



**CO-Gas Safety's 20th Anniversary
1995-2016
&
20 Years of Data of Deaths and Injuries
from
Unintentional Carbon Monoxide Poisoning
01.09.1995 – 31.08.2015**



**Carbon Monoxide
KILLS**

Cover graphics taken from poster by
Kathryn Wilkinson, 11 years old,
Sheffield High School Junior Department.

**Make sure YOUR child is SAFE
CO-Gas Safety's CO Awareness Competition
Closing date for entries 31st May 2016
Help us to stop these unnecessary deaths from CO and other fuel toxins (CO+)**

Press pack kindly sponsored by Kane International



CO Awareness Competition kindly sponsored by



nationalgrid





Carbon Monoxide
KILLS
Have your boiler regularly serviced

Winner of the North of England
Kathryn Wilkinson. Age at entry 11
School: Sheffield High School Junior Department
Teacher: Sarah Groombridge



CO-Gas Safety's 20 years of data on deaths and injuries from Unintentional Carbon Monoxide poisoning 01.09.95 – 31.08.2015 & CO Awareness Competition

Press Pack 2016 – 21st anniversary pack

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

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21 years – including 20 years of data plus a review of our work in 2015

The year has been dominated by the inquest into the Corfu tragedy, the deaths of Christi and Bobby Shepherd in 2006 in Corfu while on a Thomas Cook holiday. The inquest took place in May with the verdict of unlawful killing and the jury found that Thomas Cook had breached its duty of care. I attended the last few days of the inquest and was interviewed for BBC Look North.

There were many reports <http://www.theguardian.com/uk-news/2015/may/12/corfu-holiday-deaths-coroner-orders-unlawful-killing-verdict> and <http://www.theguardian.com/uk-news/2015/may/13/thomas-cook-shame-over-deaths-children-in-corfu> ‘Thomas Cook should “hang its head in shame” over the deaths of two young children through carbon monoxide poisoning while on holiday in Corfu, their parents’ lawyer said after an inquest jury concluded they died unlawfully. Back in November 2006, I contacted the hospital in Corfu, recommended the expert gas investigator, Harry Rogers, who gave evidence at the inquest and also the barrister, Leslie Thomas QC, who represented the family at the inquest. Without organisations like CO-Gas Safety, the courage and determination of the parents, the skill of the investigator and QC, would the facts of this case have ever seen the light of day?

As a result of pressure from the inquest, the publicity and particularly from the parents, CO-Gas Safety received a substantial donation. As a condition of this donation we had to agree not to reveal the amount or who had provided this donation. However, this caused problems as some assumed we had received millions. If only! (If we had received millions we would have immediately made some films about all aspects of the dangers of CO and paid for prime time TV warnings as well as setting the charity up to continue its work.) I passed on these concerns and a form of words was agreed and posted on our website at <http://www.co-gassafety.co.uk/2015/08/> The gist of this is that CO-Gas Safety is extremely grateful for this valuable donation to assist the charity to continue its work of preventing deaths and injuries from unintentional CO poisoning. However, the amount of the donation, although extremely welcome is not life changing for the charity.

The Corfu tragedy and how it was handled has become an example of how a company should not handle a crisis. Hopefully the tour industry has learned a great deal.

In July I wrote and sent the Coroner our submission of 12 pages with a summary about what we wanted him to consider with regard to his recommendations in his Regulation 28. In September he wrote his Regulation 28 report and was kind enough to send us a copy.

In July we attended the meeting with Mary Creagh MP (for the Corfu parents) and others at the House of Commons to discuss the Corfu tragedy.

We also attended a meeting in Brussels organised by Linda McAvan MEP, Lucy Anderson MEP and ABTA entitled 'What next for tourism accommodation safety in the EU'.

We attended the launch of the Safer Tourism Foundation in November at the House of Commons. We are hopeful that the Safer Tourism Foundation will improve safety and listen to concerns put forward by victims, their families and organisations that seek to represent them. We are keen to assist and have met Peter Fankhauser. There are complicated issues that need to be resolved the most obvious being conflict issues. We hope to be able to assist and certainly this was a very good first meeting.

CO-Gas Safety has always pressed for a meeting with the CEO of Energy UK (trade body of the Energy suppliers). The Corfu inquest had some helpful effects and particularly big companies and even the gas suppliers have been more approachable. Finally we managed to have a meeting in May 2015. After many emails we were allowed to make a presentation to the representatives of the members, including the big 6 (who I was assured are of board level) which we did on December 18th 2015. At last after over 20 years I was able to put forward the vital need for prime time TV warnings

about CO and a body such as CO-Gas Safety which represents victims, collects, collates and publishes data on unintentional carbon monoxide deaths and injuries, undertakes victim based research and makes suggestions for safety improvements based on data. We have been told by a TV agency that British Gas has spent about £17 million on prime time TV advertisements in just less than a year. Of course we don't know whether this is true or not.

The 18th December was also the day when it was made public that npower had been fined £26 million by Ofgem for treating customers badly with regard to their billing, see <http://www.standard.co.uk/business/npower-fined-26-million-for-unfair-treatment-of-customers-a3140161.html>.

We asked Energy UK for proper funding for CO-Gas Safety to continue its work on a professional basis, funding for prime time TV warnings and support for issues such as the need to protect smart meter workers and to make it far easier for ordinary people to access a registered installer qualified to test a gas appliance for CO (see page 30). We presume both requests have been refused.

Anyone who has followed our work knows that we have lobbied for prime time TV warnings since 1995. This idea came to me after talking to victims and their families.



Drawing by Chihiro Nagano winner of the 2013-14 competition. Chihiro kindly drew this at my request to assist with this presentation to the representatives of the gas suppliers.

Research from Warwick university see

http://www2.warwick.ac.uk/fac/cross_fac/healthatwarwick/publications/occasional/report_students_2011-12.pdf found the following:- Asked what media they remembered, 71 (77%) of the 92 said it was television, 21 (23%) said Newspapers and 19 (21%) said the internet (more than one response could be given). We still think prime time TV warnings about CO are needed.

We have also asked Government to put out public health warnings. Frank Brehany, Holiday Travel Watch wrote to the Cabinet office in 2012 see http://www.holidaytravelwatch.com/media/148319/Letter_to_Maude_31.10.12.pdf and see page 23. On the 28th October 2015 Frank and I physically visited the Cabinet Office to deliver another letter and ask for a proper reply to the letter sent in in 2012. We were unable to post the letter into the shiny brass letter box because that was sealed shut. We therefore went inside to deliver it but were told by the receptionist that she was not allowed to receive it. We persisted and eventually someone was sent down from the office to receive our letter and assured us that it would receive a reply. As of

the date of this review we are still waiting. Please see the film Frank made of this visit <http://www.co-gassafety.co.uk/cabinet-office-visit-re-prime-time-tv-warnings-of-co/> We are not giving up!

We've also attended various meetings about smart meters and tried to persuade DECC to consider the safety of meter changers and the opportunity that fitting smart meters provides to test for CO.

I attended the Guild of Master Sweeps' AGM this year in July and it was a great pleasure to meet so many people committed to preventing deaths and injuries from CO.

In 2015 we produced a leaflet about CO (see pages 14-17) kindly sponsored by Kane. The Guild of Master Sweeps are kindly handing out 22,000 of them – aren't they brilliant? Please see page 18. Why can't the fuel suppliers and manufacturers make much more contribution ?

As a result of having more funding we advertised our competition to raise awareness in the Registered Gas Engineer and Dean Baker Registered Gas Installer saw our advert. He then entered a Christmas tree competition by making a tree from pipes hung with CO alarms and publicised our competition. What a brilliant start to Christmas! Thank you Dean. After the competition the tree went to an estate agent for the Christmas period to carry on the message.



Registered Gas Installer, Dean Baker and Fiona Joyce with the Christmas tree hung with CO alarms to EN 50291 kindly donated by Honeywell.

The GDNs are kindly taking over the running of the CO Awareness competition which is now open to all primary aged children. They promised to have prize giving events in summer 2015 but sadly this didn't happen. We are waiting for a date/s for prize giving event/s for summer 2016.

You can see at page 19 what we are still lobbying for:-

- **Prime time TV warnings about CO to cover all fuels, appliances and types of accommodation.** Levy could pay for this, research and victim support. Lobbied since 1995.
- **Gas Emergency service to carry & use equipment to test gas appliances for CO.** 1995.
- **Change to clarify law to require landlords to service or test for CO** - not just certificate.
- **Smart meters** – changers should be protected from CO and test of appliances for CO should be done before and after the exchange of the meter.
- **Public liability insurance should be mandatory** for all registered gas installers, solid fuel & oil installers.

We are still waiting for Government & industry to take action after 700 deaths and over 5,000 injuries/near misses from unintentional CO in 20 years that we know about, at a cost of £178 million a year to the taxpayer.

Stephanie Trotter

OBE President & Director CO-Gas Safety

20.01.16

CO-GAS SAFETY

CO-Gas Safety is an independent registered charity which works to reduce accidents from carbon monoxide (CO) poisoning, other products of combustion, and other gas dangers.

We offer free, confidential help and advice to victims. We lobby for changes. We have asked for prime time TV warnings since 1995. We want a sustained campaign covering all fuels, all appliances and all types of accommodation.

We collect, collate and publish data of deaths and injuries. Also, we run a schools poster competition to raise awareness, sponsored by the Gas Distribution Networks.

Despite our work, still people are unaware of the dangers of CO poisoning and how to prevent it. Although there has been a reduction in the number of fatalities, hidden deaths, near misses and chronic poisoning remain a serious problem.

The two main changes recommended by the Health & Safety Commission (now Executive) in 2000 were:

- A levy on the gas suppliers to pay for raising awareness and for research.
- That the gas emergency service carries and uses equipment to test gas appliances for CO.

These recommendations were supported by the majority of our stakeholders, however were never implemented. In the 2011 APPCOG report Chaired by Baroness Finlay, it was calculated that carbon monoxide poisoning could be costing the country as much as £178m each year.

Action by CO-Gas Safety

We have worked in many different areas:

1. We have campaigned continually for funding for prime time TV warnings and public information films about CO.
2. Since 2006, we have run a schools poster competition for ages 10-11 with support from the Gas Distribution Networks. For 2015-16 this has been extended to cover all children at primary school, and to include models, films and poetry in addition to posters. Finlay Kettles, the 2013/14 winner from the Scotland region, is pictured on the next page.

We estimate that CO affects 3-4 million people each year in the UK

3. We collate and publish data on unintentional deaths and injuries from CO, using a press cuttings service to collect data and receiving reports from victims and their families (See 'Data Matters').



Stephanie Trotter (CO-Gas Safety) and Mark Aylett (Guild of Master Sweeps) take part in Pen-Y-Fan walk in memory of a woman who died of CO poisoning.

4. We have expressed concern about meter exchange and emphasised that installers in the Smart Energy GB installation programme must be equipped with Personal Alarm Monitors for CO.
5. We spoke about our work at the 2014 Coroners' conference and thanked them for their help.
6. Following the deaths of Zoe Anderson—where the gas installer who had fitted a faulty appliance in her home was found to have been negligent— and Matthew Nixon—who was poisoned by CO from a petrol generator—we are working on additional courses for gas installers to take.
7. We worked extensively in preparation for the Energy Bill 2013, including some amendments that were professionally drafted. These were unanimously supported by the members of the Forum CO+SAVi group of victims, victim groups and other interested organisations, with half the funding for this generously provided by the Katie Haines Memorial Trust.
8. We have been in touch with the Gas Safe Register over the difficulty of finding individual Gas Safe Registered installers who hold CMDDA1 (Carbon Monoxide and Dioxide Atmosphere and Appliance Testing); a qualification which allows installers to test gas appliances for CO.
9. We supported Baroness Finlay in her successful bid to amend the Energy Act 2013, introducing an enabling power for the Government to impose requirements on landlords to install CO alarms in residential properties.
10. In October 2014, we participated in a walk in Pen-y-Fan in the Brecon Beacons organised by the sister of a 25 year old woman who lost her life to CO poisoning. Mark Aylett—chimney sweep and member of the Guild of Master Sweeps— wore his full costume in return for sponsorship, raising over £1,000 for CO-Gas Safety.

Data Matters

There were 677 deaths and 4,766 near misses or injuries from unintentional CO in 19 years. Additionally, there are 3,500 unexplained deaths in the UK every year between the ages of 16 and 64, New Scientist December 2004, which are not tested for CO. Our data:

- Has been collected, collated and published since 1995.
- Covers CO incidents and deaths from *all* fuels.
- Is referenced and fact-checked with coroners' reports and other authoritative sources.
- Is checked, where possible, with the Coroner concerned.
- Includes the names of CO fatality victims on our site in memoriam.
- Includes 20 years of input from a victim-based organisations.
- Is checked by an independent statistician and inspected by Public Health England.

We include a form on our website for coroners to complete during inquests, encouraging them to consider CO as a possible cause of death (e.g. whether or not an alarm compliant with BS EN 50291 was in the home, and whether or not it was operational).



L: The winning entry from Scotland in the 2013/14 poster competition. R: Pete Wishart MP (Perth & North Perthshire) with the winning artist Finlay Kettles.

11. In November 2014, we submitted our response on smart meters to the Energy & Climate Change Select Committee.
12. We supported the Gbangbola family in Surrey, after their son Zane was suspected to have been killed by hydrogen cyanide from a flooded landfill. At one point it had been suspected that Zane had been killed by carbon monoxide.
13. We held a very successful 20th anniversary event at the House of Lords where speeches were made and prizes presented to the winners of the 2012-2013 poster competition. The event was attended by over 100 people.
14. In May 2015 we attended the final few days of the inquest into the tragic deaths of Christi and Bobby Shepherd in Corfu in 2006 while on a Thomas Cook holiday.
15. In July 2015 we attended the AGM of the Guild of Master Sweeps. This organisation provides some much appreciated funding of over £1,000 each year, in addition to moral support and work by Mark Aylett.
16. In July we attended a meeting at the House of Commons called by Mary Creagh MP to discuss CO particularly with regard to tourists.

17. We sent a twelve page submission to the coroner investigating the deaths of Christi and Bobby Shepherd in Corfu in 2006, including a protocol for tour operators.
18. In August 2015 we met CO victim Sue Westwood-Ruttledge whose symptoms were not initially recognised as carbon monoxide poisoning by doctors. Thankfully Sue was successful in her legal case, and we look forward to working with her in future.
19. In September 2015 we attended the House of Lords debate on the Smoke and Carbon Monoxide Alarm (England) Regulations.
20. In October 2015 we attended a BPEC Life Awards event in Derby, where we met some outstanding people committed to improving lives.
21. We are printing at least 22,500 leaflets about CO kindly sponsored by Kane International which the members of the Guild of Master Sweeps will kindly distribute 20,500 of these to their customers.



L: The winning entry from the North of England in the 2013/14 poster competition. R: The winning artist Sephora Form (centre).

Web www.co-gassafety.co.uk Twitter [@COGasSafety](https://twitter.com/COGasSafety)

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The Carbon Monoxide
and Gas Safety Society



The Facts about Carbon Monoxide (CO) and Other Fuel Toxins

CO

CO may be emitted from any faulty cooking or heating appliance powered by any fuel that burns (gas, coal, oil, wood etc.). If there is sufficient air at the flame, carbon dioxide (CO₂) is produced, not CO. CO₂ is a greenhouse gas but CO is lethal because less than 2% in the air can kill in between one and three minutes (see page 26 Table 23 at

http://www.hse.gov.uk/foi/internalops/hid_circs/technical_osd/spc_tech_osd_30/spctecsd30.pdf

CO is lethal because the haemoglobin in the blood takes up CO in preference to oxygen. *(Please note that whereas CO₂ has two molecules of oxygen to one of carbon, CO has only one molecule of oxygen to one of carbon.)*

Human senses cannot pick up CO, which is another reason it is so dangerous. Sometimes other products of combustion also escape, which do smell but not necessarily. People can describe this as a 'gassy' smell.

Please note that the Gas Emergency Service basically 'makes safe' from gas or CO. When the consumer calls the Gas Emergency Service they ask the consumer to turn everything off and open the windows. They then visit and if necessary, turn the appliance or the gas off in that property. Thankfully the First Call Operators do have Personal Alarm Monitors or PAMs or Gasco seekers which can also pick up CO, so the employees are protected. However, there is no free testing of gas appliances by the gas emergency service. By the time the FCO arrives the CO will almost certainly have dispersed (due to turning off appliances and opening windows) unless it was coming from next door or from an unsuspected appliance, e.g. a woodburner.

In 2000 the Health and Safety Commission (now Executive) recommended that the GES has and uses equipment to test appliances for CO but Government has failed to implement this excellent HSC recommendation.

In 2000 the Health & Safety Commission (now Executive) also recommended a levy on the gas suppliers (we would prefer the whole fuel industry) to pay for publicity about the dangers of CO and for research.

Again this excellent HSC recommendation has not been implemented. Why pay for the HSE if Government just ignores it? Also, why ignore it? Surely even on economic terms it would pay to deal with this issue? See our cost benefit analysis on page 13.

Please note that Colin Breed MP tabled an EDM (Early Day Motion) asking for these recommendations to be implemented in 2000 and again in 2007. The first was signed by 49 MPs and the second was signed by 121 MPs (see website <http://www.co-gassafety.co.uk/about-co/early-day-motions/>). 121 MPs is a huge number for an EDM, so why did it apparently have no effect?

CO dissipates in a live body very quickly so a person needs to seek an urgent blood or breath test. If this is negative, it is not wise to assume that your home or workplace or car etc. is safe from CO and this is why **tests of appliances and air in a house are urgently needed to ensure safety**. Please note that CO can be emitted from next door (e.g. through a joint chimney or roof space) or another flat. Dominic Rodgers, aged 10 died from CO from next door in 2004. In 2007, Esmy Ighodalo aged 27 died from CO emitted from a mains gas central heating boiler in another flat.

Investigations can be undertaken by CORGI Services but cost at least £1,800-£3000. If CO is suspected and if a legal action is contemplated, it is vital that this investigation is

undertaken before any suspected appliances are worked on (other than to turn them off). Working on an appliance will change the evidence you may wish to rely on. Landlords and installers are well aware of this and often undertake work very quickly. Please note that in our considerable experience most Gas Safe Registered installers will not undertake this test (indeed they will change the appliance and evidence instead) and provide the parts per million of CO to the person affected. Without this, GPs don't take CO seriously.

On 01.10.15 there were 1,251 people qualified under CMDDA1 who are qualified to test gas appliances for CO and record CO found in writing. The problem is that people do not know what to ask for.

