CO-Gas Safety's Prize Giving charity tea at the House of Lords

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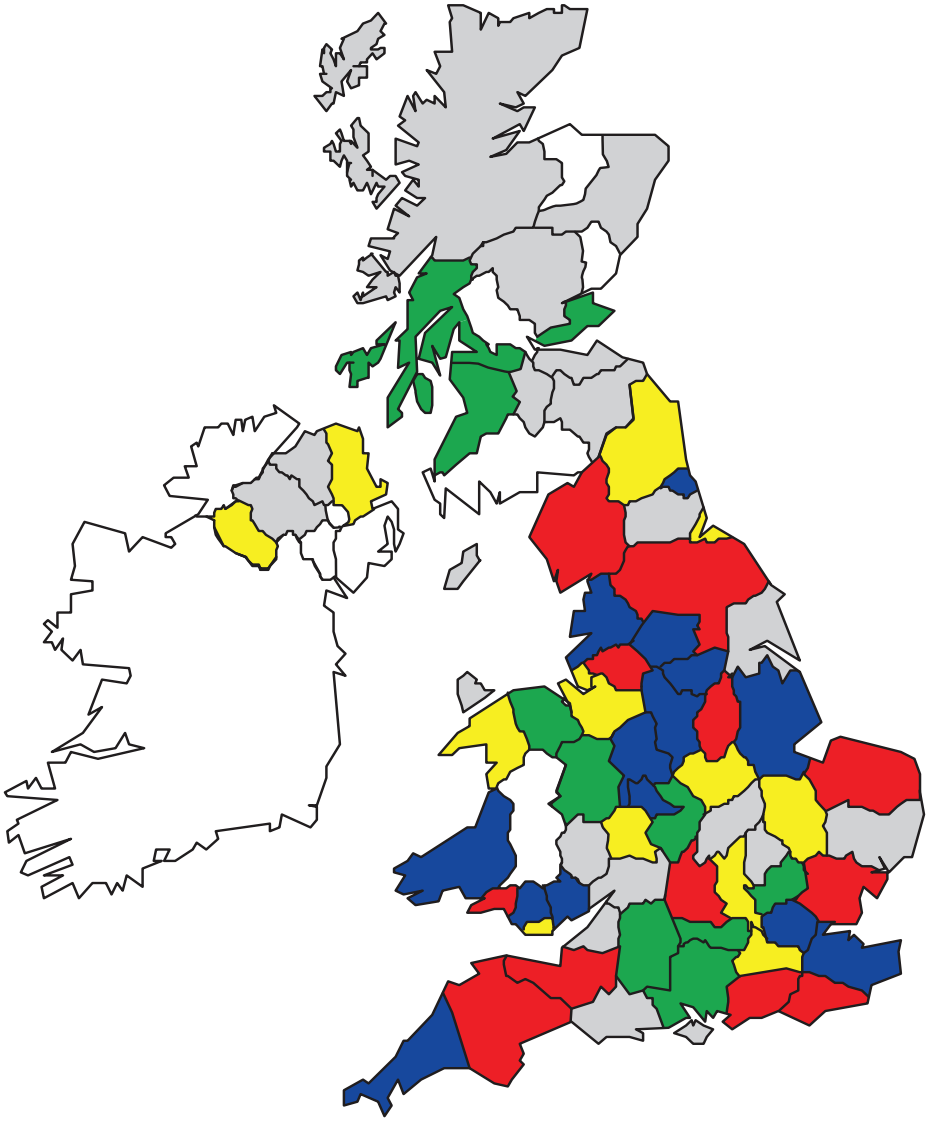
&
16 Years of Data of Deaths and Injuries
from Unintentional Carbon Monoxide Poisoning
01.09.1995 – 31.08.2011



Make sure YOUR child is SAFE by asking your child's school to enter
CO-Gas Safety's School Poster Competition.
Closing date for entries 31st July 2012 (i.e. end of July every year)
Help us to stop these unnecessary deaths from CO and other fuel toxins

Press Pack kindly sponsored by
Scotia Gas Networks

Winner for the North. Francesca Pitfield. Age at entry 11
School: Sheffield High School
Teacher: Sarah Groombridge

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

CO-Gas Safety's 16 years of data on deaths and injuries from Unintentional Carbon Monoxide poisoning 01.09.95 – 31.08.2011 & Schools Poster Competition

Press Pack 2012

CO-Gas Safety's Schools Poster Competition to raise awareness of the dangers of Carbon Monoxide and other fuel toxins

Summary

An executive summary is difficult to write because of the detail in this press pack, needed by those who really want to study the topic. However, it is possible to summarise some of what we've been doing and what main actions would prevent deaths and injuries from carbon monoxide (CO) poisoning.

CO-Gas Safety was founded in 1995, mainly as the result of the work of Molly Maher, who lost her son Gary to CO and whose daughter, Sheree is confined to a wheelchair as a result of the same incident in Tenerife in 1985. I have run the charity since its launch, aided by other voluntary directors, mainly victims. I pay tribute to their amazing selfless work. I thought the main work could be accomplished in a few years, perhaps three at most. But here we are 17 years later.

Since 1995, we have collected, collated and published data of unintentional deaths and injuries from CO, see pages 11-22. Although our data is the most checked data available in the UK on CO from all fuels, it has largely been ignored. However, occasionally it has been used without our permission. Our data is being validated and we already have an interim report, see page 15.

At the start we were largely ignored. However, most victims were keen to talk to us and very quickly we discovered that they knew why deaths and injuries had occurred and therefore how to stop them. We also found that most victims wanted to stop others suffering as they had. Some victims even joined us as directors. In other words, by trying to help, we had found a rich research resource. However, the victims were largely ignored by industry and Government.

The charity saw this gap and being neither victim, industry nor Government, I tried to mediate between them. However, there was resistance. In our view industry and Government have not done enough to acknowledge the tragedies or their causes, nor have they taken the straightforward actions needed to stop them.

Just 2% of CO can kill in between one and three minutes. CO cannot be sensed using human senses. Most people don't even know what CO is, let alone how to prevent it, see page 8. There are still no prime time TV warnings for CO although lots of shocking ones about things we do know are dangerous, such as fire, smoking or drink driving. The gas emergency service still has no equipment to test gas appliances for CO. Recommendations were made by the Health & Safety Commission (now Executive) to plug these gaps in 2000, but never implemented, see page 4. Why not?

We welcome the initiative taken by Baroness Finlay and the All Party Parliamentary Gas Safety Group and her report, see pages 9-10. We hope that real action will follow.

