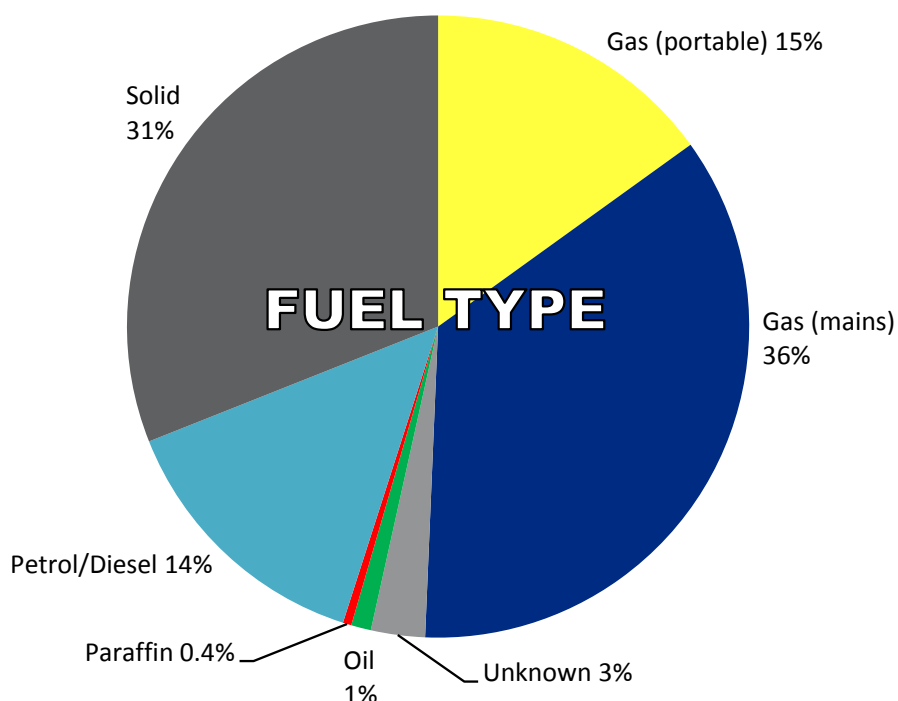


CO-Gas Safety's 23rd Anniversary 1995-2018



22 Years of Data of Deaths & Injuries from Unintentional Carbon Monoxide Poisoning 01.09.1995 - 31.08.2017



So far our data shows that, per user, more people die from CO from burned solid fuel than gas.

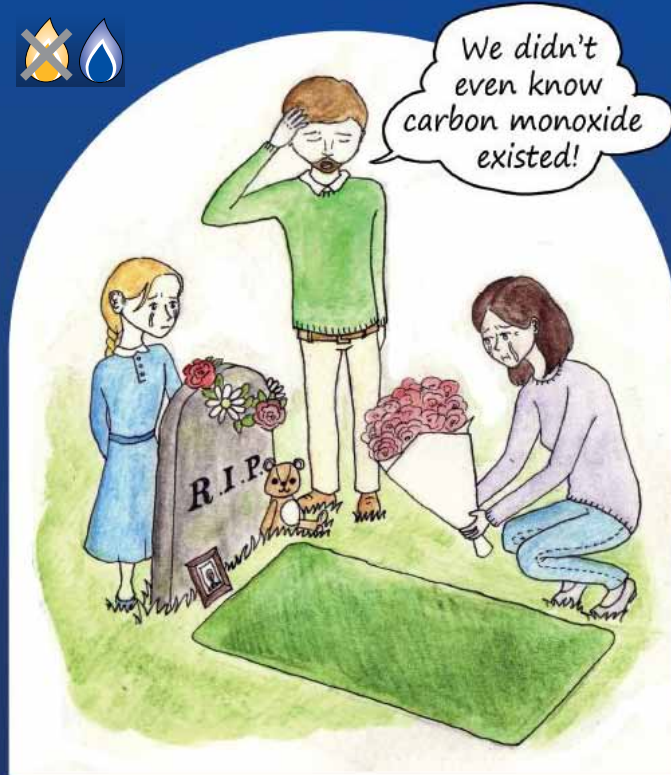


Press pack kindly sponsored by npower



CO-Gas Safety's Carbon Monoxide Awareness Competition now kindly run by





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Kindly drawn at our request by Chihiro one of the winners of
CO-Gas Safety's school poster competition



The Carbon Monoxide & Gas Safety Society

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The Carbon Monoxide & Gas Safety Society (CO-Gas Safety) is an independent charity committed to reducing deaths and injuries from Carbon Monoxide and other gas dangers worldwide and supporting gas related accident victims.

Company Limited by Guarantee,
Registered in England.
Registration No. 03084435.
Charity Registration No. 1048370

CO-Gas Safety's 22 years of data on deaths and injuries from Unintentional Carbon Monoxide poisoning 01.09.95 – 31.08.2017 & CO Awareness Competition

Press Pack 2018 – 23rd Anniversary pack

Dedicated to the memory of all those who have died or suffered from carbon monoxide poisoning and other products of combustion (CO+) and their families & friends.

Page 01	Contents
Page 02	Forward by Matthew Cole of npower
Page 03	Summary and report of progress over the past year and past 23 years
Page 06	Case studies – background and something about the case studies
Page 07	Death of Edna Lawrence 1996 – solid fuel
Page 08	Death of Katie Overton aged 11 2003 - gas
Page 10	John O'Leary and family 2003-4 - gas
Page 12	Sue Westwood 2003-6 - gas
Page 14	John Courtney 2010 - gas
Page 16	Matthew Nixon 2010 - petrol
Page 17	Mother & son solid fuel stove bought 2011 – poisoned 2015 anonymized because could still sue for personal injuries – solid fuel
Page 19	Deaths of Kelly & Lauren Thornton 2013 – petrol
Page 21	Gary Denley 2016 – solid fuel
Page 22	CO-Gas Safety's leaflet
Page 26	Project Soter – update on the smart carbon monoxide isolation device
Page 28	Statistics of deaths and injuries. CO-Gas Safety's one page summary of 22 years of data.
Page 29	Fuel Type - Pie Chart – 22 years.
Page 30	Appliance Type – Pie chart – 22 years.
Page 31	Place (e.g. tent or house) - Pie Chart – 22 years.
Page 32	Tenure Type – Pie Chart – 22 years.
Page 33	One page example of our data published on our website with names of the dead over 22 years.
Page 34	Barbecue research – lighting materials Abstract of thesis by Zekai Chen
Page 35	Winners of the 2016-17 Schools CO Awareness Competition receive awards at Westminster!

Outside back cover
CO-Gas Safety – receives from H & V News the award of Safety Initiative of the Year 2017 and thanks to all those who have helped the charity in 2017!

It's with real admiration for the work and passion of CO-Gas Safety that npower is proud to again support this year's annual press pack.

CO-Gas Safety is tireless in its ambition to highlight the dangers of carbon monoxide poisoning and the early warning signs that shouldn't be ignored, whilst continuing to champion both greater awareness at all levels of this important subject, and the action that you need to take if you suspect you are at risk.

Although the numbers of people who are annually affected by carbon monoxide continues to decline, it is essential that every new generation across our country understands the dangers that CO can present, to avoid risk to both them and their friends and families. At npower we were moved by the stories of the survivors of CO poisoning that CO-Gas Safety have shared, and the clear message from each is that the people were simply unaware of the risk. This led to our concerted effort over the last two years to explain to our customers the risks that can be avoided, but using different messages and styles to ensure that the key messages land. Our online campaign where children described a carbon monoxide monster went viral, catching the attention of children who were keen to share their version of a 'CO Monster', whilst importantly bringing the subject to an audience who previously might not have read more traditional printed information.

As the press pack reports, solid-fuelled fires and diesel generators currently present the greatest carbon monoxide risk. Given the recent rise in popularity of wood burning stoves it is essential that we redouble our efforts to spread the message about the risk of carbon monoxide and how to avoid it. Although the probability of being exposed to CO is very low, the impact to individual survivors and their families is enormous, and as reported in the pack can lead to tragic and unnecessary deaths. npower's Social Energy programme aims to ensure that we provide tailored support and individual guidance when people need it most, and as such we are delighted to continue to work with Stephanie and the team at CO-Gas Safety to ensure that this important subject is given the focus it needs.

Matthew Cole
Head of Home & Business Policy and Social Energy

Summary of our concerns, comments on events plus some good things in 2017

npower – our press pack sponsor

We are very grateful to npower for sponsoring this press pack. npower is now undertaking an awareness campaign in primary schools. Please see Matthew Cole's forward.

I have been running this charity as a full time volunteer helped by other volunteers, mostly victims since 1995, i.e. twenty three years. It only took William Wilberforce 20 years to persuade Parliament to abolish slavery see https://en.wikipedia.org/wiki/William_Wilberforce

Carbon monoxide – what is it? Please see our leaflet pages 22-25.

This year's Press Pack

We have changed our press pack this year to reflect our concern about solid fuel and the need to sweep chimneys and flues. We have tried to make the press pack shorter and simpler. We have also included case studies courageously provided for us by some amazing people. We are extremely grateful to every one of them; sharing their experiences is incredibly hard and shouldn't be necessary. One is anonymous not to jeopardise possible legal claims.

Case studies

Case studies were collected and presented to the HSE by Consumer Safety International & CO-Gas Safety jointly in February 2000. One of these was the death of a man, Gerry Mills from carbon monoxide (CO) in 1999. The fire, not the boiler, was suspected by the gas emergency service. From contacting & talking to his widow to offer support, we thought he would have been saved had the gas emergency service carried and used equipment to test gas appliances for CO. The inquest confirmed it was the boiler, which was emitting large amounts of CO.

We hope we influenced the making of two recommendations made by the Health & Safety Commission (now HSE) in August 2000. One was for a levy for publicity and research & the other for the gas emergency service to carry & use equipment to test gas appliances for CO. However, neither excellent recommendation has been implemented, yet they are both still vital. I can no longer find this document online but we do have a copy.

'Every breath you take' This report by the Royal College of Physicians & Royal College of Paediatrics & Child Health states 'that **'long-term exposure to outdoor air pollution causes approximately 40,000 deaths every year in the UK.'** Indoor air was also mentioned.

<https://www.rcplondon.ac.uk/projects/outputs/every-breath-we-take-lifelong-impact-air-pollution>

Deaths from gas related CO seem to be declining dramatically. However, the news that 'one in six gas appliances were found to be unsafe' by the Gas Safe Register is alarming.

<https://www.gassaferegister.co.uk/news/news-2017/santa-s-safety-warning-for-uk-as-1-in-6-gas-appliances-found-to-be-unsafe/>

Dr Walker, (on APPCOG, the All Party Parliamentary Carbon Monoxide Group's medical sub-committee) believes the official number of carbon monoxide poisonings diagnosed each year (according to the NHS) is probably a 'gross underestimate'. He says, 'We believe a lot of cases are undiagnosed. We see elderly people found dead in their homes who have gas fires. Often their deaths are put down to natural causes and no post-mortem is done, when it could have been that their gas fire was leaking carbon monoxide.' He wants more GPs to think about carbon monoxide as a possible cause when patients complain of headaches. He says, 'Not enough GPs ask whether the patient feels better when they leave the house, or if others in their home suffer the same symptoms.'

Proof of carbon monoxide (CO)

It is still almost impossible for an ordinary consumer, particularly a tenant to prove carbon monoxide poisoning by testing appliances, yet this is more reliable and safer than testing

people <http://www.co-gassafety.co.uk/about-co/proof-of-co/>. This is unfair, outrageous and means that many, if not most people who suffer from CO cannot prove it. This also means that the government and industry can ignore this problem of poisoning by CO over a long period, because it seems rare. For the suspected number of those affected by CO and its impact see <http://www.co-gassafety.co.uk/about-co/numbers-affected-by-co/>

Carbon Monoxide Plus (CO+) We use CO+ to represent the many toxins in ‘fumes’ from appliances. Only lab rats are exposed to pure CO – people exposed to leaks from appliances powered by carbon based fuels can be exposed to many toxins in the products of combustion, see <http://www.co-gassafety.co.uk/about-co/other-toxins/>

Barbecues

After the death of Roland Woodhams’ partner Hazel Woodhams in 2011 from a cold, used, BBQ, I was concerned about BBQs. My own lungs particularly object to the fumes from BBQ lighters! I am delighted that Chen Zekai, under UCL’s Dr Paul Hellier has now undertaken some research and please see this at page 34. We are very grateful to UCL, Dr Croxford, Paul Hellier and Chen Zekai.