Also at the time of writing (January 2016) to find someone to test gas appliances for CO and provide Parts Per Million of CO to the consumer the consumer has to:-

1. Access the Gas Safe Register website <http://www.gassaferegister.co.uk/>
2. Click on advanced search. What consumer would know how to do this?
3. Put in post code.
4. Search for firms offering 'fumes investigation'.
5. Contact said firms and ask if they employ someone qualified under CMDDA1. If so, ask for their name and check under the GSR. Ask also how much it would cost to test appliances for CO and give PPM of CO in writing.
6. When that person turns up the consumer has to check to make sure it is the person with the qualification CMDDA1.

We have not found anyone able to do this yet. GSR tells us they will help people by phone.

Please note that such a test by someone qualified under CMDDA1 is not good enough for a court case but can be a very useful filter or for a first test.

Other toxins in fuels and emissions from fuels

1. Evidence from the Internet – our thanks to Gareth Hughes for these references www.airquality.co.uk/archive/reports/cat08/0407081208_Task7_cumbustion_report_issue1.pdf
This is about air quality generally. Search for NoX, PM10s, Dioxins, Furans and PCBs and VOCs (Volatile Organic Compounds).

See also the study in Mexico City which shows that pollutants affect more than just the lungs <http://www.thefreelibrary.com/Destination+brain%3a+inhaled+pollutants+may+inflamm+more+than+the+lungs.-a0227652701> In autopsies of seemingly healthy Mexico City children who had died in auto accidents or other traumatic events, Calderon-Garciduenas uncovered brain deposits of amyloid-beta and alpha-synuclein, proteins that serve as hallmarks of Alzheimer's and Parkinson's diseases.

For natural gas see <http://www.epa.gov/ttn/chief/ap42/ch01/final/c01s04.pdf> and search for mercury, manganese, copper, arsenic, chromium, cadmium, barium, nickel etc.

For details of other toxins found in Domestic Heating Oil or fuel oil (Kerosene) combustion see <http://www.epa.gov/ttn/chief/ap42/ch01/final/c01s03.pdf>

This is from the United States Environmental Protection Agency.

For coal see this Australian document

http://www2.unitar.org/cwm/publications/cbl/prtr/pdf/cat5/Australia_ffossilfuel.pdf

For wood see <http://www.claverton-energy.com/burning-wood-has-worse-carbon-emissions-than-burning-coal.html> We can supply further articles, a Danish article and an Australian one. Please email us on office@co-gassafety.co.uk

Wood pellets in store can emit CO see

<http://annhyg.oxfordjournals.org/content/56/7/755.full?sid=27f48497-532d-4585-9745-ed660da1b2f9> & <http://www.hse.gov.uk/safetybulletins/co-wood-pellets.htm>

For diesel see <http://www.ncbi.nlm.nih.gov/pubmed/1383162>

See <http://www.epa.gov/iaq/combust.html> “Particles, released when fuels are incompletely burned, can lodge in the lungs and irritate or damage lung tissue. A number of pollutants, including radon and benzo(a)pyrene, both of which can cause cancer, attach to small particles that are inhaled and then carried deep into the lung.”

2. The Reach Legislation, which basically requires all products to have to be proved to be safe, excludes fuels. See

<http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:396:0001:0849:EN:PDF>

In October 2014 CO-Gas Safety has submitted the following question to

<http://www.europarl.europa.eu/portal/en/contact>

‘I would like to know when your committee will next consider air purity (or lack of it) both indoors and outside.

I would also like to know why the Reach legislation expressly omitted fuels when on combustion (and wood chips even in store) can emit toxins which can be lethal and at a lower level cause all sorts of problems from brain damage to depression.’

3. The fact that a test house assures us that the toxins (such as mercury, manganese etc.) are in such tiny amounts that they cannot possibly cause a problem, yet state that they have done no research to prove this nor can they quote any research done to prove this. All gas appliances are tested before sale for the CE Mark but they are tested with laboratory gasses, which are specially prepared to remove impurities such as the other toxins.

4. At the All Party Parliamentary Gas Safety Group (APPGSG) meetings, although the other toxins were discussed, none of the energy companies present denied that they existed.

5. The statement from Dr. Ed Walker in the APPGSG that the other toxic compounds may well be responsible for some of the long-term consequences – see Page 19 of the report January 2009 see <http://www.policyconnect.org.uk/appcog/research/report-raising-medical-professionals%E2%80%99-awareness-carbon-monoxide-poisoning> as follows:- ‘Treatment for the long-term effects of CO exposure is, according to Dr Ed Walker is much more complicated. The picture is complicated by the fact that victims exposed to CO are often exposed to other toxic compounds at the same time, and it may be these that are responsible for some of the long-term consequences. However survivors of severe episodes of exposure often have extensive brain damage which can be demonstrated on MRI scans of the brain. This sort of damage is permanent and irreversible.’

6. We have many other cases over the years in which toxicologists cannot explain damage suffered as resulting from CO, yet that is consistent with damage as a result of the toxins.

7. There is a case of a three year old, who died with a gas appliance in his bedroom, who had insufficient CO in his blood to kill him (in fact zero CO which is unusual). However, Stephanie Trotter, OBE was told by the Coroner, that the child had raised levels of toxins (arsenic, barium and nickel and especially manganese – 15 times the higher levels). The inquest has been held (April 2010) and the verdict was death by natural causes. The manganese was explained by contamination and post mortem distribution, although we have been told that there is only research on post mortem distribution with regard to drugs, not heavy metals.

Please note that although we informed the All Party Parliamentary Gas Safety Group about the other toxins in April 2008, the group has refused to examine the other toxins confining their inquiry to CO only. However, as we submitted to the APPGSG, if poisons in water were being considered, and if toxins A,B,C and D were known to exist in water, surely it would be pointless and dangerous to consider only toxin A? Yet this in effect, is what the APPGSG continued to do. It has now renamed itself the ‘All Party Parliamentary Carbon Monoxide Group’ or APPCOG. Furthermore, there is a case of poisoning by an oil fired appliance where, having not been worked on, it was tested and found to have negligible CO emissions, yet the couple report they have been badly poisoned by the other toxins.

Please also note that it is extremely difficult for our victims to obtain the services of toxicologists to assist them in any way. The only toxicologists who have been at all helpful seem to have emigrated (e.g. Dr. Alison Jones who was head of Guys Toxicology unit) or retired or undertake research work only. Stephanie Trotter, OBE has tried very hard to obtain the name of a toxicologist to advise on the poisoning of foetuses, but it seems that there is nobody in the UK who can do this or if there is, they are unwilling to assist.

How to prevent deaths and injuries from CO and other fuel toxins.

1. All appliances powered by any fuel that burns should be installed and serviced according to manufacturer’s instructions – usually once a year.

Make sure that the person doing this work is properly qualified. Please check and remember it’s your money and your life. With gas the installer must be Gas Safe Registered. However, also check with the Gas Safe Registered website to make sure that the particular person who works on your appliance is qualified to do so (e.g. qualified for fires, not just boilers). This can be done by checking the Gas Safe Register on the Internet or by telephone.

2. Make sure all chimneys and flues are regularly swept and checked.

3. Ensure adequate ventilation and don’t block ventilation grilles.

4. As an extra safeguard against CO, buy a CO alarm to European Standards EN50291. This will cost around £15 - £20 in most good DIY stores and some supermarkets.

5. Never use a barbecue inside a tent or confined space even if you think the barbecue may have gone out or even if cold to the touch.

In an emergency, ring the Gas Emergency Service line on 0800111999 but they will only turn off your appliance or your gas. **They will not test your appliances for CO. They may be able to check the air you breathe but you will have been told to turn off all the appliances and open the windows before they arrived. Most fire brigades will usually attend and check for CO in the air. This will not necessarily inform you where the CO is coming from or which**

appliance is emitting CO, but it is very helpful and we are extremely grateful that most fire brigades will now do this.

Seek immediate medical help and insist on a CO test and ask for the result in writing. Ordinary blood is adequate for this – **there is NO NEED for arterial blood.**

Background to the charity and its data collection, collation and publication

See <http://www.co-gassafety.co.uk/about-co/about-co-gas-safety/> and <http://www.co-gassafety.co.uk/data/>

Sponsorship sought

Although we have received a substantial donation in 2015 due to the Corfu tragedy any funding would be much appreciated. All details of how to donate can be found on our website at <http://www.co-gassafety.co.uk>

We particularly need funding for our data collection, collation and publication. We have had no funding from the Department of Health for our data since 2010.

Impact - Numbers affected

Research commissioned from University College London, published in a press release dated 02.10.06 by HSE, to inform its gas safety review highlights the dangers of CO poisoning in people's homes, coupled with a lack of public awareness of the risks.

The early findings of the research include:

- 23% of homes had one or more defective gas appliance;
- 8% of homes were judged to be at risk of dangerous levels of CO;

Note If there are 22 million households (please see 2012-13 English Housing Survey https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/284648/English_Housing_Survey_Headline_Report_2012-13.pdf) with 2.3 people in each household, there are therefore 50,600,000 people and 8% of them are 4,048,000. Call this 4 million people – be conservative and call it 3-4 million in the UK.

- 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 (young, old, those in receipt of benefits).

Further research with similar findings has been undertaken by John Moore's university http://www.ljmu.ac.uk/NewsUpdate/index_123350.htm More than 27, 000 properties were visited.

The All-Party Parliamentary Carbon Monoxide Group strongly supports the inclusion of carbon monoxide poisoning as a high risk. The All-Party Parliamentary Carbon Monoxide Group's inquiry 'Preventing Carbon Monoxide Poisoning', heard evidence that carbon monoxide poisoning causes 50 deaths a year (revised to 40 in the latest report by the Cross Government Group on Gas Safety and Carbon Monoxide Awareness), 200 serious injuries, and 4000 minor injuries – which costs the Department for Health in England and Wales approximately £178m a year in medical and care costs, as well as creating immeasurable human suffering.

Furthermore, it is thought that the number affected by CO poisoning **is considerably higher**- a study conducted by Liverpool John Moores University in 2011 measured CO levels in 109 homes over a number of weeks: it found that 24 homes had CO levels greater than 50 ppm (parts per million) – a level in which symptoms of poisoning, such as headaches, tiredness, and drowsiness can be experienced. A further 53 homes contained CO levels between 10 and 50 ppm.

<https://www.ljmu.ac.uk/about-us/news/life-saving-research-into-carbon-monoxide>

CO-Gas Safety states:-

This then shows about 22% of homes with CO levels exceeding 50 ppm and 49% of homes with CO levels between 10-50 ppm. This equates very well with other research done over the last 10 years. If one was to extrapolate these figures across the whole of the UK, then we would arrive at a number close to 15 million UK citizens being poisoned by CO in levels greater than 50 ppm and around 34 million being poisoned by levels between 10 and 50 ppm. In total this is 49 million people in the UK being exposed to CO in levels greater than those recommended by the World Health Organisation and as a consequence significant numbers, running into millions will as a result of this exposure eventually suffer chronic ill health.

How do CO and other Toxins impact on the UK Population?

CO+Savi (group of victims and victim groups) suggests that the following statement is used instead or at least in conjunction with any existing numbers in presentations, press releases, publications, etc.

There is currently **no conclusive and comprehensive** way of accurately establishing the actual number of people harmed to whatever level by carbon monoxide and other toxins (CO⁺ for short). It is recognised that there are many sources of data collated over the years. However, this data is scientifically inconclusive at this point in time. We know that some people can suffer temporary illness, irreversible chronic ill health or death as a consequence of exposure to either low-level, chronic and high-level, acute CO⁺ poisoning. Unfortunately, we do not know how many more are affected and we have no way of objectively and responsibly estimating the true figures.

The Need for Research - Proposed research

CO-Gas Safety wants research into:-

1. What is in gas before and after combustion?
Please note that natural gas varies according to where it comes from. Is it possible for significant amounts of toxins to be emitted into the atmosphere or far worse, blown back into or remaining in a dwelling when there is a partially blocked flue? Would incomplete combustion affect this other than to increase CO? What about flueless appliances such as cookers and some fires? To undertake this research an independent body would have to be found to test the gas before combustion and after combustion using gas in pipes and burned in a boiler with a flue, a boiler with a partially blocked flue. This would also have to be done for a gas fire and also for a cooker in an average kitchen with average ventilation. Also a flueless gas fire should be tested. In 2009 we asked BRE (Building Research Establishment) about the cost of this research and it would cost about £10,000 for an initial laboratory test and a further £40,000 for field tests.
2. It is also possible that while the amounts of the toxins in fuels are small, these could build up in the body fat of the person concerned causing problems over a long period. It is well known to toxicologists that this can occur with regard to heavy metals.
3. The same as above for oil, coal and wood.

The cost of this research would be far more than we could afford but surely the gas and oil industry must have undertaken such research? If not, why not? **Surely if they are selling their products to the public they should know what is in it and whether if used correctly or incorrectly, there are any dangers to the public?** We need this research to be of the highest

quality and extremely independent. We have already asked Lord McKenzie (who at the time was a Government Minister responsible for the Health and Safety Executive, which covers gas) to undertake this research (May 2009) and also drawn the attention of various Select Committees to this need. Please note that there may be a risk to those inside from these toxins when the fumes are not exiting to outside air. However, there is also a possible risk of people & planet poisoning when the toxins exit to the outside air and it seems that scientists who are expert in outdoor air are well aware of these toxins in the atmosphere. However, the amount of such toxins would obviously be much more concentrated in indoor air. The Environmental Protection Agency (EPA) has found that indoor environment is two to five times more polluted than external conditions, and in some cases, indoor atmospheres can be as much as 100 times more contaminated.
<http://draxe.com/indoor-air-pollution-worse-than-outdoor>

We suspect that many people whom GPs report as 'TAT' (Tired All the Time) are in fact suffering from poisoning caused by these toxins and/or Volatile Organic Compounds (VOCs). For blood tests for these toxins see http://www.co-gassafety.co.uk/wp-content/uploads/2015/07/Blood_tests_for_website_final.pdf These blood tests can be done weeks or months later, unlike tests for CO. It is also possible to have urine tests both before and after a provoker has been taken. However, it would still be necessary to prove on a balance of probabilities (for a civil claim) that these toxins, if found in the blood, came from the fuel and appliance concerned. However, if the research really has not been done by the fuel suppliers, surely urgent research on the other toxins emitted by appliances should be undertaken?

Who knows what other conditions might be being caused or exacerbated by these other toxins? For example, ME, CFS, MS, heart disease, diabetes (caused in third world countries by arsenic in the drinking water), respiratory problems and even perhaps Alzheimer's disease?

Cost benefit analysis of a modest levy

The All-Party Parliamentary Carbon Monoxide Group (APPCOG) estimated that as many as 4000 people each year are diagnosed with low-level carbon monoxide exposure, with a further 200 admittances to hospital with serious injuries, and 50 fatalities every year. APPCOG calculated the approximate cost to society, and found that preventing carbon monoxide poisoning could save the UK £178 million a year, as well as avoid immeasurable human tragedy and suffering. Please see <http://www.publications.parliament.uk/pa/cm201314/cmselect/cmenergy/161/161vw43.htm>

The Fuel Safety Levy, even at £2 per annum should bring in at least £44 million per year to be spent on safety improvements. There would be some costs involved in raising a levy but these are likely to be small.

CO-Gas Safety has recently (December 2015) been allowed to make a presentation to the representatives of the gas suppliers via Energy UK (trade body of the energy suppliers including the big 6). Our view is that the whole of the fuel industry should pay for prime time TV warnings, collection, collation and publication of data, help for victims and lobbying for improvements. However, if the gas suppliers stepped up to the plate, this would be a fantastic start and should hopefully shame other fuel suppliers and appliance manufacturers and other members of the wealthy fuel industry to also contribute to a voluntary levy.



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>

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/spctecosc30.pdf
(Paragraph 74 table 23 page 26)

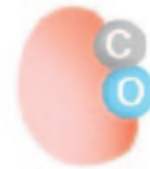
Firemen when talking about CO in smoke (which you can smell) say it takes only three breaths, the first you don't know there's a problem, the second you might suspect there's something wrong but by the third you are unable to take any action.



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 molecule of carbon and two of oxygen.



CO also contains one molecule of carbon but only one molecule 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 association.
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.



Low levels of CO over a long period can make people ill 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.

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. 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 do her utmost to contact you and help, especially in emergencies and 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 specialist solicitor for free initial legal advice. Please see contact details for a solicitor on our website at <http://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 the parents' determination, Harry's evidence and Leslie's skill 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://tinyurl.com/ock6co7>

<http://tinyurl.com/qglowku>

The Coroner made his recommendations public on the 6th October 2015 see <http://tinyurl.com/nsckvpu>

CO-Gas Safety almost certainly has the best data on unintentional deaths and injuries from CO from all fuels in the UK since 1995.

See http://www.co-gassafety.co.uk/stats_and_analysis.html and please download our years of data and our pie charts.

This is updated every year.

Company Registration No. 03084435 Charity Registration No. 1048370

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Sponsored by Kane International



Illustrations of CO symptoms by competition winner Chihiro Nagano All other illustrations by John O'Leary



The Guild of Master Chimney Sweeps is kindly handing out over 22,000 CO-Gas Safety leaflets to the public



1. WHAT WE WANTED AND ARE STILL NEEDED TO PREVENT DEATHS AND INJURIES FROM UNINTENTIONAL CO+

CO-Gas Safety's suggestions to improve safety and reduce unintentional deaths and injuries from CO and other fuel dangers

Please see <http://www.co-gassafety.co.uk/about-co/suggested-changes/>

I delivered our suggestions to Don Foster MP, Minister for CLG in a briefing note on 18th December 2012.

For briefing note see <http://www.co-gassafety.co.uk/information/energy-bill/> and scroll down

Amendments to Energy Bill - Summary

Decided by CO-Gas Safety after 18 years of work, professionally drafted and supported unanimously by CO+SAVi - group of victims, charities and other bodies as well as others from emergency medicine, ambulance and the fire service.

1. **Levy** on fuel industry to pay for raising awareness, research and action. £2 per household per year would be ample. Compare over £100 proposed for green energy. CO-Gas Safety has lobbied for prime time TV warnings since 1995.

2. **Gas Emergency Service to carry and use equipment to test gas appliances for CO.** Lord Hunt 'This is a no brainer'.
CO-Gas Safety has lobbied for this since 1995.

3. **Change in legislation re landlords to make it clearer that servicing or testing for CO** must be done.