We know that our data is only the tip of an iceberg, because there is no automatic testing of dead bodies and no easy way people can have their appliances tested for CO. Scotia Gas Networks (see page 38) has led the way in supplying its emergency personnel with Personal Alarm Monitors and we applaud their actions. However, although some of the other companies are following this initiative, there is still no testing of appliances for CO by the gas emergency service (e.g. by the use of flue gas analysers). Unless and until the source of CO is found, how can anyone be safe?

After 17 years, perhaps we are at the start of stopping these unnecessary tragedies. So far we have recorded 622 deaths and 4,148 people who have suffered from near misses, see page 13. We know there are many, many more that were never recorded as CO cases. We also believe that there are other dangerous toxins in the products of combustion, see page 4.

It is time for action. Stephanie Trotter, OBE, President & Director CO-Gas Safety

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

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% can kill in between one and three minutes (see page 26 Table 23 at http://www.hse.gov.uk/foi/internalops/hid/spc/spctosd30-annex.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.)*

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;

(If there are 21.6 million households (please see 2009-10 English Housing Survey at http://www.communities.gov.uk/publications/corporate/statistics/ehs200910headlinereport) with 2.4 people in each household there are therefore 5, 840,000 people and 8% of them are 4,147,200. This is 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).'

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 sometimes describe this as a 'gassy' smell.

Please note that the Gas Emergency Service 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. **The real scandal is that the Gas Emergency Service has no equipment to test appliances for CO. However, the CO could be coming from an unsuspected appliance or from another house or flat. CO-Gas Safety has come across several such cases and one fatality (Mills case – please ask us to send you notes on this if you are interested) which in the opinion of CO-Gas Safety, would have been avoided if the Gas Emergency Service had carried and used such equipment.**

It seems that, from a consumer's point of view, when a normal householder calls the Emergency Service Provider (ESP) and there is or could be CO, the duty of the ESP under the 1998 Regulations is limited to advising that person of the immediate action to be taken to prevent such escape or emission and the need for the examination and, where necessary, repair of the fitting by a competent person, (i.e. someone registered with the Gas Safe Register).

So in effect re CO, there is no emergency service, merely a pep talk.

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

The only light is the action taken by some of the Gas Emergency Service providers who now at least fit their employees with Personal Alarm Monitors for CO. Scotia Gas has led the way and we are extremely grateful. See page 38.

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 26.

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.

Investigations can be undertaken by CORGI Services but cost about £1,800. 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 and provide the parts per million of CO to the person affected. Without this, GPs don't take CO seriously.

See **WHO guidelines for indoor air quality: selected pollutants 15.12.10**
ISBN 978 92 890 0213 4
See page 70 second Para from the bottom.
'Walker *(130)* states that the incidence of chronic carbon monoxide exposure in Great Britain is officially 200 per year, while at the same time "250 000 gas appliances are condemned annually". He speculates that if only 10% of these appliances give off significant amounts of carbon monoxide that reach the breathing space of residents, as many as 25,000 people every year may be exposed to carbon monoxide in their homes. The carbon monoxide support study *(89)* found that "only one case out of 77 was correctly identified (i.e. diagnosed) on the basis of symptoms alone" and that medical professionals were the least likely group to "discover" the fact of the carbon monoxide poisoning'.

See also page 86
Guidelines
The 24-hour guideline
'Chronic carbon monoxide exposure is different from acute exposure in several important respects, as noted above. Thus, a separate guideline is needed to address minimal exposure over 24 hours, rather than the 8-hour period used in the acute guidelines.

The latest studies available to us in 2009, especially those epidemiological studies using very large databases and thus producing extremely high-resolution findings, suggest that the appropriate level for carbon monoxide in order to minimize health effects must be positioned below the 8-hour guideline of 10.5 mg/m3, possibly as low as 4.6–5.8 mg/m3.
This is also essential since the minimal exposure time for this guideline is three times longer'.

Note to explain these levels
10.5 mg/m3 = 8.9 Parts Per Million so call it 9 PPM
4.6 mg/m3 = about 4 PPM

Please note that CO-Gas Safety has been lobbying for 17 years now on these matters. Also 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/early_day_motions.html and http://www.co-gassafety.co.uk/early_day_motion_1032.html and http://www.co-gassafety.co.uk/early_day_motion_574.html).

Please note that there are other toxins in fuels and emissions from fuels.

Other fuel toxins
1. Evidence from the Internet – mainly provided by Gareth Hughes.
www.airquality.co.uk/archive/reports/cat08/0407081208_Task7_cumbustion_report_issue1.pdf
This is a DEFRA document (i.e. a British Government document) search for NoX, PM10s, Dioxins, Furans and PCBs and VOCs (Volatile Organic Compounds).
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. and see
http://www.npi.gov.au/publications/aedmanuals/pubs/gasburning_ff.pdf
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 and wood see http://www.npi.gov.au/publications/aedmanuals/pubs/solidfuel_rev2.pdf
This is an Australian document.
For diesel see http://www.ncbi.nlm.nih.gov/pubmed/1383162

For mercury in oceans from deposits from power stations see http://www.ens-newswire.com/ens/may2009/2009-05-04-02.asp
If fish in the Pacific are being poisoned by the mercury in the pollution from coal powered power stations in Asia, think what that mercury could be doing if it is leaking with the products of combustion from a fuel appliance into a home in a confined space. Surely there should be research into this danger?

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

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 including the toxins were discussed, none of the energy companies present denied that they existed.

5. The statement from Dr. Walker GP 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.gassafetygroup.org.uk/lib/docs/allpartygassafetygroupreport_medicalawareness.pdf (This is no longer available so we have copied the relevant part) '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 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 he had raised levels of toxins (arsenic, barium and nickel and especially manganese – 15 times the higher levels). The inquest has now 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 APPGSG 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 continues to do.

Furthermore, there is a case of poisoning by an oil fired appliance where, having not been worked on, the appliance was tested and apparently 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.

The Need for Research

CO-Gas Safety wants research into:-

1. What is in gas before and after combustion?
   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 used correctly or <u>incorrectly</u>, if 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 (Government Minister then 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 planet poisoning when the toxins exit to the outside air and it seems that scientists expert in outdoor air are well aware of these toxins in the atmosphere. However, the amount of such toxins would obviously be much greater in indoor air.

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 <u>http://www.co-gassafety.co.uk/prevention.html</u> and click on 'Blood tests' at the bottom of the page. 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?

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 http://www.gassaferegister.co.uk/ or by telephone +44 (0)800 408 5500.

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.