Why no national PR campaign about the dangers of CO+ including prime time TV warnings?

Many people who are injured by CO didn’t even know that CO existed. The Commission for Regulation of Utilities, formerly the Commission for Energy Regulation in S. Ireland Eire, provided funding to be used to raise awareness on prime-time TV. Please see https://www.youtube.com/watch?v=KVQ6_2OyKug

We finally persuaded Ofgem to see us and this took about a year but Ofgem said it was up to the Gas Distribution Networks. The GDNs have done more than most and have taken over our CO Awareness competition for primary schools. However, what about the suppliers and manufacturers?

The Grenfell tragedy – our suggested changes

The terrible loss of life in the Grenfell building has, we hope, changed attitudes see <https://tinyurl.com/ybacy4v2> However, as usual action is lagging behind the expressed concern. We have suggested changes to preserve life and prevent injury since 1995. Please see <http://www.co-gassafety.co.uk/about-co/suggested-changes/> and also the suggested amendments to the Energy Bill 2013 <http://www.co-gassafety.co.uk/information/energy-bill/> which sadly, were largely ignored.

Eddie Hughes’ private member’s bill on CO alarms

Hansard report. [https://hansard.parliament.uk/commons/2017-09-13/debates/7A87C6A4-39BD-4181-98E5-22609C032B50/CarbonMonoxide\(DetectionAndSafety\)](https://hansard.parliament.uk/commons/2017-09-13/debates/7A87C6A4-39BD-4181-98E5-22609C032B50/CarbonMonoxide(DetectionAndSafety)) CO alarms for all rented property. ‘People can see a short video of one survivor’s account of her symptoms on the website of the Carbon Monoxide and Gas Safety Society. I am very grateful to Stephanie Trotter OBE, the president and director of that organisation, for the help and support she has given me.’

Our support for clarification/change to landlords’ duties

We are grateful that our draft clarification/change to landlords duties (to ensure either a service or a check using equipment to test for CO plus CO alarms in ALL rented property) is now supported by the Katie Haines Memorial Trust, the Dominic Rodgers Trust, Frank Brehany, Consumer Campaigner, the National Landlords’ Association, The Gas Industry Safety Group, the Gas Safety Trust, APPCOG (the All Party Parliamentary Carbon Monoxide Group) and IGEM. See <http://www.co-gassafety.co.uk/about-co/suggested-changes/> at 15.

Our data on deaths and injuries

We continue to collect, collate and publish data on CO incidents and the survivors we talk to are rich sources of details with regard to ideas for prevention. Our data on deaths is checked with Coroners. We are also the only body to provide any victim support yet we lack guaranteed funding for these

exhausting and expensive activities. The Gas Safety Trust data on deaths is not checked with Coroners because to do this you need the name, date of death and place of death and the GST does not have the names. We are absolutely delighted that our data shows that there were no gas related deaths from CO in 2016-17 although of course we can't be certain yet because we don't always hear of deaths until much later. However, unless and until all dead bodies are tested for CO, nobody can be certain that the seemingly huge reduction in deaths from gas related CO since 1995 is really the case.

H & V News Awards and Utility Week awards - CO-Gas Safety is a winner!

For the Utility Week awards, our competition to raise awareness now run by the Gas Distribution Networks (GDNs) was shortlisted. For the H & V awards we were shortlisted for three out of four entries and for the course about carbon monoxide from all fuels put together and run by Roland Johns, **CO-Gas Safety actually won the H & V Safety Initiative of the Year 2017** – see back cover.

Our hopes

At an APPCOG event 11.10.17 Chris Bielby, (Chair of just about everything gas), called for 'action not just words'. How we agree! There does seem to be awareness of the need for better training for registered gas installers, increased use of flue gas analysers and a review taking place, which are positive steps forward. However, we are greatly concerned that installers of solid fuel appliances do not have to be registered by law – this is surely wrong.

I pin my hopes on technology, (e.g. Project Soter see page 26) research and perhaps on the philosophy of the Clinical Human Factors Group <http://chfg.org/chair/martin-bromiley/> Martin Bromiley OBE, Chair, Clinical Human Factors Group has given us the following quote:- The science of human factors/ergonomics when applied to safety critical practices recognised that often the most effective strategies “design out” or reduce the probability of error, and hence harm, occurring. Manufacturers and Regulators should consider how equipment is used in the real world and how they can be designed to make it easy to install correctly and hard to install or run in an unsafe condition. Training is also important and the development of best practice that reduces the probability of errors occurring need continued research.’

People and thank you

There are some very decent people in the fuel industry. The charity has been very lucky to be helped by many of these. They are too numerous to mention but the following immediately spring to mind:- Jonathan Kane, Kane International; Matthew Cole, npower; Roland Johns, ex British Gas investigator & trainer; Jim Lambeth, solid fuel; Barry Matthews, OPGO; John Atkins, SA Gas; Adrian McConnell, ENA & GST; Tom Bell, NGN; Simon Trollope, IGEM, Ian McCluskey, IGEM, John Courtney, Gary Barnes, Ben Kuchta, Kamal Trivedi, Amanda O'Shea, Chris Bielby and Dr Benjamin Klos.

Guild of Master Sweeps

We are particularly indebted to the huge support we've been given over the years by the Guild of Master Sweeps and in particular, Mark Aylett, Lawson Wight and Daniel Hodgson. Their support is both financial, moral and actual and nothing is ever too much trouble. We thank and appreciate their positive attitude and enthusiasm to support changes that will save lives and prevent injury.

We are also hugely indebted to all our trustees, our patron Lord Hunt of Kings Heath and Frank Brehany, Consumer Campaigner. I ask that anyone interested in change for the better contacts us so we can all join in a universal effort to improve standards.

Soon everyone's iPhone will pick up CO+. There is progress, but it's surely time the fuel industry gained credit for a proper PR campaign of warnings, data collection & sharing as well as funding victim support before it is too late to gain any credit for this. As Oprah Winfrey said at the Golden Globe awards at <https://www.standard.co.uk/showbiz/celebrity-news/oprah-winfreys-inspiring-golden-globes-2018-speech-in-full-a3734221.html>, 'Time is up'.

Stephanie Trotter OBE, President & Director CO-Gas Safety

Case Studies

Background about carbon monoxide, its impact on the population and cost by Stephanie

For the facts about carbon monoxide (CO) see leaflet pages 22 and <http://www.co-gassafety.co.uk/about-co/carbon-monoxide-poisoning/>

It is worth considering how many people die or are injured in the UK every year from unintentional CO* and civil servants always require a cost benefit analysis in order to justify any action. We think the official figures are a gross underestimate due to the fact that there is no automatic testing of CO on death, despite a recommendation from the All Party Parliamentary Carbon Monoxide Group, APPCOG, to do this. However, even the accepted numbers mean that ‘preventing carbon monoxide poisoning could save the UK £178 million a year; as well as avoid immeasurable human tragedy and suffering.’ *<http://www.publications.parliament.uk/pa/cm201314/cmselect/cmcomloc/50/50iii132.htm>

It is also worth noting that 3,500 people between the ages of 16 and 64 (by our data probably the least likely to die of CO) die of unexplained causes every year. According to Dr Mary Shepherd, who receives the hearts, there is no test undertaken for CO but in her opinion, there should be <https://www.newscientist.com/article/mg18424765-600-the-killer-with-no-name/>

The research undertaken by UCL and also by John Moore’s university extrapolated over the UK leads CO-Gas Safety to the conclusion that 3-4 million people could be being poisoned by CO+ (i.e. carbon monoxide and other products of combustion). <http://www.co-gassafety.co.uk/about-co/numbers-affected-by-co/>

Case Studies – we are very grateful to those who have agreed to allow their cases to be used

These case studies are in chronological order. We have four gas related CO studies, two petrol and three solid fuel. Some are fatalities and some, thankfully are not. The fatalities are obviously tragic but so are the cases of long exposure. People may look fine; they may even appear to be fit and well. However this can be deceiving and most of them have long term chronic problems that cause them day to day pain and exhaustion and endless stress to their families.

There are three recent horrendous cases of badly installed solid fuel appliances that I know of, one in Scotland that has been dragging on for years with severe injuries to the person exposed, one in N. Ireland where sadly no win, no fee does not exist (and tragically it seems there is no way forward) although we are trying and a new one in England, which is more hopeful in the sense that some good lawyers are taking it on, fingers crossed. Even so this case will no doubt take years and compensation is only better than nothing. Naturally we can’t write up such cases unless and until they are resolved. **Surely it would be far better to stop these appallingly bad installations in the first place?**

My admiration for the efforts of those poisoned in helping us to inform and hopefully prevent others going through the same pain and suffering, is endless. I just wish those sitting at the top of the fuel industry and those in Government were a tenth as generous and courageous. Our function in offering victim support is to recommend good expert investigators and solicitors and there are sadly all too few of them. However, we seem to be the only body to do this while also collecting, collating and publishing data of CO deaths and injuries from ALL fuels.

After each account we have put what we have learned from each of these incidents and sometimes what we have done or are still doing to prevent similar incidents. **To us the main point of collecting the data is to find out why the injury or death happened and how to prevent similar deaths & injuries in the future. We have managed to do a few things ourselves but most require action from industry and/or Government.**

Please persuade anyone particularly those in a position of power or influence in the industry or government to read these incidents and take a moment to consider what might stop these tragedies happening and how you might help to accomplish this. Thank you.

Death of Edna Lawrence - 1996

Solid fuel - 1996

Solid fuel appliances seem to cause more deaths per user than gas powered ones. One of the reasons is perhaps that while a gas appliance usually stays on after a death, an appliance powered by solid fuel may just burn out so that when the dead person is found, carbon monoxide (CO) is not suspected. Even in gas related CO deaths, we are sure that CO is often not suspected and it should be noted that there is no automatic testing of dead bodies for CO, even in cases of unexplained death.

Death of Edna Lawrence aged 70 in 1996

Edna died on 8th October 1996. She had lived in a Council house in a village in Hampshire. Late one evening, Edna's neighbour saw the curtains open, 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 heart attack.

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 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. She 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 the assumption was made that June had taken an overdose, which Sue strongly disputed. The ambulance took June to hospital but never tested her for CO because the medics assumed June was suffering from shock after the death of her mother & 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. At the post mortem it was found that her 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. The above was recounted to Stephanie Trotter by Sue.

What CO-Gas Safety learned

That CO can easily be missed. We believe that doctors tend to assume heart attack because the heart is the last organ to obviously stop working.

How to prevent similar deaths happening

The family never really learned why the solid fuel appliance emitted so much CO that it killed Edna. It is possible that Edna went to the doctor with symptoms of CO and this was not recognised. If so, this is sadly typical. However, CO-Gas Safety thinks it best to raise awareness of CO amongst the whole public generally, not just medics and has been lobbying for a PR campaign, including prime time TV warnings since 1995.

There is also a need to raise awareness that solid fuel appliances need to 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 EN 50291 purchased from a reputable supplier should be installed as an extra safeguard.

What CO-Gas Safety has done

 The charity has lobbied for:-

- raised awareness & for CO alarms to EN 50291
- for installers of solid fuel/oil appliances to be registered by law
- for better training of medics and installers and
- for compulsory public liability insurance for all installers.

Death of Katie Overton 2003 - Paul Overton's account typed up by Stephanie Trotter

http://www.dailyecho.co.uk/news/5644895.Landlord_fined_after_gas_leak_kills_11_year_old_girl/

Paul Overton
19 Samber Close
Lymington
Hampshire
SO41 9LE

I am Paul Overton, step father of Katie Overton who died at the age of 11 ½ years due to carbon monoxide poisoning at 7 Oxford Road, Southsea, Portsmouth PO5 1NP a privately rented property, March 29th 2003. Although I was her step father I always considered her one of my own children and treated her and loved her exactly the same as my other children.

Below is a description of the incident.