We hope that Baroness Finlay's amendments combined with other measures, such as the new ACOP and the need to tests condensing boilers with flue gas analysers, will assist with this aim but this is unclear.

4. **Testing appliances before and after exchange of meter. Please note that smart meters** must be put in every home.

5. **Public Liability Insurance** for all registered gas installers, solid fuel and oil installers.

A group of victims and victim groups met in May 2012 under the banner of the then All Party Parliamentary Gas Safety Group. Baroness Finlay urged this victim group to agree on what they wanted to be changed. The CO+Savi group was formed and agreed unanimously on the legislative changes which the group wanted. CO+Savi was well aware that such changes would need to be put in Regulations, in the way that the amendments that have been achieved have been drafted (i.e. the power to make such regulations are put in primary legislation with detailed regulations made later). However, in order to show that these provisions could be drafted relatively easily, the group decided to instruct a lawyer experienced in drafting to draft what had been agreed by CO+Savi. These can be found at <http://www.co-gassafety.co.uk/our-professionally-drafted-suggestions/>

Once these changes had been professionally drafted, CO-Gas Safety lobbied MPs, particularly those on the Committee Stage of the Energy Bill by sending them copies of our drafted amendments with a summary. Holiday Travel Watch also lobbied these MPs. CO+Savi also asked the All Fuels Action Forum to discuss our suggested amendments, but we were left with the impression that little actual discussion took place. The AFAF decided it did not wish to put the CO+Savi suggested amendments forward for consideration by APPCOG or the MPs on the committee stage of the Energy Bill.

2. WHAT WE PUT FORWARD

PROFESSIONALLY DRAFTED SUGGESTIONS THAT CO+SAVI PUT FORWARD TO THE ALL FUELS ACTION FORUM AND TO THE MPS ON THE COMMITTEE STAGE OF THE ENERGY BILL

See <http://www.co-gassafety.co.uk/our-professionally-drafted-suggestions/>

One page example

Carbon Monoxide Safety levy

[]

To move the following Clause:—

- (1) There shall be a Carbon Monoxide Safety levy.
- (2) The Carbon Monoxide Safety levy is a levy—
 - (a) charged in respect of supplies of fuel that have been, or are expected to be, made in each specified period, and
 - (b) payable in respect of each such period by persons who make, or are expected to make, the supplies.
- (3) In subsection (2) fuel includes gas, solid fuel, heating oil, paraffin and barbeque fuel.
- (4) The Secretary of State may from time to time by order specify the rate of the levy to be charged.
- (5) The order may, in particular, make provision about any of the following matters—
 - (a) what is a supply of fuel for the purposes of the levy;
 - (b) when a supply of fuel is, or is expected to be, made for those purposes;
 - (c) who makes, or is expected to make, a supply of fuel for those purposes;
 - (d) the rates or amounts of the levy, or how such rates or amounts are to be determined;
 - (e) payment of the levy, including deadlines for payment in respect of each period and interest in respect of late payment;
 - (f) administration of the levy;

© CO-Gas Safety 2013 These amendments were drafted by David Mundy of Bircham Dyson Bell after instruction from Stephanie Trotter OBE CO-Gas Safety and consultation with members of CO+SAVi, especially contributions from Gareth Hughes.

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

3. WHAT BARONESS FINLAY & APPCOG HAVE ACHIEVED RE THE ENERGY ACT 2013

<http://www.legislation.gov.uk/ukpga/2013/32/section/150/enacted>

Energy Act 2013

150 Smoke and carbon monoxide alarms

(1)The Secretary of State may by regulations make provision imposing duties on a relevant landlord of residential premises in England for the purposes of ensuring that, during any period when the premises are occupied under a tenancy—

(a)the premises are equipped with a required alarm (or required alarms), and

(b)checks are made by or on behalf of the landlord in accordance with the regulations to ensure that any such alarm remains in proper working order.

(2)“Required alarm” means—

(a)a smoke alarm, or

(b)a carbon monoxide alarm,

that meets the appropriate standard.

(3)Regulations may include provision about—

(a)the interpretation of terms used in subsections (1) and (2);

(b)the enforcement of any duty imposed by regulations.

(4)Provision made by virtue of subsection (3)(b) may in particular—

(a)confer functions on local housing authorities in England;

(b)require a landlord who contravenes any such duty to pay a financial penalty.

(5)Provision about penalties made by virtue of subsection (4)(b) includes provision—

(a)about the procedure to be followed in imposing penalties;

(b)about the amount of penalties;

(c)conferring rights of appeal against penalties;

(d)for the enforcement of penalties;

(e)about the application of sums paid by way of penalties (and such provision may permit or require the payment of sums into the Consolidated Fund).

(6) Regulations may—

(a) include incidental, supplementary and consequential provision;

(b) make transitory or transitional provision or savings;

(c) make different provision for different cases or circumstances or for different purposes;

(d) make provision subject to exceptions.

(7) Consequential provision made by virtue of subsection (6)(a) may amend, repeal or revoke any provision made by or under an Act.

(8) Regulations are to be made by statutory instrument.

(9) An instrument containing regulations may not be made unless a draft of the instrument has been laid before, and approved by a resolution of, each House of Parliament.

(10) Subject to provision contained in regulations, in this section—

- “the appropriate standard”, in relation to a smoke alarm or a carbon monoxide alarm, means the standard (if any) that is specified in, or determined under, regulations;
- “local housing authority” has the meaning given in section 261(2) of the Housing Act 2004;
- “premises” includes land, buildings, moveable structures, vehicles and vessels;
- “regulations” means regulations under this section;
- “relevant landlord” means a landlord in respect of a tenancy of residential premises in England who is of a description specified in regulations;
- “residential premises” means premises all or part of which comprise a dwelling;
- “tenancy” includes any lease, licence, sub-lease or sub-tenancy (and “landlord” is to be read accordingly).

The Smoke and Carbon Monoxide Alarm (England) Regulations 2015 came into force on the 1st October 2016.

There was an interesting debate at the House of Lords 07.09.15

This raised carbon monoxide issues.

<http://www.publications.parliament.uk/pa/ld201516/ldhansrd/lhan38.pdf>

Stephanie Trotter wrote a briefing note for Lord Hunt of Kings Heath and part of this was as follows:-

CO alarms

‘To ensure that a carbon monoxide alarm is equipped in any room, which contains a solid fuel burning combustion appliance’.

The English Housing Survey at

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/406740/English_Housing_Survey_Headline_Report_2013-14.pdf states at page 8 that In 2013-14 ‘19% (4.4 million) of households were renting privately’.

According to DCLG (received via Dominic Gillan of APPCOG) 8.6% only of this 19% have solid fuel. (Dominic ‘I just received the attached document from DCLG – it appears that there are **354,000 PRS properties with solid fuel**, or 8.6% of the total.’)

CO-Gas Safety found **only 1.2%** of its deaths in privately rented properties where the CO originated from **solid fuel** appliances.

Summary

Although these regulations are welcome, they can only prevent a tiny number of deaths.

In Support of Quality Holiday Travel

CO+ & Public Information Films

Introduction:

For 20 years, HolidayTravelWatch (HTW) has been providing assistance to holidaymakers with their travel complaints. Part of our role involves campaigning and lobbying for improved Safety & Consumer Rights in Westminster, Brussels, Strasbourg, USA & Australia. To date we have assisted with over 275,000 individual holiday complaints.

Concerns on CO+:

Since its formation, HTW has received many complaints from holidaymakers affected by their exposure to toxins on aircraft, ships and their holiday accommodation. Those concerns reveal a woeful shortcoming in the quality of holiday accommodation which has resulted in death, injury and accusations made against victims. Recent experiences reveal that holidaymakers are also being poisoned through their use of portable barbecues. We have also received reports from 'Whistleblowers' within travel companies which demonstrate a scant disregard for health & safety. We have made representations on a National & European Level and have been disappointed with the National response. In Europe we are contributing to the growing debate on safety in Holiday Accommodation, but believe that there must be a greater platform of Public Education on the dangers of CO+ through the use of Public Information Films.

The Cabinet Office & Public Information Films:

In an effort to garner political action on the use of Public Information Films (PIF's), to warn holidaymakers on the dangers of CO+, we noted the 2010 review of the use of Public Information Films and the decision of the Cabinet Office (CO) to restructure this area. On the 30 October 2012, HTW wrote to The Rt Hon Francis Maude MP at the CO where we set out the history of the use of PIF's and observed the decisions made by him and the CO for their future structure and use. Essentially we asked why were there no PIF's to warn of CO+, when they are used widely in other areas? We highlighted 14 further questions, seeking answers to how the new structure, created by the CO would operate? HTW received no reply and so had to chase matters on 24/1/13, 8/2/13 and numerous social networking posts to provoke a response. A response was received in mid 2013, but demonstrated that they failed to recognise the 'knowledge' of HTW and did not answer the questions posed. A meeting was held at the House of Commons on 15/10/13 where the large energy companies discussed PIF's with no apparent outcome. HTW wrote to the CO again on 16/10/13 seeking answers to our questions posed on 31/10/12. They responded on 20/11/13 where again they failed to answer the questions and simply referred HTW to the Dept for Communities. They have also failed to respond to a request for a Ministerial meeting with the victims, survivors and campaigning groups.

It is now over three years since we asked our questions in a letter to the Cabinet Office in 2012 (30.10.); we shall continue!

HolidayTravelWatch™ is a partner in the Foreign and Commonwealth Office 'Know Before You Go' Campaign
Website: www.holidaytravelwatch.net *HolidayTravelWatch™ is the trading name for Holiday TravelWatch Limited* *Holiday TravelWatch Limited is registered in England. No 03928886 - Registered Office: 100 Talbot Road, Stretford, Manchester, M16 0PG VAT Regn No 835099212*



APPCOG – Carbon Monoxide – FROM AWARENESS TO ACTION

January 2015

http://www.policyconnect.org.uk/appcog/sites/site_appcog/files/report/425/fieldreportdownload/appcogreport-cofromawarenesstoaction.pdf

<http://www.policyconnect.org.uk/appcog/research/inquiry-behavioural-insights>

CO-Gas Safety is grateful to be supplied with the recommendations in a word document so that we can comment on each recommendation.

Recommendations in black. CO-Gas Safety comments in blue.

Recommendation 1

The Department for Communities and Local Government should second a full-time staff member to coordinate activity within the department for carbon monoxide, and to provide the Cross Government Group on Gas Safety and CO Awareness with a dedicated person to lead and promote coordination of activity and resources.

An excellent recommendation which CO-Gas Safety fully supports. It would be helpful if this person's name and contact details were published and generally available to all.

Recommendation 2

The Cross Government Group on Gas Safety and CO Awareness should develop and adequately resource a coordinated data strategy for carbon monoxide incidents, impacts and responses, to be led by Public Health England and coordinated with current industry, academic and other efforts.

CO-Gas Safety also supports this recommendation especially 'adequately resource'. However, how is this proposed to be accomplished?

Data from victim groups should also be included and hopefully funded where this is needed to continue this valuable work. Victims are a valuable research resource which has been overlooked or ignored. Victims and their families almost invariably want to help prevent future tragedies and know more about the details of each incident than almost anyone else. In our experience of talking to victims and families, they spend a good deal of time thinking about how the tragedy could or should have been prevented. Talking to people about this can also help victims and families come to terms with their loss. Obviously their views need to be checked but that is not hard to do because there are usually others to ask who can inform if there are any discrepancies. Also if a body such as CO-Gas Safety hears the same problems again and again from different victims and families over a long period of time, this repetition provides its own proof. Of course there does have to be a considerable amount of work done by someone to gather such evidence. At the moment this is certainly done by CO-Gas Safety in order to inform its opinions of needed safety measures. The only difficulty CO-Gas Safety has encountered is disbelief by people unwilling to check CO-Gas Safety's information which it is very willing to have checked and to admit to mistakes and apologise.

Fire & Rescue Services, due to their status as trusted messengers, and with success in other areas of their work, should be enabled to take on a more prominent role by increasing their CO safety remit. Working closely with Gas Distribution Networks and other partners, Fire & Rescue Services can use local knowledge of an area to tailor CO safety campaigns, and target those different characteristics within each area.

Data collected by Fire & Rescue Services should also feed into a central hub, with consideration of technological advances and opportunities.

CO-Gas Safety supports this recommendation. The main problem is the failure to treat the place where the poisoning took place as a 'crime scene'. There needs to be an agreed protocol imposed and people to test appliances for CO.

It is far safer to test appliances and homes than to test survivors who may have been in the fresh air for long enough for the CO to have disappeared from their blood or breath. Indeed there are huge dangers of false negatives when testing survivors & people being sent home and told to keep warm.

In our experience, fire fighters sometimes do register CO in a variety of ways but do not usually find the source or identify how many parts per million of CO the householder was exposed to. Nor are they registered gas installers. Such information is crucial for treatment and proof.

There is a further problem because householders etc. are not poisoned by CO alone but by CO+ (other products of combustion) which are not tested for and no CO alarm or CO analysing equipment is designed to alert.

Recommendation 3

Data on carbon monoxide levels and incidents should be collected and shared, with a central hub approved through Ofgem supplier conditions, building on existing purely incident-based data. To enable this, alarm and data collection standards should preempt the large amounts of data soon to be recorded through 'smart' homes, and a framework for pooling this with input from academia should be created. Public Health England, with a remit to cover incidents involving all fuels, should be involved in the population-level data work.

We will comment on the first sentence above first.
This is easier said than done.

CO-Gas Safety has collected, collated and **published** its 19 data and injuries/near misses from unintentional CO every year, now 20 years on its website.

We have been lobbying the GDNs to do the same for several years but so far we have not received anything meaningful from them and we do not think they have agreed to exchange data between themselves, let alone provide this data to us, let alone publish. We hope progress will be achieved on this very soon.

With regard to data from smart homes we agree. However, at the moment it seems that smart meters will not be sensitive to CO. More worrying than this is that the meter changers will not be protected from CO when they visit a home and change the meter. We find this scandalous and have pointed this out endlessly at every opportunity to DECC but been ignored.

First Call Operators for the GDNs acting as the gas emergency service all have some protection now (PAMs or Gasco seekers for CO) yet they are not usually exposed to CO because the consumer is told to turn off appliances and open the windows when the consumer rings to ask for the emergency service. This does NOT apply to meter changers as far as we are aware. We sincerely hope that no meter exchanger dies of CO as a result of not being properly equipped for his or her personal safety.

Recommendations 4 & 5

- The Fire and Rescue Services Act 2004 should be amended to include a statutory requirement for Fire & Rescue Services to include carbon monoxide safety in their work.
- Fire & Rescue Services should nationally coordinate their data gathering and carbon monoxide prevention activities through the Chief Fire Officers Association, building on current incident-information gathering, and making it available to researchers, public health professionals and other data portals (see Recommendation 3). Currently, various bodies, charities and groups each use slightly different branding for CO campaigning. The provision of a single icon, with a set of key messages, building on the example of 'Fire Kills', will allow ease of use and recognition by the public.

We agree with this recommendation and support it but again this has been suggested endlessly over the years and the mere provision or use of a single icon is not enough, as COCAA amply demonstrated. There needs to be **adequate funding** for this to be successful and funding is always lacking.

Why didn't this recommendation call for a voluntary levy on the fuel industry to accomplish this and if that failed, a Government levy to be imposed as was recommended by the Health & Safety Commission (now Executive) in 2000?

Recommendation 6

A single, coordinated carbon monoxide campaign brand, messaging, and set of materials should be developed and made freely available for use through a national, central portal. This could be related to a government department or a relevant emergency service such as Fire & Rescue, and should be coordinated with industry and charity campaigning efforts through the Carbon Monoxide All Fuels Action Forum.

We repeat our comment immediately above in blue.

With regard to the All Fuels Action Forum in our opinion this needs proper funding to achieve anything because without funding, the Forum is unable to take action and is merely a talking shop. Some action that did not need funding may have taken place but obviously there is a huge need for much more to be done, e.g. prime time TV warnings.

In our opinion, the Forum also needs to be less industry dominated and keener to take real action which is what victims and victim groups want.

Domestic Appliances and Environments

The range of appliances used in the domestic environment each pose unique CO risks due to the different interactions people have with them. Natural gas boilers, despite being the best-known source of CO risk, have been responsible for decreasing numbers of incidents in recent years. Other sources, including gas cookers and wood burning stoves, pose new risks which may not be as well recognised, and require extra consideration by relevant bodies.

CO-Gas Safety agrees with this recommendation and supports it completely as our data collected so far, (however many deaths are missed), shows that, per user, gas seems safer than other fuels.

The context of 'home' is very important when considering behaviour – targeting safety measures is difficult due to the unpredictable nature of people's behaviour in their home environment. Reflective of this insight, some social housing providers have

decided to minimise CO risk by replacing gas appliances with electric.

In CO-Gas Safety's opinion it was often the gas cooker belonging to the tenants privately that caused the CO emissions so replacing with electric (as suggested by us at that meeting at the House of Commons about Hackney Homes but ignored and not put in the minutes), is a sensible way forward.

Additionally, energy behaviours are highly habitual and difficult to change. An effective method of creating and reinforcing a repeated behaviour, such as annual servicing, is by linking it to other behaviours. Associating these with a consistent servicing date, or a reminder service, could help ensure servicing is done at the correct time. Consistent servicing dates would be of particular use for the social housing sector, where access to the boiler that requires servicing is a particular challenge.

The regular servicing of properly installed appliances by a competent person will act as the best method in preventing CO production at source. All campaigning and advice given to reduce CO poisoning incidents should promote a 'belt and braces' approach of proper appliance use and servicing, along with the installation and use of BS EN 50291 Standard-compliant CO alarms as a vital back-up.

CO-Gas Safety agrees completely but following on from the comment about the tenants' own gas cookers, it would be sensible for landlords to insert a clause into the tenancy agreement that no privately owned carbon fuelled appliances are to be used inside the rented property or outside, under cover or within, say 10 feet of the property.

A study by Hackney Homes/ Public Health England revealed that even within a fully serviced housing stock, CO risk remained in a relatively large number of properties. A lack of similar studies has led to difficulties in national-level comparison; however the large number of alarm activations makes it clear that the provision of Standard compliant CO alarms is an important intervention for the housing provider to make.

CO-Gas Safety agrees. This information requires detailed research to find out exactly why CO risk remains. We think a large number are due to the fact that tenants bring in privately owned carbon fuelled appliances but there are other possible factors such as the failure of flues, lack of sweeping, negligence of registered installers, lack of ventilation and possibly wrong regulations to consider.

