background to gas safety

The Gas Safe Register is licensed by the Health & Safety Executive.

The HSE can issue Improvement and/or Prohibition Notices to companies and individuals. Local Authorities can also issue such notices, e.g. against private landlords.

HSE also drafts secondary legislation (including the regulations about gas), prosecutes and makes recommendations to government and other bodies.

The Aberfan disaster occurred in South Wales in 1966 (144 people died, 116 of whom were children aged just 7 to 10). Please read the very informative article about this at <https://www.shponline.co.uk/safety-management/flawed-hero-aberfan-hswa/>. It’s hard to realise that just about everyone seems to have been aware that this was an accident waiting to happen, yet nobody with the power to take action did anything.

This national tragedy triggered a public outcry, leading to the Robens report in 1972.

This resulted in the Health & Safety at Work Act 1974, which created the Health & Safety Commission and Executive – now just the Executive, known as HSE.

The Health and Safety at Work Act 1974: -

- Imposed a legal duty on employers to take reasonable care of their employees and those members of the public affected by their work, and
- Enabled secondary legislation to create Gas Regulations. It is illegal to work on gas without being a Registered Gas Engineer.

Before the 1970s

Gas burned in homes was originally created by burning coal. This produced syngas – a mixture consisting primarily of carbon monoxide (CO), hydrogen (H₂), carbon dioxide (CO²), methane (CH₄), and water vapour (H₂O)—from coal and water, air and/or oxygen.

https://en.wikipedia.org/wiki/Coal_gasification

North Sea gas is completely different and consists almost entirely of methane. This made gas safer. However, carbon monoxide can still be created when gas is burned without sufficient oxygen at the flame to emit carbon dioxide (CO²) so that carbon monoxide (CO) is emitted instead. It is therefore vital that gas appliances are kept clean to ensure sufficient fresh air. Therefore it is vital to have proper installation by qualified people (with gas they must be Gas Safe registered by law to work on gas), regular maintenance and adequate ventilation <https://www.co-gassafety.co.uk/about-co/prevention-2/>.

When the gas industry was privatised in 1986, it was emphasized in Parliament that safety must be paramount. <https://www.tni.org/en/article/the-living-legacy-of-privatisation-in-the-united-kingdom> Sadly in our view, not enough was done to ensure this.

The Founding of CO-Gas Safety

Stephanie Trotter became interested in safety when her older son, Alex, then aged 12, suffered a clot on the brain at a children's activity holiday centre in 1991. Stephanie was extremely concerned about the wrong First Aid and the lack of notification to her and her husband about the injury from the centre involved. After brain surgery, Alex recovered; he was lucky. Research by Stephanie found that there were no controls on these centres apart from Health & Safety law, which is inappropriate.

Stephanie's concern about the safety of children attending such centres was not taken seriously by the centre or even by her MP, who informed her that there were lots of guidelines. As a barrister, Stephanie knew well the difference between guidelines and mandatory requirements.

In 1993, four teenagers on a canoeing outing in March drowned in Lyme Bay without a safety boat or instruction to blow up their lifejackets immediately if they found themselves in the water. After this tragedy Stephanie wrote her first legal article advocating licensing of these centres, published in the New Law Journal. This was read by the Judge Mr Justice Ognall in the subsequent manslaughter trial. The Judge publicly urged the government to license these centres and the Activity Centres (Young Persons' Safety) Act 1995 was enacted. Licensing was supported by the responsible centres.

Through this work, Stephanie met Molly Maher, (sadly died in April 2020) who lost her son Gary to carbon monoxide (CO) in 1985 and whose daughter, Sheree, was paralysed for a year as a result of the same incident, while they were both on holiday in Tenerife. Sheree thankfully recovered enough to become a wheelchair user.

Molly founded Consumer Safety International, a registered charity to help prevent deaths and injuries on holiday, helped by Nigel Griffiths MP and the late David Jenkins of RoSPA. Molly helped Stephanie with her campaign to license children's activity holidays. Molly also founded CO-Gas Safety along with David Jenkins and Stephanie agreed to run it.

The first person affected by CO who Stephanie met was a mother, who tragically found her son dead on Christmas morning 1994. He'd recently left home and set himself up in a place of his own. His mother said to Stephanie, 'I didn't know what carbon monoxide was, so how could I have saved my son?' Those words have stayed with Stephanie down the years. So even before the launch of CO-Gas Safety at the House of Commons on the 25th January 1995, Stephanie knew that awareness of carbon monoxide (CO) was key to prevention.

Deaths that have been particularly important for us to understanding of what needs to be done to prevent unintentional exposure to carbon monoxide (CO)

Every death from carbon monoxide must have an inquest. This means evidence is given in open court. This provides important, reliable and quotable research material. Below is a selection of the deaths that CO-Gas Safety have taken particular interest in and have enabled us to learn valuable lessons that shaped our aims. Please see our data <https://www.co-gassafety.co.uk/data/>

Name of deceased, date of death: Janet Smith, 08.10.1994

Circumstances of death: Janet died from CO while on a Thomson holiday in Spain.

What we learned from this incident: We learned that package holiday providers should be proactive about CO – if a sea view can be promised, surely safety should be guaranteed?

Before CO-Gas Safety was launched, Molly and Stephanie talked about this tragedy. Stephanie's reaction was to offer to write to the Coroner. Molly was surprised and pleased. Janet's death resulted in a long police investigation that lasted for years. Finally, the CPS (Crown Prosecution Service) decided not to charge Thomson's with corporate manslaughter. This offence was extremely difficult to prove.

An inquest was held and Stephanie attended. As a representative of CO-Gas Safety, she was treated as 'an interested party', so she was able to explain carbon monoxide to the jury. An open verdict was returned, which CO-Gas Safety considered was better than misadventure or accidental.

A journalist from *Dispatches* on Channel 4, Lee Sorrell, had taken a keen interest in this case. He kindly attended the inquest and interviewed Stephanie at the end of inquest and later. a *Dispatches* programme, '*Death in Room 501*' was put out on main TV Channel 4 and raised a great deal of awareness.

The inquest and publicity resulted in some changes by the package travel companies, although sadly not enough as we found in 2006, after the deaths of Christi, aged seven, and Bobby, aged six, while on a Thomas Cook holiday in Corfu. We helped the parents with this death as much as we could on our almost non-existent funds and recommended both the now-late Harry Rogers as a gas expert and barrister Leslie Thomas, now KC, for the inquest. Without Harry flying to Corfu and fearlessly investigating, and Leslie's skill in putting this evidence at the inquest, we think this horrendous tragedy would never have seen the light of day. The inquest resulted in a verdict of unlawful killing, which is what we and the family hoped for.

The Coroner, Mr Hinchliff, made some excellent recommendations. Sadly, these did not prevent others from dying of CO; most recently Hudson Foley, aged 24, dying from CO in Ecuador in August 2023. His mother, Cathy, is trying to persuade the Foreign Office to at least warn people about CO on their website for advice for those going abroad; something Molly and CO-Gas Safety have been working on since around 1986.

Please see our <https://www.co-gassafety.co.uk/data-menu/deaths/> and scroll to the end for the deaths of British citizens abroad. Cathy is also working hard to persuade all sea and airports, as well as gap-year companies, to sell and recommend portable CO alarms to EN 50291. Then

there are the issues of awareness, insurance and repatriation. Why won't government take some action?

Name of deceased, date of death: Robert Dunn, 10.11.1995

Circumstances of death: Aged just 22, Robert and his fiancée were poisoned during the night from a faulty gas boiler in their privately-rented flat. His fiancée was in a coma for nine days but survived. Lengthy legal proceedings took place but manslaughter charges against the landlords and the gas tradesman were eventually dropped.

What we learned from this incident: We learned that poor training could kill. Also, that there was no help from any of the bodies which people assume are there to help in such a tragedy.

This was another inquest which Stephanie attended. Robert and his fiancé Melanie were living together after university in private rented property. Melanie also attended the inquest. She had been severely poisoned but survived. She looked fine and could walk and talk without anyone knowing she'd been affected. However, she could no longer use her intellectual abilities to undertake the work she'd studied for, and worked at, prior to being poisoned. It was very sad.

Robert's death had not only deprived Melanie of her future husband but also her future livelihood. The gas engineer seemed to Stephanie to be a nice man but, sadly, poorly trained. Melanie told Stephanie that all the organisations that were supposed to help in this sort of case did virtually nothing. Other survivors and family members later told her the same thing.