1. I discovered Katie not breathing at about 10.00 a.m. on her bed.
2. Phoned for an ambulance. I attempted resuscitation but to no avail.
3. Katie was taken to hospital, my wife and I travelled up with her.
4. The hospital staff informed us after about 20 mins that Katie was dead.
5. A post mortem could not establish the cause of death.
6. Myself and my wife were under suspicion of murder for the next 10 days.
7. 10 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
8. The house smelt as if somebody had left a car running in it. The smell seemed to be coming from the gas boiler.
9. We opened all windows and doors. I contacted the letting agent and they sent out a CORGI 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 backed 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.
10. 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.
11. 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.
12. Katie's blood samples were now tested for carbon monoxide and it was confirmed that this was the cause of death.
13. At no time were we 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.
14. 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 28 2003 but was postponed till April by the Landlord

15. Therefore the gas safety certificate had run out the day before Katie's death. I think 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.

16. When the boiler was cleaned by the investigative team the carbon monoxide level dropped to 2 ppm proving if servicing had taken place Katie would not have died.

17. I found CO-Gas Safety on the last page (inside cover) of the HSE bereavement leaflet and contacted Stephanie Trotter. Stephanie told me it had taken years of persuasion for HSE to put CO-Gas Safety on the leaflet. 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 Overton

What CO-Gas Safety learned from this death

The need to test for CO in cases of unexplained death for the sake of others living in the house. See <https://www.newscientist.com/article/mg18424765-600-the-killer-with-no-name/> 3,500 people between the ages of 16 and 64 die of unexplained death in the UK every year and are not tested for CO according to Dr Mary Shepherd, who receives the hearts of people whose deaths are unexplained.

What would have prevented this death?

Probably a law requiring a service or at least a test of the gas appliances and a CO alarm to EN 50291.

What happened as a result of this death?

The landlord was prosecuted for the lack of a Gas Safety Certificate but did he really understand the need for a service in order to keep the gas appliance in a safe condition? The landlord seemed to put pressure on the gas safe registered installer to provide a gas safety certificate while the gas safe registered engineer tried hard to persuade the landlord to undertake a service. Landlord fined £42,000 plus £18,000 costs. **Were either of them really aware of how dangerous CO is?**

What is CO-Gas Safety doing to try to remedy this situation?

We drafted a clarification/change in the law in 2010 to amend the Gas Regulations to require a landlord to have undertaken by a Registered Gas Installer either a service or test for CO of the gas appliances using equipment capable of testing for CO. This can be found at <http://www.co-gassafety.co.uk/about-co/suggested-changes/>

Support for this clarification/change

The charity CO-Gas Safety has support for this clarification/change from Pimlico Plumbers, the Dominic Rodgers Trust, Katie Haines Memorial Trust, Holiday Travel Watch, the National Landlords' Association, The Gas Industry Safety Group, the Gas Safety Trust, the All Party Parliamentary Carbon Monoxide Group (APPCOG) and IGEM. Please note that British Gas refuses to undertake gas safety checks without a contract to service as well which we think is right and produces the effect we want enshrined in the Regulations.

John O’Leary and family 2003-4

John O’Leary and his family suffered from the effects of low level exposure to CO and other toxins over a period of time in 2003/04. This was due to a leak from a faulty boiler.

The family live in rented accommodation managed by a TMO (tenant management organisation) in North London. The day-to-day running of the housing co-operative is managed by an employed member of staff overseen by a committee of tenants. It's the responsibility of the co-op to carry out the annual safety inspection of the boilers but in 2003, the year the leak occurred, the family's boiler was not inspected.

The one who was affected most was Irma, John’s wife. John had some symptoms and, thankfully, the effect on the kids was minimal. Irma spent a lot of time in the area where the boiler is situated. The children were out a lot of the time and John was mainly working in a different part of the flat.

Q Any symptoms before – was anyone feeling unwell?

Irma was always more sensitive to allergens and gas but never had asthma previously and was generally in good health, as was the rest of the family.

Q How did they realise they had a leak?

Irma’s health was seriously deteriorating - she was suffering from severe headaches, nausea, and dizziness, blurry vision, swollen around the eyes, memory blanks, rashes, breathing problems - particularly at night which severely affected her sleep – and pain around the lungs. Her blood pressure was also fluctuating. She suffered from muscular cramps and gradually, she lost her sense of smell.

Irma also noticed that a lot of her symptoms lessened when she went outside. She mentioned it to a friend who said she knew someone else who had similar symptoms that were caused by a faulty boiler. It was after this, that Irma called her gas supplier and they sent someone to test the boiler. They clearly identified the leak, the boiler was closed down immediately and was replaced soon after. If it wasn’t for Irma’s friend who knew something about CO poisoning, they would never have guessed that was what it was.

Q Did they think it was anything else?

No – they just had absolutely no idea what was making Irma so sick. She kept going to the doctors, and they didn’t pick up on it either. They kept treating her symptoms, often thinking she was suffering from flu. She was prescribed lots of antibiotics, steroids and inhalers, but obviously, none of these helped.

The family's emerging health problems and the timing of the leak went far beyond coincidence and an independent toxicologist subsequently attributed Irma's onset of asthma and other problems to CO poisoning.

Q How long did it take them to recover?

It took Irma about eight years to feel 80% better, but she will never return to 100% health. She still has difficulty breathing and will use inhalers for the rest of her life. It wasn’t until about three years after that her memory loss was reversed. John recovered fairly quickly and the kids seemed fine.

Q How worried he felt about his children

The children weren’t affected too much at the time - they seemed to be suffering from the flu a lot and were generally quite tired. Their youngest son, who was two and a half at the time, would sometimes just fall asleep if he was in the kitchen - John and Irma wonder if this was connected.

They do worry that there may have been long-term effects on their children. They have both had health issues (nothing major) but nothing that can be directly attributed to what happened.

Q Any advice he'd give to any other parents/what precautions he takes now

Because the symptoms are so varied, it's very easy to misdiagnose. Being informed is crucial - as bad as the effects were for us, it can be much, much worse, resulting even in death.

At the time, there was less awareness of the dangers of CO. John and Irma strongly believe that if more information had been available – prime-time TV warnings, for example – a lot of their problems could have been avoided. Much more needs to be done to educate people and to increase awareness.

There are organizations out there. John and Irma got enormous help and support from the charity CO-Gas Safety at the time. In terms of advice, John says:

- Make sure you have a CO alarm to EN 50291 and bought directly from a reputable manufacturer, and not just for your home – get a portable one to take with you whenever you go away.
- Know the symptoms - dull headache, weakness, dizziness, nausea or vomiting, shortness of breath, confusion. Blurred vision, loss of consciousness. The symptoms will lessen when you go outside, away from source of the leak.
- CO can be produced by any faulty appliance that burns fuel so make sure appliances are properly installed and checked regularly. This includes portable devices in boats, caravans and mobile homes.
- If you suspect a leak, get out of the house immediately. Get the appliance checked immediately.
- Make sure your kids are aware of the danger, so that when they move out, go to university or go away on holiday with their friends, they know what to do to stay safe. Give them a CO alarm to take with them.
- Be aware that BBQs can be dangerous too, even after they're put out, so, don't bring them inside tents. Also – wood pellets for fires can also give off CO even when in storage. These need to be stored in a sealed tanks or hoppers.
- Be aware that CO can also sometimes pass from property to property – so you can still be affected even if the leak is in the adjoining property.

What CO-Gas Safety learned

How doctors rarely think about CO. We have tried to convince both government and the Royal College of GPs to do more to raise awareness with little success.

What we did

This is a typical case and is run of the mill for the charity. We were able to recommend a good lawyer and thankfully the case was successful. John O'Leary helped the charity hugely by drawing all the pictures in our materials for primary school pupils and again for our course for registered gas installers. John did this free for us and has helped with judging and still does so. Irma has very kindly become a trustee. She is also an artist so perhaps one day we might be able to commission a piece with impact to raise awareness.

Carbon Monoxide Poisoning 2003-2006 by Sue Westwood 8th January 2018

I was aged 30 and had one child, Josh, aged 6 when I moved into a new house. I was very fit, went to the gym regularly and rode my horse 3 or 4 times a week. I also ran my own business in construction (insurance repair).

Then gradually I started to feel unwell, which got worse and worse. Finally in the Autumn of 2006, I collapsed at my front door. What I didn't realise at the time is how near to death I actually was; my major organs were shutting down, starved of vital oxygen. I regained consciousness long enough to call 999. I thought I was having a heart attack. Josh was at school. Paul, my husband, was at work so I was on my own.

After a week on the cardiac ward at Wythenshawe hospital, having multiple examinations, ECGs, x-rays and blood tests, and several consultants asking if I had taken cocaine, as my symptoms were scarily similar, I was discharged. I was horrified at being suspected of taking cocaine. I never take drugs of any kind. The pain in my chest and my arm was still radiating as I left the hospital so I was convinced I was having a heart attack. The medics were baffled.

At home two days later I had severe chest pains, and couldn't breathe. The ambulance was called. Once again the tests came back inconclusive, I was sent home.

By coincidence, the warranty for the boiler in our 3-year-old house was coming to the end. The engineer came out to do a routine maintenance check on the boiler so we could put it on a contract with British Gas. The first test he did was to check for carbon monoxide poisoning. I'll never forget the look on his face when he told me to get out of the house immediately. The boiler was leaking dangerous levels of carbon monoxide. We had a CO alarm fitted.

My family had been so close to death and in fact the only reason we didn't all die) is we had the windows open all the time. Investigations found the flue wasn't connected under the built in wardrobes in the master bedroom and the connectors in the boiler cupboard, which were one metre from my office and Josh's bedroom were the wrong ones, so CO was leaking from there as well. I was being poisoned during the day in my office then at night in my bed.

Over the three years we had lived in our house, I had suffered, headaches, dizziness, lack of concentration and flu-like symptoms. Josh had recurrent stomach ache. I took him for a check up at the doctors, only to be told nothing was wrong with him and he was trying to get out of going to school! At no point did any of the medical profession test for or consider we had Carbon Monoxide Poisoning.

I have suffered immensely from the poisoning, I have had to give up my business due to my brain injury; I now have vascular dementia, fibromyalgia, Tietzes Syndrome, Peripheral Neuropathy, Disequilibrium, debilitating migraines every few weeks, memory, concentration and retaining information issues. I've also had operations on both hands from the nerve damage, I also have had to retrain myself to read because for 3 years I couldn't read more than a short paragraph of text.

Ironically 12 months after we found out about the leak, an alarm went off just outside my office door, the CO alarm was beeping. On further inspection the new flue that had been fitted was cracked - it was leaking CO again! If I hadn't got the alarm we might not have been so lucky second time around.

I always associated CO with old, badly maintained student properties; I never imagined a brand new house could have nearly killed us all.

What CO-Gas Safety learned from this near death

How easily this can happen and how the doctors do not think about carbon monoxide poisoning.

What would have prevented this incident and these injuries?

Better installation in the first place. The installation of a CO alarm to EN 50291 to deal with the unexpected fact that the flue wasn't connected.

What has happened as a result of this incident?

The All Party Parliamentary Carbon Monoxide Group (APPCOG) now has a medical committee which after several years seems now to have good knowledge. However, where is the awareness PR campaign to properly alert medics?

What has CO-Gas Safety done?

We have visited the Royal College of GPs several times and tried to persuade them to take CO seriously but with little progress. Sue has become a trustee and is a valuable member of our board. She has also made a one minute film about CO see <http://www.co-gassafety.co.uk/one-survivors-story/> paid for by CO-Gas Safety (cost around £400) which has been widely viewed and appreciated on social media. This film was shown at an APPCOG event but we have received no offers to show it on prime time TV and as part of a general PR campaign by the industry or government. Why not?



Sue Westwood with her son Josh, then aged 6.

John Courtney First Call Operative employed by an emergency service provider

Date of Incident: 22nd October 2010, 09.00hrs. Mount Stuart Square, Cardiff.

A typical autumnal day and with my apprentice on block release at college, I was looking forward to a break from the usual teenage issues!

First call of the day: Commercial property at Mount Stuart, “Gas escape in cellar, staff evacuated to outside in street”. Although commercial categories are slightly more complex than domestic, there was not anything particular alarming at this stage. Sometimes there are added notes like ‘fire service’ and or ‘police’ on site which would cause added concern.

On arrival, there were about 25 office staffs standing on the pavement by the main entrance. In line with Health and Safety procedures, and Gas Emergency Instructions this is what I would normally have expected. The Office Supervisor advised me of the circumstances involved and that several members of staff had complained of a smell of gas in the main entrance area. She also added that they thought it could be coming from the cellar.