Recommendation 7

Building Regulations should be amended to require social housing providers to fit and maintain Standard-compliant carbon monoxide alarms wherever a fuel burning appliance is installed, and providers should commit to replace fuel-burning appliances with lower-risk versions in certain vulnerable situations.

CO-Gas Safety agrees and fully supports this but why not require landlords of all rented property to fit CO alarms to EN 50291? Why wasn't there a call to amend the law to amalgamate the landlord's continuing duty to keep the gas appliances in a safe condition with the landlord's duty to undertake a gas safety check? This would provide clarification and improve safety.

Recommendation 8

The Gas Safety (Installation and Use) Regulations 1998 should be amended to introduce MOT-style (13-month validity) appliance servicing rules, allowing the same service date to be used annually.

Multiple mechanisms now exist for the energy sector to better serve vulnerable

customers. Targeting fuel-poor households with CO safety measures, such as gas safety checks and CO alarms, will protect those energy customers most at risk of fuel poverty, and potentially CO poisoning. The increasing air-tightness of homes, while welcomed in the context of energy efficiency, may inadvertently cause increased risk from CO.

CO-Gas Safety agrees but in our opinion, prime time TV warnings about CO and the need for proper regular servicing etc. has not been tried first. Our inclination is to see if this would produce results before pursuing a more draconian approach. Furthermore, there is a risk of lack of enforcement. Also CO does not only kill or affect the poor – the rich are vulnerable too.

Perhaps if there was greater awareness medics might also consider CO, which at the moment they generally do not. See <http://www.mirror.co.uk/news/real-life-stories/thought-early-dementia-three-years-5930721>

Recommendation 9

Ofgem's Consumer Vulnerability Strategy should include within energy supplier Priority Services Register requirements, the provision and installation of Standard compliant carbon monoxide alarms for vulnerable customers.

CO-Gas Safety supports this but also considers that the energy suppliers could do a great deal more generally and not just for the 'vulnerable' – all are vulnerable to CO. The problem for Ofgem is that HSE does not make it clear that CO is a safety issue of great public concern. If only HSE would take this step, then Ofgem would be able to act with regard to the gas suppliers. In our opinion HSE needs to be approached by all concerned. We have tried many, many times and been ignored. We implore APPCOG to do this and also to appeal to the fuel industry and particularly the wealthy gas suppliers and manufacturers.

Recommendation 10

The UK Government should introduce a boiler replacement scheme with a view to Green Deal energy efficiency measures, tied in the first instance to the energy supplier Priority Services Register to target the most dangerous appliances in the most vulnerable situations.

CO-Gas Safety supports this recommendation. Our data shows that boilers are the most serious offender with regard to deaths from unintentional CO (24%) with room heaters next at 17%.

Recommendation 11

The Department of Energy and Climate Change should ensure that results and recommendations emerging from research into the risks associated with increased air-tightness of homes are appropriately incorporated into Green Deal assessments and guidance.

CO-Gas Safety supports this recommendation but more funding is needed for research. Why is there no call for funding?

Recommendation 12

An 'Innovation Standard' for carbon monoxide alarms should be created, allowing flexibility within existing rules without compromising safety, to encourage the design of novel carbon monoxide detection applications.

Alarm provision needs to be combined with education on the purpose and importance

of the equipment, and in some cases, installation. Free giveaways of alarms have led to some remaining unused, ignored or unfitted.

CO-Gas Safety agrees. Why was £3.2 million provided from public funds to publicise and buy smoke and CO alarms for landlords with regard to the Smoke and Carbon Monoxide Alarm (England) Regulations 2015* when some of that funding could surely have been spent on prime time TV warnings and perhaps research?

*<http://www.parliament.uk/business/publications/hansard/lords/todays-lords-debates/read/grandcommittee/934/#c934>

Recommendation 13

Providers of 'Home Care Plans' of annual heating system servicing and maintenance, should include carbon monoxide alarms as a 'default' option within each package.

CO-Gas Safety supports this. However, CO alarms although really helpful particularly with regard to saving lives are not in our opinion the whole answer. Education is also vital, for example Roland Wessling and Hazel Woodhams both knew all about CO and had done the right things at home and had a CO alarm. However, that didn't mean they knew they should not put a cold to the touch used barbecue inside the tent. As a result of this lack of knowledge Hazel sadly died and Roland nearly died and was injured. This is why leaflets (see ours which can be downloaded from <http://www.co-gassafety.co.uk/resources/leaflet-about-carbon-monoxide-poisoning/>) and more vitally, prime time TV warnings and other educational measures (e.g. our CO Awareness competition for primary school children) are so important to prevent people suffering from CO in the first place or suffering CO at low levels over a long period of time (which would not set off a CO alarm) or suffering from the other products of combustion, which a CO alarm is not designed for.

Recommendation 14

Carbon monoxide alarm manufacturers, in line with an updated alarm Standard, should simplify alarm installation instructions, and include cartoons and single-page checklists for easier interpretation of fitting.

Improvements in detection technologies also provide two other key areas of opportunity to promote CO safety; connected alarm and home appliance systems, and increasing data-recording which could contribute valuable information for CO safety related work (see Recommendation 3).

Medical and healthcare professionals have a vital role to play in the detection, diagnosis and treatment of CO poisoning incidents, as well as the prevention of further incidents.

At the same time, the difficulty of diagnosing CO poisoning is well recognised, as is the recognition that official mortality and morbidity statistics underestimate the number of people affected by CO poisoning.

CO-Gas Safety supports this and has already commented on medics etc. Medics are not trained in CO and CO is very difficult to diagnose.

Recommendation 15

Public Health England and the Department of Health should review the effectiveness of existing tools used by medical and healthcare professionals for approaching carbon monoxide issues with specific groups, such as algorithms for midwives, with a view to identifying and developing further examples.

CO-Gas Safety agrees and supports this.

The real problem however is not the algorithm but the lack of access to properly qualified gas safe registered installers who can test gas appliances for CO. It is obviously vital for safety to identify where the CO is coming from and ideally for treatment and proof it is important to prove how many parts per million of CO is being emitted or indeed none.

To find someone to test gas appliances for CO and provide Parts Per Million of CO to the consumer the consumer has to:-

1. Access the Gas Safe Register website <http://www.gassaferegister.co.uk/>
2. Click on advanced search. What consumer would know how to do this?
3. Put in post code.
4. Search for firms offering 'fumes investigation'. Why would a consumer know this?
5. Contact said firms and ask if they employ someone qualified under CMDDA1. If so, ask for their name and check under the GSR. Ask also how much it would cost to test appliances for CO and give PPM of CO in writing.
6. When that person turns up the consumer has to check to make sure it is the person with the qualification CMDDA1.

We have not yet found a consumer able to do this although the Gas Safe Register has told us they will help by telephone. The GSR has refused to change this. The HSE has also refused to deal with this.

There is an even worse situation with regard to testing appliances powered by other fuels as we do not think there is an equivalent to CMDDA1. Then there are the other toxins in the products of combustion (see <http://www.co-gassafety.co.uk/about-co/other-toxins/>)

Campsite and Boating Environments

The environments outside of the home in which CO poisoning incidents occur, such as campsite and boating environments, need to be addressed separately from the home context. Campaigning to improve CO awareness and safety in these environments can be a real challenge, especially as the consumer may be in such an environment only for a short time. They may also bring with them a 'holiday mind-set' that entails different attitudes to risk than when in the home environment.

Multiple high profile fatal incidents in recent years have highlighted the danger of disposable and other portable barbecues and camping stoves being used or kept inside tents. Clearer risk information, segregated cooking areas and the provision of alarms are all safeguards for campsite CO safety. Ensuring suitable alarms are readily available and clarifying the recommended action following alarm activations are all important actions, especially with increasing advisory messages to carry CO alarms on holiday. [CO-Gas Safety agrees with this recommendation. We are also concerned with the other products of combustion in barbecue lighting products and barbecue fuel.](#)

Recommendation 16

All campsites should provide isolated, clearly marked areas for barbecue use and disposal.

[CO-Gas Safety agrees with this recommendation](#)

Recommendation 17

All recreation parks should offer suitable carbon monoxide alarms to purchase, or loan for the duration of stay. These could include those developed through a new, 'Innovation Standard' to ensure optimal performance in these environments.

[CO-Gas Safety agrees with this recommendation](#)

Recommendation 18

Carbon monoxide alarms should display clear 'next steps' following an alarm activation, either on a fold-away area or on the external casing, including moving to a ventilated area and calling a relevant emergency service. These instructions should differ for 'outdoor environment' alarms designed through a new, 'Innovation Standard'. Large, temporary accommodation areas such as those at festivals contain many different locations of CO risk, including tents, caravans, catering vans and so on. A single warning symbol or icon (see Recommendation 6) would be a valuable trigger in people's minds to improve safety in these environments, to unify and simplify warnings around recognition of the symptoms of CO poisoning.

[CO-Gas Safety agrees with this recommendation. It would also be helpful to coordinate this symbol with prime time TV warnings.](#)

Recommendation 19

Public Health England should commission and support a study of low-level carbon monoxide exposure in leisure and recreation environments, similar to those undertaken in homes by Liverpool John Moores University.

[CO-Gas Safety agrees with this recommendation but points out that the other products of combustion should also be tested for.](#)

Recommendation 20

Festival organisers should ensure that staff receive carbon monoxide promotional material and information during training, to enable them to act as trusted 'safety ambassadors' internal to the festival population and create a multiplier effect of safety awareness. Ambulance and medical staff at each festival should be a part of this process.

Boats, used for either leisure or professional activity can provide a high-risk environment for CO poisoning. Engines and/or cooking and heating equipment often produce the gas in close proximity to confined habitable quarters. Boat users may not be responsible for the maintenance regime of fuel-burning appliances on board, and may be using the boat only temporarily or for leisure purposes. Detection therefore becomes increasingly important as a line of defence against CO poisoning.

[CO-Gas Safety agrees with this recommendation.](#)

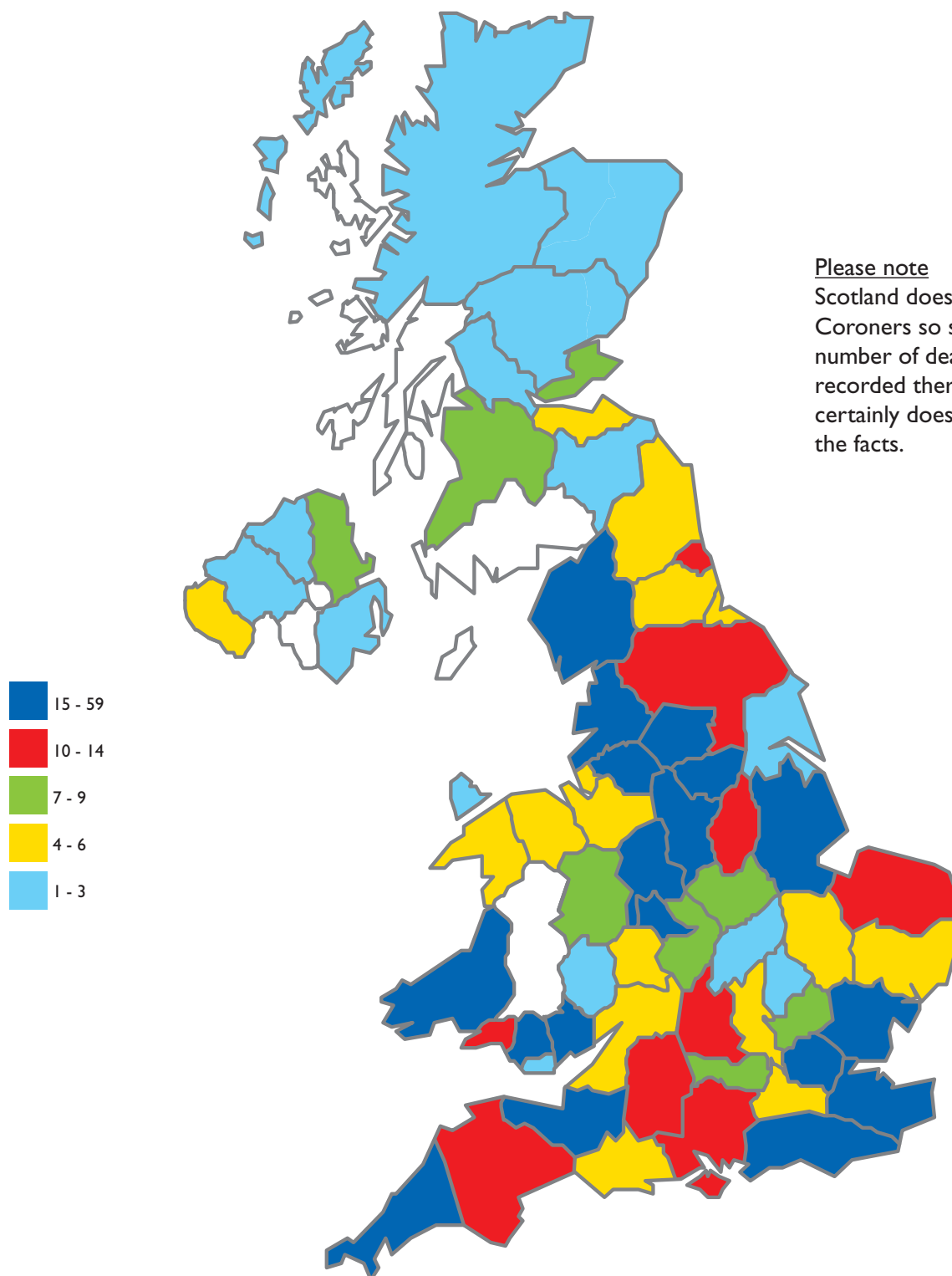
[Again wouldn't prime time TV warnings be ideal to assist with this?](#)

Recommendation 21

The Maritime and Coastguard Agency, in line with the 2014 'Eshcol' Marine Accident Investigation Branch Report, should include in the Code of Practice for the Safety of Small Fishing Vessels a requirement for a Standard-compliant carbon monoxide alarm to be fitted in the accommodation on all vessels. Similar requirements should be carried over to vessels used on inland waterways, including those for hire and other purposes, regardless of the fuel type used on board.

[CO-Gas Safety agrees with this recommendation.](#)

UK deaths from unintentional carbon monoxide poisoning from 01.09.95 to 31.08.2015



Please note
Scotland does not have Coroners so sadly the low number of deaths we have recorded there almost certainly does not reflect the facts.

CO-Gas Safety received information about deaths from media, families, Coroners and other organisations, such as the Solid Fuel Association and HSE.
CO-Gas Safety writes to every Coroner concerned to check each death and most are very helpful.

Deaths by County and Country within the UK

England	556
Wales	94
Scotland	28
N. Ireland	21
Total	699

England

London	63
South Yorkshire	35
Derbyshire	27
Kent	25
West Yorkshire	23
Sussex	20
Staffordshire	19
Cornwall	19
Cumbria	18
Lancashire	18
West Midlands	18
Essex	18
Lincolnshire	18
Greater Manchester	16
Somerset	15
Norfolk	14
North Yorkshire	14
Tyne & Wear	13
Nottinghamshire	12
Oxfordshire	12
Devon	11
Hampshire	11
Wiltshire	10
Hertfordshire	9
Shropshire	8
Merseyside	8
Leicestershire	8
Warwickshire	7
Berkshire	7
Dorset	6
Buckinghamshire	6
Cambridgeshire	5
Northumberland	5
Suffolk	5
Cheshire	5
Durham	5
Gloucestershire	5
Worcestershire	4
Cleveland	4
Surrey	4
Herefordshire	2
Northamptonshire	2
Humberside	1
Bedfordshire	1
Total	556

Wales

Dyfed	26
Mid-Glamorgan	21
Gwent	19
West Glamorgan	13
Gwynedd	6
Clwyd	5
South Glamorgan	3
Anglesey Isle of	1
Total	94

Scotland

Strathclyde	9
Fife	8
Lothian	4
Highland	2
Central	2
Grampian	1
Scottish Borders	1
Tayside	1
Total	28

Northern Ireland

Co. Antrim	7
Co. Fermanagh	6
Co. Tyrone	3
Co. Down	3
Londonderry	2
Total	21

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

UK deaths caused by accidental Carbon Monoxide (CO) poisoning

(Between 1 Sept 1995 - 31 Aug 2015): **Total: 699**

TENURE	
Total Number of CO accidental deaths by Tenure: (1 Sept 95 – 31 Aug 2015):	
Owner/Occupier	388
Private Rental	65
Council	64
Housing Association	18
Other (e.g. hotel)	30
Unknown	134

SITUATION					
Total Number of CO accidental deaths by Situation (1 Sept 1995 – 31 Aug 2015):					
House	332	Campervan	1	Public House	4
Flat	96	Boat	28	Care Home	2
Bungalow	45	Shed/Cabin	13	Shop	1
Caravan	30	Hotel	6	Public Hall	2
Vehicle – car/lorry	28	Workshop	5	Other	9
Garage	25	Tent	12	Unknown	40
Work Place	11	Commercial Premises	9		

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	99/20	20/01	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	Total
Gas Mains	33	23	19	24	14	16	7	12	8	14	12	9	11	17	4	12	0	4	2	2	243
Gas Portable	8	8	5	5	10	5	7	7	7	4	7	4	3	6	5	3	1	2	3	0	100
Solid	26	18	26	14	17	14	5	8	5	5	8	14	10	6	9	6	11	5	8	3	218
Petrol	6	7	3	7	3	3	8	1	2	3	2	9	5	4	6	5	2	4	3	0	83
Oil	0	2	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	1	0	0	6
Paraffin	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3
Unknown	1	1	0	0	1	0	4	2	1	2	4	2	1	5	0	2	3	7	2	8	46
Total	74	59	53	51	46	38	31	30	23	28	33	39	31	39	25	28	17	23	18	13	699

Near-Misses from Accidental Carbon Monoxide Poisoning in UK

(1 Sept 1995 - 31 Aug 2015): **Total: 5075**

More than 2188 requiring hospital treatment and of those over 379 had lost consciousness

95/96	96/97	97/98	98/99	99/20	20/01	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	Total
452	444	316	378	327	300	103	153	171	214	155	327	202	264	204	175	205	294	261	130	5075

Deaths from Gas Explosion in UK (1 Sept 1995 - 31 Aug 2015): **Total: 108**

95/96	96/97	97/98	98/99	99/20	20/01	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	Total
11	5	6	6	13	6	6	5	15	4	4	4	5	4	4	5	2	2	2	108

*Information is collected from the International Press Cuttings Bureau on a daily basis and from other sources.