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 nor will they test the air you breathe and they may not even be equipped with a Personal Alarm Monitor for CO. However, 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 why it started to collect, collate and publish data
See http://www.co-gassafety.co.uk/aboutus.html, http://www.co-gassafety.co.uk/stats_and_analysis.html#why and

Sponsorship sought
We have very little funding and any funding would be much appreciated. We particularly need sponsorship to continue our work on collecting, collating and publishing our data See http://www.co-gassafety.co.uk/stats_and_analysis.html#sponsorship

CO-Gas Safety's suggestions to improve safety and reduce unintentional deaths and injuries from CO and other fuel dangers
See http://www.co-gassafety.co.uk/changes_to_save_lives.html

RECOMMENDATIONS – Summary of recommendations made by the All Party Parliamentary Gas Safety Group inquiry chaired by Baroness Finlay. Comment by CO-Gas Safety in blue.

1. The Government should remove VAT on all carbon monoxide alarms.
   This could be good but will take time as will require agreement at EU level.

2. Mortgage providers and estate agents should include a declaration that the property has a carbon monoxide alarm and that appliances have been serviced by a Gas Safe registered engineer (or similarly registered for other fossil fuel appliances) within the last year.
   Good but CO-Gas Safety is concerned that mortgage providers and estate agents are unlikely to co-operate. We do hope they do co-operate though.

3. The Government should ensure that all work under the Green Deal includes the installation of a carbon monoxide alarm and is carried out by a Gas Safe registered engineer (or similarly registered for other fossil fuel appliances).
   Excellent provided similar arrangements brought in for carbon based fuels, other than gas.

4. The Government should ensure that under the NHS contracts for services GPs' surgeries and A&E departments are trained to recognise the symptoms of carbon monoxide poisoning and have the ability to monitor for it, using the appropriate equipment whenever carbon monoxide exposure is suspected.
   Very good but CO difficult to diagnose and medics notoriously poor at even thinking about CO as a possibly cause of CO symptoms (The late Dr. John Henry sent 200 GPs symptoms of CO. Not a single GP suggested CO as a cause). However, data loggers given out by GPs etc. could be very helpful, provided there are Gas Safe Registered installers, who can find the source of any CO.

5. Industry should collaborate with the Medical Research Council and other research funding bodies to:
   a) Support studies that attempt to evaluate the prevalence of carbon monoxide poisoning across different population groups.
   b) Set up a longitudinal study to assess the sequelae of acute and low-level exposure to carbon monoxide poisoning.
   c) Facilitate a study of the neurological effects of repeated exposure to carbon monoxide at low-levels.

   Good but we know CO is dangerous to health. CO-Gas Safety would prefer resources to be spent on prevention.

6. The Government should trial GPs prescribing a Gas Safety Check for suspected carbon monoxide cases.
   Good especially if NHS would pay for this where people cannot afford this, but CO-Gas Safety would prefer 'service' not just safety 'check'.

7. The Government should ensure that all coroners' post-mortems routinely test for carboxyhaemoglobin levels, recording death from carbon monoxide poisoning as a distinct category and to notify this to a central register if a verdict is recorded only in the narrative section of the coroner's certificate.
   Excellent. We have been pressing for automatic testing of dead bodies for CO for years. Notifying a central register sounds good but care would have to be taken to make sure that deaths from house fires and suicide were excluded.

8. Gas Distribution Networks should ensure that all Gas Emergency Service personnel are equipped with either personal carbon monoxide alarms, carbon monoxide detection equipment, or both.
   Excellent especially if personnel are equipped with flue gas analysers or the equivalent which can test the emissions from appliances for CO and provide parts per million of CO in writing to the tenant and/or responsible person.

9. Ambulance Services should ensure that all their operatives have the equipment to monitor for carbon monoxide in the pre-hospital environment.
   Excellent. We hope all emergency service personnel have Personal Alarm Monitors for CO.

10. Retailers selling camping and barbecue equipment, registered campsites and caravan sites should promote the dangers of carbon monoxide and the use of carbon monoxide alarms. The British Standards Institute should revise European standard EN 1860 to include a requirement for a prominent warning about carbon monoxide poisoning as part of the information on appropriate usage.
Excellent.

11. The Government should include carbon monoxide in the home safety module of the Personal, Social and Health Education curriculum.
Excellent. CO-Gas Safety has been trying to achieve this for some years.

12. Ofgem should regularly review and evaluate the effectiveness of the requirement for gas retailers to raise awareness of carbon monoxide.
Excellent. However, we would prefer a levy on the fuel suppliers to pay for prime time TV warnings and/or similar media publicity about CO.

13. The Gas Safe Charity should support an All Fuels Carbon Monoxide Awareness Forum to coordinate cross industry campaigns, share knowledge and to strengthen links.
Good but from as early as 1998, CO-Gas Safety has experienced VIGIL, the HSE work groups and COCAA and while useful discussions took place, in our opinion these meetings took up too much time with too little progress being achieved with regard to awareness being raised and genuine preventive measures being taken to save lives and preserve health. The cost of attending such meetings is high for small charities such as CO-Gas Safety.

14. The Government should update the Gas Safety (Installation and Use) Regulations 1998 to:

a) Make mandatory the use of flue gas analysers for installation, commissioning and maintenance, where specified by the manufacturers instructions (and manufacturers should ensure that those instructions. are updated to reflect the latest British Standards).
b) Include a full service of all appliances according to manufacturers' instructions.
c) Require all rented properties to be fitted with an audible carbon monoxide alarm manufactured to the European standard EN 50921.

Excellent. We have been lobbying for rented properties to have all the appliances owned by the landlord serviced using a flue gas analyser rather than just a safety check for some years.

15. The Government should consider both the public asset message and the possibility that new appliances may breakdown when determining the requirement for a wired-in carbon monoxide alarm in Part J of the Building Regulations.
Excellent. We would like to see this requirement covering all fuels, not just gas.

16. The Government should bring regulation for the whole fossil fuel sector in line with that of the gas industry.
Excellent – CO-Gas Safety has been lobbying for this for many years.