Equipped with company issue Gas Detector and associated tools, I proceeded to enter the building. Almost immediately upon entering the cellar, my Gas Detector was recording low levels of gas (LEL), but not anywhere near explosive limits. The cellar was pitched in darkness, and with just my torch, it was difficult to locate the Gas Meter. From what I remember, the steps to the cellar were open plan. Consequently I took each step downwards slowly and deliberately to minimise losing my footing. Against a background of darkness, I was aware of a somewhat ‘breathy’ or ‘whistling’ noise from the right hand corner of the cellar. On further investigation I found a commercial floor mounted boiler. Its ‘poor picture flame’ indicated that it was not gassed correctly. When I stood up to resume looking for the gas meter, I felt slightly confused, disorientated and there was a sense of visual disturbance in my thought processes.

I remember thinking, “Don’t panic, don’t sit down, just get up those stairs into the fresh air” At this point my knowledge about CO kicked in. I want to make clear that this came from my own studying and not from my training. My movement to and climbing up the stairs seemed to be in slow motion, and I knew I had to just focus and keep going. For those of you with a technical background, my haemoglobin levels were not carrying sufficient oxygen into my blood. Continued exposure at this level would have certainly resulted in death or at least neurological damage.

Note by Stephanie Trotter

John is studying for a degree in German and English at the OU and is used to studying. He thought it was up to him to look up any dangers and therefore found out about the dangers of carbon monoxide. Employers would be extremely lucky if all their employees had the same attitude.

Fast forward, I managed to get outside and contacted Despatch for assistance. Almost immediately, the Fire Service and my Line Manager with other FCO’s arrived. My memory still cloudy and thought processes still disrupted were further distressed by a man hovering over me claiming he was a consultant who just happened to have a practice across the road. When the ambulance arrived to take me to the Heath Hospital, I could hear his “You haven’t got CO poisoning” ringing in my ears! On arrival at the Heath, I underwent standard oxygen therapy due to the high exposure of high levels of CO. This is applied through a tight fitting mask (normal air contains 21% oxygen). Not wishing to bore you with all the technical spiel, but basically, breathing in concentrated oxygen replaces carboxyhaemoglobin quickly. After approximately 6 hours undergoing this treatment, I was discharged. As I was exiting the hospital; a number of visibly red faced fireman were entering. I

recognised them as the same fireman who had earlier attended the incident at Mount Stuart Square. Apparently, they entered the cellar without breathing apparatus. Additionally, the CO levels in the cellar were exacerbated by blocked air vents at street level.

As the incident was on a Friday, I took the opportunity to recover and contemplate over the weekend. My overriding thoughts during that period were:-

1. How fortunate I am to be physically fit. I think most people would have probably just sat down for a few minutes if they had felt drowsy or disorientated (this would have been fatal).
2. Grateful that the emergency services and hospital staff responded so quickly.
3. My apprentice was not with me on that day. He is 6ft 3" and 17 stone. How would have I got him up those stairs on my own if he had been with me.

With the passage of time and experience, we are now equipped with CO Detectors to minimise future incidents. Continued focus on CO awareness by campaign groups is critical if we are to eliminate the estimated 40 deaths and 300 injuries per year.

John Courtney.

What CO-Gas Safety learned from this case

That First Call Operatives (FCOs) could die from CO when attending a gas emergency.

How to prevent such a death and reduce risk to other FCOs

Equip all FCOs with Personal Alarm Monitors for CO.

Did this happen?

Yes.

How?

Scotia Gas Network's FCOs had been equipped with Personal Alarm Monitors (PAMs) for CO since 2007 although Stephanie Trotter was not aware of this. On the 4th April 2014 Stephanie was allowed to make a presentation to the Gas Industry Safety Group and mentioned John Courtney's incident. Soon after the presentation, the other three Gas Distribution Networks (GDNs) followed by either providing FCOs with PAMs for CO or other similar equipment.

If you suspect carbon monoxide you are told to 'Open doors and windows, turn off gas appliances and leave the house. See your doctor immediately or go to hospital - let them know that **you suspect CO poisoning**. They can **do** a blood or breath test to check. **If you think** there is an immediate danger, call the Gas Emergency Helpline on 0800 111 999.' <https://tinyurl.com/yb6anfzk>

This means that by the time a FCO arrives at the premises there is very unlikely to be any carbon monoxide poisoning present for the PAM for CO to detect and the FCO is most likely to turn off the gas to the whole property. The appliance emitting CO is therefore not identified.

However, the ordinary Gas Safe Registered installer is not equipped with a PAM for CO, nor is a meter changer or installer of a smart meter. We have pointed out the risk to smart meter installers to DECC and then BEIS since 2011 and continue to do so. CO-Gas Safety's most recent meeting to make this point was on 24.01.18 and John Courtney, Paul Overton and Stephanie Trotter attended.

The death of Gas Safe Registered Matthew Nixon in 2010



This photo is a picture of Gas Safe Registered installer, Matthew Nixon.

Matthew died in December 2010 aged 22 as a result of using a petrol generator indoors to power his tools. As a result of offering support to his mother, Stephanie Trotter learned that Matthew had been in the gas industry since the age of 16.

What CO-Gas Safety learned

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

What we did

When Roland Johns very kindly offered to help CO-Gas Safety Stephanie suggested that he put together a training course covering CO dangers from all fuels. Roland was the perfect person to undertake this work as he was a retired investigator and trainer from British Gas.



Roland Johns

Roland and Stephanie worked on the course which was based on the power point presentation Stephanie had compiled for the primary schools awareness competition. Roland added much more technical material and John O'Leary very kindly supplied more pictures so the charity wouldn't have copyright problems.

The result was the course about CO from **all** fuels which has been taught to apprentices and some staff from Scotia Gas Networks and Northern Gas Networks. The charity hopes that the other Gas Distribution Networks and the suppliers will make sure their staff also receive the benefit of this course. Tom Bell of Northern Gas Networks became a trainer for this course. See <http://www.co-gassafety.co.uk/information/trainers-of-gas-installers/> The charity won a prize in 2017 for this course & the prize was H & V News 'Safety Initiative of the Year 2017'. See outside back cover of this press pack. However, shouldn't all members of the fuel industry attend this course or something similar?

Wood burning stove 2011 – Mother and son – 2011- 2015

Wood burning stove 2011 – Mother and son – 2011- 2015

In the September 2011 I bought a wood burning stove and the company recommended the fitter. This stove was to be fitted in the home I own and share with my son.

After installation we were given a HETAS Certificate of Compliance.

In April 2013 the flue was swept by a HETAS registered chimney sweep, who was also a member of the Guild of Master Sweeps. He immediately identified various faults including the wrong sized of flue and no carbon monoxide monitor was fitted although this is a legal requirement.

In addition the cement around the flue pipe kept cracking as the stove was not secure and kept moving every time the door was closed.

I contacted the original fitter who reluctantly came along, fitted a restrictor and a carbon monoxide monitor. This was 18 months after the original installation. He put some cement around the flue pipe and left some with us so we 'could fix it ourselves'. He reassured us that all was well.

In Spring 2014 the flue was swept once more by a qualified chimney sweep.

In November 2014 both my son and I started to feel unwell but put it down to winter. In the late evening of a day in late November I felt very ill with sudden heart arrhythmia. Paramedics were called and I was diagnosed with atrial fibrillation, not a condition I have ever suffered with. I was admitted to hospital (A & E) for investigation.

At the hospital (A & E) I was told I needed a blood test but there was no phlebotomist available and after 5 hours the doctor told me he was going to do it himself. When the results came through they said they needed to take arterial blood, but they were unsuccessful.

I was discharged at 6.30 a.m. and my GP rang about midday. After looking at the results of the blood tests my GP rang to say I needed to go back to hospital immediately because my calcium levels were dangerously low. I have researched this since and low calcium levels can be caused by CO.

In February 2015 I was admitted to hospital (A & E) again with the same symptoms.

On the 2nd March 2015 after spending the evening in front of the stove, my son came and found me looking ashen and appearing confused. The carbon monoxide alarm was sounding. Cambridge Fire Services, the ambulance service and the gas emergency service were called by my son and I was placed on 100% oxygen for 45 minutes.

The firemen extinguished the fire and declared the installation dangerous. **It has not been used since.**

In July 2016 HETAS carried out a formal inspection of the installation. Many non compliant faults were found. A copy was also sent to the head office of the stove shop. The installation had not been registered with HETAS.

We were advised by CO-Gas Safety to seek legal advice in order to pursue a claim for personal injuries. This seemed to go well at first. However, after some months the solicitors firm was taken over and the case taken from the solicitor we had and given to another solicitor. The new solicitor then refused to pursue the case any further.

Although I tried other solicitors, I could not get legal representation. Therefore I decided to at least claim for the costs of replacing the system, as opposed to personal injuries. I then made a claim for this only in the Small Claims Court. The judge asked if this case was suitable for this court because

the court did not deal with personal injuries. I confirmed that it was as I was only claiming for the cost of the heating system and not for personal injuries.

The judge then suggested that we come to an out of court agreement with the defendant. We argued and the amount they finally agreed to pay was £4,600.

Anonymous Victim

What CO-Gas Safety learned from this case

Sadly this case is all too typical. The installers of solid fuel do not have to be registered by law as gas installers have to be. We know of an even worse case in Scotland that has been dragging on for years. There is one in N. Ireland which is extremely difficult because 'no win, no fee' is not allowed in N. Ireland. There is another family who has been poisoned by solid fuel in England and I am hopeful that this case at least will be taken on by the solicitor I now recommend but it all turns on evidence. Very often the evidence has been changed, or the offending appliance removed, before the person poisoned can obtain an investigation and report from an independent expert court witness. Luckily this is not the case here. The cost of such an investigation and report can be from £2,000 to £15,000.

As usual the medics did not think about CO at least to start with.

We have also become concerned about the way lawyers run their cases. The 'no win, no fee' basis means that people who could not bring a case before due to lack of funds to pay lawyers can now start a case and that is helpful. However, if the evidence is not obtained or is not strong enough, the lawyers will drop the case due to the risk they run of not getting paid at all unless the case is successful. This is common sense and happens with all cases and ultimately this is sometimes not a bad thing for people who are claiming. Litigation is usually exhausting and is obviously not worth doing if at the end of it, there is only failure. However, our concerns are that lawyers cherry pick only the best possible cases for proceeding on a 'no win, no fee' basis. We are also concerned about the costs of obtaining expert reports, whether claimants are told clearly enough how much winning or losing rides on such evidence and given a chance to find the funds to cover this if necessary.

What we have tried to do about this particular case

We tried to help this lady and her son by recommending a lawyer. Sadly this lawyer's firm was taken over and the case was dropped. Evidence is always a problem but should not have been in this case. The charity is down to one lawyer that it recommends. The settlement was restricted to a settlement with regard to the cost of a new heating system only and not personal injuries, so there is still the chance that a personal injury claim can be brought provided it can be done in time.

What we have tried to do to prevent similar cases

We try to raise awareness of this sort of case and the dangers of solid fuel and particularly the problems of using a solid fuel installer.

We have lobbied for mandatory registration of all installers by law, not just gas installers. This would also assist with regard to better training of solid fuel installers.

We have lobbied for all installers to have public liability insurance.

The deaths of Kelly Webster and Lauren Thornton in 2013 by Tracy Arya, Kelly's sister



Kelly Webster and Lauren Thornton

During the Easter weekend on April 1, 2013. We were told the news my beautiful sister Kelly Webster and my beautiful niece Lauren Thornton had been found dead in the sleeping compartment on board a boat belonging to Kelly's partner, Matthew Eteson.

The cause of death was poisoning by carbon monoxide from the exhaust system of a generator which Matthew Eteson had installed on board. Matthew was a registered and experienced Gas Safe installer. Shortly before the Easter weekend he fabricated an exhaust system for the generator and used the generator to power a fan heater in the passenger quarters while Kelly, Lauren and he himself slept.

The exhaust system was poorly designed and poorly constructed, using unsuitable materials. The generator was not secured or anchored to the floor and joints in the exhaust pipework were very poorly fabricated. The temperatures generated caused the pipework to fail as soft soldered joints melted, and as a result the exhaust gases containing carbon monoxide were discharged into the boat. At a trial in October 2015, Mr Eteson pleaded not guilty to manslaughter by gross negligence, but was found guilty.