Coroners are contacted about all deaths. The tabulated data presented here is based on the December 2015 update.

For further details please visit www.co-gassafety.co.uk

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CO-Gas Safety data on deaths from unintentional CO poisoning put into HSE years (1 April to 31 March)

Year	95/96	96/97	97/98	98/99	99/20	20/01	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	Total
Solid fuel	25	17	22	18	15	19	5	8	3	7	8	12	10	8	7	7	7	8	9	5	220
Gas Mains	28	24	18	23	16	17	6	13	9	13	10	9	12	15	8	12	0	4	0	4	241
Gas Portable	8	6	6	5	10	6	6	7	9	2	8	3	5	5	4	4	2	2	2	1	101
Petrol/diesel	4	7	5	6	4	3	6	4	2	2	2	8	7	2	8	4	3	1	6	0	84
Oil	0	2	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	1	0	0	6
Paraffin	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3
Unknown	0	1	0	0	0	0	2	4	0	3	3	3	1	5	0	2	3	6	3	7	43
Total	65	57	51	52	47	45	25	36	23	27	31	35	37	36	28	29	15	22	20	17	698

Please note that HSE collect statistics for domestic/commercial gas fatalities due to both LPG and Natural Gas. Workplace CO deaths recorded could (theoretically) arise from incomplete combustion of any type of fuel. In contrast, CO-Gas Safety collects statistics with regard to unintentional CO related deaths and injuries from all fuels.

CO-Gas Safety data on deaths from unintentional CO poisoning put into Gas Safety Trust years (1 July to 30 June)

Year	95/96	96/97	97/98	98/99	99/20	20/01	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	Total
Solid fuel	26	17	26	15	17	15	6	8	5	5	7	12	10	9	8	6	12	3	9	4	220
Gas Mains	31	22	21	24	13	16	7	12	8	14	12	7	13	17	4	12	0	4	2	2	241
Gas Portable	8	8	5	5	10	5	8	7	7	2	8	4	4	5	4	4	2	2	3	0	101
Petrol/diesel	6	7	4	7	3	3	8	1	2	2	3	7	7	4	6	4	3	4	3	0	84
Oil	0	2	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	1	0	0	6
Paraffin	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3
Unknown	0	1	0	0	0	0	3	3	0	3	4	2	1	5	0	2	3	6	3	8	44
Total	71	57	56	52	44	39	32	31	22	26	34	32	37	41	23	28	20	20	20	14	699

Please note. CO-Gas Safety started collecting its data on the 1st September 1995 so for 95-96, the data put into HSE year (April to March) and Gas Safety Trust year (June to July) is only partial for the time period.

Table RIDGAS1

Incidents reported in Great Britain relating to the supply and use of flammable gas (a)
2010/11 - 2014/15p

Type of incident (b)		Year				
		2010/11	2011/12	2012/13	2013/14r	2014/15p
Total number of incidents		278	173	224	211	161
	Carbon monoxide poisoning	229	142	193	188	138
	Other exposure e.g. to unburnt gas	13	7	6	3	3
	Explosion/fire	36	24	25	20	20
Total number of fatalities		17	4	10	6	6
	Carbon monoxide poisoning	13	3	9	3	6
	Other exposure e.g. to unburnt gas	1	-	-	-	-
	Explosion/fire	3	1	1	3	-
Total number of non-fatalities		428	266	353	356	240
	Carbon monoxide poisoning	368	226	313	329	214
	Other exposure e.g. to unburnt gas	12	8	6	5	3
	Explosion/fire	48	32	34	22	23

Notes:

Source: RIDDOR – Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (as amended)

r = Revised

p = Provisional

- (a) Mainly piped gas but also includes bottled LPG
- (b) An incident can cause more than one fatality or injury

Regulation 11(1) of RIDDOR 2013 places a duty on certain conveyors of gas (including LPG), to notify HSE of an incident involving a fatal or major injury that has occurred as a result of the distribution or supply of flammable gas. The statistics published above are 'as reported' to HSE. When such reports are made, it is at the early stages of the incident, thus the detailed circumstances of the incident will not have been known.

Key changes to the reporting system and the legal requirements for RIDDOR have occurred in recent years. More information on data changes affecting RIDDOR statistics is available at:

<http://www.hse.gov.uk/statistics/riddor-notification.htm>

General information on domestic gas safety is available at:

<http://www.hse.gov.uk/gas/domestic/index.htm>

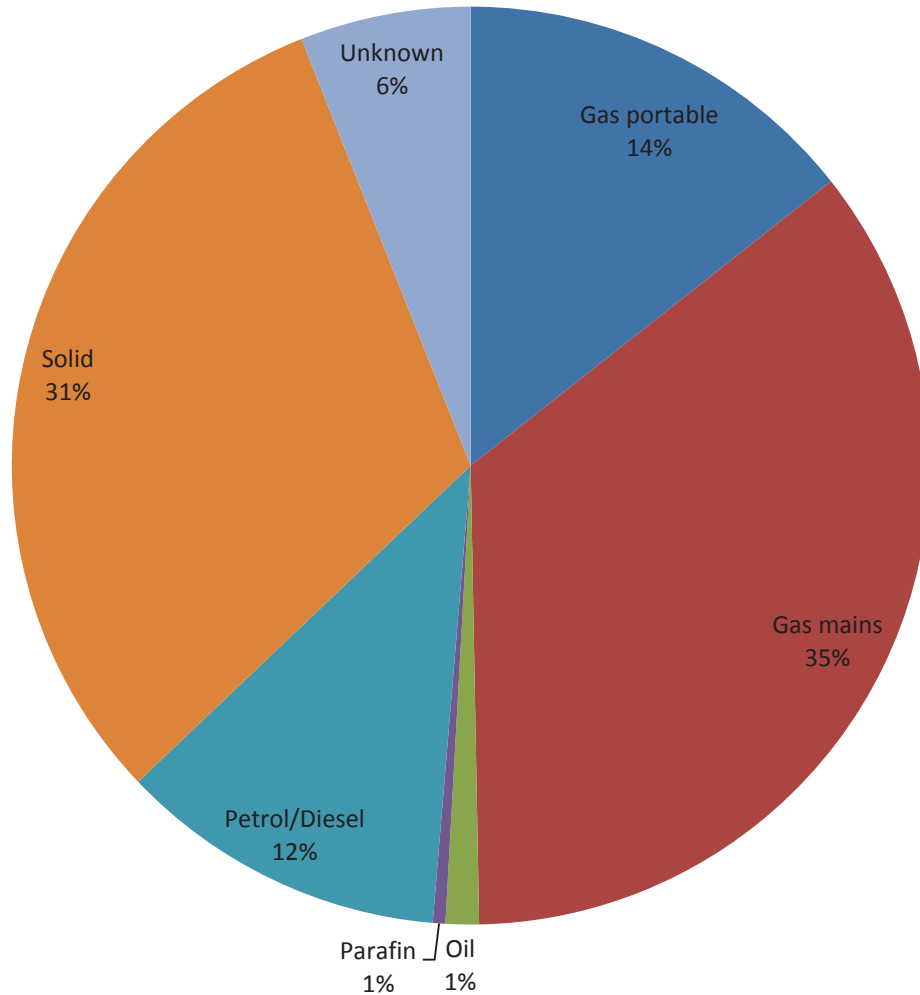
Statistics on HSE prosecutions by legislation (including gas safety) are available at:

<http://www.hse.gov.uk/statistics/tables/index.htm>

Comment by CO-Gas Safety: Please note that although RIDDOR imposes a duty to notify HSE, it seems that HSE is under no specific duty to investigate. HSE always investigates if there is a fatality but, in our experience, does not usually investigate a mere incident or injury, unless extremely serious.

FUEL type relating to UK Deaths from unintentional carbon monoxide poisoning from 01.09.1995 to 31.08.2015

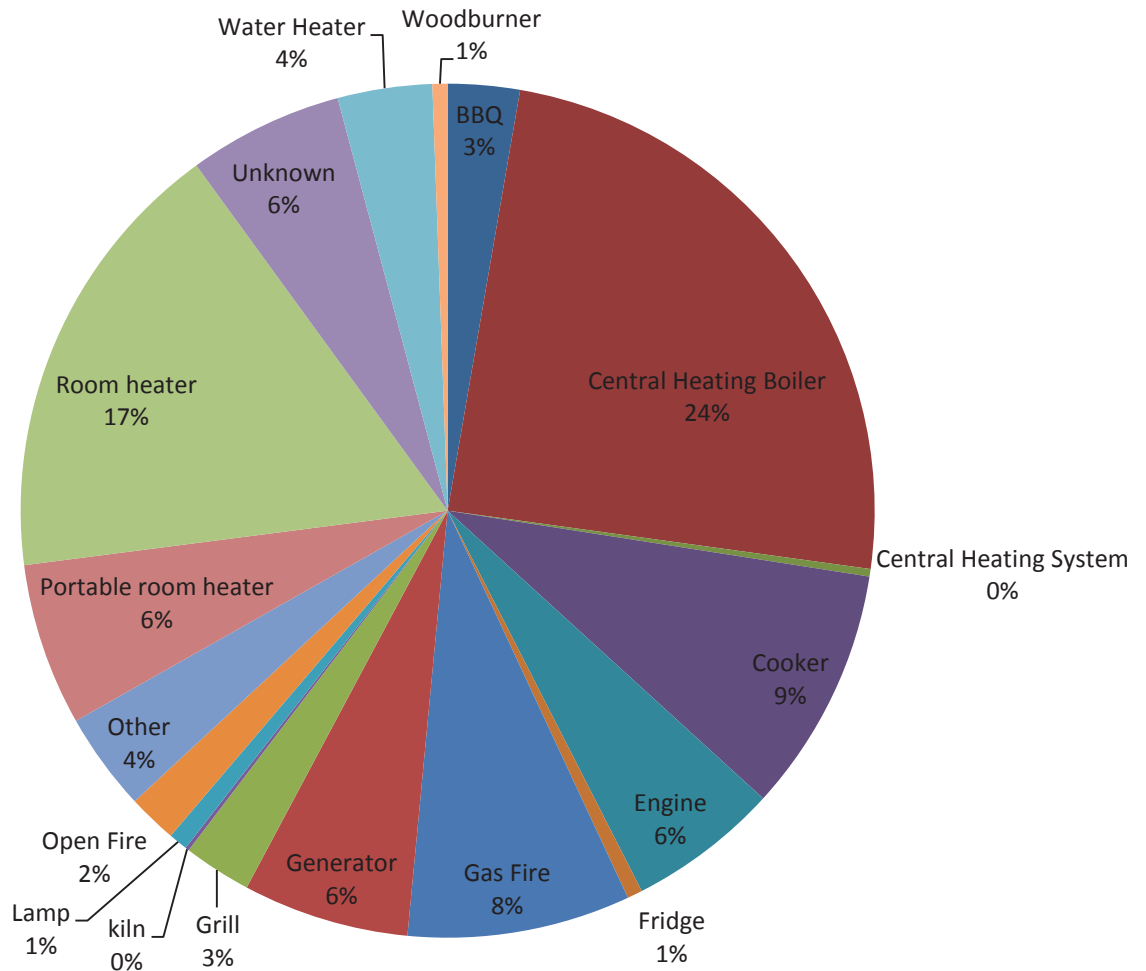
*This data is being added to regularly so chart may change.



CO-Gas Safety comment

Considering the relatively small number of solid fuel users, there is a high incidence of deaths from solid fuel.

APPLIANCE type relating to UK Deaths from unintentional carbon monoxide poisoning from 01.09.1995 to 31.08.2015

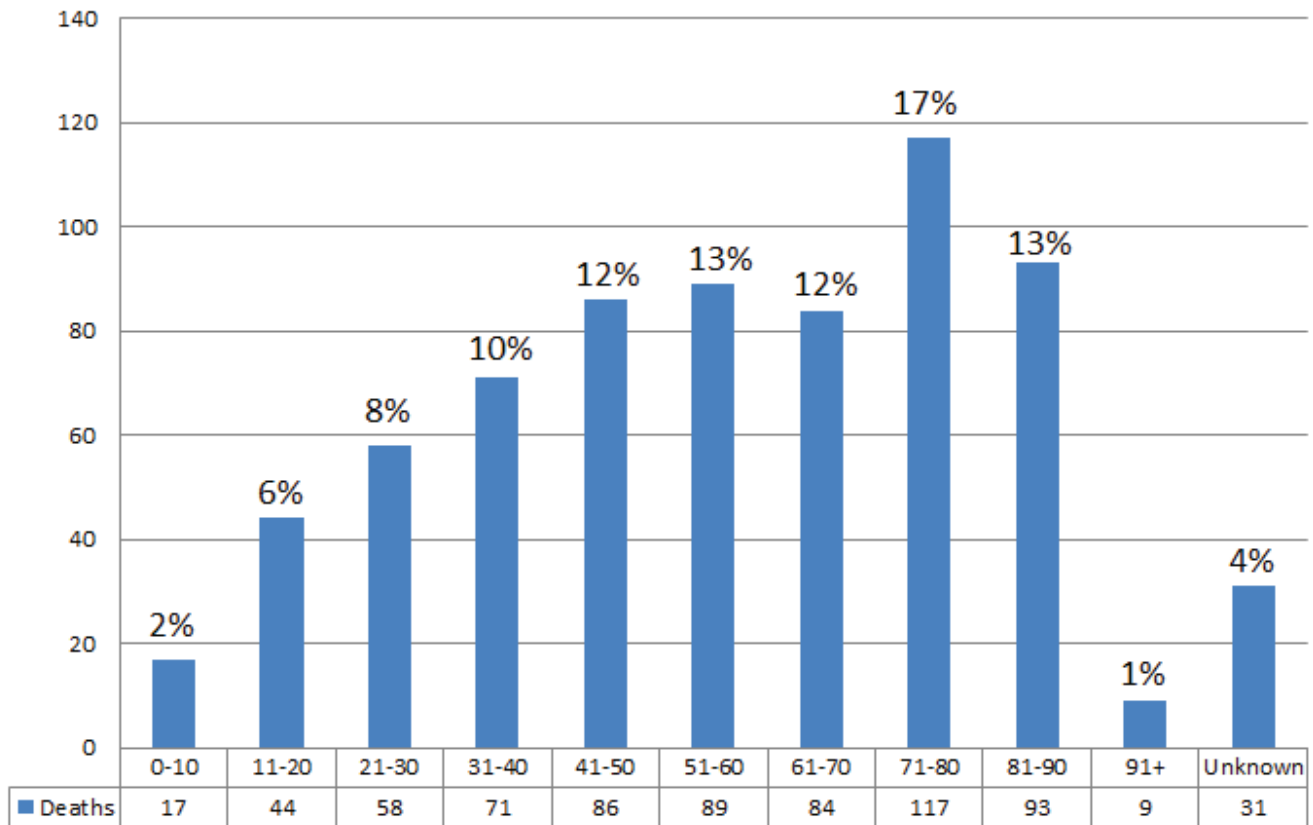


*This data is being added to regularly so chart may change.

Generator is a portable machine.

'Engine' is from a car, lorry, aeroplane or boat.

AGE of victims relating to UK Deaths from unintentional carbon monoxide poisoning from 01.09.1995 to 31.08.2015



*This data is being added to regularly so chart may change.

Age Range

Census 2011

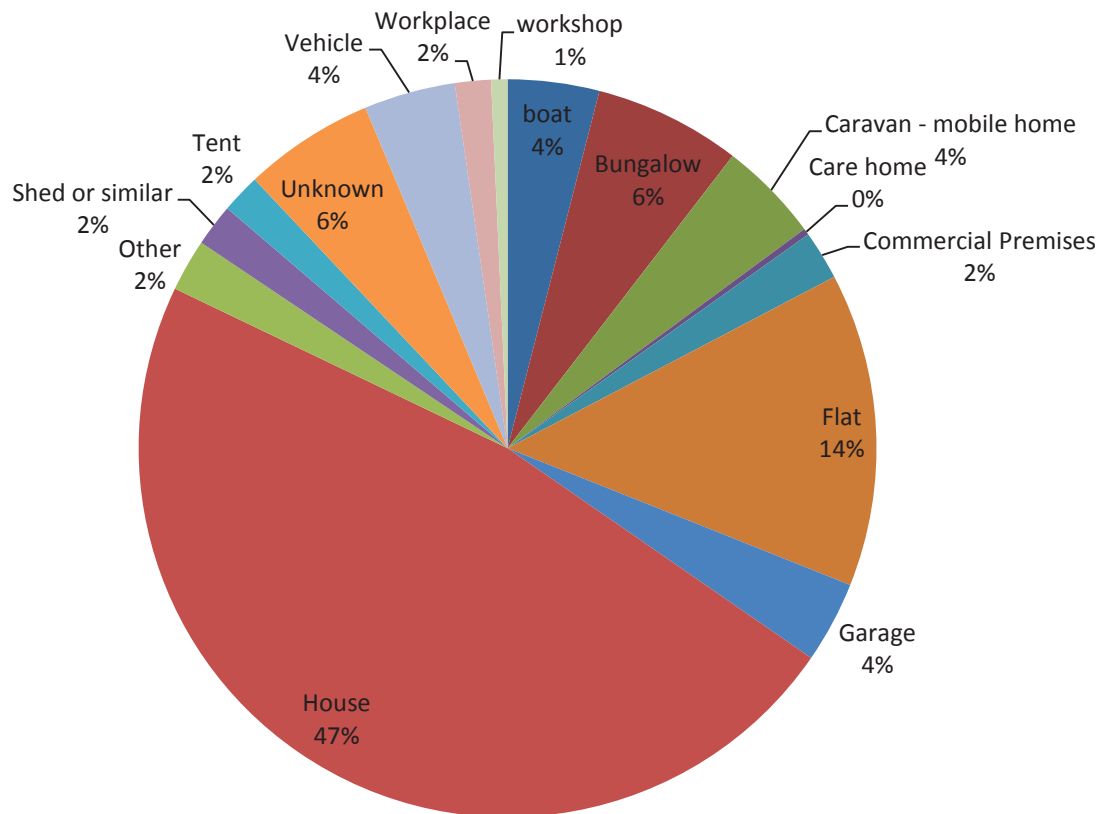
It is interesting to note that ages 71-80 make up just over 7% of the population* yet represent around 17% of the deaths. In our opinion, many deaths in this age group may be put down to 'heart attack' when they are in fact CO, because there is no automatic test of CO on death, meaning the number of deaths in this age group could be even higher.

(*Taken from ONS Table P01 2011 Census: Usual resident population by single year of age and sex, England and Wales).