Name of deceased, date of death: Anne Brennan, 15.11.1995

Circumstances of death: Aged 20, Anne was poisoned by fumes from a faulty boiler in her privately rented student home that she shared with six other students. Her inquest concluded hers was an unlawful death. The landlord and gas fitter were both prosecuted and found guilty. They received fines totalling less than £20,000.

What we learned from this incident: We learned that an audible CO alarm to a good standard would probably have saved her. See her case study on our website:

<https://www.co-gassafety.co.uk/wp-content/uploads/2020/04/APPROVED-Anne-Brennan.pdf>

Anne was a brilliant student who wanted to become a Labour party MP; the next Barbara Castle perhaps. She was in a house with a total of seven students in Durham. Stephanie attended the inquest and recalls that evidence was given that the students had asked the landlord to come round and to provide more ventilation. He came round, just drilled holes in the back door, saying, 'you want ventilation, I'll give you ventilation'.

The other students told CO-Gas Safety that when they found Anne unresponsive, they called for an ambulance. When it arrived the reaction from the paramedics was 'oh another student death from drink or drugs'. Yet the students had suspected CO and had bought the only thing readily available at that time, which was known as a 'black spot detector'. This was a piece of cardboard with some CO sensitive material on it, which went black in the presence of CO. The students had put the detector inside the boiler cupboard. This was in the wrong place because the highest CO, being warm from the boiler, had migrated upwards into Anne's bedroom. But there was enough for the students to tell the paramedics to test for CO and probably saved the lives of the remaining students. This alerted CO-Gas Safety to the fact that testing for CO was not automatic on death but should be, particularly for the safety of others either living in the property or who will live there in future.

If the house had had adequate ventilation or a modern CO alarm to BS EN 50291, Anne would have survived. An audible CO alarm would probably have roused Anne and the other students.

Anne Brennan's death and others convinced us that a British Standard for a CO alarm was urgently needed.

Stephanie contacted the British Standards Institute and asked to be put on the committee discussing the standard. She did not consider her presence to be very welcome but there was no other consumer representative on the committee which was encouraged by BSI.

This standard was obtained in 1996, but the levels were not as low as the charity had requested. The levels were later changed by the EN European Standard to levels similar to those CO-Gas Safety had advocated for at the British Standards Institute after Anne's death.

Name of deceased, date of death: Edna Lawrence, 08.10.1996

Circumstances of death: Aged 70, Edna was poisoned by her solid fuel boiler for hot water in her own home. Late one evening, Edna's neighbour saw the curtains open and the lights off but the TV on, so went to investigate. He turned the lights on and found Edna dead in a chair. An ambulance was called. Edna's death was initially recorded as a heart attack, until another family member suffered a serious exposure in the same property and Edna's GP got in touch.

What we learned from this incident: CO can easily be missed. There is no automatic testing of dead bodies for CO, even in cases of unexplained death. We believe that doctors tend to assume heart attack because the heart is the last organ to obviously stop working. Solid fuel appliances seem to cause more deaths per user than gas-powered ones.

Edna had had five children; three daughters and two sons. All five gathered next door and were eventually allowed in. Edna was still in the chair and the police were present. Eventually Edna's body was taken away. Sue and her husband left about 4.00 a.m. leaving just June in the house overnight.

The next morning at about 7.30 am, Sue went to check on June at the house and couldn't get in. She looked through the window and saw June collapsed in a chair. Sue kept banging on the door and then got a ladder from next door. Sue's daughter arrived and she went up the ladder, opened an upstairs window, got in and opened the front door. June slowly revived. Sue called the ambulance.

Edna's tablets were on the sideboard, and it was assumed that June had taken an overdose, which Sue strongly disputed. The ambulance took June to hospital, but June was never tested for CO because the medics assumed June was suffering from shock after the death of her mother and checked her heart!

Edna had been to see her GP not more than ten days before her death. Edna's GP heard that she'd died of a heart attack and disputed this. A post mortem was undertaken and it was found that Edna's heart was very strong. Therefore, they tested for carbon monoxide. It was then found that Edna had twice the lethal amount of CO in her blood. An investigation showed that her solid fuel appliance was emitting large amounts of carbon monoxide.

There is also a need to raise awareness that solid fuel appliances must also be installed by properly qualified installers, regularly maintained, with good ventilation and an efficient chimney or flue which must be regularly swept according to manufacturer's instructions. An alarm to BS EN 50291, purchased from a reputable supplier, should be installed as an extra safeguard.



Name of deceased, date of death: Sonja Hyams, 19.11.1996

Circumstances of death: Aged 19, Sonja died of CO in privately-rented student accommodation that looked to be in perfect condition. The boiler emitted CO due to insufficient ventilation. The landlord and gas engineer were both found guilty of manslaughter by gross negligence.

What we learned from this incident: We learned that even well-decorated, modern-looking student accommodation can kill from CO. Also, that even after a tragic death, the aftermath can be improved with more knowledge, communication and compassion. Thanks to help from the police officer in Anne Brennan's case, the late Steve Kitchin, who Stephanie had met in

Durham after Anne's death, we did manage to improve the way this tragedy was dealt with. The charity was very grateful to him.

Name of deceased, date of death: Gerry Mills, 25.04.1999

Circumstances of death: Gerry, aged 61, and his wife Joyce were both poisoned by their gas boiler in the bungalow they owned. They had called in professionals to check that their recent illness had not been caused by their gas appliances, but the danger from CO was not discovered by either of the services they consulted.

What we learned from this incident: We learned that this tragedy would not have happened if the gas emergency service had been equipped with a flue gas analyser, trained to use it and had tested for CO and identified the correct gas appliance, which was dangerous.

The facts of this death were that the couple had been ill and had called British Gas Service, which, realising the cause was probably fumes, called Transco.¹ The couple assumed that Transco was British Gas and the couple had great faith in BG.

There was a gas fire and a gas boiler in the premises. The Transco operative's only equipment was a smoke pellet. He used this to test the boiler flue, and it passed the test, i.e. the smoke went straight up and out of the top of the flue. He then understandably but wrongly suspected that the cause of the problem was that the gas fire lacked sufficient ventilation.

However, the expert investigator appointed by the Coroner after Gerry's death using analysing equipment found 26,900 parts per million of CO going up the boiler flue, which was a lethal amount. The gas fire was found to be working perfectly.

There had probably been a wind blowing the CO back down the flue, or a weather inversion. CO-Gas Safety still has a written statement by their daughter, Leigh Wiseman, which states that if the operative had used analysing equipment, Gerry would have lived. She said the use of such equipment would save many lives and was just basic common sense to her.

¹ At the time, Transco was the national gas emergency service.

Name of deceased, date of death: Katie Overton, 29.03.2003

Circumstances of death: Aged just 11 years, Katie was found unresponsive in her bed by her family. For ten days the parents were suspected of Katie's murder because the post mortem examination had not considered CO poisoning. It was eventually established that the boiler in their privately-rented home had not been serviced for several years and was emitting lethally high levels of CO.

What we learned from this incident: The main lesson learned was that the landlord's gas safety check does NOT require a mandatory test for CO or an actual service of appliances. There was also no victim support, no medical help and no proper investigation after this death until the rest of the family nearly died 10 days later. It wasn't until then that CO was suspected and found. Paul had to telephone the pathologist and ask for tests for CO to be undertaken on Katie's blood that thankfully had been retained after her cremation.

The Overton family, and Paul in particular, kindly ended up helping CO-Gas Safety. Even after the family were all found to have been exposed to CO, they still received no medical help and no victim support, except a tiny amount from CO-Gas Safety much later. Indeed, Paul Overton became a trustee and treasurer and has worked hard for the charity. All because there is no recognised body properly funded to help and due to the fact that there seems reluctance by the gas industry to pass on the contact details of independent, registered charity CO-Gas Safety or set up a body properly funded to do our work.



Katie is on the right and was the eldest of the three Overton children. See her case study on our website: <https://www.co-gassafety.co.uk/wp-content/uploads/2023/03/APPROVED-Katie-Overton-updated-02.03.2023.pdf>

Paul Overton, Katie's stepfather, discovered Katie not breathing at about 10.00 a.m. on her bed. He phoned for an ambulance then attempted resuscitation but to no avail. Paul takes up the story:

'Katie was taken to hospital and my wife and I travelled up with her. After about twenty minutes the hospital staff informed us that Katie was dead. A post-mortem could not establish the cause of death. My wife and I were under suspicion of murder for the next 10 days.

'Ten days after Katie's death I awoke with a banging headache and felt very dizzy, as did my wife and other two daughters; one aged 7 years 3mths and the other who had just turned 6 years old. The house smelt as if somebody had left a car running in it.² The smell seemed to be coming from the gas boiler. We opened all windows and doors.