In November that year he was handed a two-year suspended sentence. It's been horrendous, our family will never be the same again. The world will never be the same without Kelly & Lauren.

On March 2016 Kelly would of turned 40, so I decided to hold a charity ball for friends and family to turn this into a happier occasion. Kelly loved a party – I couldn't let her 40th birthday pass without doing something for my beautiful sister & niece.

I approached Stephanie Trotter, President & Director of CO-Gas Safety and explained I would like to raise funds for this charity. Stephanie was delighted to help & support me any way possible.

Stephanie advised that since the death of Kelly of Lauren they had put a course about CO together which they've taught to apprentices from Scotia Gas Networks and Northern Gas Networks. This then went on to win the H & V Safety Initiative of the Year 2017.

We held an auction and raffle as a lot of local business kindly donated prizes for this great event.

Sadly Stephanie from the charity had already booked a holiday abroad so could not be there but she asked Sue Westwood, a CO victim and a trustee of CO-Gas Safety to represent the charity. Sue enjoyed the evening very much indeed.

The ball was a fitting memorial to the lives of mother & daughter. The ball raised just over £2,000 for CO-Gas Safety Charity. There was a lot of mixed emotions on the day, during the night, there was large photographs of Kelly and Lauren on display, a memory book for guests to fill in, a DJ and a jazz singer played Kelly's favourite songs.

The ball was held at the Hallmark Hotel in Leyland, Lancashire.



Tracy Arya, Kelly's sister and Lauren's aunt, with her friends at the ball

What CO-Gas Safety learned from these tragic deaths

That CO can be expected in the most unexpected situations and even when you think it would not be a risk. We already knew from Matthew Nixon's death in 2010 that registered gas installers were not taught enough about CO from fuels other than gas and had already started the course please see <http://www.co-gassafety.co.uk/information/trainers-of-gas-installers/> However, during the first course there was a feeling that the pupils, all apprentices for SGN, thought this was a one off. Kelly and Lauren's deaths certainly put a stop to that impression.

What we did and continue to do

We continue to press for training of apprentices, First Call Operators and Registered Gas Installers be greatly improved. A review into training is being undertaken at the moment.

Gary Denley in Ely, Cambridgeshire – Wood Burning Stove - 2016

I am a draughtsman that works within the construction industry.

In 2015 I decided to install a Wood burning stove and purchased all the items and installed this myself with a submission to Building Control to cover the latest regulations in terms of design and construction. The system consisted of a Woodwarm Stove and a Selkirk Chimney system.

After a season of use we experienced issues with young starlings repeatedly entering the chimney via the rain cap openings. I spent several sessions researching if a Bird Proof rain cap was available for the chimney installed but to no avail. So I took matters into my own hands and purchased some stainless steel mesh to surround the cowl openings, but the only mesh available had small openings (10mm). This stopped the birds but after loading and shutting down the stove before retiring to bed it created soot deposits around the mesh.

This small size may well have never become a problem had I not begun to load the stove up last thing at night and close the air supply right down to “keep the stove in” for long periods. I didn’t realise that this is very polluting and can deposit large amounts of solid “tar” in the chimney or guard on top.

After a few weeks this tar blocked the chimney mesh. My wife woke me about 6.00 a.m. one morning, having visited the loo and told me the carbon monoxide (CO) alarm was going off. I investigated, read the information on the back of the alarm, opened the windows and closed the door between that room and the rest of the house and went back to bed. I did not see any physical smoke or noticed any smell when I first went in to the room.

After a visit from my regular chimney sweep and discussing the event we later learned that the Guild of Master Sweeps always advise no smaller than 25mm / 1 inch square.

I found out during the Sweeps visit that in closing the stove air right down, I had effectively driven off all the volatile fuel gasses leaving just the “fixed carbon” or charcoal. Apparently wood is rather strange in that it’s made up of two very different fuels which burn in different ways and have different requirements for proper combustion. The charcoal that was left was burning (glowing really) at whatever rate the available oxygen allowed it to. Charcoal gives off no smoke or smell when burning (it’s the unburned volatile gasses that give wood smoke it’s very distinctive smell). Charcoal does however give off loads of CO.

Had there been no alarm it could all have been very different. This story is significant because apart from the mesh, the system was perfect.

What CO-Gas Safety learned from this case study

That a perfect system well fitted can become dangerous due to fitting the wrong sized mesh to keep birds out.

What would have prevented this incident?

Luck in finding the right gauge of mesh in stainless steel and information in the stove instructions about how vital the gauge of the mesh is.

What we have done about this?

Written to the stove manufacturers to alert them to this incident and asked them to specify mesh or even better provide it with the stove.

Avoid dying or being injured from carbon monoxide poisoning



Christi and Bobby Shepherd tragically died of carbon monoxide in 2006 in Corfu while on a Thomas Cook holiday.

What is carbon monoxide (CO)?

A deadly gas that can be emitted from faulty cooking and heating appliances powered by any carbon based fuel that burns.



Fuels include gas, coal, wood, petrol, diesel etc.



Can you identify potential sources of carbon monoxide in the picture above?

For the answers go to <http://www.co-gassafety.co.uk/answers.html>

CO cannot be sensed using human senses of smell, taste, sight or touch.

Less than 2% of CO in the air can kill in between one and three minutes.

http://www.hse.gov.uk/foi/internalops/hid_circs/technical_osd/spc_tech_osd_30/spctecsd30.pdf
(Paragraph 74 table 23 page 26)

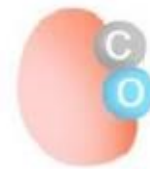
Firemen when talking about CO in smoke (which you can smell) say it takes only three breaths, the first you don't know there's a problem, the second you might suspect there's something wrong but by the third you are unable to take any action.



CO alone being emitted from cooking and heating appliances has no smell.

Why is CO so lethal?

Because it binds to the haemoglobin in the blood which normally carries oxygen so it suffocates.



What is the difference between CO and CO2?

CO2 consists of one atom of carbon and two of oxygen.



CO also contains one atom of carbon but only one atom of oxygen. CO is emitted when there is a lack of oxygen at the flame.



How do you prevent CO in your home?

1. Install all cooking and heating appliances correctly according to manufacturer's instructions using properly qualified people. With gas they must be Gas Safe Registered and qualified to work on your type of appliance.



2. Maintain your appliances regularly according to manufacturer's instructions using qualified people.

3. Have chimneys and flues swept and checked by a sweep belonging to a recognised trade organisation.

4. Ensure adequate ventilation. Don't block grilles which were put in to ventilate a fire etc.

5. As an extra safeguard (e.g. to protect against a bird's nest falling down the chimney) buy and fit a CO alarm to EN 50291 from a reputable supplier.



Low levels of CO over a long period can make people ill but GPs rarely diagnose this as CO.

Symptoms of low level poisoning include:-



HEADACHES



DIZZINESS



TIREDFNESS



BREATHLESSNESS



NAUSEA

and generally feeling unwell similar to many viral illnesses.

Different members of the family can suffer different symptoms

Please make sure you're safe from CO and other products of combustion.

In an emergency please ring **0800 111 999** for the **Gas Emergency Service** but please be aware they do not have the equipment to test gas appliances for carbon monoxide emissions.



If you need further information please visit www.co-gassafety.co.uk

CO-Gas Safety is an independent registered charity run almost entirely by volunteers, offering free and confidential help and advice to victims and their families.

We are especially interested in helping those who have lost a loved one or who are suffering. To get in touch please email office@co-gassafety.co.uk
You can also telephone or text Stephanie Trotter on 07803 088688. If she can't talk to you, please leave your name, number and email address and she will call you back. Stephanie will do her utmost to contact you and help, especially in emergencies & for anyone who has lost a loved one.

Stephanie will try to be accessible to help you at all times, but if she is not available you can contact a solicitor for free initial legal advice. Please see contact details which we will put up if necessary on our website at www.co-gassafety.co.uk

Account of the Corfu case by Stephanie Trotter OBE

Back in 2006 and before CO was announced as a cause of death of Christi and Bobby, I telephoned the hospital in Greece to suggest testing the dead children and, if the cause of death was CO, I urged that hyperbaric oxygen be given to the father Neil Shepherd and his then fiancé Ruth Beatson. Those I spoke to said they didn't speak English so a Greek friend kindly tried but also with little success. I telephoned the relatives with the same advice and spoke to Ruth's father who kindly reminded me about this at the inquest.

Later, I recommended that gas expert Harry Rogers undertake an examination of the boiler that killed the children. Harry gave evidence at the inquest. I also recommended the barrister, Leslie Thomas, now QC. In our opinion, without Harry's evidence, Leslie's skill and the parents' courage and determination, the facts would not have emerged. I also wrote to the police on the 3rd November 2006.

This all arose from our experience of victims who, not knowing what to do, called to ask for independent and impartial help.

The inquest verdict was unlawful killing and the jury found a breach of Thomas Cook's duty of care.

For more on the case, please go to the following links:

<http://news.sky.com/story/goodwill-payout-to-family-of-corfu-children-10358646>

<http://www.independent.co.uk/news/business/analysis-and-features/carbon-monoxide-deaths-from-a-tragedy-to-a-corporate-disaster-for-thomas-cook-10259735.html>

The Coroner made his recommendations public on 6th October 2015

<http://www.co-gassafety.co.uk/corfu-inquest-hm-coroner-david-hinchliffs-reg-28-report-to-prevent-future-deaths/>

CO-Gas Safety almost certainly has the best data on unintentional deaths and injuries from CO from all fuels in the UK from 1995. The charity received £50,000 in 2015 from Thomas Cook thanks to the parents of the Corfu children. However, its costs are roughly £30-35,000 a year and that it being run almost completely by volunteers with a little paid help for the data. At the time of writing this leaflet, the charity has no government or industry funding to continue to collect, collate & publish data and provide victim support. Please see <http://www.co-gassafety.co.uk/information/co-gas-safety-statistics-of-deaths-and-injuries/> and please download our years of data from 1995 and our pie charts. This is updated yearly.

CO-Gas Safety has lobbied for prime time TV warnings about CO since 1995.

Company Registration No. 03084435 Charity Registration No. 1048370

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Illustrations of CO symptoms and grave by competition winner Chihiro.

All other illustrations by John O'Leary <http://www.johnolearyillustration.co.uk>

PROJECT SOTER – GAS APPLIANCE SAFETY CUT OFF SYSTEM



Highly commended ‘Geek Genius for best Entrepreneur’ at the Jewson Young Tradesperson of the Year (sponsor Grono) 28th April 2017.

An update on the future of the smart carbon monoxide isolation device

Throughout 2017 Project Soter was under review to ensure the highest quality of operation and functionality prior to market release. Following a number of successful exhibitions and consumer groups we’ve made some key changes to its capabilities that we’ll be working toward finalising this year with our partners.

Key changes

In 2017 an isolated test among customers of Quantic Heating were carried out to test items covering electronic design through to LAN capabilities.

These key changes include:

- A complete overhaul to the electronic design and software.
- Increased processing capabilities that allow the device to process the alarm signal offline without the need to connect to the internet or server.
- *LAN* capabilities have been introduced and localised communication protocols have been tested. This is especially important for safety within multi occupancy dwellings and more details will be release via our website soon.

Protection, integration and sustainability

The smart CO isolation device is a flexible platform that has multiple benefits:

- Installed alongside a gas boiler without interrupting the gas supply or affecting combustion and turns off the defective appliance in a dangerous situation, stopping the production of CO.

- Integrated with other smart products and appliances.
- The smart CO isolation device is capable of learning and reacting to any approved new or existing CO alarm as part of our sustainability initiative.

Stephanie Trotter, OBE, President & Director of CO-Gas Safety says, 'Provided the usual safeguards of alerting the emergency services work, we greatly support the idea of a cut-off system that could immediately make safe from carbon monoxide. We congratulate Project Soter on this initiative which should greatly contribute to saving lives and preserving health.'

Join our newsletter to learn more about the benefits of our smart CO devices and how we're bringing homes into the next generation of smart safety and automation.

The project has also been shortlisted for several awards!