The Gas Safety Trust is funding a pilot to develop a protocol to test all dead bodies for CO in three Coronial areas starting hopefully early 2016 and this will last 12 months

PLACE of incident that caused death relating to UK Deaths from unintentional carbon monoxide poisoning from 01.09.1995 to 31.08.2015

*This data is being added to regularly so chart may change.



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>

Sue Westwood-Ruttledge 'I thought I had early dementia but for three years I was poisoned by carbon monoxide' Daily Mirror, 22nd June 2015 Angela Cooke.

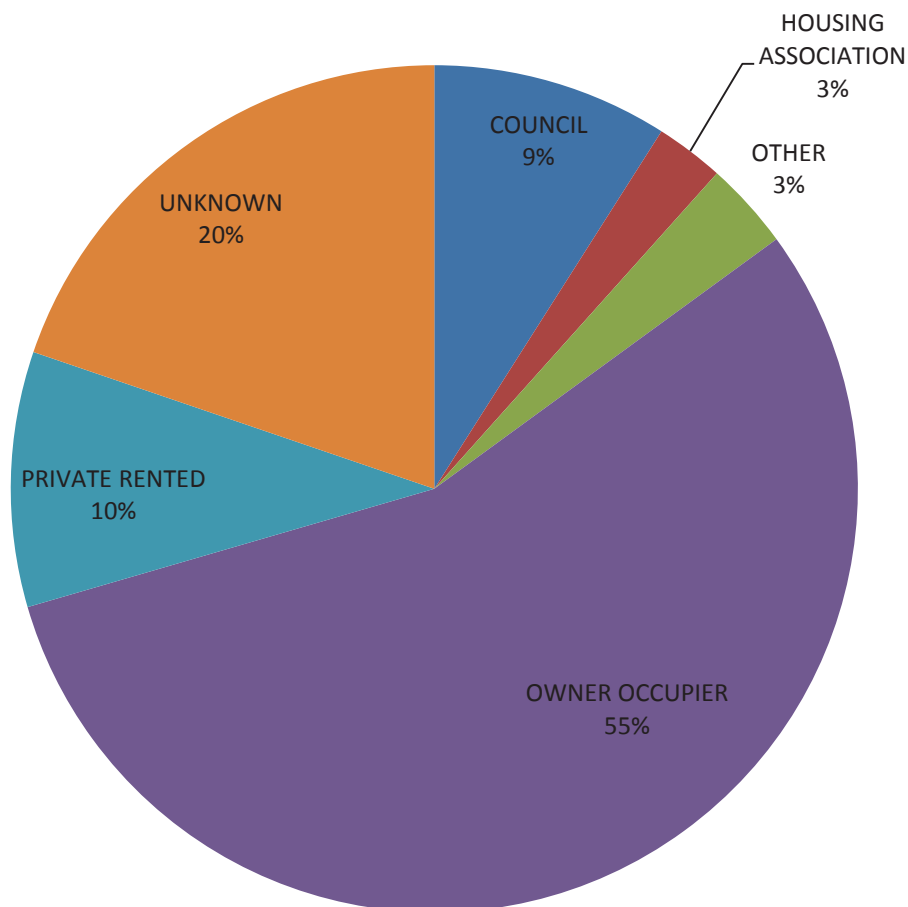
Why is so little being done to raise awareness of the dangers and to protect ordinary people who may be exposed for 24 hours a day?

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 (young, old, 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 31.08.2015.

* This data is being added to regularly so chart may change.



Tenure

According to the Communities & Local Government Dwelling Stock Estimates England 2014: There were an estimated 23.4 million dwellings in England as at 31 March 2014, an increase of 0.59% on the previous year.

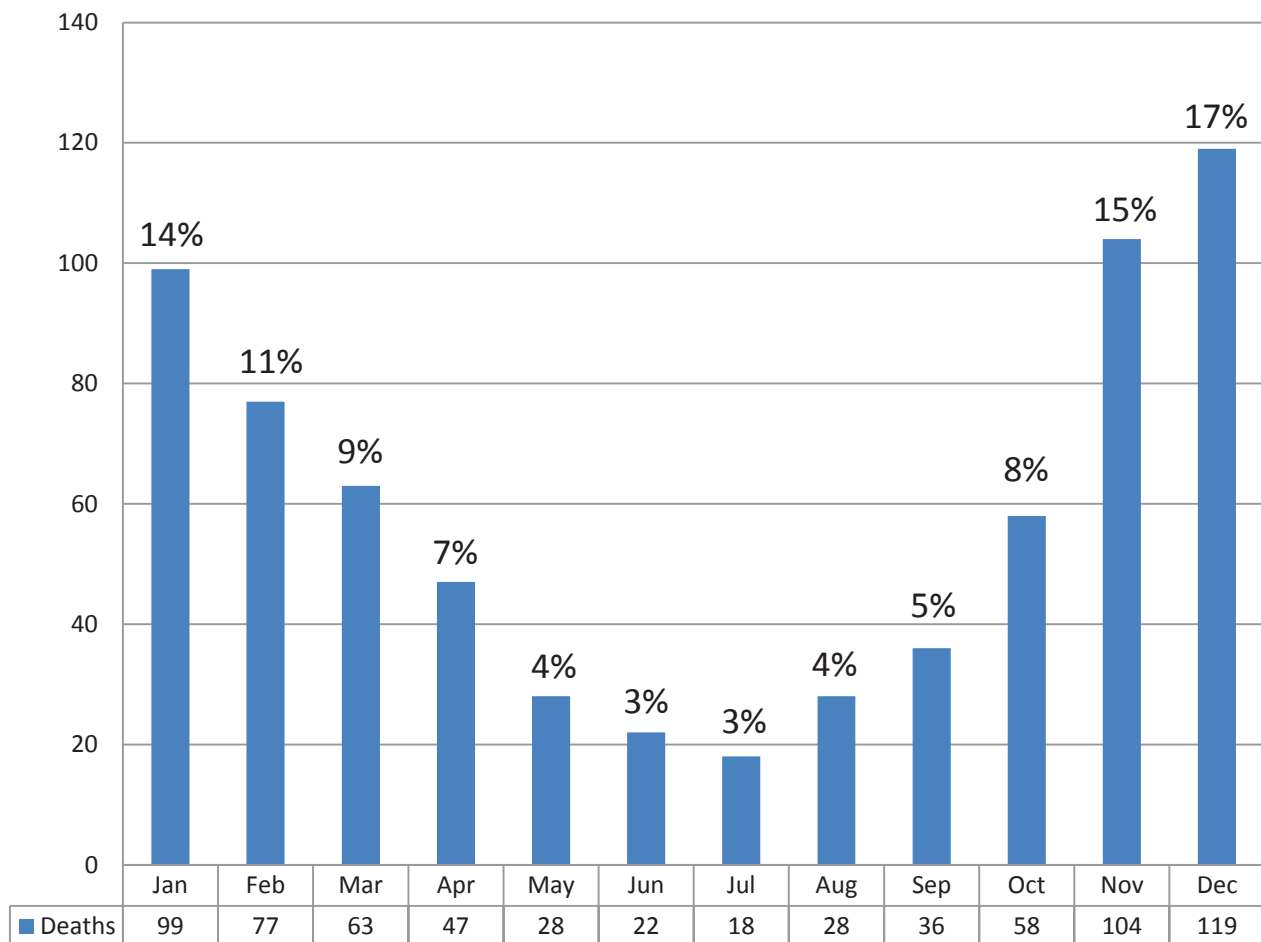
At March 2014 there were 14.7 million owner occupied dwellings, 4.6 million private rented dwellings and 4.0 million social and affordable rented dwellings (Private Registered Providers plus local authority tenures).

Comment by CO-Gas Safety

Therefore, the incidence of deaths in owner occupied property looks lower than expected, although there is quite a high incidence of unknown tenure (20%). The incidence of deaths in council owned property looks relatively high (9% deaths) while the incidence of deaths in housing associations (3%) 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.

MONTH of death relating to UK Deaths from unintentional carbon monoxide poisoning from 01.09.1995 to 31.08.2015

*This data is being added to regularly so chart may change.



Comment by CO-Gas Safety

It is unsurprising that the colder months of November, December and January contain the highest number of deaths.

One example page of CO-Gas Safety's 19 pages from 01.09.95 to 31.08.15 of the named people who have died from unintentional carbon monoxide poisoning

For entire list see <http://www.co-gassafety.co.uk/information/deaths/>

Stone	Joan	47	30-Dec-00	House	Owner Occupier	Mains Gas	Central Heating Boiler
Stretton	Keith	47	12-May-02	Vehicle	Owner Occupier	Petrol/Diesel	Engine
Sutherland	Leslie	66	7-Mar-03	House	Housing Association	Solid	Room Heater
Swallow	David	29	24-Jun-10	Vehicle	Owner Occupier	Solid	BBQ
Swallow	Dorothy	71	26-Dec-13	House	Owner Occupier	Petrol/Diesel	Generator
Swallow	Ken	70	26-Dec-13	House	Owner Occupier	Petrol/Diesel	Generator
Swithenbank	Annie	85	1-Dec-95	House	Owner Occupier	Solid	Other
Sykes	George	75	20-Jan-97	House	Council	Solid	Room Heater
Sykes	Doris	88	17-Nov-06	House	Owner Occupier	Solid	Room Heater
Sykes	Thomas	90	17-Nov-06	House	Owner Occupier	Solid	Room Heater
Taggerty	Mark	19	9-Nov-98	Flat	Council	Mains Gas	Central Heating Boiler
Tallis	Frank	78	22-Sep-00	House	Owner Occupier	Solid	Central Heating Boiler
Taylor	Joseph	85	12-Oct-97	House	Council	Solid	Room Heater
Taylor	Ian	34	16-Sep-98	Garage	Owner Occupier	Petrol/Diesel	Engine
Taylor	Martin	21	28-Jan-04	House	Private Rented	Mains Gas	Central Heating Boiler
Teasdale	Georgina	74	31-Jan-96	Care Home	Housing Association	Mains Gas	Central Heating Boiler
Thacker	Robert John	50	18-Jun-13	Garage	Unknown	Petrol/Diesel	Engine
Thomas	Margaret	70	2-Dec-96	House	Council	Solid	Cooker
Thomas	Jehoiada	78	24-Dec-99	House	Council	Solid	Room Heater
Thomas	Raymond	27	18-Dec-03	Flat	Unknown	LPG or bottled gas	Portable Room Heater
Thomas	McCauley Levi	5	25-Oct-05	House	Owner Occupier	Solid	Central Heating Boiler
Thomas	Howard	62	4-Apr-08	House	Owner Occupier	Mains Gas	Gas Fire
Thomas	Grace	82	24-Nov-14	House	co-owner	Mains Gas	Central Heating Boiler
Thomas	Leslie	84	24-Nov-14	House	co-owner	Mains Gas	Central Heating Boiler
Thomas-Jones	Hannah	14	6-May-12	Camp site	Temporary	Solid	BBQ
Thornton	Lauren	10	1-May-13	Boat	Owner Occupier	Petrol/Diesel	Generator
Thurlow	Michael	23	17-Mar-96	House	Unknown	LPG or bottled gas	Portable Room Heater
Tinsley	R.	60	26-Feb-98	House	Owner Occupier	Solid	Central Heating Boiler
Todd	Keith	37	24-Feb-15	Unknown	Unknown	Unknown	Unknown
Tooth	Elaine Margaret	42	2-Feb-97	House	Owner Occupier	Mains Gas	Gas Fire
Topper	Karen Louise	15	8-Oct-97	Lorry	Owner Occupier	Petrol/Diesel	Generator
Towey	Martin	83	1-Apr-05	House	Council	Solid	Room Heater
Town	Harold	84	19-Nov-96	House	Owner Occupier	Mains Gas	Central Heating Boiler
Town	Edith	82	19-Nov-96	House	Owner Occupier	Mains Gas	Central Heating Boiler
Tremlett	Betty	84	12-Jan-09	House	Owner Occupier	Solid	Open Fire
Tringham	Cheryl	42	12-Dec-08	Unknown	Unknown	Mains Gas	Gas Fire
Tudor	Michael	45	28-Mar-07	Boat	Unknown	Petrol/Diesel	Engine
Tummon	Johnny	73	19-Nov-08	House	Owner Occupier	Oil	Cooker
Twiner	Laura	2	30-Nov-98	Flat	Private Rented	Mains Gas	Central Heating Boiler
Underdown	Glyn	50	7-Nov-98	Flat	Owner Occupier	Mains Gas	Water Heater

CO-Gas Safety reminds readers that our data is:-

1. To be collected directly from the media and other sources with regard to all fuels.
2. Checked with the Coroner concerned, although of course we can't insist that the Coroner helps us, but most do. We have been doing this since 1995 and have built up a good relationship with the Coroners and their officers and even attended the Coroners' conference in Autumn 2014 and addressed them about our work as well as thanked them for all the help they have given us over the years.



Photo of the CO-Gas Safety table at the Coroners' Conference 2014 and from left to right Ian Arrow, Senior Coroner for South Devon and Martin Fleming, Senior Coroner for West Yorkshire

3. Is widely published with the names of the dead in England and Wales published on our website so anyone can check its validity re the deaths. We obviously can't publish the near misses in the same way due to confidentiality. The deaths from CO all have a public inquest in England and Wales, so they are already in the public domain.
4. Is collected, collated and published by a victim based charity, which really cares about its accuracy.
5. Has been favourably reviewed and favourably compared to the data of the Gas Safety Trust by the independent 'Straight Statistics' headed by Nigel Hawkes, CBE, an eminent Science writer. This organisation no longer exists or has a website but a copy of this article by Nigel Hawkes can be read at <http://www.co-gassafety.co.uk/data/> at the bottom.
6. Is not supporting a profit for an organisation to do this.
7. And thanks to the Gas Safe Charity, is now the only data to have been validated by an independent statistician, Dr Craggs. In summer 2014 Dr Craggs undertook a further validation. Dr Craggs will undertake further work in 2016.

However, at the time of writing (January 2016) although we are grateful for a substantial donation received as a result of the Corfu tragedy, we have no assured funding to continue this valuable work as both the Gas Safe Charity and the Gas Safety Trust have both refused our applications for funding to continue our data collecting, collating and publication.

Also we consider CO-Gas Safety's data is unique because in offering victim support we often find out details that would otherwise not come to light for example the fact that Matthew Nixon, aged 22, who died of CO from using a petrol generator indoors to power his tools in 2010 was a registered gas installer and in the gas industry from the age of 16. As a result, CO-Gas Safety with Roland Johns, ex British Gas investigator and trainer has devised a course about CO which has now been taught to Scotia Gas apprentices and Northern Gas Networks see <http://www.co-gassafety.co.uk/information/trainers-of-gas-installers/>

Validation of CO-Gas Safety's data

The Near Misses are less reliable as the primary source is from newspaper reports and by the nature of Near Misses there are fewer opportunities to reliably follow-up these reports. Also due to confidentiality the charity cannot name people who have been injured but survive.

So it has been the charity's policy to concentrate on the deaths. Dr Craggs has reviewed CO-Gas Safety's data twice now. Once during 2011 and more recently in 2014 and Dr Craggs is booked in for further work in summer 2016. The 2011 Data Validation found the reliability of the paper filing system was excellent however Dr Craggs made a recommendation to move from paper to electronic filing to simplify the process. Despite lack of funding this has now been undertaken and the deaths are now on the database. It is recognised and accepted by all that the summary statistics produced by CO-Gas Safety are under-estimates of the actual numbers of victims and, for this reason, careful interpretation of CO-Gas Safety statistics is needed.

Note by Stephanie

We have always accepted that even the deaths we record are the tip of an iceberg. There is no automatic testing of dead bodies for CO on death, even when death is unexplained. There is no coronial system in Scotland which, in our opinion means a gross under reporting of CO deaths there.

Please note that CO-Gas Safety's data is the only data on CO that has been validated by a statistician.

DR CAROLYN CRAGGS

BSc PhD CStat FRSS

Experienced statistician - consultancy and training

Lean Six Sigma, Operational Excellence and Quality Compliance
Secretary of Quality Improvement Section, Royal Statistical Society
Experience in a large multi-national company
Successful trainer with ability to develop training strategies

Qualifications

1993- to date	Chartered Statistician
1980	PhD in Applied Statistics, University of Newcastle upon Tyne
1976	BSc(Hons) Statistics (First Class), University of Newcastle upon Tyne
1976 – to date	Fellow of Royal Statistical Society

Petition to the European Parliament to ask for changes to reduce deaths and injuries from unintentional poisoning from carbon monoxide (CO) and other products of combustion (CO+)

Carbon monoxide (CO) is a deadly gas which can be emitted by faulty cooking and heating appliances powered by any carbon based fuel that burns.

Less than 2% of CO can kill in between one and three minutes (see Para 74 table 23 page 26 http://www.hse.gov.uk/foi/internalops/hid_circs/technical_osd/spc_tech_osd_30/spctecosd30.pdf)

CO cannot be sensed using human senses.

Medics rarely diagnose CO poisoning and it is difficult to diagnose partly because CO mimics viruses and food poisoning and also because different members of the same family can suffer different symptoms.

1. Deaths in the UK are estimated as 50 deaths and 4,000 visits to A & E
<https://www.gov.uk/government/news/carbon-monoxide-poisoning-sends-4-000-people-to-a-e-each-year>

This estimate was later revised to 40 deaths <http://www.nhs.uk/Conditions/Carbon-monoxide-poisoning/Pages/Introduction.aspx>

The impact on the population is vast.

The cost is of great concern. Even by Department of Health estimates on England & Wales the cost to the taxpayer is £178 million a year, according to Baroness Finlay co-chair of the All Party Parliamentary Carbon Monoxide Group. CO is therefore a matter of public importance.

CO-Gas Safety has undertaken data collection, collation and publication since 1995 see <http://www.co-gassafety.co.uk/data/> and

CO-Gas Safety data:-

- A. Has been collected, collated and published since 1995.
- B. Collects CO incidents and deaths from ALL Fuels.
- C. Has some kind of report, authority (e.g. Solid Fuel Association) or Coroner's letter to support every entry on our database with regard to the acute deaths from CO.
- D. Tries to check every death with the Coroner concerned and most now help (although Scotland lacks a Coronial system).
- E. Publishes the names of the dead on the Internet as a memorial so anyone can check.
- F. Is the only data to have been validated twice by an independent statistician, Dr Craggs (most recently in summer 2014).
- G. Has had over 19 years of input from a victim based organisation that simply seeks the truth. (Note now 20 years).
- H. Has a form on our website for the Coroner to fill up after the inquest and which we encourage them to look at before the inquest in order to think about what evidence to call at the inquest (e.g. was there a CO alarm and was it to EN 50291, was it in date and did it work?).