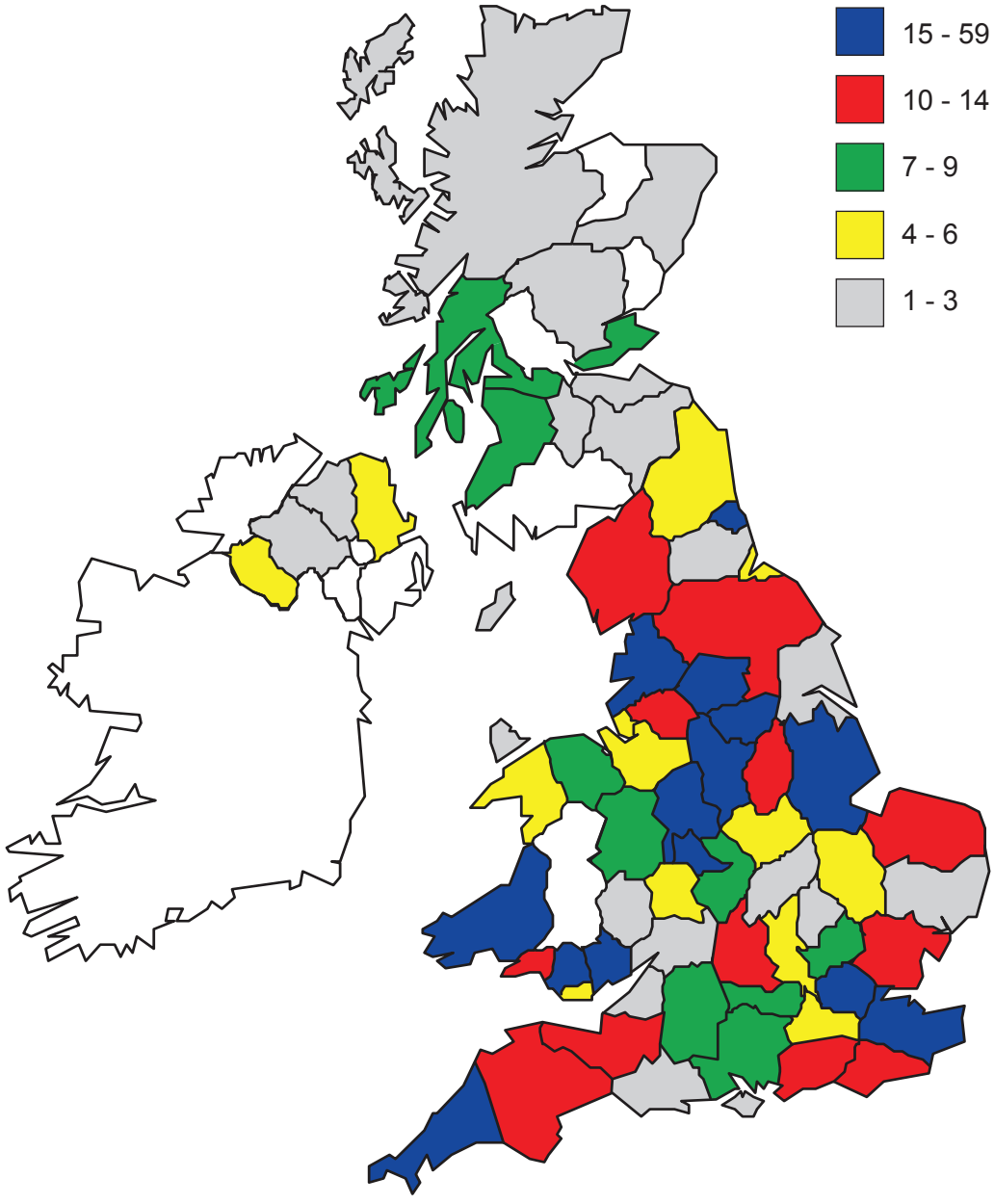
17. The Health and Safety Executive, working in partnership with industry, should create a central collation point for data relating to carbon monoxide injuries and fatalities, together with a dedicated helpline that would help act as a signposting service.
Excellent provided all fuels are covered, not just gas. However, it should be considered that victim organisations, such as CO-Gas Safety have a great deal to contribute because victims care passionately about prevention and can empathise with new victims. Care must also be taken to exclude suicides and house fires etc.

Recommendations reproduced by kind permission of the APPGSG.

The report by APPGSG was published in 2011.

UK Deaths from unintentional carbon monoxide poisoning from 01.09.1995 to 31.08.2011

(This data is being added to and checked all the time so may change)



*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 receives data on deaths from media, families, Coroners and other organisations such as the Solid Fuel Association. CO-Gas Safety writes to every Coroner concerned to check the death and most are very helpful.

Deaths listed by area

Totals	East London	23		London	59		Strathclyde	4
	North London	10		South Yorkshire	30		Surrey	4
	South London	15		Derbyshire	26		Worcestershire	4
	West London	9		Kent	23		Carmarthen	3
	London	**2**		West Yorkshire	22		Carmarthenshire	3
	TOTAL	**59**		Gwent	18		Co. Tyrone	3
				Lancashire	18		Dorset	3
	Scotland	22		Staffordshire	18		Durham	3
	England	500		Cornwall	15		Glamorgan	3
	Wales	83		Lincolnshire	15		Gloucestershire	3
	N Ireland	16		Tyne & Wear	15		Lanarkshire	3
	Unknown	1		West Midlands	15		Neath	3
	TOTAL	**622**		Essex	14		Northamptonshire	3
				Mid-Glamorgan	14		Suffolk	3
				Somerset	14		W. Midlands	3
				Cumbria	13		Bedfordshire	2
				Dyfed	13		East Yorkshire	2
				Greater Manchester	13		Herefordshire	2
				Sussex	13		Londonderry	2
				Norfolk	12		Lothian	2
				Nottinghamshire	11		Neath Port Talbot	2
				Devon	10		South Glamorgan	2
				Oxfordshire	10		Stirlingshire	2
				Hampshire	9		Wales (north)	2
				North Yorkshire	9		Aberdeenshire	1
				Wiltshire	9		Angelsey Isle of	1
				West Glamorgan	8		County Antrim	1
				Berkshire	7		Deeside	1
				Fife	7		East Sussex	1
				Hertfordshire	7		Highland	1
				Warwickshire	7		N.E. Wales	1
				Leicestershire	6		North Lincolnshire	1
				Merseyside	6		North Wales	1
				Shropshire	6		Northern Ireland	1
				Co. Antrim	5		Norwich	1
				Northumberland	5		Outer Hebrides	1
				Pembrokeshire	5		Peterborough	1
				Buckinghamshire	4		Renfrewshire	1
				Cambridgeshire	4		Scottish Borders	1
				Cheshire	4		South Wales	1
				Cleveland	4		Tayside	1
				Clwyd	4		Teeside	1
				Co. Fermanagh	4		The Wrekin	1
				Gwynedd	4		Yorkshire	1
							Unknown	1