Through field trials, developments and collaborations the project has been shortlisted for:

- Finalist H&V news awards safety initiative of the year 2018
- Finalist H&V news awards safety initiative of the year 2017
- Travis Perkins Innovation Awards runner up 2017

Managing Director, Ben Kuchta has been personally credited with commendations for 'entrepreneur of the year' by Jewson and top 50 tradesperson of the year by Screwfix, both in 2017

Website: www.quantec-corporation.co.uk

Email: ben@quantec-corporation.co.uk



Ben Kuchta being interviewed about Project Soter by representative of the Installer Live team at Installer Live Exhibition 9-11th May 2017

CO-GAS SAFETY'S STATISTICS ON DEATHS AND INJURIES*

UK deaths caused by accidental Carbon Monoxide (CO) poisoning (Between 1 Sept 1995 - 31 Aug 2017): **Total: 676**

Note *Information is collected from the International Press Cuttings Bureau on a daily basis and from other sources. Coroners are contacted about all deaths. For further details please visit www.co-gassafety.co.uk

TENURE	
Total Number of CO accidental deaths by Tenure: (1 Sept 95 – 31 Aug 2017):	
Owner/Occupier	390
Private Rental	69
Council	66
Housing Association	19
Owned by employer	6
Temporary (e.g. hotel, tent)	24
Other (e.g. owned by relative)	15
Unknown	87

SITUATION					
Total Number of CO accidental deaths by Situation (1 Sept 1995 – 31 Aug 2017):					
House	384	Garage	28	Other	6
Flat	100	Shed or similar	16	Unknown	4
Caravan or mobile home	32	Commercial premises	26		
Boat	32	Tent	15		
Vehicle	27	Workplace	6		

FUEL TYPE																							
Total Number of CO accidental deaths by Fuel breakdown and CO-Gas year (1 Sept to 31 Aug):																							
	95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	Total
Gas (mains)	30	20	18	21	14	15	8	9	8	14	14	9	12	19	4	10	1	6	2	3	4	0	241
Gas (portable)	9	8	5	6	10	6	7	7	6	4	7	4	3	6	5	3	1	1	3	0	1	0	102
Solid	22	18	23	11	18	14	4	8	5	5	8	14	11	4	7	7	12	6	5	5	2	1	210
Petrol/diesel	6	7	3	9	3	5	6	1	2	3	2	10	5	4	4	6	2	5	6	0	2	3	94
Oil	0	2	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	1	0	0	1	0	7
Paraffin	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3
Unknown	0	1	0	0	0	0	2	1	2	1	0	1	0	0	0	2	2	3	1	2	0	1	19
Total	67	56	49	48	46	40	27	26	23	27	31	39	32	34	21	28	18	22	17	10	10	5	676

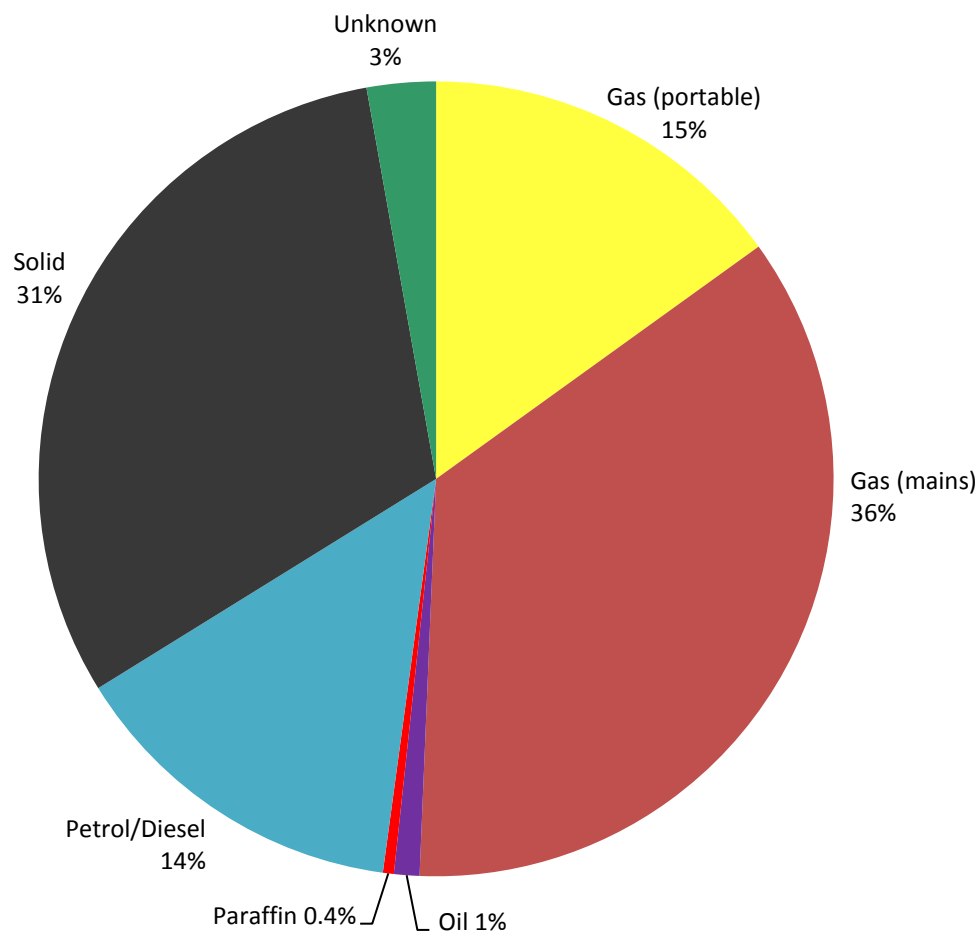
Note: Zane Gbangbola, aged 7, died in February 2014. The Coroner's verdict in September 2016 was that Zane died of carbon monoxide poisoning. However, the blood test found only 8% carboxyhaemoglobin and we have never heard of a death of an otherwise healthy person dying at such a low level. The family disputes the finding and continues to maintain that Zane died of hydrogen cyanide from a flood from a landfill site, so we have not included this death. See <http://www.dailymail.co.uk/news/article-3794537/Justice-Zane-New-hope-parents-blamed-death-flood-tragedy-son-MP-attacks-seriously-flawed-inquest.html>

Near Misses from Unintentional Carbon Monoxide Poisoning in the UK (1 Sept 1995 - 31 Aug 2017) **Total: 5542**

Of these, more than 2250 required hospital treatment and over 400 had lost consciousness

95/96	96/97	97/98	98/99	99/00	00/01	01/02	02/03	03/04	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16	16/17	Total
450	446	320	378	327	299	98	150	179	216	151	328	207	259	206	181	216	324	311	151	204	141	5542

FUEL TYPE relating to UK deaths from unintentional carbon monoxide poisoning from 01.09.1995 to 31.08.2017

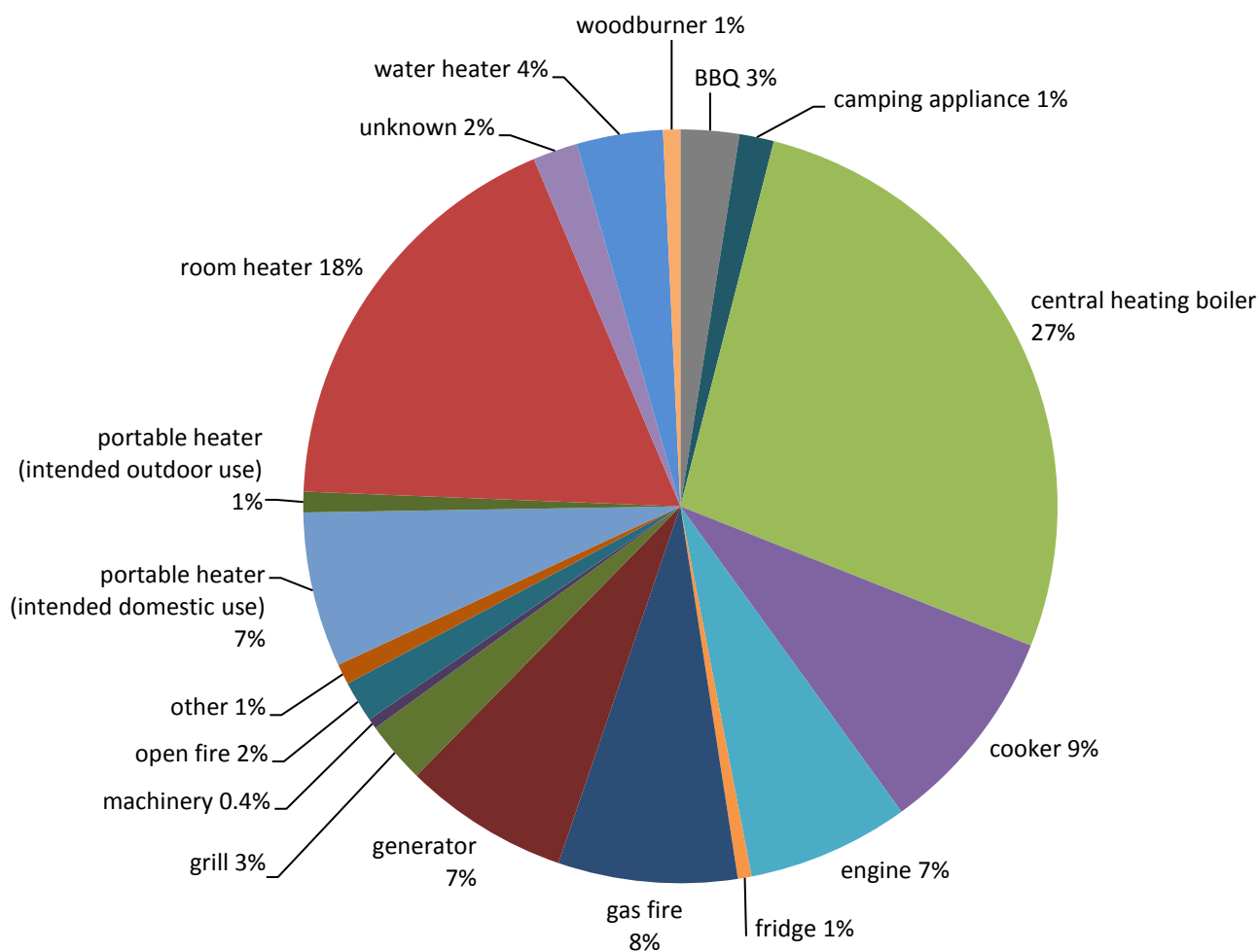


CO-Gas Safety comment

This chart shows that gas is responsible for the greatest percentage of the deaths included in our data, but our data so far also suggests that, per user, gas causes *less* deaths from carbon monoxide than solid fuel (since the number of users of solid fuel across the UK is far less than that of gas users).

In other words, considering the relatively small number of solid fuel users, there is a high incidence of deaths from solid fuel compared to that of gas.

APPLIANCE TYPE relating to UK deaths from unintentional carbon monoxide poisoning from 01.09.1995 to 31.08.2017



'camping appliance' includes items other than BBQ's, such as gas lamps and gas or paraffin stoves.

'central heating boiler' includes mains gas, oil and solid fuel systems. Back boiler systems are included in this category.

'cooker' includes hobs, range cookers and permanent stoves (not portable camping stoves).

'engine' is of any type, including from a car, lorry (or other motor vehicle), aeroplane or boat.

'fridge' is of a portable type, powered by Liquid Petroleum Gas cylinder.