I contacted the letting agent and they sent out a CORGI³ gas engineer. The engineer tested for carbon monoxide by setting the heating running and placing an ambient air CO detector in the house. He then came outside. After 15 minutes he ran back in, grabbed the detector and ran back out. The detector recorded a reading of 12,795 parts per million (PPM) of carbon monoxide in the house. The engineer was amazed any of us were alive as the carbon monoxide level was lethal. I contacted the police dealing with our case and explained about the carbon monoxide reading and that the gas engineer thought this may be the cause of Katie's death. The police contacted British Gas and an investigative team were sent out to our address. They confirmed the CO readings. By this stage Katie had been cremated. Katie's blood samples were now tested for carbon monoxide, and it was confirmed that this was the cause of death. At no time were we

² CO itself has no smell, but other products of combustion (e.g. aromatic hydrocarbons) do.

³ This was before the Gas Safe Register took over from CORGI.

advised to get checked for carbon monoxide exposure by the CORGI engineer, British Gas investigative team, the police, the hospital or even the people who tested Katie's blood. These were the pathologists.'

When British Gas investigated it was established that the boiler had not been serviced for at least 3 years but did have safety checks. The Gas Safety Check was due on March 28th 2003, but was postponed until April by the landlord. Therefore, the Gas Safety Certificate had run out the day before Katie's death.

Paul thinks the registered gas installer, who carried out the safety checks, wanted to service the gas boiler but the landlord thought this unnecessary and that only a safety check was required by law.⁴ When the boiler was cleaned by the investigative team, the carbon monoxide level dropped to 2 ppm, proving that if servicing had taken place Katie would not have died.

Paul had found CO-Gas Safety on the last page (inside cover) of the HSE bereavement leaflet and contacted Stephanie Trotter. Stephanie told Paul it had taken years of persuasion for HSE to put CO-Gas Safety and its contact details on the leaflet.

Paul continues, 'Later I became a trustee. I have since learned that the leaflet has been discontinued and that although the charity is on the HSE website, it is very difficult to find. Why is there so little help for victims?'

Katie's death provided more questions than answers but gave great insight into how her death could have been prevented and also how other survivors and family members are treated.

Sian, one of Katie's two younger sisters, kindly wrote a further case study for us about the effect Katie's death had on her and the family. See <https://www.co-gassafety.co.uk/wp-content/uploads/2020/11/APPROVED-Katie-Overton-told-by-Sian.pdf>

We have learned the horrendous effect on the rest of the family from one death. This is ongoing forever.



Name of deceased, date of death: Dominic Rodgers, 12.02.2004

Circumstances of death: Aged 10, Dominic was found deceased in bed by his mother after the emissions from the boiler of the property next door collected under a passageway and rose up to enter his room.

What we learned from this incident: We learned that death was possible from CO being emitted from another property. We also learned that although every body appeared to help Stacey, Dominic's mother, only CO-Gas Safety warned her that the inquest would be very difficult indeed for her and suggested she instructed a lawyer, which she did.

Dominic died from CO from a central heating boiler in the neighbouring property. Both Stacey and her neighbours were tenants.

⁴ The landlord had/has a continuing legal duty to keep the gas appliances and flue in a safe condition. But the law could be clarified. Stephanie wrote an article on this, published in the NLJ in 2018.

After Dominic's death, Stacey was contacted by many people; HSE, CORGI, the Local Authority, British Gas, Transco, the gas emergency service and even her local MP, Barry Sheerman, who was then a co-chair of the All Party Parliamentary Carbon Monoxide Group⁵.

Stacey recalled 'Everyone offered sympathy, but nobody offered medical treatment, practical advice or counselling. I was feeling terrible, confused as well as grieving. I didn't know what would happen. I'd heard that there would be an inquest, but I didn't know what this meant really but I was dreading it. Nobody had even discussed this.'

Stephanie read about Stacey and Dominic in the newspaper and tried to contact Stacey.

Stacey takes up what happened next:

'It wasn't easy for Stephanie to contact me as I was being shielded from the press. However, Stephanie was determined to offer me her help. Being a barrister, she knew I'd need help with the inquest. She also knew I would be able to recover some damages (which isn't a large sum for bereavement but is all anyone can claim in this sort of situation but was then around £10,000). But this would at least cover the cost of legal representation at the inquest. Somehow Stephanie managed to get through to my brother and persuaded him that she was really trying to help me. She gave her telephone number to my brother. Then he had to convince me to contact her.

I rang Stephanie and she was very supportive. She also told me that an inquest is a public court hearing held by the coroner in order to establish who died and how, when and where the death occurred. The inquest may be held with or without a jury, depending on the circumstances of the death and that there often is a jury in a carbon monoxide case unless the facts are known and agreed. The purpose of the inquest is to discover the facts of the death. She also told me that this can be quite a daunting procedure for anyone, let alone someone like me, a very young woman grieving for her son. I had almost certainly been exposed to carbon monoxide myself too, which can affect the brain. Stephanie urged me to find a good solicitor, used to representing families at inquests to represent me, to make things easier for me.

The inquest was very hard for me, and I couldn't really function properly. I was thankful that I had a good lawyer who did everything he could possibly do for me.

After the inquest I threw myself into raising awareness of the dangers of carbon monoxide and how quickly it can kill. I don't want anyone to suffer as I have. I think there should be more done to raise awareness of the dangers. There should be more help for victims and for charities like CO-Gas Safety which has worked so hard to prevent these tragedies and provided so many families with support at such a difficult time for them. I cannot understand why the gas emergency service doesn't test gas appliances for CO nor why the landlord's gas safety check doesn't have to do this. If a test for CO had been done on the boiler next door, Dom would almost certainly be alive today.

Stephanie has worked all these years as a volunteer. I have worked for 15 years. I think it's wrong that such a wealthy fuel industry doesn't even fund the work done voluntarily, when it should provide a properly set up organisation with paid people to undertake the support and data work CO-Gas Safety does and the victim support.'

⁵ Then called the All Party Parliamentary Gas Safety Group.



Name of deceased, date of death: Elisabeth Giaque, 05.02.2005

Circumstances of death: Elisabeth was poisoned in her family home in Wimbledon, leased by her extremely wealthy parents from a property developer landlord. The central heating boiler had not been inspected for two years. Having been found unconscious in her room, she was taken to hospital, where she was incorrectly diagnosed with meningitis and later died, just 6 years old.

What we learned from this incident: That wealthy people can die from carbon monoxide when renting luxury accommodation. It was also seen yet again that awareness of CO poisoning still needed to be improved, even among medics.

CO was only suspected in this death after other family members subsequently stayed in the same room of the house when they visited to comfort the family. They, too, suffered symptoms but thankfully survived. There could so easily have been further fatalities.

The landlord in this case was prosecuted for Health & Safety failings and subsequently fined £20,000 (plus £35,000 in legal costs), but this was obviously of little comfort to her family.

Name of deceased, date of death: Zoe Anderson, 29.12.2010

Circumstances of death: Zoe, aged 24, died in the shower in the family home in Bath. A new gas central heating boiler had been fitted in the family home by a registered Gas Safe engineer, who had 20 years of experience. He had failed to secure the flue fully with screws.

What we learned from this incident: We saw again that even wealthy people can suffer such a tragedy, despite using Gas Safe registered engineers. Also, that medics tend to think CO is so rare that they don't test for it when patients visit them with symptoms.

A few days before Zoe died, a cleaner had been working in the shower and felt dizzy and faint. She had been taken to hospital, where medics failed to suspect CO or to test her for CO. If they had done this then the leak would probably have been identified, and Zoe may not have died. Zoe's father was a millionaire publisher.

Andrew Hartley, the gas engineer, was found guilty of manslaughter by gross negligence in 2012 and received a prison sentence.



Name of deceased, date of death: Matthew Nixon, 13.12.2010

Circumstances of death: Aged 22, Matthew was a registered gas installer whose training did not save him from the inhalation of CO produced by the use of a petrol generator indoors.

What we learned from this incident: We learned that registered gas engineers are not taught about CO from other fuels, like petrol or diesel, only from gas.

Matthew died in December 2010 as a result of using a petrol generator to power his tools while working inside an unoccupied flat that had no electrical mains power connection. As a result of offering support to his mother, Stephanie learned that Matthew had been in the gas industry since the age of 16 but did not understand the risk he was exposing himself to by using the generator in an unventilated space.

Stephanie had suspected for some years that some registered gas installers did not fully understand the combustion process and that their training only covers gas.