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

Deaths caused by Unintentional Carbon Monoxide poisoning in UK

(during sixteen years 01 Sept 1995 to 31 Aug 2011) **Total: 622**

Total Number of CO unintentional deaths by Fuel breakdown and CO-Gas year (1 Sept to 31 Aug):																	
Year	95/6	96/7	97/8	98/9	99/00	00/1	01/2	02/3	03/4	04/5	05/6	06/7	07/8	08/9	09/10	10/11	**Total**
Solid fuel	27	19	25	14	17	14	5	8	3	5	8	14	10	6	7	6	**190**
Gas Mains	32	22	18	24	14	16	7	11	9	14	12	9	11	16	4	9	**228**
Gas Portable	8	8	6	6	10	5	7	7	6	4	7	4	3	6	5	5	**96**
Petrol/Diesel	6	7	3	6	3	3	8	1	2	3	2	9	5	4	6	4	**72**
Oil	0	2	0	0	0	0	0	0	0	0	0	1	0	1	1	0	**5**
Paraffin	0	0	0	1	1	0	0	0	2	0	0	0	1	0	0	0	**5**
Unknown	1	0	0	0	0	0	4	4	0	3	4	2	1	3	0	4	**26**
Total	74	58	52	51	46	38	31	31	22	29	33	39	31	36	23	28	**622**

Total Number of CO unintentional deaths by Tenure: (1 Sept 95 – 31 Aug 2011):	
Owner/Occupier	364
Private Rental	62
Council	61
Housing Association	21
Other (e.g. hotel)	8
Unknown	106

Total Number of CO unintentional deaths by Situation (1 Sept 1995 – 31 Aug 2011)::			
House	301	Car	5
Flat	89	Hotel	5
Bungalow	42	Workshop	5
Caravan	24	Commercial Premises	4
Boat	21	Public House	4
Garage	23	Shop	4
Work Place	13	Public Hall	2
Campervan	10	Care Home	1
Lorry	7	Other	19
Shed/Cabin	7	Unknown	36

Near-Misses from Unintentional Carbon Monoxide Poisoning in UK Total 4148

of whom 2188 required hospital treatment (of those 379 had lost consciousness) (Sept 1995 - Aug 2011)

Year	95/6	96/7	97/8	98/9	99/00	00/1	01/2	02/3	03/4	04/5	05/6	06/7	07/8	08/9	09/10	10/11	Total
	467	449	320	386	335	296	87	145	171	213	153	329	192	263	187	155	**4148**

Deaths from Gas Explosion in UK (Sept 1995 to Aug 2011) Total: 103

Year	95/6	96/7	97/8	98/9	99/00	00/1	01/2	02/3	03/4	04/5	05/6	06/7	07/8	08/9	09/10	10/11	Total
	11	5	6	6	13	6	6	5	15	4	4	4	5	4	4	5	**103**

* 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 2011 update. For further details see website www.co-gassafety.co.uk

CO-Gas Safety data on deaths from unintentional CO poisoning put into HSE years i.e. (HSE year runs from 1st April to 31st March)

Year	95/6	96/7	97/8	98/9	99/00	00/1	01/2	02/3	03/4	04/5	05/6	06/7	07/8	08/9	09/10	10/11	Total
Solid fuel	26	18	22	17	13	19	5	8	3	5	8	12	10	8	6	6	**186**
Gas Mains	28	22	18	23	17	18	6	12	10	13	9	10	12	14	8	9	**229**
Gas Portable	8	6	6	7	10	5	6	7	8	2	8	3	5	5	4	6	**96**
Petrol/diesel	3	7	5	5	4	3	6	4	2	2	2	8	7	2	8	4	**72**
Oil	0	2	0	0	0	0	0	0	0	0	0	0	1	1	1	0	**5**
Paraffin	0	0	0	0	2	0	0	0	0	2	0	0	1	0	0	0	**5**
Unknown	1	0	0	0	0	0	2	6	0	3	3	3	1	3	0	3	**25**
Total	66	55	51	51	46	45	25	37	23	27	30	36	37	33	27	28	**618**

The data collected by CO-Gas Safety data is being added to regularly so will change.
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.
Note. CO-Gas Safety only started collecting data on the 1st September 1995 so for 95-96, our data put into an HSE year (April to March) is only during a 6 month period i.e.1st September 1995 to 31st March 1996.

Data from the HSE

See http://www.hse.gov.uk/statistics/tables/ridgas.xls

Table RIDGAS

Incidents relating to the supply and use of flammable gas (a) 2006/07 - 2010/11p

		2006/07	2007/08	2008/09	2009/10	2010/11p
Number of incidents (b)	Explosion/fire	22	31	27	21	33
	Carbon monoxide poisoning	115	147	172	196	219
	Other Exposure	-	12	4	6	12
	Total	**137**	**190**	**203**	**223**	**264**
Number of fatalities	Explosion/fire	2	2	2	1	3
	Carbon monoxide poisoning	10	13	15	9	14
	Other Exposure	-	3	1	-	1
	Total	**12**	**18**	**18**	**10**	**18**
Number of non-fatalities	Explosion/fire	27	37	30	27	44
	Carbon monoxide poisoning	184	191	289	292	343
	Other Exposure	-	10	5	11	12
	Total	**211**	**238**	**324**	**330**	**399**

Notes:

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

Regulation 6(1) of RIDDOR 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 a report is made under Reg 6(1), it will be at an early stage of the incident, thus the detailed circumstances of the incident will not have been confirmed.

Comment by CO-Gas Safety: The above note about 'Regulation 6(1) of RIDDOR…' is new, as far as we know. 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 out 17 years of experience, **does not usually investigate a mere incident or injury, unless an injury is extremely serious or someone makes a huge fuss.**

CO-Gas Safety data on deaths from unintentional CO poisoning put into Gas Safety Trust years (Trust year runs from 1st July to 30th June) CO-Gas Safety data is being added to regularly so will change.

Year	95/6	96/7	97/8	98/9	99/00	00/1	01/2	02/3	03/4	04/5	05/6	06/7	07/8	08/9	09/10	10/11	Total
Solid fuel	27	18	26	13	16	15	6	8	3	5	7	13	9	9	6	5	**186**
Gas Mains	30	21	21	24	14	17	7	11	9	14	12	7	13	16	4	9	**229**
Gas Portable	8	8	5	7	10	4	8	7	6	2	8	4	4	5	4	6	**96**
Petrol/diesel	5	7	4	6	3	3	8	1	2	2	3	7	7	4	6	4	**72**
Oil	0	2	0	0	0	0	0	0	0	0	0	0	1	1	1	0	**5**
Paraffin	0	0	0	1	1	0	0	0	2	0	0	0	1	0	0	0	**5**
Unknown	1	0	0	0	0	0	3	5	0	3	4	2	1	3	0	4	**26**
Total	**71**	**56**	**56**	**51**	**44**	**39**	**32**	**32**	**22**	**26**	**34**	**33**	**36**	**38**	**21**	**28**	**619**

We asked the Gas Safety Trust to provide their deaths in this format in a request by email sent on the 9th January and a reminder on the 20th with notice that we needed this by the end of the 23rd January at the latest. We had hoped to provide the chart from the Gas Safety Trust in the same way as we have provided the information from the HSE on page 14. In other words we hoped that by putting our data into HSE and GST years, our data could be directly compared to HSE's (as it is, see page 14) and GST's (which we are not able to do as they have not provided this chart).