No other UK body does all this.

However, in the opinion of CO-Gas Safety with its 20 years (now 21) of experience, there are many more CO related deaths, injuries and chronic ill health that are not even suspected to be connected to CO. Please note that there are 3,500 unexplained deaths in the UK every year between the ages of 16 and 64, (New Scientist December 2004), and even these are not automatically tested for CO.

2. The UK requires compulsory registration and 5 yearly competency testing of gas appliance installers and maintenance technicians performing work for consumers.

UK Gas Distribution Companies are also obliged to provide a guaranteed 1 hour "Emergency Service Response" to consumer reports of fumes or gas leaks (not CO) but this is not the case in all EU countries.

3. There is a further risk from other products of combustion which we call CO+ (see <http://www.co-gassafety.co.uk/about-co/other-toxins/>)

It is worth noting that while smoking is considered a risk with regard to many diseases (e.g. lung cancer), indoor air pollution from the products of combustion is usually not even considered. Yet the impact from the other products of combustion, especially with regard to indoor air where pollutants are likely to be much more concentrated, is likely to be huge.

4. From talking to victims and their families we quickly came to the conclusion that raising awareness of the dangers of CO and how to avoid being poisoned are the most important issues.

5. From our work with victims and families we also came to the conclusion that a free or reasonably priced test of the emissions from appliances and also indoor air for CO (and ideally CO+) are also very important.

6. At least six people died from carbon monoxide being emitted from a Beko cooker that had a grill door that could be shut. There needs to be a Government backed recall system. Barry Mulcahy set up a website called Total Recall in 2010 but had to stop this in 2014 due to lack of support and funding.

7. From our work we now appreciate that by talking to victims and families, as well as studying individual tragedies and how the fuel industry works, we learn a huge amount of detail about what went wrong and how to prevent future unnecessary deaths and injuries. Deaths and injuries often result in family collapse, loss of work and the need to be cared for, which is not only tragic but is also a drain on the resources of the state.

We petition the EU to consider taking the following action:-

1. To persuade or require EU governments to put out a sustained programme of education and prime time TV public health warnings about the dangers of emission from all fuels, (gas to wood) all appliances (boilers to barbecues) and in all types of accommodation (from bungalows to boats).

Such warnings should also inform people how to prevent unintentional poisoning by CO+ by using qualified people to install and regularly maintain appliances according to manufacturers' instructions, to regularly sweep and check chimney and flues, to ensure adequate ventilation and as an extra safeguard, to install a CO alarm to EN 50291.

Funding for this is lacking but could be provided by the EU or by a levy on the wealthy fuel suppliers.

A levy on the gas suppliers to raise awareness and for research was recommended by the Health & Safety Commission (now Executive) in 2000 (after an exhaustive gas safety

review and with the support of the majority of the stakeholders) but never implemented, in our opinion due to lobbying by the wealthy gas suppliers.

2. To require EU governments to ensure appliance installers and maintenance technicians are well trained and regularly tested to demonstrate their up to date competence and have their competencies publicly available in order to install, maintain and test appliances.

Such engineers should also be tested on their competence and be required to use EN50379 compliant flue gas analysers to test appliances after installation or maintenance and to test indoor air for CO using EN50543 compliant equipment to ensure sources of CO are found and isolated.

3. To require warnings about CO+ to be clearly marked on fuel (such as bags of charcoal for barbecues) and appliances powered by carbon based fuels.
4. To require CO alarms to EN 50291 to be installed in all property.
5. To set up an EU wide organisation providing services and a website for recalls of dangerous products, ideally supported by funding for prime time TV warnings about them.
6. To require EU governments to provide at least one organisation in each EU country to provide free help and support to victims and their families and ideally free or affordable tests of appliances and indoor air for CO as well as undertake the work of collecting, collating and publishing the deaths and injuries from unintentional CO poisoning.

From this work the organisations should suggest improvements to governments and to the EU that could be made to reduce these unnecessary tragedies.

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Some references updated for the 2016 press pack.

Update

I, Stephanie Trotter received a letter dated 20.11.15 from the Chair of the Committee on Petitions stating that our petition is admissible. The committee has decided to ask the European Commission to conduct a preliminary investigation of the various aspects of the problem and will continue its examination of our petition as soon as it is in receipt of the necessary information.

I responded to thank the Chair and included the link to the Dutch Safety Board report and film.

<http://www.onderzoeksraad.nl/uploads/phase-docs/1080/ffe8e9293c28summary-koolmonoxide-en.pdf>

You Tube film

https://www.youtube.com/watch?v=EgL74t_COV0

I also referred the Committee to Linda McAvan MEP, who has a special interest in CO and had in November held an event in Brussels about holiday safety which I attended. I also attached our leaflet (see pages 14-17). I referred to the lack of publicity about the dangers of CO.

I also explained the Catch 22 situation – that to prove CO, you have to prove CO and the difficulty finding someone qualified under CMDDA1.

At Wales & West Utilities (WWU) our job is to deliver gas safely and securely to 2.5 million homes and businesses across Wales and the South West of England. We do not sell gas, we transport it, and more than 7.5 million customers rely on us to do so.

Our dedicated team manages a network of over 35,000 kilometres of gas pipes to make sure we continue to provide a safe and reliable gas supply 24 hours a day, 365 days a year. This involves responding to gas emergencies including incidents of suspected carbon monoxide (CO) poisoning, maintaining and replacing our gas network, and connecting new customers.

Our approach

Following consultation with stakeholders, WWU has developed a strategy to address the safety risk posed by CO, and embarked on a programme of initiatives with our staff and the 7.5 million people who live and work within our network. By using the quality data engineers collect at the 6,000 visits they make each year to suspected CO poisoning, our “hotspot” analysis tool uses our incident data to proactively to target our campaigns to the most at risk communities.

The resulting campaign, ‘Say NO to CO’ has won a number of accolades including 2014 Business in the Community Wales Building Stronger Communities Award, reaccredited in 2015 for its continued impact.

Our activities

We have worked in partnership with Science centre Techniquest to develop an interactive learning environment for families. Our bespoke campaign has gone on to target major shows including the Royal Welsh, Bath & West, Royal Cornwall and National Eisteddfod. We have directly interacted with over 10,000 families via this, providing each with safety advice and an opportunity to test their improved knowledge by winning a CO alarm.

With a population of ~3 million and a footfall of over 241,000 we were able to engage directly with 8% of the Welsh population at the Royal Welsh alone and were awarded the coveted ‘Best Stand of Educational Value’ for our innovative approach.

Recognising that CO is not only a danger in buildings, we have gone above and beyond our core business using these events as opportunities to raise awareness with caravanners and campers through safety advertisements on admission tickets, camping and parking passes.

Award winning arts partnerships

Our collaboration with the arts is recognised as unique amongst the gas industry as best practice within business. This approach began with our film ‘The Silent Killer’ developed in partnership with the Royal Welsh College of Music and Drama. Extending our partnership with the college, WWU are employing recent graduates to deliver the first outreach programme for theatre design.

The partnership between arts and business has included the development of a unique 10-foot monster puppet that represents the deadly nature of CO. The monster is being used in a series of puppetry workshops in secondary schools across our operating area, raising awareness in an innovative way.

Our partnership with Theatr Na nÓg involved WWU emergency engineers and local schoolchildren to shape, produce and take part in ‘A Breath of Fresh Air.’ The play, which uses drama and storytelling to focus on the dangers of CO poisoning, is now touring primary schools across our operating area. We also use this interaction to promote CO-Gas Safety School Poster competition, which we have supported for the previous three years and are now leading with the other gas networks. Entries are now invited from a broader age range (all primary) and all media.

Leveraging value from partnerships

Latest statistics (2014/15)

2,451 survey responses...

Over **18,000** CO alarms given... nearly **4,000** this year

9.22* average rating of CO awareness following our interaction... (*Scale of 1-10)

35% increase in CO awareness change as a result of our interaction...

Collaborating with Fire and Rescue Services and South Wales Police, we were able to use CO Awareness Week in November as an opportunity to target a vulnerable community in South Wales. Our dedicated employee volunteers gained access to 500 properties over four days, providing each with home safety advice and installing a CO alarm. Environmental Health graduates are surveying the properties pre and post intervention to undertake a detailed piece of research into the impact of this campaign.

Working collectively as gas networks

We have a range of initiatives on which we work collectively as gas networks, these include; IFEST a game which tackles the dangers presented by BBQs and fuel-burning devices when used in enclosed spaces such as tents and caravans and an intelligent CO alarm which remotely monitor the alarm’s health, alertness and battery status in addition to real time monitoring of CO levels. They are trailing 600 of these alarms with specific vulnerability demographics

Web www.wwutilities.co.uk

Twitter [@WWUtilities](https://twitter.com/WWUtilities)

Facebook [WWUtilities](https://www.facebook.com/WWUtilities)



We are the second largest gas distribution network in the UK, and operate over 74,000km of gas mains and services in Scotland and the south of England.

Whoever the supplier is, we have a responsibility to deliver gas safely, reliably and efficiently to every one.

Carbon monoxide strategy

As an industry leader in CO safety, we work hard to influence policy and strategy to help educate and inform the public on the dangers of CO, and we've set up a Carbon Monoxide Action Group to help drive initiatives forward.

Safety is our top priority, and we aspire to eradicate natural gas related carbon monoxide poisonings by raising awareness of this silent killer.

Protecting the UK public from carbon monoxide

Our CO Team has over 35 years experience in tirelessly campaigning to achieve this aim, and we've helped develop and implement several enabling initiatives which have removed the risk of CO poisoning and reduced the number of gas related fatalities to single figures over the last few years. These initiatives include:

- The introduction of the flue gas analyzer.
- Removal of open flue water heaters from bathrooms and bedrooms.
- Replacing open flue boilers with Category 'A' condensing boilers.
- Supplying CO information to all gas customers.
- Landlord legislation.
- Boiler scrappage scheme.
- Promoting the rollout of audible CO alarms manufactured to EN 50921 standard.
- Rollout of CO detection devices—Personal Atmosphere Monitors (PAM) - for all First Call Operatives.
- Gas Quality standards within the UK.
- Advising on CO storylines for television programmes including Coronation Street, Hollyoaks and EastEnders.
- Providing CO expertise for Parliamentary inquiries.
- Advice on medical CO algorithm.
- Development and production of 17 Downstream Incident Data Reports.
- Funding and technical advice to CO charity groups.
- Funding fundamental CO research to highlight

new trends in CO poisonings (i.e. camping).

- Delivering Landlord Responsibilities and CO Awareness presentation to Scottish Parliamentary Safety Group.
- Setting up local CO action groups in our depots.

We also promote CO-Gas Safety School Poster competition, which we have supported for the previous three years with the other gas networks. Entries are now invited from a broader age range and include all types of media.

Our commitment going forward

International level

We're working with the European Parliament, member states and Marcogaz to raise awareness of CO, and introduce a best practice document which focuses on removing high risk appliances, servicing and

2014/15 in review

305 survey responses

3,100+ CO alarms distributed

9.01* average rating of CO awareness following our interaction... (*Scale of 1-10)

12.06% increase in CO awareness change as a result of our interaction.

installation standards, using competent operatives as a second line of defence and the installation of audible CO alarms. This will help protect UK holidaymakers and citizens living and working abroad, as well as improve the environment for our European neighbours.

National level

We're actively engaged with the Government safety and CO forums in England, Scotland and Wales, helping to raise awareness of CO across all fossil fuels, and take every opportunity to collaborate and share information on CO and safety best practice.

In addition to the Forum, we sit on or contribute to key national safety/CO committees, such as the Energy Emergency Executive, the Gas Task Group, the Gas Industry Safety Group, Gas Safety Trust, the GDN CO Collaboration Group, the Forum CO Helpline Group and the Scottish Parliament Cross Party

Web www.sgn.co.uk

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Facebook [SGNgas](https://www.facebook.com/SGNgas)

National Grid is one of the largest investor-owned energy companies in the world and was named Responsible Business of the Year 2014 by Business in the Community.

We own and manage the grids that connect people to the energy they need, from whatever the source. In Britain we run systems that deliver gas and electricity to millions of people, businesses and communities.

Our gas distribution business delivers gas to 10.9 million homes and businesses, and we also manage the National Gas Emergency Service free phone line on behalf of the industry.

Carbon monoxide safety: our approach

Carbon monoxide (CO) poisoning is responsible for around 50 deaths per year and approximately 4000 cases of ill health; these are just the cases we know about. Therefore, CO continues to be a high priority for us.

Education and action hold the key to both increasing CO awareness and keeping our customers and communities safe and warm.

Our emergency engineers are now all equipped with CO detection equipment and continue to hand out our CO awareness information while on their safety visits. We will continue to increase the awareness of the dangers of CO in all the emergency work that we do.

We are committed to playing an active role in ensuring that no person's life will be accidentally impacted by CO and for this end we have undertaken a number of initiatives.

Fire service partnership

For many years now the Fire and Rescue services have worked tirelessly on educating our communities about fire risk in order to keep people safe. Part of this has included home safety visits for vulnerable customers deemed at risk of fire. In many cases these people will also be at risk of CO.

We are now working collaboratively with the Chief Fire Officers Association to incorporate CO awareness as part of their home safety visits. The initial pilot with Staffordshire Fire & Rescue Service enabled its officers to provide free CO alarms to 3000 'hard to reach', vulnerable people whilst carrying out their visits.

University Freshers' Fairs

University students are particularly vulnerable when it comes to gas safety and CO.

For many students, university is the first time they will be living independently away from home, usually moving into private rented accommodation in their 2nd and 3rd year. We have found that many do not know

about landlord responsibilities to carry out annual gas safety inspections., about the signs and symptoms which indicate CO is present.

In September 2014 we attended 'freshers' fairs' events at nine of the largest universities across our networks, proving CO awareness information and CO detectors to students living in private rented accommodation without an alarm.

Cub scout campaign

By targeting the younger population and making gas safety awareness 'the norm' we will help safeguard future generations. We have developed and continue to sponsor the home safety badge, which during 2013/14 provided in excess of 206,000 home safety resource packs.

This pack helps young members learn how to stay safe at home by spotting the signs of CO and knowing what to do in a gas emergency. As a result we awarded 22,600 National Grid Cub Scout home safety badges in 2013/14 and this initiative has continued to educate future generations in 2014/15.

Intelligent CO

We are passionate about looking into and supporting

Latest statistics (2013/14)

985 survey responses...

1,021 CO alarms given...

8.20* average rating of CO awareness following our interaction... (*Scale of 1-10)

49% increase in CO awareness change as a result of our interaction...

97% likely to take further action on CO.

new innovations, and are delighted to be sponsoring the Intelligent CO monitor project through the Energy Innovation Centre, in collaboration with NGN and WWU.

This project will test new technology in the form of a 'smart CO detector' which will allow remote monitoring of CO levels in properties, and notification via text or access to a monitoring system. This could prove particularly beneficial to groups such as housing associations, where access for annual safety checks may be problematic, and in student accommodation. Additionally, cases such as warden-controlled flats and domestic properties with elderly occupants could

Website www.nationalgrid.com/uk

Twitter [@NationalGridUK](https://twitter.com/NationalGridUK)

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Northern Gas Networks delivers gas to 2.7 million homes and businesses throughout the North East, northern Cumbria and much of Yorkshire. We don't generate gas, we transport it, through a vast network of underground pipes.

As well as keeping our network in tip top condition, we also provide the region's rapid response service for customers who smell gas at home or work. But we're as much about people as we are about pipes and we firmly believe that a responsible business approach is essential so that we can continue to deliver social and economic benefits to our region, now and in the future.

Educating to prevent the dangers of CO

Over the past 12 months we've been continuing to focus our attention on targeting the elderly and 18 to 24 year olds, in line with our strategy which was informed by research commissioned in 2010.

Increasingly we're focusing on collaborating to increase impact, developing activities for new audiences and improving the awareness and capabilities of colleagues and partners to boost reach and ensure sustainability. This approach helps us to understand where best to focus our efforts for maximum impact and identify emerging issues and groups.

We measure our impact through individual measures suited to each intervention or initiative, but the ultimate CO measure will always be lives saved.

iFEST

A new campaign, #TunesNotFumes, tackles the dangers presented by BBQs and fuel-burning devices when used in enclosed spaces such as tents and caravans. The game, called iFEST, has been designed with a festival theme and encourages people to use BBQs and camping equipment safely and to pack a CO alarm if going camping. The game was heavily promoted during the summer festival season through a range of on and offline activities, in particular around key events such as Glastonbury and Leeds Festival.

Boost for schools initiatives

We refreshed our 2021 In Your Hands schools programme for Key Stage 3 children. The programme was shortlisted for a CIPR Award and has been delivered to more than 700 children attending 26 workshops since April 2013. On average students understanding of the dangers of increased from 3.57 to 7.87 out of 10 following the programme.

We take every opportunity, through our safety and wider education programmes to raise awareness of the dangers of CO with children. Through our safety programmes, Crucial Crew and STEM we have reached over 9,500 children.

Holbeck Elderly Aid

We've partnered with Holbeck Elderly Aid to raise

awareness of CO amongst elderly people in the community. Our engineers delivered a CO safety briefing during a residents lunch before carrying out home safety checks and installing a free CO alarm. We're now looking to replicate the approach with around 70 other groups for the elderly in communities throughout the Leeds area.

Spreading the CO message to Gateshead's Jewish community

We reached out to Gateshead's Jewish community to raise awareness of CO. Orthodox Jews are prohibited from cooking on the Sabbath, and often use gas or electric hot plates, known as Shabbos Blech, to keep pre-prepared food warm. In March, one of these electrical hot plates caused a house fire in New York, in which seven children tragically lost their lives. The tragedy prompted NGN colleagues and the fire service to deliver a safety briefing to Gateshead's Orthodox Jewish community at the Labriut Healthy Living Centre. Since delivering the briefing session, the healthy living centre has bought a stock-pile of CO alarms, which are being sold to local families at cost.

Customer CO briefings

Latest figures (2014/15)

£1.8 million invested in life saving Gascoseeker technology

700+ children have attended a 2021 workshop

9,000+ children reached through safety programmes, Crucial Crew and STEM

2,865 customer safety briefings delivered

11 lives potentially saved through roll out of hand-held CO detectors

All of our First Call Engineers have been trained to deliver these briefings. We're taking the time needed to share CO messaging within the home while increasing our ability to respond to one and two hour emergencies. Since April 2013, we have delivered 2,865 one-to-one briefings in individuals' homes.