When Roland Johns, a retired investigator and trainer from British Gas, very kindly offered to help CO-Gas Safety, Stephanie suggested that he put together a training course covering CO dangers from all fuels.

Roland Johns

Please note that we initially learned of Matthew Nixon's death through our data collecting and collating, and then recorded the details from offering victim support to his family, which the charity has undertaken since 1995.

Despite Roland's and CO-Gas Safety's requests, EU Skills did not certificate Roland's course. Thankfully BPEC did so. Although the GDNs (gas distribution networks) started using the course to explain combustion from all fuels, the course gradually reduced and withered. The charity is concerned that modern Gas Safe registered engineers may continue not to fully understand combustion, particularly the risk of CO from fuels other than gas.



Name of deceased, date of death: Kelly Webster and Lauren Thornton, 01.04.2013

Circumstances of death: Another registered installer caused the deaths of 36 year-old Kelly and her daughter Lauren, aged 10. He had fabricated an exhaust system for a petrol generator that was used on-board his boat, which failed while it was being used to power a fan heater for the cabin in which Kelly and Lauren were sleeping.

What we learned from this incident: We learned that these deaths were not one-offs and that those who knew about CO from gas-powered appliances were under-educated regarding CO from the combustion of other fuels.

Kelly and her daughter Lauren were holidaying with Kelly's partner on his boat on Lake Windermere, Cumbria. Despite his gas training, he installed an unsuitable exhaust for the generator. This shocking incident resulted in protracted legal proceedings, which was very difficult for their family. Kelly's partner was found criminally responsible for the deaths and given a 2-year suspended jail term. During sentencing, the judge said, 'It was a tragic example of a little bit of learning being a dangerous thing.' We had hoped that Roland's training course would improve this obvious failing. We also hoped that training to include other fuels would be built in to all training for all registered gas engineers.

Name of deceased, date of death: Katie Haines, 18.02.2010

Circumstances of death: Katie, aged 31, died after her boiler was labelled 'At Risk' rather than 'Immediately Dangerous'. Katie and her husband didn't realise this meant it had a fault that could lead to serious consequences, so they continued to use it.

What we learned from this incident: We learned that people may buy CO alarms, and these may be good alarms to EN 50291, but people don't always get them out of the package and pull the tab to connect the battery. Without doing this, they are obviously useless.

Katie, her husband and her family had not been aware just how dangerous CO is. When their boiler's pilot light repeatedly went out, they had called in an engineer to look at it. The engineer put a warning label on the boiler to say it was 'At Risk', but newlyweds Katie and Richard did not realise how serious this was. Katie had even been experiencing migraines in recent months, but attributed these to the stress of planning their wedding.

One evening, Katie ran a bath and due to CO slipped into a coma and drowned. Shortly before she died, she had bought a CO alarm but had not yet got round to taking it out of the box and pulling the tab to connect the battery.

Katie's parents and CO-Gas Safety lobbied hard to do away with the 'At Risk' label and both considered that only an 'Immediately Dangerous' label should be used in such circumstances, or perhaps ever. Perhaps the engineer had not actually tested for CO using instrumentation?



Name of deceased, date of death: Pauline Croxall, 01.02.2012

Circumstances of death: Aged 72, Pauline mistakenly thought that her CO alarm was faulty, because she had been given it when she had a new multi-fuel fire installed in her home, and she didn't think that could be at fault so quickly. She was right – the CO was being created by a diesel generator she had running in her porch, which poisoned her as she slept.

What we learned from this incident: We learned that lack of awareness of CO and what can emit CO, can result in death. CO alarms are only effective if we find out why they activate, and identify which appliance was the cause of the activation. There is a lack of knowledge that generators, and other appliances that burn liquid fuels, can emit CO.

Pauline lived in a 50-foot by 10-foot caravan/mobile home. This was in a large field. Pauline wanted to stay there with her cattle, who were calving. She added a large porch on the side. She could only walk with sticks but got help from her nephew when she needed it for the cattle. She had been told it would cost £30,000 to put mains electric into her caravan.

She had a big diesel-powered generator outside for electricity. The generator broke down and the estimate was £2,500 to repair it. Pauline therefore bought a small generator (also diesel) which she put in the porch of the caravan. This ran for four hours before she had to top it up. She also had a new multi-fuel fire put in her lounge a couple of months before she died. The people who installed the fire left a CO alarm from British Gas Honeywell. This used to go off when the little generator was on, but Pauline didn't make the connection.

Pauline's sister Karen used to take Pauline shopping on a Saturday but often Pauline wasn't well enough to go. On the occasions when she just had to go shopping, she would often feel much better after about ten minutes in the car. Karen kept telling Pauline that she thought it was the generator making Pauline ill, but Pauline refused to take any notice, although the CO alarm kept going off. Pauline thought the alarm was faulty because the alarm had come with the fire, so she never thought that the alarm was sounding as a result of the generator was emitting CO.

Pauline got so fed up with the alarm going off that she put it on the dustbin outside. However, that was quite near the little generator so would carry on alarming. Karen knew nothing about this. Eventually Pauline put the alarm in her bedroom under a pillow, where it was well away from the generator and so stopped making a sound.

Pauline was found dead in her lounge, where she sometimes slept. The investigator found it was the little generator that had poisoned her, not the fire.



Name of deceased, date of death: Thomas Hill, 28.10.2015

Circumstances of death: Thomas was 18 when he went away on holiday to a remote cottage in Scotland. He was found unconscious in the bathroom as a result of CO produced by a heater that was both faulty and unsuitable for the space it was located in.

What we learned from this incident: We learned that people don't know what to do after a CO alarm sounds.

A Fatal Accident Inquiry held in Scotland following Tom's death concluded that a portable gas heater was found to be at fault. It was also not suitable to be used in a bathroom and not ventilated sufficiently. Both the owner of the property and the tenant that sub-let it out for Tom's holiday were prosecuted for not adhering to Health & Safety Regulations. They received fines but no other criminal charges relating to Tom's death were made.

However, the main concern Tom's parents have is to make people aware of how serious it can be if a carbon monoxide alarm sounds, and what action to take if one does. There was a working CO alarm in the cottage, and it had sounded the day before Tom's death, but the holidaymakers had thought it was in response to another appliance and that it was sounding in response to being too close to the appliance. The fact that the cottage was so remote contributed to their lack of action. Tom's parents kindly wrote a case study for our website to educate people that they should never ignore an alarm or assume it is faulty. See <https://www.co-gassafety.co.uk/wp-content/uploads/2024/06/APPROVED-Thomas-Hill.pdf>

At a meeting of APPCOG, 'Voicing Victims' Stories' on the 16th December 2024, at which every victim/survivor or their family member were present as a result of the work of the charity, Dan Edwards, SGN (Scotia Gas Networks) Chair of the GDN (Gas Distribution Networks) CO group, suggested a simple line drawing on every CO alarm showing that if it sounded people should get out of the building immediately. As this will cost little, we are hopeful this can and will be taken up by CO alarm manufacturers through their trade body CoGDEM.

For all the deaths CO-Gas Safety have found please see list of deaths, from 01.09.1995 and ongoing, at: <https://www.co-gassafety.co.uk/data-menu/deaths/>.

For all the case studies that people have kindly written for us, please see <https://www.co-gassafety.co.uk/case-studies/>. In addition to incidents that resulted in fatalities, you will find non-fatal case studies from several of the survivors of carbon monoxide poisoning that have approached us for information and support during the last 30 years. We are very grateful to them for allowing us to share their experiences so that others may learn from them.

There are so many different messages to be taken from the case studies. One particularly surprising account comes from Sue Westwood, who later became a director of CO-Gas Safety.



Sue's long-term exposure to CO as a result of a faulty flue installation in her new-build home continues to affect her life over 20 years later. Not only is it shocking that a brand-new house with its originally-installed heating system was dangerously fitted, but the lack of awareness of CO among the medics that treated Sue could have proved fatal. Aged just 30, living with her husband and young son, she was suspected of having taken cocaine after myriad tests had not found any cause for her symptoms.

She was not tested for CO exposure. The cause of the symptoms that had hospitalised her for a week was only discovered by chance when the boiler in their home was serviced and the engineer found dangerous levels of CO that were later revealed to have been leaking from two separate points in the flue system. Thankfully, Sue bought a CO alarm to give the family peace of mind – a year later, the alarm sounded and alerted her to the fact that the replacement flue had a crack in it that was allowing toxic emissions into her home yet again! Current CO alarm regulations still don't require alarms in privately-owned homes, even new-build properties in England.

We have learned so much from working with victims of CO, we hope these case studies can help highlight some of the issues surrounding CO. Please read as many as you can.