Sadly at the time of this press pack going to press we have not received this data.

CO-Gas Safety Data Review Interim Report

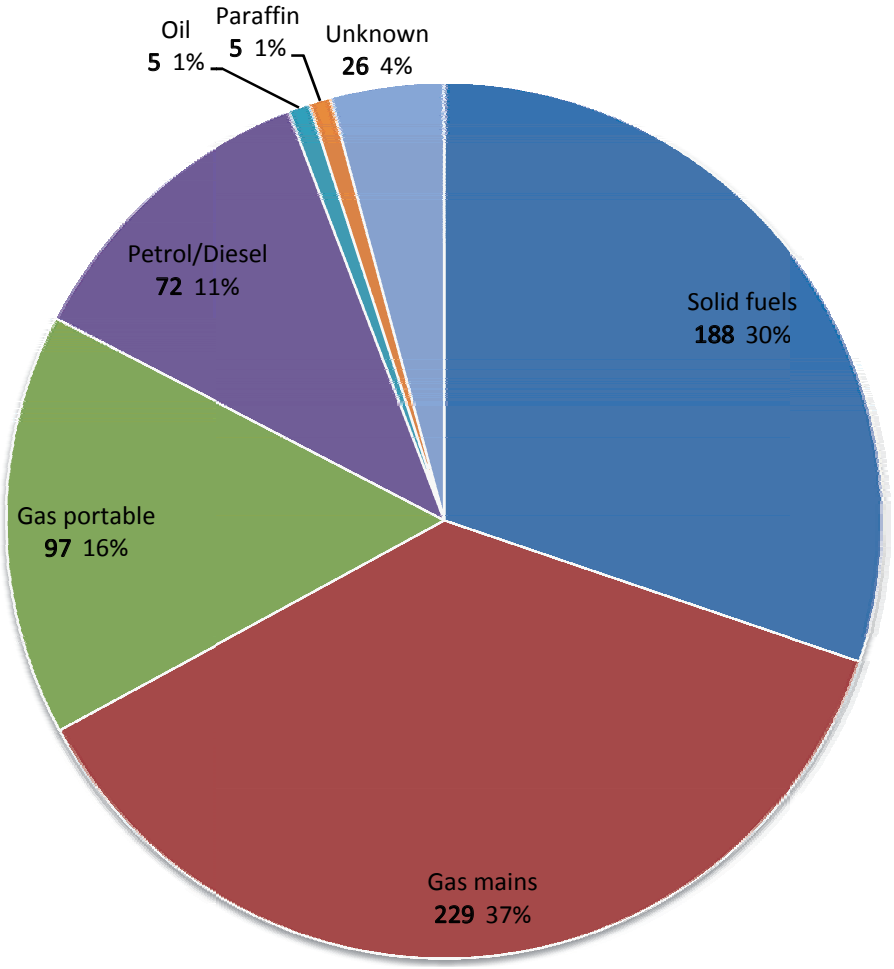
Gas Safe Charity has kindly agreed to fund a review of the CO-Gas Safety data.

Dr Carolyn Craggs, an experienced independent Chartered Statistician and Fellow of the Royal Statistical Society, has been commissioned to carry this out. Her work is focused on checking the validity and reliability of the raw data and the processes associated with compiling the various tables and graphs for the CO-Gas Safety website and the Statsheet. The work also includes looking at making improvements to the methods used.
This work is progressing well and in fact, improved processes for data handling and enhanced data checking for producing the Statsheet have already been implemented.

The 10% sampling of the deaths data gave generally positive results and similar sampling is presently underway for the near misses data. It is anticipated that the final report will be completed in February.