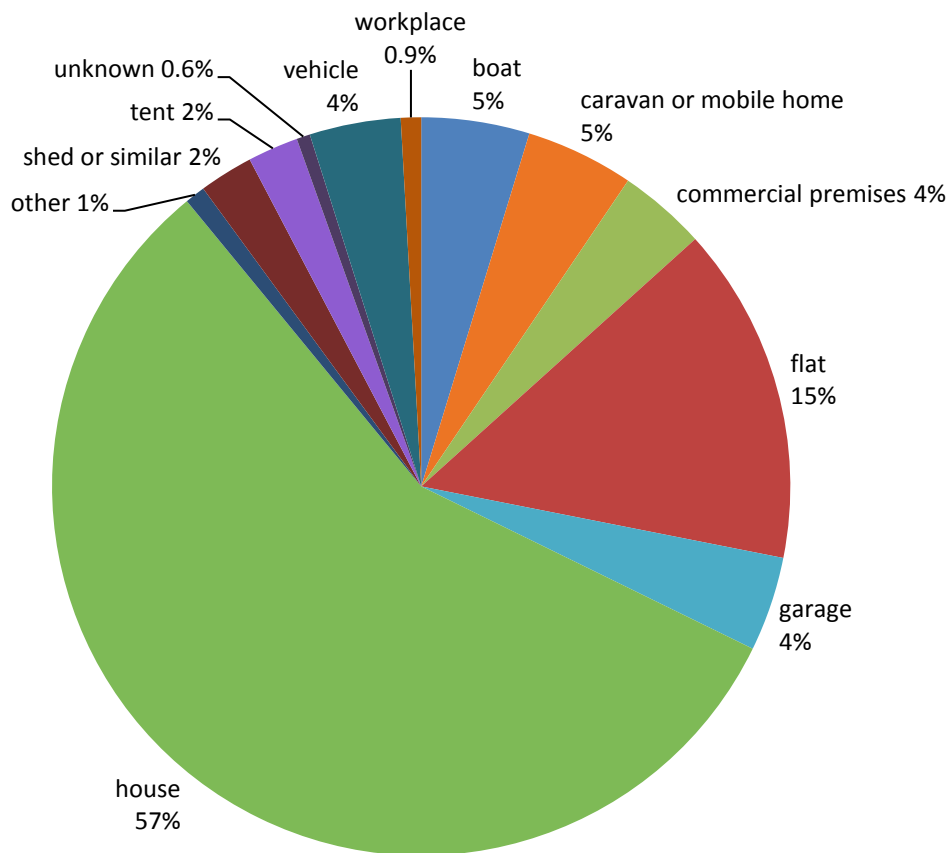
'generator' is a portable machine.

'machinery' indicates industrial or commercial machinery, such as a disc cutter.

'woodburner' indicates a permanently installed domestic appliance intended for indoor use.

Multi-fuel burners are included in this category.

PLACE OF INCIDENT that caused death relating to UK deaths from unintentional carbon monoxide poisoning from 01.09.1995 to 31.08.2017



'commercial premises' includes shops, public houses, hotels, restaurants & guest houses.
 'flat' includes bedsits, and both purpose-built flats and those converted from larger dwellings.
 'house' includes bungalows, detached, semi-detached and terraced houses.
 'other' includes a greenhouse, care homes, public halls and workshops.
 'shed or similar' includes metal containers, wood cabins, outhouses and portacabins.
 'vehicle' includes all types (other than boat) such as car, lorry, camper van and aeroplane.
 'workplace' includes building sites, offices and other work sites.

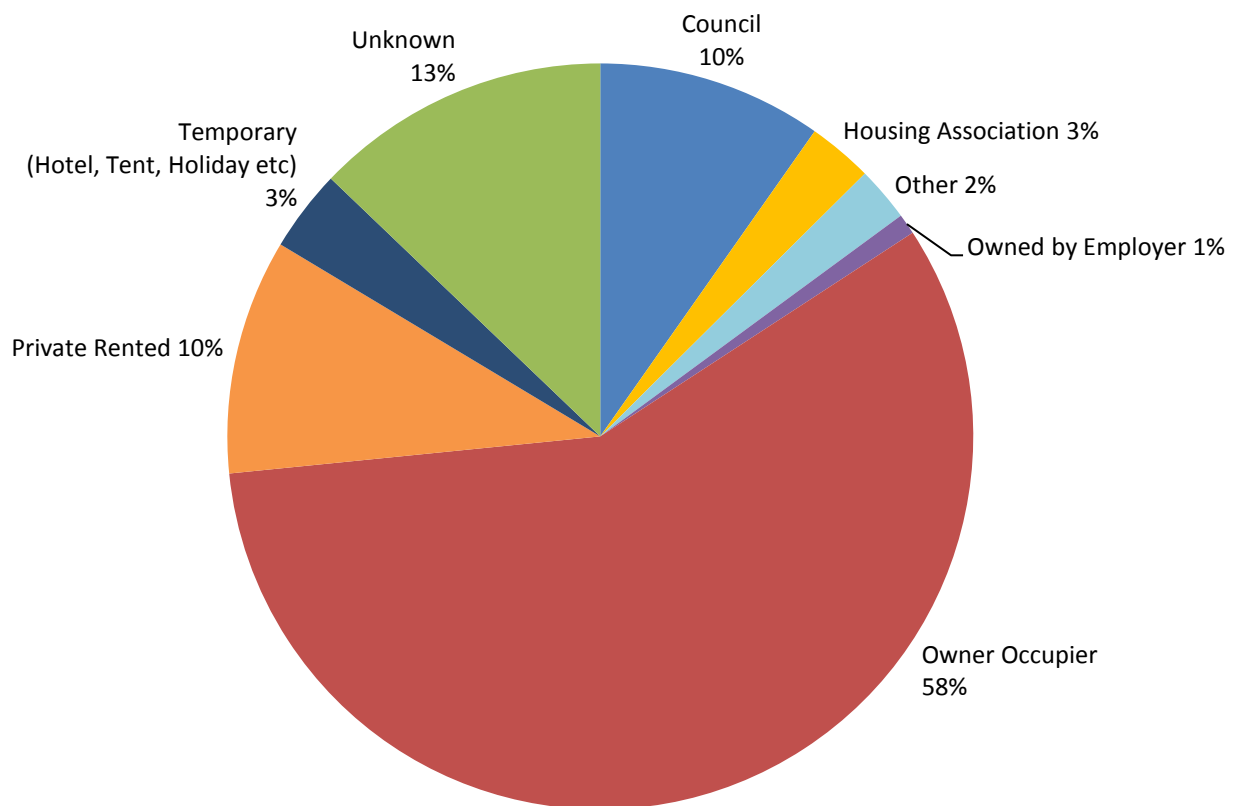
CO-Gas Safety comment

It is easy to see that people at home are most at risk from carbon monoxide poisoning.
 For an example please see <http://www.mirror.co.uk/news/real-life-stories/thought-early-dementia-three-years-5930721> *Daily Mirror*, 22 June 2015 by Angela Cooke.

Dr Ben Croxford's research at UCL (University College London) in 2006 found:

- 23% of homes had one or more defective gas appliance;
- 8% of homes were judged to be at risk of dangerous levels of CO;
- 45% of homes had received no information on the dangers of CO; and
- A higher prevalence of problem appliances was found in the homes of vulnerable people, such as the young, the old, and those in receipt of benefits. (Taken from HSE press release 2006)

TENURE TYPE relating to UK deaths from unintentional carbon monoxide poisoning from 01.09.1995 to 31.08.2017



According to the Communities & Local Government Dwelling Stock Estimates England 2016: There were 23.7 million dwellings in England at 31 March 2016, an increase of 190,000 dwellings (0.81%) on the same point the previous year.

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/609282/Dwelling_Stock_Estimates_2016_England.pdf (Note This is calculated every year).

Of these, 14.8 million dwellings were owner occupied dwellings, 4.8 million private rented dwellings and 4.0 million social and affordable rented dwellings (Private Registered Providers 2.4 million, plus Local Authority 1.6 million). In 2016, 33% of all dwellings had a CO alarm, up from 28% in 2015. This still leaves 67% without a CO alarm.

CO-Gas Safety comment


Therefore, the incidence of deaths in owner occupied property looks lower than expected, (58% deaths as opposed to expected 62%) although there is quite a high incidence of unknown tenure (13%) which could easily account for this. The incidence of deaths in council owned property looks relatively high (10% deaths – would expect 6.9%) while the incidence of deaths in housing associations (3% deaths – would expect 10.24%) looks low compared to the percentage of properties owned by housing associations. It would be really helpful to have even more co-operation from Coroners to record the tenure which, of course, the government could require.


One page example of our alphabetical list of recorded deaths from unintentional carbon monoxide poisoning 01.09.95 to 31.08.17


The following is an extract of a list that appears on our website, at <http://www.co-gassafety.co.uk/information/deaths/>.


All these deaths have been in the public domain but if anyone wishes us to remove a name from our website then of course we will do so. However, we hope that families and friends will understand that the reason for having a list of names is to bring it home to the authorities that those who have died of accidental carbon monoxide poisoning were people with loved ones, not a mere list of statistics. All deaths from CO that we hear about have, or will have, a public inquest.

Each of the victims included in our list of unintentional carbon monoxide poisoning fatalities have been confirmed by some kind of official process or organisation. We try to check every death with the Coroner concerned and most Coroners and their officers are very helpful. We are extremely grateful to them. The source of our information for each case is clarified below using a colour-code system.

 Those which show no colour have been officially confirmed by the Coroner (or Procurator Fiscal if in Scotland), or another official organisation such as the Police or Fire & Rescue Services, the Health & Safety Executive, or the Marine Accident Investigation Branch.

 For those incidents coloured in yellow, we have been able to locate an official medical Cause of Death of carbon monoxide poisoning, but the Coroner (or Procurator Fiscal) has not been able to locate the records for us that confirm the death was unintentional. We do, however, have good press coverage of some kind of official process – this may be an inquest (Fatal Accident Inquiry if in Scotland), a prosecution relating to the person responsible for the incident, or a Health & Safety Executive investigation into an appliance.

 For those incidents coloured in orange, we have no official documentation of the victim or their Cause of Death. We do, however, have good press coverage of some kind of official process – this may be an inquest (Fatal Accident Inquiry if in Scotland), a prosecution relating to the person responsible for the incident, or a Health & Safety Executive investigation into an appliance.

 For those incidents coloured in pink, we have been able to locate an official medical Cause of Death of carbon monoxide poisoning for most, but the Coroner (or Procurator Fiscal) has not been able to locate the records for us that confirm the death was unintentional. In these instances, we have press of the incident itself, which leaves us in no doubt that the death was unintentional and avoidable.

Surname	Forename	Age	Date of Death	Location	Situation	Tenure	Fuel	Appliance
McCormack	Gary	42	30/03/2006	West London	Flat	Council	Mains gas	CHB
McCullogh	Herbert	52	26/12/1995	Devon	Hotel	OO	Mains gas	CHB
McDermott	John	46	16/10/1997	West Yorkshire	House	OO	Mains gas	Gas fire
McDermott	John Thomas	70	19/07/2009	Bedfordshire	Camper van	OO	LPG or BG	Fridge
McDermott	Muriel	47	14/10/1997	West Yorkshire	House	OO	Mains gas	Gas fire
McDonald	Keith	65	19/07/2007	Mid Glamorgan	House	OO	Mains gas	Back boiler
McFerran	Neil	18	03/08/2010	County Londonderry	Flat	Temp	LPG or BG	CHB
McLoughlin	Mary	86	03/09/1998	Lancashire	House	Council	Mains gas	Cooker
McMenemy	Thomas	56	25/12/2001	Strathclyde	Flat	Council	Mains gas	Cooker
McNamee	Christopher	32	24/01/1996	South London	Flat	-	Mains gas	Gas fire
McNulty	Colin Francis	14	10/11/1998	Lothian	House	-	Mains gas	CHB
McRae	Anthony Robert	33	09/11/1999	Essex	Flat	Council	Mains gas	Grill
Mead	William	43	25/12/1995	Essex	Garage	OO	Petrol/diesel	Engine
Meakin	Stuart John James	24	04/02/2007	Staffordshire	Caravan or mobile home	OO	LPG or BG	Room heater
Mendison	Louise	65	03/10/2003	North London	Public House	-	Mains gas	CHB
Milburn	Kevin	50	06/10/2000	Staffordshire	House	Council	Solid	Room heater
Miller	David	44	21/01/2010	Hertfordshire	Boat	Temp	Petrol/diesel	Generator
Mills	Gerald	61	25/04/1999	Hertfordshire	House	OO	Mains gas	CHB
Milton	Raymond Edward	72	12/11/2016	South Glamorgan	Boat	OO	Petrol/diesel	Engine
Mitchell	Alexandra	14	25/03/2005	Gwent	House	-	Mains gas	Gas fire
Mollison	Alan	43	17/03/1999	Sussex	Camper van	-	LPG or BG	PRH
Monington	Irene Beatrice	70	28/12/2004	Mid Glamorgan	House	OO	Mains gas	Back boiler

Toxicity of combustion emissions from barbecue firelighters

Abstract

More and more people are willing to spend their time having barbecues with their families or friends. It is now easy to obtain small and high energy release products, which are widely used to ignite the barbecue fuels, such as wood and coal. I have found from research that firelighters have been the primary choice for igniting barbecues. The combustion emissions of barbecue fuels have been widely researched. However, the combustion emissions of barbecue firelighters, in contrast, are rarely studied. Therefore, people know little or nothing about the toxicity of the emissions from the combustion from the barbecue firelighters.