General continuing activities of the charity

Read and kept links to innumerable academic articles on carbon monoxide and medical articles on treatment etc.

Wrote and had many articles published in magazines, journals, the *New Law Journal* and *The House* magazine.

Made many submissions to Consultative Documents, particularly to HSE and Ofgem.

Attended meetings, some with Government Ministers, listened to other people's views, asked questions and put forward the views of survivors/victims and family members at these meetings.

Constantly re-examined our aims and objectives to make sure they were still relevant.

Constantly raised the issue of the lack of proof of CO, which means people are not safe and medics don't know if a person has been exposed to CO or not.

Lobbied for First Call Operators from the gas emergency service to have Personal Alarm Monitors for CO. Later lobbied for anyone who visits a home to have these e.g. health visitors, ambulance personnel etc.

Lobbied and continuing for the NHS Algorithm for GPs to be amended and for GPs to be able to order a free test of the air and emissions from appliances in the homes of patients.

Lobbied and continuing to be able to attend APPCOG COMED meetings (medical group) because our survivors are desperate for medical advice, and we need medics to understand the victims' perspective.

Applied for funding on many occasions.

Operated an informal helpline helping innumerable people, mainly survivors/victims and family members.

Pressed for increased knowledge of CO and therefore recognition of the possibility and quicker testing of breath and blood by medics.

Challenged the Gas Safe Register's rule that their inspectors cannot test for CO for a tenant without the landlord's permission. This is surely wrong.

Most notable items in the 30 years

On 01.09.1995 CO-Gas Safety started collecting deaths from unintentional carbon monoxide poisoning from all carbon-based fuels – this is ongoing

The charity was alerted to deaths through newspaper cuttings from a subscription service. Now we hear from media alerts. All carbon monoxide deaths must by law have an inquest.

The charity also checked deaths with Coroners and their officers, who were, and still are, very helpful. Without their invaluable help the charity could not have done this important work of collecting, collating and publishing data on the charity's website.

CO-Gas Safety data of deaths were checked three times by a respected and highly qualified statistician, Dr Carolyn Craggs. We improved our data gathering thanks to her expert advice.

We have come across quite a few incidents where the wrong appliances had been suspected because the gas emergency service had no equipment or training to test the air or the emissions from gas appliances for CO. This is why we are so keen on testing and identifying the appliance emitting the CO.

CO-Gas Safety has supported other groups such as CO-Awareness Wales, CO Awareness Barnsley and Lynn Griffiths of CO-Awareness.

Please note that we have tried to keep to a chronological order but have grouped some items together.

In 1998 Stephanie was invited to give a talk to the Gas Forum and also the Institution of Gas Engineers which later became IGEM to include managers.

Stephanie used the death of Robert Dunn as an example. Having described the death and the effect on Melanie, Robert's fiancée, Stephanie then simply described the reactions of each organisation:

Gas Suppliers – we only supply gas – it wasn't our fault.

CORGI – We will look into it, but the gas engineer hasn't been found guilty. If an inspector had been called out only 20 of the 120 inspectors have flue gas analysers anyway.⁶

HSE – We investigated but the family wanted manslaughter, which we cannot charge.

Police – HSE is investigating.

⁶ This at least has changed, and all inspectors have analysing equipment, but they will only test for CO for a tenant if they have the landlord's permission.

15 bodies all had their reasons and there was no body other than CO-Gas Safety to help them from a victim's/survivor's or family member's point of view. Stephanie has the notes and can supply copies if asked.

The Gas Safety (Installation and Use) Regulations 1998

<https://www.legislation.gov.uk/ukxi/1998/2451/contents>

Reg. 36: This brought in the landlords' gas safety check, which was mandatory for landlords and had to be undertaken by a registered engineer every 12 months.

The terms are very detailed and prescriptive (e.g. Reg. 36(3) (c) about keeping records of the checks) but there is no mandatory requirement to test for CO. Most registered Gas Safe engineers do test for CO so why not make this mandatory? It would be another more objective test that would also help registered gas engineers to do a good job and be more respected.

There have been several fundamental reviews into gas safety by HSE to which CO-Gas Safety made extensive submissions with supporting evidence.

Recommendations by HSC/E in 2000

In January 2000 CO-Gas Safety made a presentation to the HSE during which many victims spoke and told the HSE officials about their experiences.

We still have the booklet dated February 2000 in which the accounts by victims and a chimney engineer made that day are included. Our January 2000 presentation to the HSE can be seen here: <https://tinyurl.com/38fsn7cm>

In our opinion, these accounts by victims and family members of the bereaved visibly moved the HSE officials who attended the presentations on that day.

In August 2000, HSC/E made recommendations that reflect what we lobbied for.

They were:-

- 1. Levy on the gas suppliers to pay for raising awareness of the dangers and for research**
(we would prefer the levy on the whole fuel industry) and
- 2. That the gas emergency service carry and use equipment to test gas appliances for CO.**

Please note that these recommendations were made after an exhaustive gas safety review and with the support of the majority of the stakeholders, who were mainly industry. CO-Gas Safety has the whole original document (Proposals for change) if anyone would like us to show them this document.

Time went by with nothing happening. Then we heard that the Chair of the HSE had had a breakfast meeting with the gas suppliers who lobbied for the recommendations to be dropped. As far as we know neither CO-Gas Safety nor any other consumer or victim representatives were invited to this meeting. This seems extremely undemocratic and unjust.

Sadly, these recommendations have still not been implemented. We are told that things have changed now the Gas Safe Register has taken over from CORGI but we see little evidence of this and consider that the basic needs for awareness and testing of gas appliances, or at least the air, after relighting the appliance(s) were necessary⁷, and are still very much needed.

⁷ Sweep test see <https://vimeo.com/727002257/939926c093> This can now be done testing four rooms simultaneously. See also <https://www.co-gassafety.co.uk/giving-carbon-monoxide-nowhere-to-hide-by-northern-gas-networks/> NGN found testing for CO could be done in five to seven minutes.

We have now added several other recommendations:

- 3. That every Gas Safe registered engineer tests for CO whenever practicable and the results either put in writing/digitally and conveyed to those who may have been exposed and their medics, with the name of the engineer.**
- 4. That heating and cooking engineers of other fuels are also registered by law and this should apply to chimney sweeps too.**
- 5. That a body that takes over the duties of CO-Gas Safety is set up and funded properly to do the work CO-Gas Safety has done. A template for this is the Advertising Standards Authority see <https://www.asa.org.uk/>**

Endless committees

Vigil was set up by Sue Slipman, then head of the Gas Consumers Council. No action was taken.

Work Groups set up by HSE around the time the HSC/E recommendations were made in 2000. CO-Gas Safety had to lobby hard to even be included. Again, no action was taken despite many meetings.

COCAA (The Carbon Monoxide Consumer Awareness Alliance) was later set up. We were urged to 'work together' which seemed to us to consist in sharing our hard-won material and receiving almost nothing back. Again, no action was taken.

Stakeholder group set up by Baroness Finlay, who made some excellent recommendations in 2011 which we have kept with comments by CO-Gas Safety, but again, most of these have not been actioned.

In 2003 Submitted written evidence, Work and Pensions Committee, Evidence to Select Committee on the Work of Health and Safety Commission and Executive, Fourth Report of Session 2003-04.

In 2005 Stephanie and CO-Gas Safety were presented with the CORGI Gas Safety award.

October 2006 – death of the two children, Christianne and Bobby Shepherd aged 7 & 6 while on a Thomas Cook holiday in Corfu. See also page 4 above. If you visit <https://www.co-gassafety.co.uk/resources/leaflet-about-carbon-monoxide-poisoning/> download our leaflet and scroll to the last page, you will see part of that page is coloured green and contains text all about this tragedy, what CO-Gas Safety did, the inquest and recommendations by the Coroner. See also list of deaths from 01.09.1995 and ongoing <https://www.co-gassafety.co.uk/data-menu/deaths/> Scroll down for deaths abroad.

Research – 2006 UCL final report 2007 Dr Ben Croxford

HSE Press release: -

Research by University College London has found:-

- (a) 23% of homes had one or more defective gas appliance;

- (b) 8% of homes were judged to be at risk of dangerous levels of CO; (equates to about 4.5 million people in the UK)⁸
- (c) 45% of homes had received no information on the dangers of CO; and
- (d) A higher prevalence of problem appliances was found in the homes of vulnerable people (young, old, those in receipt of benefits).