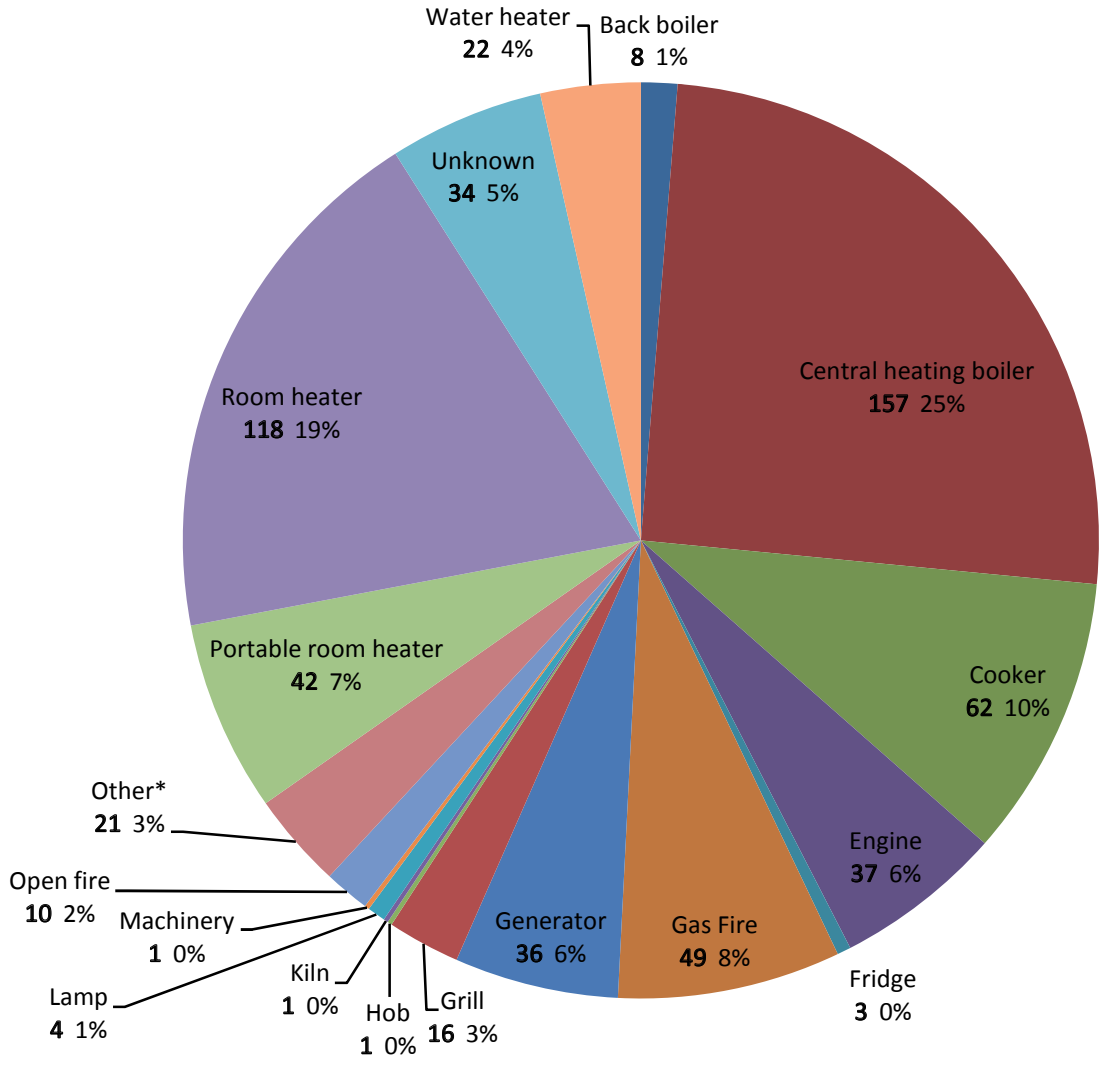
Dr Carolyn Craggs 14 Jan 2012

FUEL type relating to UK Deaths from unintentional carbon monoxide poisoning from 01.09.1995 to 31.08.2011.
This data is being added to regularly so chart may change.



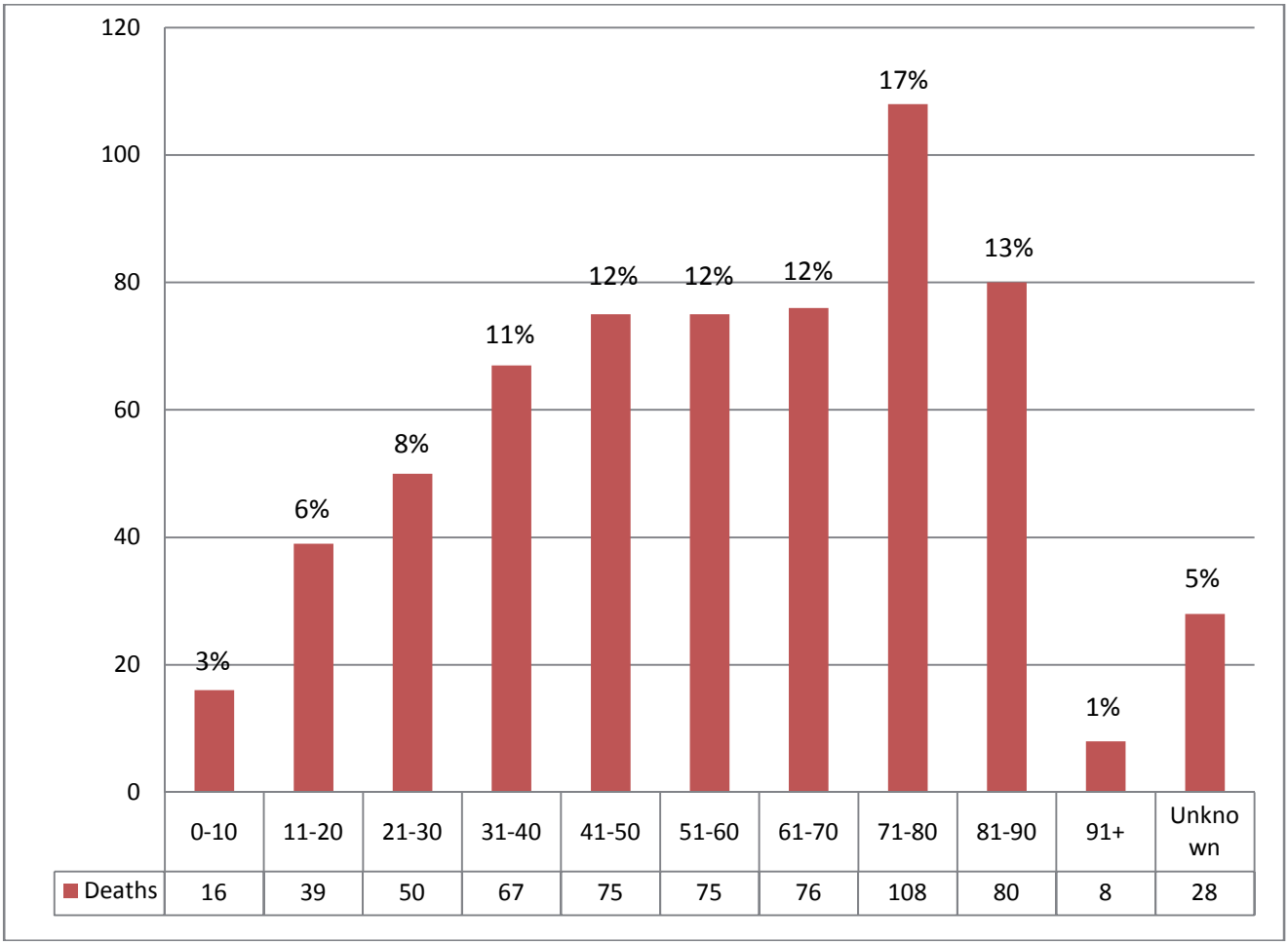
Considering the relatively small number of solid fuel users, there is a high incidence of deaths from solid fuel.

APPLIANCE type relating to UK Deaths from unintentional carbon monoxide poisoning from 01.09.1995 to 31.08.2011.
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.
*'Other' includes tent, aeroplane and polytunnel

AGE of victims relating to UK Deaths from unintentional carbon monoxide poisoning from 01.09.1995 to 31.08.2011.
This data is being added to regularly so chart may change.