Gascoseekers: life-saving technology in our hands

In 2015, we completed the roll out of life saving CO detectors, known as Gascoseekers, to our emergency engineers. Instead of relying on visual clues, our emergency engineers are now able to determine categorically whether or not CO is present in a customer's home, the amount of poisonous gas in the atmosphere, and where the CO is coming from. Through circa £1.8 million investment a total of 1200 of these hand-held devices are now in use by our colleagues, helping to save lives.

Website www.northerngasnetworks.co.uk

Twitter [@NGNGas](https://twitter.com/NGNGas)

Facebook [Northengasnetworks](https://www.facebook.com/northerngasnetworks)



CO-Gas Safety CO Awareness Competition

Registered Charity Number : 1048370

www.co-gassafety.co.uk

Calling all Primary School Teachers

Key Stage 1 and Key Stage 2 pupils

We want YOU!

Please help raise awareness of the dangers of carbon monoxide (CO) poisoning!

CO-Gas Safety is an independent registered charity and is running a after Schools Awareness Competition for a ninth year to highlight the dangers of CO and other dangers from using fuel that burns.

The competition asks pupils to produce an informative, accurate and eye-catching poster, video, model, poem, story or anything that tells the dangers of CO warning of the dangers of Carbon Monoxide (CO) poisoning and/or fumes and/or how to avoid them

Entry is FREE plus great CASH PRIZES!

There will be 10 regional prizes of £150 for the pupil &
£250 for the school plus one national winner

Competition for this year closes 31st May 2016

All teaching materials are on the website, including a downloadable

Power Point Presentation See <http://tinyurl.com/p2q7epp>

There will be 10 winners corresponding to the areas are now kindly sponsored by SGN, Wales & West Utilities, Northern Gas Networks and National Grid.



Teachers - You could ask your pupils to spot the CO dangers in this picture.

Answers see <http://www.co-gassafety.co.uk/competition/answers>

The charity is hoping for some brilliant entries to get the message across simply

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CO-Gas Safety 21th Anniversary Press Pack

Publication of 20 years of data & winners of our CO awareness competition 2014-15

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Permission will normally be granted to publish or use data, provided permission is sought before publication, publication is not for profit, source of the data is stated, our website www.co-gassafety.co.uk is quoted on all material used and a copy of the document in which the data is to be used or quoted is provided to the charity free of charge.

STOP PRESS!

Margaret Ritchie, MP
South Down, Northern Ireland
has very kindly persuaded
some schools to enter our CO
Awareness competition.

CO-Gas Safety can if
necessary pay for the prizes
but we would love to find a
sponsor, ideally the gas
emergency service provider
N. Ireland.

Meanwhile our thanks to
Margaret Ritchie MP!



CO GAS SAFETY – CO AWARENESS COMPETITION 2015-16

The Gas Distribution Networks, (SGN, Wales & West Utilities, Northern Gas Networks and National Grid) have very kindly agreed to sponsor and run the CO Awareness competition. CO-Gas Safety still hosts the competition on the CO-Gas Safety website, has updated the Flyer, the Power Point Presentation and rewritten the Rules. The GDNs will receive the entries and hold prize giving events to be held in summer 2016 and give out the prizes. Judging will be by John O’Leary.

RULES

1. The competition asks students to raise awareness of the dangers of CO by producing an informative and accurate warning of the dangers of Carbon Monoxide (CO) poisoning and/or fumes and/or how to avoid them. Entries will be accepted in ANY media (e.g. film, poem, poster, short story, model). The only limit is your imagination so get creative. Material about CO and how to avoid it and other fuel toxins can be found at <http://www.co-gassafety.co.uk/competiton/how-to-enter/>
2. There will be two competition age groups. Key Stage 1 (ages 5-7) and Key Stage 2 (ages 8-11).
3. Students can use any medium (paints, crayons, painting, photographs etc.) provided it is the individual student’s own individual and original work. Students must **not** work together.
4. Students may consult books or the Internet for information or ideas, but no credit will be given for material simply printed off the computer or photocopied etc.
5. Entries must be emailed to: COschoolcompetition@energynetworks.org Please make sure that the photo or scan is in colour and does not cut off part of the entry. Please find a space to attach the name & age of the pupil and the name & post code of the school ideally on the entry or in the accompanying email text. If a photograph, scan or email is not possible or will not do the entry justice, please let us know as we may be able to arrange for collection of the entries by one of our local representatives.
6. **Entries should reach ENA COschoolcompetition@energynetworks.org by no later than midnight on May 31st 2016.**
7. The winners will be awarded prizes and the best ones may be put on display in the media or used to further raise awareness of CO poisoning.
8. The judges’ decision on all matters will be final and no correspondence will be entered into with regard to any matter concerning this competition. However, the charity will try to clear up any ambiguities that may be brought to its attention (email office@co-gassafety.co.uk and

/ or Danielle.royce@wwutilities.co.uk) and rules may be amended accordingly from time to time in order to clear up any such ambiguities.

9. Provided there are enough entrants, there will be ten regional winners, five in KS1 and five in KS2. Winners will be aligned to the local gas distribution network geography. National Grid, Northern Gas Networks, and Wales & West Utilities, will each have one winner in KS1 and KS2 while SGN will have one winner in Scotland and another in the south for each key stage. For clarification on which gas network your school is supported by please visit <http://www.energynetworks.org/info/faqs/who-is-my-network-operator.html> and enter your postcode. There will also be an overall national winner for the UK.
10. Prizes will be:
 - National Winner £300 and £600 for the school
 - Each area winner £150 and £250 for the schoolPlease note that the National Winner will be a prize on top of the prize for the area winners.
11. For those being home educated, parents can nominate either a school or a Local Education Authority etc. to receive the winning prize for the 'school'. Please note that groups of the relevant ages such as scouts etc. can also enter provided they nominate a recognized organization, such as scouts, guides etc. as the 'school' to receive the prize.
12. By entering all entrants, (if winners), agree to attend a prize presentation at a venue to be notified to the winners, probably in their local area before the end of the summer term 2016 and a national overall winner will be invited to a national event hosted in one of the network areas.
13. Reasonable expenses for travel, food and accommodation costs for attending the prize giving venue of students and a parent/guardian will be reimbursed provided original receipts are received. At the event one overall winner for the UK may be announced selected from the regional winners.

Upon entry, all entrants agree that all copyright and other intellectual rights to the entries will become the property of the registered charity, CO-Gas Safety. The Gas Networks may use entries to further promote CO awareness. They will use entries in a way which does not bring the pupil, school or charity into disrepute.

For further information please visit www.co-gassafety.co.uk or email COschoolcompetition@energynetworks.org

If you have any queries or worries please email:

Stephanie Trotter OBE office@co-gassafety.co.uk or Danielle.royce@wwutilities.co.uk

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Winners of the 2014-15 Competition

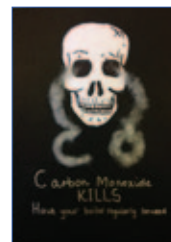
Scotland

Winner
Calvin Cargill
Coupar Angus School
Headteacher Margaret Cameron
MP Pete Wishart, Scottish National Party



North of England

Winner Kathryn Wilkinson
Sheffield High School Junior Department
Teacher Sarah Groombridge
MP for the school Paul Blomfield, Labour



Wales

Winner Scott Davies
School Ysgol Gynradd Gymunedol Gymraeg Llantrisant
Teacher Gethin Jones
MP Owen Smith, Labour



South

Winner
Ellie Solomou
School Maidstone Junior
Teacher Tricia Stevenson
MP Theresa May MP, Home Secretary



A Big Thank You to the Sponsors of our Competition and those who have helped us throughout the year

Scotia Gas Networks, Wales & West Utilities, Northern Gas Networks and National Grid who are very kindly sponsoring our schools CO Awareness Competition now open to all primary school aged children. They also kindly sponsored our First News advertorial about the 2014-15 competition. Their help and support has made this all possible.

To all the teachers who have entered their pupils to our competition.

Honeywell which has again kindly supplied us with alarms to EN 50291 this year.

The Guild of Master Sweeps, who generously gave us another donation last year.

Mark Aylett & the Guild of Master Sweeps who distributed over 22,000 leaflets to the members of the Guild who very kindly gave them out to customers. If only we had 1/100 this help from the rest of the industry!

Victims Belinda Goldsmith and Sue Westwood-Ruttledge who have both worked so hard to raise awareness and prevent poisoning in 2015 despite their own poisoning affecting their lives.

Registered Gas Installer, Dean Baker – who saw our adverts in the Registered Gas Engineer and put up a tree made of pipes hung with CO alarms for Christmas to advertise our competition.

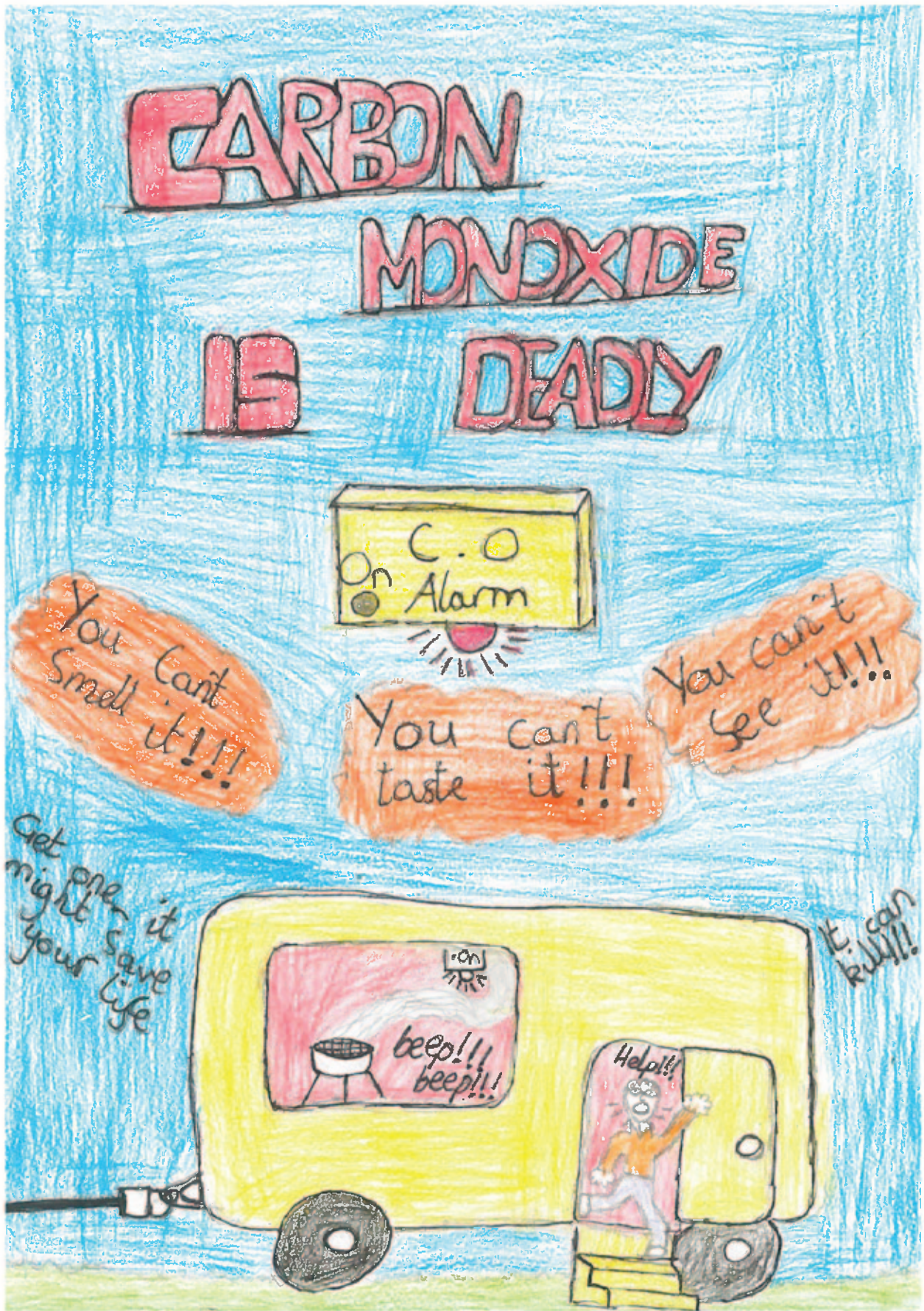
Roland Johns, who has worked so hard to put the course for aspiring registered gas installers together and then taught courses.

BPEC – which has certificated our course about CO for aspiring registered gas installers

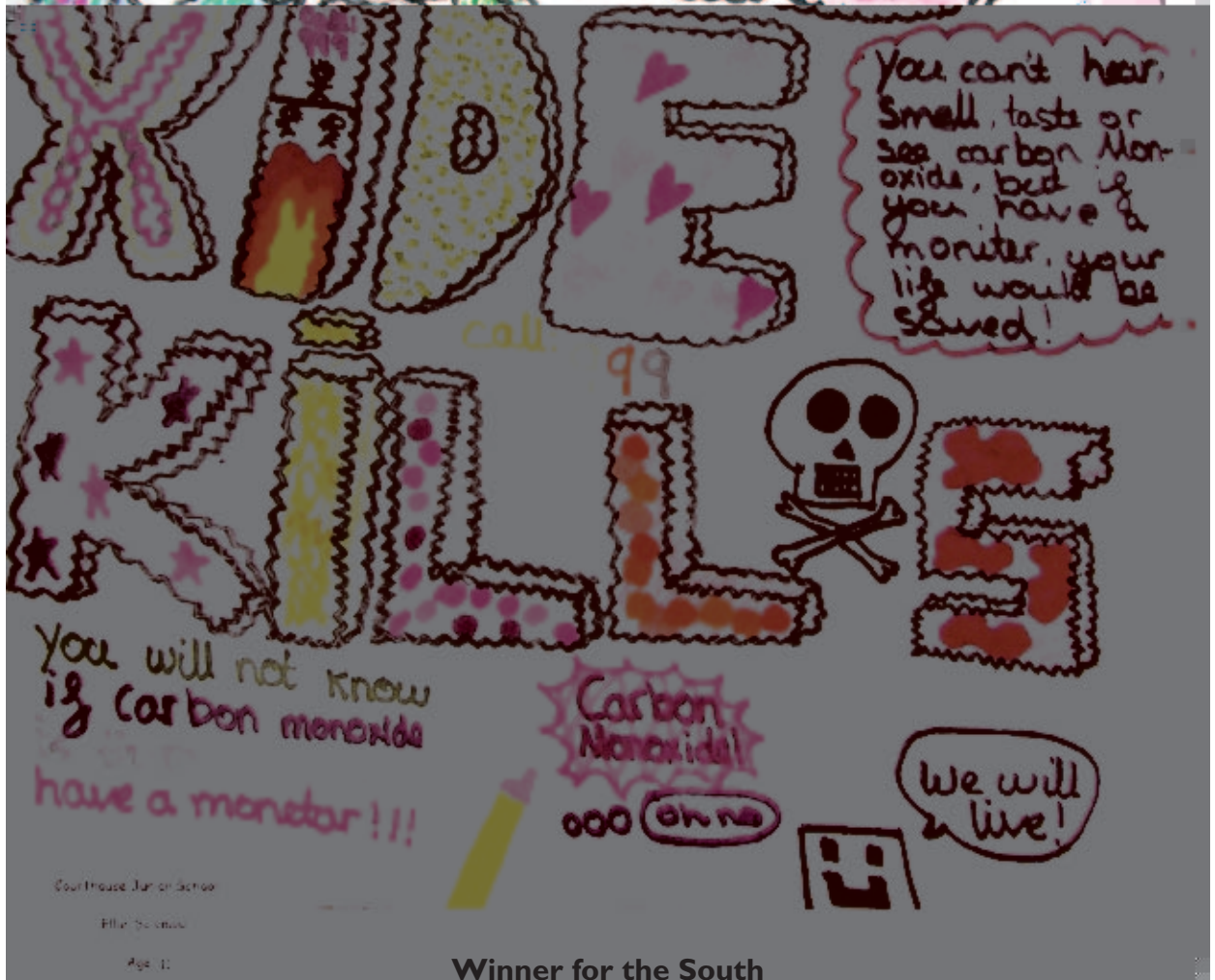
John O'Leary, who supported me during the change in the competition this year and does so much.

Michele Perry and Martin Gallagher of Kane who helped hugely this year with leaflets, adverts etc.

Kane International – for sponsoring our press pack 2016 & has always kept us going generally.



Winner for Scotland
Calvin Cargill
 School: Coupar Angus School
 Headteacher: Margaret Cameron



Winner for the South
Ellie Solomou
 School: Maidstone Junior
 Teacher: Tricia Stevenson



**Winner for Wales
 Scott Davies**

School: Llantrisant Welsh Community School
 Teacher: Gethin Jones

CO-GAS SAFETY CONGRATULATES NETWORK RAIL!

NETWORK RAIL has put out some excellent prime time TV warnings for 9 deaths a year on footpath railway crossings.

<http://road.cc/content/news/68534-new-tv-advert-highlights-level-crossing-danger-cyclists-and-walkers-video>

Network Rail campaign urges crossing users to "See track: Think train"



Reproduced by kind permission of Network Rail & thanks to Rob Kirk of the marketing department

**Will the fuel industry please pay for prime time
TV warnings for at least 40 CO deaths a year?**

CO is such a hidden, unknown danger

**There are almost certainly many more deaths that are never diagnosed as
CO and deaths caused or contributed to by the other toxins in the products
of combustion (CO+)**

Note The John Lewis Christmas Penguin advert cost £7 million
<http://www.mirror.co.uk/news/uk-news/watch-john-lewis-christmas-advert-4576188>

Dan Donovan | Media Relations Manager Network Rail

'We're not able to give out the costs of our marketing campaigns I'm afraid as its commercially sensitive information. But raising awareness of the dangers of level crossings not only reduces the risk of death by the user, but also raises the issue's profile in the media, helping us get support to close further crossings'

I thought I had early dementia but for three years I was poisoned by carbon monoxide

<http://www.mirror.co.uk/news/real-life-stories/thought-early-dementia-three-years-5930721>

19:25, 22 June 2015 By Angela Cooke



Nine years on, Sue Westwood-Ruttledge is still suffering after-effects including poor memory, fibromyalgia and migraines



This press pack is dedicated to the memory of to all those who have died or suffered from carbon monoxide poisoning and other products of combustion (CO+) and their families & friends