This was the press release, and it does depend on what is meant by ‘dangerous levels of CO’. The WHO guidelines are now about 4 PPM over 24 hours
<https://www.who.int/news/item/22-09-2021-new-who-global-air-quality-guidelines-aim-to-save-millions-of-lives-from-air-pollution> Page xvii

It has recently been found that low levels of CO, too low to set off even a good alarm to EN 50291, cause brain damage to older adults. <https://www.coresearchtrust.org/media-information/three-year-project-looking-at-risk-of-co-to-older-people-reveals-concerning-findings>

The full study was published. This study was attacked because the study was only on poor, deprived homes.

2006 Submitted evidence at the 2006 Gas Parliamentary inquiry by Barry Sheerman MP.

2007 Started and ran the CO awareness poster competition for school pupils for 9 years, with prize-giving events at the House of Lords thanks to our patron, Lord Hunt of Kings Heath.

Cooperated with the Gas Distribution Networks (GDNs) when they wanted to take over the awareness competition and run it. Initially they improved the competition by extending the means by which awareness could be raised to other media, such as video.

Later the GDNs stopped holding a prize-winning event at the Houses of Parliament, first due to Covid and later for no reason that we could fathom, except perhaps the hard work this took. In our opinion, this was a missed opportunity to raise awareness in the UK as a whole and with Parliamentarians in particular, but the GDNs did continue to run the competition with events in their own areas. We do hope the competition continues and we hope they relent and hold the prize-giving at the Houses of Parliament to raise awareness, and also because the winner and their families found this to be a life-changing experience.

2007 EDM 127 MPs, tabled by Colin Breed MP

See <https://edm.parliament.uk/early-day-motion/32767>

‘That this House records its sadness that 16 people have already been reported as having died of accidental carbon monoxide (CO) poisoning in the UK since September 2006; commends the recommendations which were made by the Health and Safety Commission in 2000, including a modest **levy on gas suppliers to provide funds for raising awareness of the dangers of CO**⁹; recognises the need for regular servicing of appliances by qualified operatives, adequate ventilation, regular chimney sweeping and the use of CO alarms in preventing CO poisoning; **further recognises that the gas emergency service should have and use equipment to test appliances for CO**¹⁰; and urges the Government to bring forward proposals to make these

⁸ Added by CO-Gas Safety

⁹ Words in bold by CO-Gas Safety.

¹⁰ Words in bold by CO-Gas Safety.

recommendations mandatory given the lack of industry movement since 1997, and to make funds available for a body to assist the victims, their families and to fund further research.’

2007 Stephanie Trotter was awarded an OBE for her work on gas safety.

We tried to warn CORGI of their conflicts of interest which, amongst other issues, ultimately contributed to the creation of the Gas Safe Register in 2009. CORGI seemed to do everything: register gas engineers, create standards and be the public’s gas safety watchdog.

2008 Submitted evidence from CO-Gas Safety for the All Party Parliamentary Gas Safety Group, which undertook an inquiry into CO awareness amongst the medical profession and barriers to diagnosis in 2008.

2013 Energy Bill

Professionally drafted suggestions that CO+SAVi unanimously agreed on and put forward to the All Fuels Action Forum and to the MPs on the committee stage of the Energy Bill.
<https://www.co-gassafety.co.uk/our-professionally-drafted-suggestions/>

CO+Savi was a group of victims and victim groups set up under the All Fuels Action Forum (mainly industry) and under the All Party Parliamentary Carbon Monoxide Group).
 © CO-Gas Safety 2013

These amendments were drafted by David Mundy of Bircham Dyson Bell after instruction from Stephanie Trotter OBE CO-Gas Safety and consultation with members of CO+SAVi, especially contributions from Gareth Hughes.

Funded half by CO-Gas Safety and half by the Katie Haines Memorial Trust.

We hoped that this would empower victims to put their views forward and make industry take notice. Sadly, they seemed to us to have been completely ignored.

2015 Northern Gas Networks research was undertaken in 2011-2 done but not released until about 2015 <http://www.northerngasnetworks.co.uk/wp-content/uploads/2015/10/Giving-carbon-monoxide-nowhere-to-hide.pdf> (see note on page 4 at the bottom),

‘The new gas detection equipment was trialled by more than 40 colleagues over a 12 month period. The new units enable engineers to look for CO every time they are called to a property, even if a customer has not reported a suspicion of CO being present or a CO alarm has not been triggered.

‘The results demonstrate the life-saving benefits of this important new technology. We detected more than 62 instances of CO in properties during the trial – every one of which had the potential to cause illness or even death. Significantly, 22 of those customers had no idea that they were being exposed to CO.

‘During the trial period over 3% of Public Reported Escapes (PRE’s) were suspected cases of CO. 11% of suspected CO reports resulted in confirmed instances of CO.
 By providing instant, accurate readings, the new gas detection units allowed engineers to identify the presence of CO, its level of concentration and take swift and appropriate action to protect the customer.

‘The total time spent on each job rose by around 5-7 minutes, but engineers judged this to be time very well spent – given what was at stake.’

This excellent research showed that testing for CO could be done even within the 30 minutes allowed for each visit.

28.05.2012 Press release by LJMU about the research work to test homes for CO which were not just poor homes.

Data loggers from Lascar were put in houses in Liverpool and Coventry and the homes were from the most deprived to the least deprived.

The original research has not been published but an extract of the original research was published in another article about CO alarm ownership. See <https://www.co-gassafety.co.uk/about-co/numbers-affected-by-co/> which contains the extract from the study taken from an article published by Emerald Insight and can be purchased from the publisher see <https://www.emerald.com/insight/content/doi/10.1108/sasbe-07-2013-0041/full/html> . The publishers kindly sent us a copy. See page 81 on the right margin and search for ‘Lastly 22 per cent and 18 per cent had dangerous readings of over 50 PPM which would result in the effects of carbon monoxide poisoning to manifest within 15 minutes of being indoors. This means residents would feel CO effects within 15 minutes of being indoors.’

These were shocking results from respected universities, but they were small studies and a larger study was needed. A much larger study of 75,000 homes was promised in 2015 <https://www.ljmu.ac.uk/about-us/news/life-saving-research-into-carbon-monoxide> ‘The Gas Safety Trust (GST)¹¹ also awarded a grant to LJMU to expand the study from two city centres to five counties by partnering with five Fire and Rescue Services; Merseyside, Cornwall, Bedfordshire, West Midlands and Oxfordshire. The funding is also supported by an in-kind contribution from the Council for Gas Detection and Environmental Monitoring (CoGDEM), whose members have supplied CO alarms and data loggers to undertake a comprehensive CO investigation covering 75,000 households.’

That was years ago in 2015 – where is this research?

At an APPCOG stakeholder meeting on 10.03.20, Stephanie Trotter asked where this research was. The minutes of the meeting reported progress was being made but it was not yet ready for publication. Considering the serious implications of existing small studies, CO-Gas Safety continued to lobby for this study to be published.

CO-Gas Safety has since been told this study was not undertaken due to fire service cut-backs. In other words, lack of funding by Government for the Fire & Rescue Service.

CO-Gas Safety has asked the survey people Hound Global is using, what a statistically significant sample of households would be. We have learned that 2,000 households would be statistically significant. Of course, they would have to be randomly selected amongst a selection of all homes, wealthy and poor etc.

2015 Presentation to Energy UK

Energy UK – this is the trade association of gas suppliers including the big 6.

Presentation made to Energy UK by CO-Gas Safety by power point in December 2015

[View the Document](#)

¹¹ Now CORT, The Carbon Monoxide Research Trust.

Material or Handout for attendees of the Gas Energy Supply companies
[View the Document](#)

2016 Film of Sue Westwood, survivor and trustee.

<https://www.co-gassafety.co.uk/one-survivors-story/> Made by Concept 4 Ben Kelly for about £500. Stephanie described Ben as ‘a joy to work with’.

The charity has received many words of praise and encouragement for this one-minute film.

See Sue Westwood’s original case study <https://www.co-gassafety.co.uk/wp-content/uploads/2021/01/APPROVED-Sue-Westwood.pdf>

19.09.16 Stephanie Trotter went to Amsterdam with Jonathan Kane of Kane International

They met Albert de Vries MP of the Dutch Labour party and also Peter van Veen, a civil servant of the Building Minister to urge the Dutch government to register engineers in the Netherlands.

Email from Jonathan Kane 23.12.16

‘Good news from The Hague as Minister Blok finally decides to require registration of all heating installers in Holland from 2019 - see link below and a challenging English "google translation".

<http://www.nu.nl/gezondheid/4367965/overheid-scherpt-regels-cv-ketels-vanwege-koolmonoxide.htm>

‘Only authorized companies with well-trained personnel may still maintain boilers and water heaters in the future and install. This should prevent accidents with carbon monoxide.