The primary aim of this research is to design an experiment to test the barbecue firelighters' emissions, analyze the concentration of regulated emissions and identify the composition of unregulated emissions from the combustion of barbecue firelighter, then to discuss the health impact of these toxic emissions. Six barbecue firelighters, made of various materials were selected for all the experiments while keeping barbecue firelighters' caloric value the same.

HORIBA MEXA 9400 and CVS-9100 Exhaust Gas Analyzers were chosen for measuring the concentration and percentage of regulated emissions such as carbon monoxide (CO), carbon dioxide (CO₂), nitrogen oxides (NO_x) and total hydrocarbons (THC). Agilent 7890B/ 5977A GC-MS was used to identify the composition of unregulated emissions, which were mainly Polycyclic Aromatic Hydrocarbons (PAHs).

The experiment results show that the concentration of regulated emissions were associated with the material of barbecue firelighters. Six different barbecue firelighters all have high level of CO, CO₂, NO_x and THC but the highest level of CO was emitted from wood based barbecue firelighters. The reason for this is that plenty of CO will be released during incomplete combustion of wood. Urotropine (C₆H₁₂N₄) based firelighter released more NO_x because it contains nitrogen. Kerosene is made from petroleum, so it only contains carbon and hydrogen. Thus, kerosene based firelighter released THC much quicker and much more than others. The regulated emissions can cause headache, vomiting and even respiratory problems and death.

As for unregulated emissions, results show that 5 PAHs (acenaphthylene, phenanthrene, anthracene, fluoranthene and pyrene) were found in the emissions of all these firelighters. These PAHs will damage the lung function of the patient. Mixtures of PAHs are also known to cause skin irritation and inflammation and/or even cancer.

This thesis submitted for a Masters of Science in Mechanical Engineering by Zekai Chen. The entire thesis can be found at <http://www.co-gassafety.co.uk/resources/barbecues/>

Zekai Chen is particularly grateful for the assistance given by Dr Paul Hellier.

Winners of national carbon monoxide awareness competition receive awards at Westminster ceremony

Press Release For immediate release – Wednesday 5 July 2017

Note CO-Gas Safety was kindly provided with this press release and has taken parts of it for use in CO-Gas Safety's Press Pack 2018.

The awards ceremony for an annual school safety competition to raise awareness of carbon monoxide (CO) poisoning took place at the Palace of Westminster on Thursday 29 June. The competition was launched in January by the companies which are responsible for running the gas networks across Great Britain.

The Gas Distribution Networks (GDNs) Cadent, Northern Gas Networks, SGN and Wales & West Utilities put the call out for entries from school students in any form of media to promote CO poisoning awareness, and were pleased to receive nearly 1000 entries ranging from videos, posters, websites, and poems warning of the dangers of the silent killer.

The winners and their guests were given a tour of the House of Commons in the Palace of Westminster before the winners received their prizes at a special ceremony hosted by Barry Sheerman, MP, who co-chairs the All-Party Parliamentary Carbon Monoxide Group (APPCOG), in Portcullis House.

The competition was run on an area level by each GDN and was open to students in Key Stage 1 (KS1) and Key Stage 2 (KS2) (ages 5 – 11) across Great Britain. At the ceremony the area and overall national winners for KS1 and KS2 were awarded prizes for themselves and their school.

Connie Hollis from Marston Green Infant Academy in Birmingham was the KS1 national winner, for her poster illustration of cookers to warn that orange flames from cookers are an indication that carbon monoxide could be leaking.

The KS2 national winner was Year 6 at Borrass Park Community Primary School in Wrexham for their creative video in warning of the symptoms of CO poisoning and the actions needed to be taken if CO is suspected.

Tom Bell, Chair of the GDN CO Best Practice Group said:

“Every year lives are lost and many people have to be admitted to hospital and suffer health problems because of Carbon Monoxide poisoning.”

“This could be avoided if awareness of the dangers of Carbon Monoxide were better known and people took some simple precautions such as getting their gas appliances checked each year by a Gas Safe registered engineer and having a Carbon Monoxide alarm.”

He added: “I’m delighted that we had so many great entries for this year’s competition. It’s been a fun way to both passed the carbon monoxide safety message onto the younger generation and to highlight awareness among all ages.”

First launched in 2007, the competition was founded and run for many years by charity CO-Gas Safety www.co-gassafety.co.uk then later in partnership with the GDNs, but this year the GDNs have taken over the running of the competition.

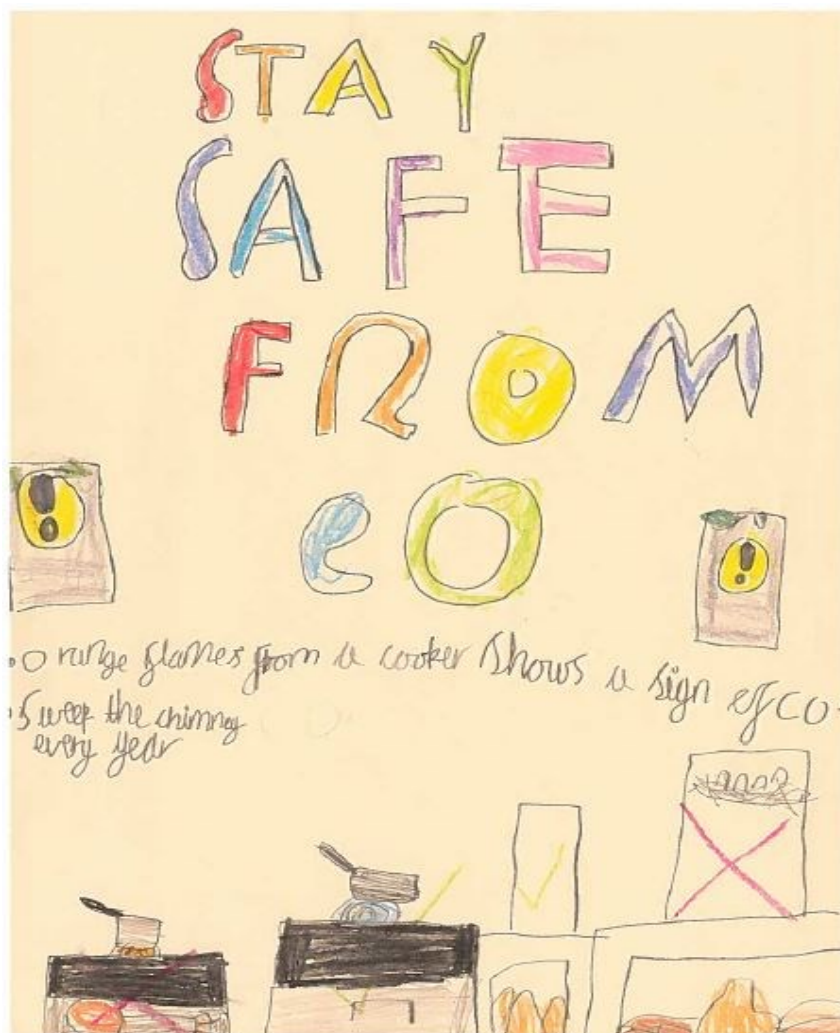
The full list of winners can be found below:

Cadent

Key Stage 1 Area Winner: Connie Hollis, age 7, Marston Green Infant Academy, Birmingham

Key Stage 2 Area Winner: Rae Adey, age 11, Abbey Gates Primary School, Ravenshead

Winner - Regional and National – Key Stage 1, Connie Hollis, Marston Green Infant Academy Birmingham



Cadent
Your Gas Network

Northern Gas Networks

Key Stage 1 Area Winner: Amy Doughty, age 6, St Mary's Catholic Voluntary Academy, Horsforth

Key Stage 2 Area Winner: Megan Bell, age 10, Moorlands Primary School, Huddersfield

Winner Regional - Key Stage 2 Megan Bell, Moorlands Primary School, Huddersfield

SILENT KILLER

SEE NO EVIL, SMELL NO EVIL, TASTE NO EVIL,

What am I?

I can travel through your home,
without you knowing I'm there,
I don't care who's around,
I don't even make a sound,
I don't smell, you can't see or taste me,
But once I've found you there's no getting away,
You can't hide, you won't be safe.

USE CARBON MONOXIDE ALARMS IN YOUR
HOME NOW !!!

FACT

Every year at least 50 people die of carbon monoxide poisoning . YOU COULD BE NEXT UNLESS you do something about it and buy a carbon monoxide alarm, remember

CARBON MONOXIDE KILLS.



SGN

Key Stage 1 Scotland Area Winner: Katie Hutchinson, age 7, 4th Bathgate Brownies, Bathgate
Key Stage 1 South Area Winner: 5th Kidbrooke Brownies (Foxes), London

Key Stage 2 Scotland Area Winner: Alex Geddes, Lochdonhead Primary School, Isle of Mull
Key Stage 2 South Area Winner: Tona Loving, 3rd Winchester Scouts, Winchester

Winner - Regional - Key Stage 2 Alex Geddes, Lochdonhead Primary School, Isle of Mull



<https://youtu.be/-X30N0d68FI>

Wales & West Utilities

Key Stage 1 Wales Area Winner: Marcos Fernandes, Llanedeyrn Primary School, Cardiff
Key Stage 1 West Area Winner: Mia Freeman, Caen Community Primary School, Braunton

Key Stage 2 Wales Area Winner: Year 6 Class, Borrass Park Primary School, Wrexham
Key Stage 2 West Area Winner: Elsie-May Dicks, St. Augustine of Canterbury Catholic School, Bristol

Winner - Regional and National - Key Stage 2 Year 6 Borrass Park Community Park Primary School, Wrexham (VIDEO)



Student reps: Lucy Still, Erin Small & Noah Brown
Link to film https://youtu.be/Akb_mPztrdA

KS1 National Winner

Connie Hollis, age 7, Marston Green Infant Academy, Birmingham



KS1 National Winner, Connie Hollis (middle front), from left to right, Rachel Davis (Teacher, Marston Green Infant Academy), Alex Hollis, Clair Hollis, Barry Sheerman MP, Phil Burrows (Stakeholder Implementation Manager, Cadent).

KS2 National Winner

Year 6 Class, Borrass Park Primary School, Wrexham



KS2 National Winner representatives, (front, left to right) Noah Brown, Lucy Still, Erin Small (back, left to right), Lee Jefferies (Stakeholder Engagement Officer, Wales & West Utilities), Mrs Joanne Strudwick (School Governor), Mr David Roberts (Teacher, Borrass Park Primary School), Barry Sheerman MP.

ENDS

Notes:

**Some Photos of the GDN prize giving for the CO Awareness competition in the Macmillan Room, Portcullis House, House of Commons 29.06.17
What a happy occasion!**



Barry Sheerman MP, Stephanie Trotter OBE, President & Director of CO-Gas Safety, TomBell of NGN & NGN Winner Amy Doughty Key Stage 1 & Winner Megan Bell & parents, Key Stage 2



**Stephanie Trotter OBE President & Director of CO-Gas Safety with the NGN winners at the event (but not running it and so fulfilling a long-held ambition at last!)
Thank you GDNs!**

**CO-Gas Safety 23rd Anniversary Press Pack 1995-2018
Publication of 22 years of data & winners of the GDN CO awareness competition 2016-17**

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**CO-Gas Safety
Winner of the Safety Initiative 2017 H & V Awards**

From Left to Right:- Host, Russell Kane; Roland Johns, CO-Gas Safety; Stephanie Trotter, OBE President & Director CO-Gas Safety; Adrian McConnell, representing the GDNs & Chris Bielby, Director of Industry Liaison, SGN & presenter of the award

Thank you to all those who have helped the charity in 2017,
especially those who have provided us with case studies

Edmund Burke

The only thing necessary for the triumph of evil is for good men to do nothing.
Quoted by Prince Harry during his guest editorship of BBC Radio 4's Today programme
on the 27th December 2017

Nobody made a greater mistake than he who did nothing because he could do only a little.

**CO-Gas Safety 23rd Anniversary Press Pack 1995-2018
Publication of 22 years of data & winners of the GDN CO awareness competition 2016-17**

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