Minister Stef Blok (Housing) which announced Monday in a letter to parliament.

The measures come from 2019 into law. The intermediate time is required to include legislation, improve the quality by companies and the skills of technicians.’

In 2017 CO-Gas Safety was in the finals for three out of four entries to *H & V* News and the charity won ‘Safety Initiative of the Year’. See <http://www.co-gassafety.co.uk/news/>

2019 Worked with the Guild of Master Chimney Sweeps and together wrote a protocol

We had worked the Guild of Master Chimney Sweeps for many years, and they very kindly gave us some donations. We asked them for case studies. In compiling this particular case study, we and the Guild realised that if there was any mention or suspicion of a CO incident, there was a need to consider accidental destruction of evidence by sweeping the chimney or for example even moving a stove baffle plate without the proper recording of actions and findings which could potentially destroy evidence which could have been used in a future legal case. This was the case study that led to this conclusion <https://www.co-gassafety.co.uk/wp-content/uploads/2020/11/APPROVED-Anon-wood-stove-2011.pdf>

The Guild and particularly Lawson Wight were very helpful in the creation of this protocol. CO-Gas Safety wishes that Gas Safe Registered Engineers and the bodies that register and govern them were and are as professional and far seeing. To view the protocol please read

<https://www.co-gassafety.co.uk/about-co/proof-and-protocol/>

this conclusion <https://www.co-gassafety.co.uk/wp-content/uploads/2020/11/APPROVED-Anon-wood-stove-2011.pdf>

WAITING LAWSON’S APPROVAL. 13.02.25

January 2020 the charity marked 25 years and published 24 years of data of 712 deaths and over 5,541 injuries/near misses from unintentional CO poisoning that the charity knows about.

We try to check every death with the Coroner concerned, and most do help us. We know there are deaths that are never suspected as, or tested for, CO.

Our headline was, 'We have the technology to reduce these tragedies'.

2020 Belinda's speech at our House of Lords event. <https://www.co-gassafety.co.uk/case-studies/quotes-from-survivors/>. Please scroll down and read all the quotes from other survivors.

2020 We wrote a second article published in *The House* magazine.

2020 Made a massive submission to Ofgem with supporting evidence.

2021 wrote and published article in the House (of Commons) Magazine
<https://www.co-gassafety.co.uk/2021/09/>

2021 Submitted answers to questions in a consultative document about extending the Smoke & Carbon Monoxide Alarm Regulations to social housing.

2021 Presentation by CO-Gas Safety

Talk at the IGEM Safety Conference in June 2021 'Why testing for CO matters'
<https://www.co-gassafety.co.uk/resources/presentations/>

2022 Wrote and published an article in the House (of Commons) Magazine
<https://www.co-gassafety.co.uk/2022/01/>

2022 CO-Gas Safety worked with an animator and the result is now on our website.
<https://www.co-gassafety.co.uk/animation/>

2022 Decision to update RIIO-2 Gas Network Vulnerability and Carbon Monoxide Allowance Governance Document.

Ofgem allowed £171 million for VCMA on a UIOLI (Use It Or Lose It) basis.
<https://www.ofgem.gov.uk/decision/decision-update-riio-2-gas-network-vulnerability-and-carbon-monoxide-allowance-governance-document>

GDNS are now testing but have decided to only test 'customers in vulnerable situations' and have decided that this means those on, or eligible for, the Priority Services Register (i.e. the poor, the old, the sick, the disabled, those with young children or those living in remote rural areas)¹². However, this can include those in need of temporary support.

Yet everyone is vulnerable to CO, however healthy, wealthy or wise.

But how do the GDNs (Gas Distribution Networks) decide whether or not to test for CO? They say they use 'visual signs', when the whole problem with CO is that it cannot be sensed using human senses!

Only 2% of gas engineers are qualified to test under CMDDA1 but British Gas does not seem to offer a paid service and it's difficult, if not impossible, to find a Registered Gas Engineer with CMDDA1 on the Gas Safe Register.

¹² As a result, CO-Gas Safety has cooperated with Cadent and now has two case studies (Rachel Brady and Dan Howard, a registered gas engineer). See <https://www.co-gassafety.co.uk/case-studies/non-fatal/>

Furthermore, some experts don't think CMDDA1 good enough anyway because some say it allows too many changes to be made to the appliance etc. before testing is undertaken. CO-Gas Safety has asked several gas experts and those lecturing on gas safety at technical colleges to get together and suggest changes to reduce the destruction of evidence while still making sure investigators are safe. IGEM seems reluctant to help but the charity has kept trying.

However, even some testing should allow data to be collected, collated and published. But having had a look at one set of data kindly sent by one of the GDNs <https://northerngasopendataportal.co.uk/>, there is not enough information. In particular, the data we have accessed has no record of parts per million of CO, even when CO has been found. The charity has constantly raised this point with the GDNs and with APPCOG.

2023 Lions' Lair award Gas Safety

We applied for a Lions' Lair Safety award for raising awareness of the need to test for carbon monoxide by the gas emergency service. We suggested Jonathan Kane to speak in support and then for us because they didn't wish us to speak at the event. The award was won by Kane International.

2024 CO-Gas Safety became aware of two important and shocking reports on gas cookers.

1. CLASP report on gas cookers

<https://www.clasp.ngo/wp-content/uploads/2023/01/Gas-Report.pdf>

New research suggestions phasing out gas cooking appliances across the EU-27, in favour of electric alternatives.

Main points:

- Indoor air pollution from gas cooking harms people.
- Gas is not 'natural' or 'clean'.
- Cooking with gas is costly.
- Ventilation is not enough.
- Gas cooking undermines EU targets to become a climate-neutral economy by 2050.
- Gas cooking undermines the EU's electrification and efficiency agenda.
- Clean hydrogen is not a viable cooking fuel.

This report states that cooking with gas releases hazardous air pollutants into our homes. 'It was highlighted by several medical doctors that long-term exposure to low levels of CO can increase chances of dementia and, possibly, Parkinsonism.'

Note Although this CLASP was a 2023 report we only heard about this in March 2024

2. EU report that gas stoves kill 40,000 in EU per year.

<https://research.birmingham.ac.uk/en/clippings/gas-stoves-linked-to-40000-premature-deaths-in-europe-annually>

The researchers attributed 36,031 early deaths each year to gas cookers in the EU, and a further 3,928 in the UK. They say their estimates are conservative because they only considered the health effects of nitrogen dioxide (NO²), and **not** other gases such as carbon monoxide and benzene.

IGEM

In recent years the charity has approached the professional body with an appeal to it to lead the profession of gas engineers in calling for testing for deadly CO, whenever practicable. From its charter IGEM acts in the interests of gas safety and with integrity. However, IGEM seems to fail to see the importance of testing for this deadly gas or, if it does, it fails to lead on this vital topic.

HSE seems unwilling to take the lead, pleading that it does not have the legislative power. This is true but this didn't stop HSE making its excellent recommendations in 2000.

Nov 2024 IGEM News

<https://www.igem.org.uk/resource/investigating-gas-incidents-for-hse-and-learning-the-lessons-steve-critchlow-principal-gas-engineer-health-safety-executive.html>

Facing the consequences: supporting carbon monoxide awareness week

Stephen Critchlow

'The difference with a fatal incident investigation is that the investigator must be able to prove what's happened without repairing or altering the defective CO source (essentially destroying the evidence), and in doing so must record every detail about the site and the history.'

CO-Gas Safety has huge respect for Stephen Critchlow. What he has said is true and efforts are made to preserve evidence in a fatal accident investigation. But suppose someone is just very badly poisoned but survives? Surely it is still an investigation which could result in a criminal prosecution or at least a possible civil case? Therefore, surely evidence should be preserved?

16.10.24 Stephanie Trotter invited as the keynote speaker to give a talk and slides at a CORT/LJMU event with staff from LJMU (Liverpool John Moore's University).

See it on our website <https://www.co-gassafety.co.uk/resources/presentations/>.

24.10.24 Law, Practice & Prevention of Deaths & Injuries from Unintentional Carbon Monoxide in the UK – with suggestions for other countries.

<https://www.co-gassafety.co.uk/resources/law-practice-prevention/>.

16.12.24 Voicing Victims' Stories

<https://www.policyconnect.org.uk/events/voicing-victims-stories-lived-experiences-carbon-monoxide-poisoning>

In this recent event, all the survivors/victims and family members were attending as a result of the work of CO-Gas Safety. The charity also either paid or offered to pay for their travel expenses and paid for lunch afterwards.

One of the survivors brought up the issue of poisoning from another neighbouring flat or house. We know of a number of incidents where CO has seeped between residences or been blown from one to another. Indeed, as well as the death of Dominic Rodgers, another death was the result of the distances between inlets and outlets being too close in addition to a boiler that was using too much gas. This was the death of Maria Ighodalo in 2007. CO-Gas Safety knows of other incidents and considers that more research needs to be done to establish if these distances are correct or not. This is another danger found from our work trying to help survivors or family members.

APPCOG¹³

CO-Gas Safety was aware this or rather its predecessor the All Party Parliamentary Gas Safe Group existed soon after launch but became a stakeholder later. CO-Gas Safety attended many meetings and functions over the years. Baroness Finlay, a co-chair, made some excellent recommendations in 2011 but sadly most were not implemented.

¹³ The All Party Parliamentary Carbon Monoxide Group which was previously called the All Party Parliamentary Gas Safety Group.

The Smoke & Carbon Monoxide alarms Regulations 2015 and the Amendment Regulations in 2022 are now law and are an excellent step forward but it seems to us to be a minefield of detail. We find it very confusing and difficult to access. It was aimed at private landlords only but now includes social housing and has exemptions in Schedule 1 that do not make sense to us. For example, care homes, student accommodation, hospitals, hospices and tied accommodation are exempt. We also think that it is remiss not to require a CO alarm in a room in England whose only gas appliance is a cooker – we can cite numerous cases of deaths and serious injury from gas cookers and hobs.

After three deaths at a care home in Swanage in October 2024, thankfully APPCOG member Julia Buckley MP raised a PQ (Parliamentary Question) in December 2024 to remove the exemption on care homes. But why have exemptions at all? Perhaps the exemptions were the result of different departments being in charge of different premises, but it seems to CO-Gas Safety, that process has been allowed to triumph over safety.

We are hopeful that the new Chair, Paul Davies MP, will make this a real force for change. In the December 2024 APPCOG newsletter it was reported that Andrew Gwynne, Parliamentary Under-Secretary of State for Public Health and Prevention, responded to a letter by Paul Davies MP pressing for carbon monoxide poisoning to be recognised as a serious public health concern. The letter from Paul Davies MP emphasised the health burden of carbon monoxide poisoning and the need for government communication and leadership on the issue. We have thanked Paul Davies MP, Chair of APPCOG, for that and are meeting him on 3rd February 2025.

Apart from these regulations, in our opinion, little Parliamentary action has been evident to CO-Gas Safety (EDMs, private members' bills etc.), although recently we are hopeful.

Conclusion

Stephanie Trotter, OBE, President & Director of CO-Gas Safety says:

'I'm sure that we'd all love to obtain energy from wind or tidal or other totally green power, but sadly we are far from that at the moment. Therefore, while we have little choice but to burn carbon-based fuel such as coal, gas, oil, petrol, diesel and wood, surely everyone should know about the dangers, how to make sure it is as safe as it can be made to be and emit the least harmful products of combustion into the atmosphere?

Everyone in the fuel industry knows, or should know, that if any carbon-based fuel is burned incorrectly a deadly gas could be emitted that cannot be sensed using human senses and which can kill at less than 2% in the air in under three minutes.

Therefore, surely the engineers in the gas emergency service and everyone else involved in installation and maintenance, should be under a legal duty to test for the deadly gas at every reasonable opportunity?

Government action is vital in order to make it mandatory to test the air in the home and the emissions from appliances whenever practicable, ideally by the gas emergency service.

Reasons

1. Identification of the source of the CO is obviously necessary for safety.

2. Testing the blood and breath of a survivor for CO is unreliable due to time elapsed and fresh air/oxygen breathed by the patient. A negative blood test only proves you did not have CO in your blood at the time of the test. It says nothing about the safety of your home etc.
3. A test of the home etc. needs to be provided because most people don't know enough about carbon monoxide (CO) to think about it at all, let alone ask for, or organise, a test for CO of the home and emissions from carbon-fuelled appliances.
4. Even if a person knew what to ask for and tries to find someone to test for CO, only 2% of Gas Safe Registered Engineers are qualified under CMDDA1 to do this. The Gas Safe Register has made it virtually impossible to find such a person.
5. Even if you find such a registered engineer with CMDDA1, if you are a tenant, it is very unlikely that the engineer will agree to undertake the test, unless you have the landlord's permission. Most tenants can't afford to risk offending their landlord or pay for the test.
6. Even if you are a homeowner, and find an engineer qualified under CMDDA1, he or she is unlikely to agree to undertake the test. There seem to be a variety of reasons for this.
7. Even if a person has got this far, the cost varies hugely from around £100 to thousands. British Gas does not provide this service but why not? CO-Gas Safety has asked all those who work for British Gas that they have come across for years, with no response.
8. Furthermore, some gas experts state that the qualification CMDDA1 allows too much change to the appliances before testing.

CO-Gas Safety has managed to raise some awareness about this and Ofgem has provided funds for the gas emergency service to test for CO in homes of 'customers in vulnerable situations'. Anyone can be injured or killed by CO, however healthy, wealthy or wise. That people, however competent, can be temporarily vulnerable does seem to be being recognised by the gas emergency service. But the gas emergency service does need to have clear duties and be funded accordingly.

GPs need to be able to order free tests for CO for their patients in their homes to test the air and emissions from gas appliances (ideally for other carbon-fuelled appliances too). Any CO found in parts per million of CO should be given in writing/digitally to the person who was, or could have been, exposed with the name of the gas engineer. Medics react well to this proof of CO.

The algorithm for GPs sends the GP and patient into a dead end because it directs to bodies (such as the National Poisons Information Service) that cannot test the home etc. (because by law only a Registered Gas Safe Engineer can work on gas). Changes have been talked about endlessly but not achieved. We think this is now achievable, but the Algorithm for GPs has not been changed. We keep asking but there has been no action.
https://assets.publishing.service.gov.uk/media/5a7568fb40f0b6360e473e60/CO_diagnosis_algorithm_2015.pdf

Tests for CO properly done and recorded would make people safe by identifying any source of CO, as well as assisting those exposed to CO and their medics. Tragedies would be avoided or lessened, NHS funds and social security would be saved. Awareness would be raised. Reliable data would be collected, collated and hopefully published, leading to safety improvements.

Some tests for CO in homes are now being done and recorded but the parts per million of CO found, and other vital issues, are not being recorded in the publicly accessible data that Northern Gas Networks kindly sent us <https://northerngasopendataportal.co.uk/>. This needs addressing urgently.

The standards need to be improved and so does the training of engineers of all fuels.

A body to help survivors, victims and family members also seems obvious. Such a body could also collect, collate and publish data, find why people died or became exposed to CO and push for safety improvements. People exposed to CO are a research resource and most victims think about how that exposure could have been prevented and wish to help others.

Sadly, what we've found is an extraordinary reluctance to take the obvious steps which would educate the public, improve standards, raise awareness of the dangers and test for this deadly gas, thereby saving lives, preserving health, preventing tragedies & saving costs for the taxpayer.

We do hope that things improve very soon. CO-Gas Safety is keen to help, provided it is still here to help with its 30 years of experience from its viewpoint of knowledge from survivors.

CO-Gas Safety's summary of what it is asking for:

1. Increased awareness by films, ideally on prime-time TV and social media and accessed by use of QR codes put up in bus shelters, stations, airports, harbours, doctors' surgeries, sailing clubs etc.
2. Testing air in homes for CO by the gas emergency service, whenever practicable.
3. A mandatory duty on all Gas Safe Registered Engineers to test air in homes for CO and emissions from appliances, whenever practicable.
4. That all engineers and chimney sweeps, who deal with cooking or heating in homes, cars or boats be registered by law in the same way as gas engineers and then have duties as in 3 above.
5. Any CO found given in parts per million to those exposed or could have been exposed in writing/digitally for them and their medics as well as recorded in data with other fields (e.g. appliance type) and name of engineer also recorded.
6. A body properly set up and funded to do what CO-Gas Safety has been doing on a shoestring for 30 years.
7. Data can then be collected, collated and published and improvements to safety made. Data will improve awareness too.

What is particularly inexplicable is that carbon monoxide and other toxins in the products of combustion are a worldwide problem, and the UK is now in a perfect position to exploit the research that has been done and to produce sensors and systems that could be sold all over the world to prevent deaths and injuries.

On behalf of all those who've so kindly helped CO-Gas Safety over the years, surely it's high time more was done to stop these preventable deaths and injuries?

Stephanie Trotter, OBE President & Director and all at CO-Gas Safety