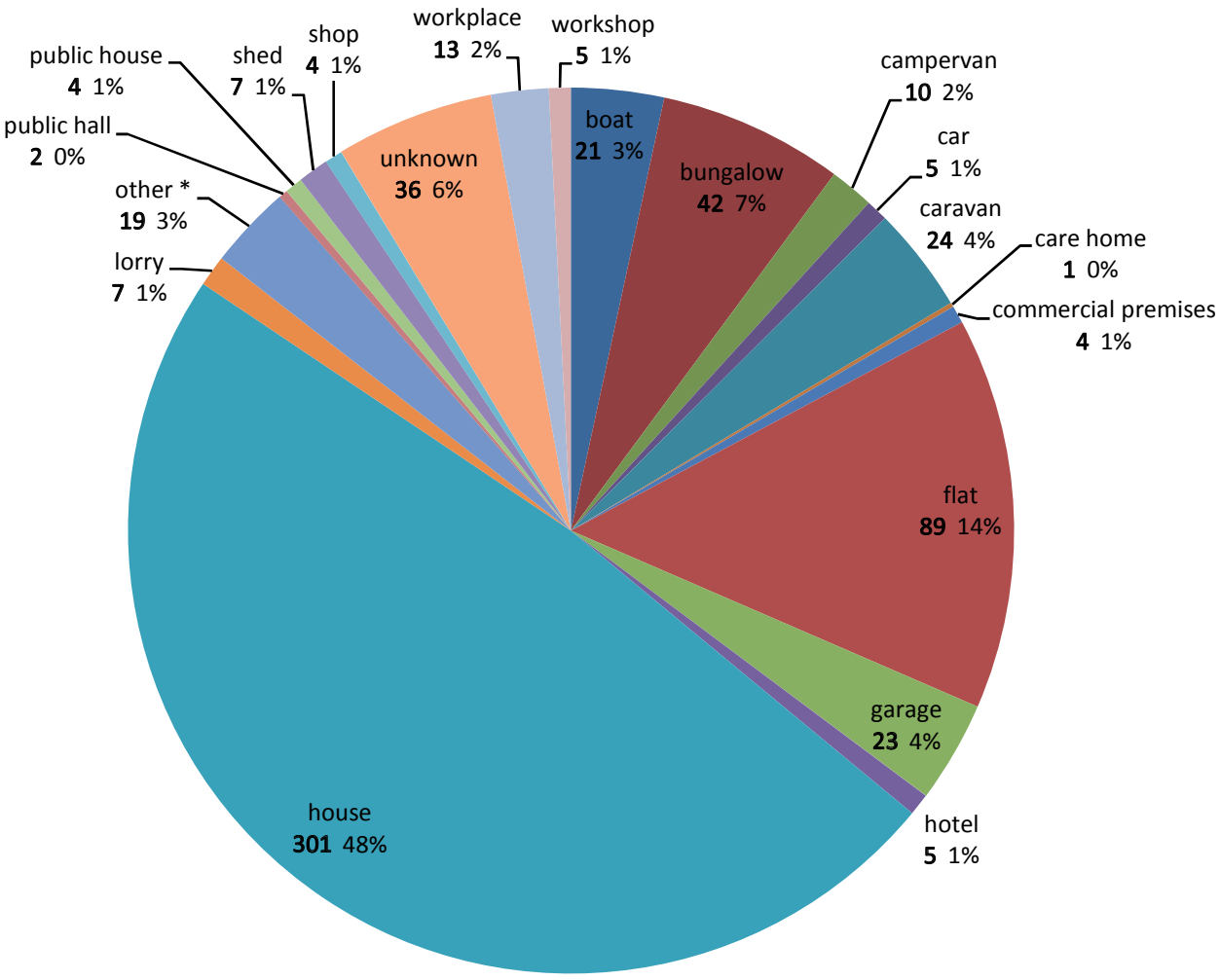
Age Range

From the Census 2001*
http://www.statistics.gov.uk/census2001/pyramids/pages/uk.asp
It is interesting to note that ages 71-80 make up only 7.3% of the population yet represent 17% of the deaths. In our opinion, many deaths in this age group are put down to 'heart attack' when they are CO because there is no automatic test of CO on death, so the proportion of CO deaths in this age group could be even higher.

*Please note that the relevant data from 2011 Census is not available until July 2012

PLACE of incident that caused death relating to UK Deaths from unintentional carbon monoxide poisoning from 01.09.1995 to 31.08.2011.

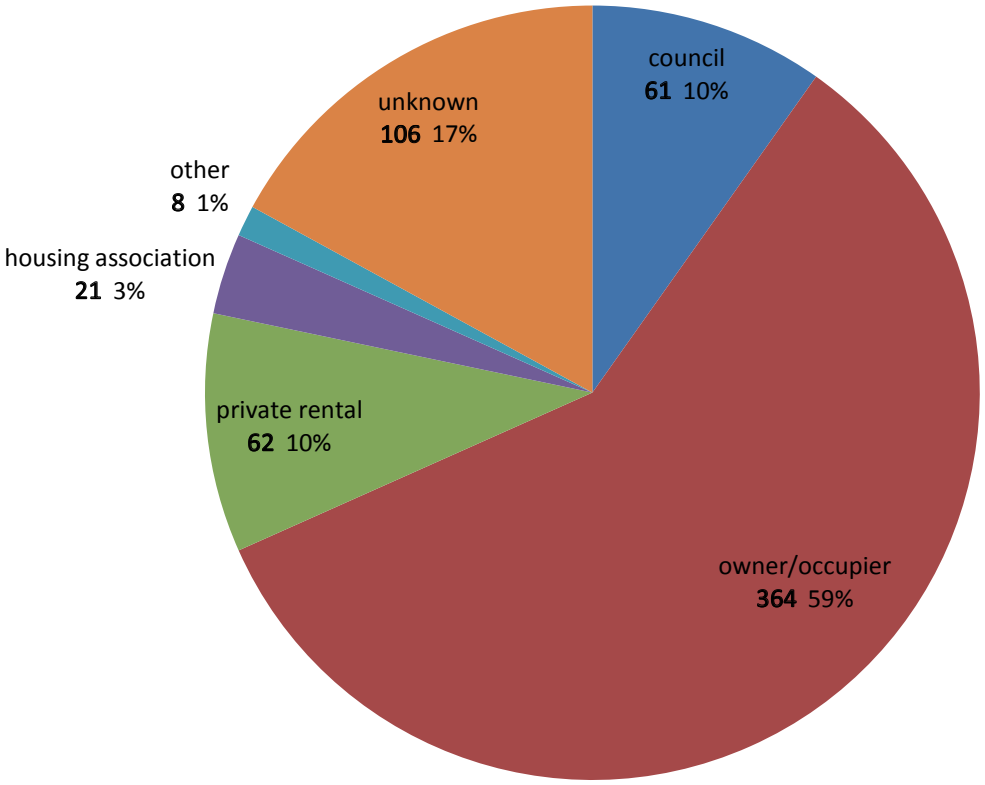
This data is being added to regularly so chart may change.



It is easy to see that people at home are most at risk from carbon monoxide poisoning.
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

*Other includes tent, aeroplane and polytunnel

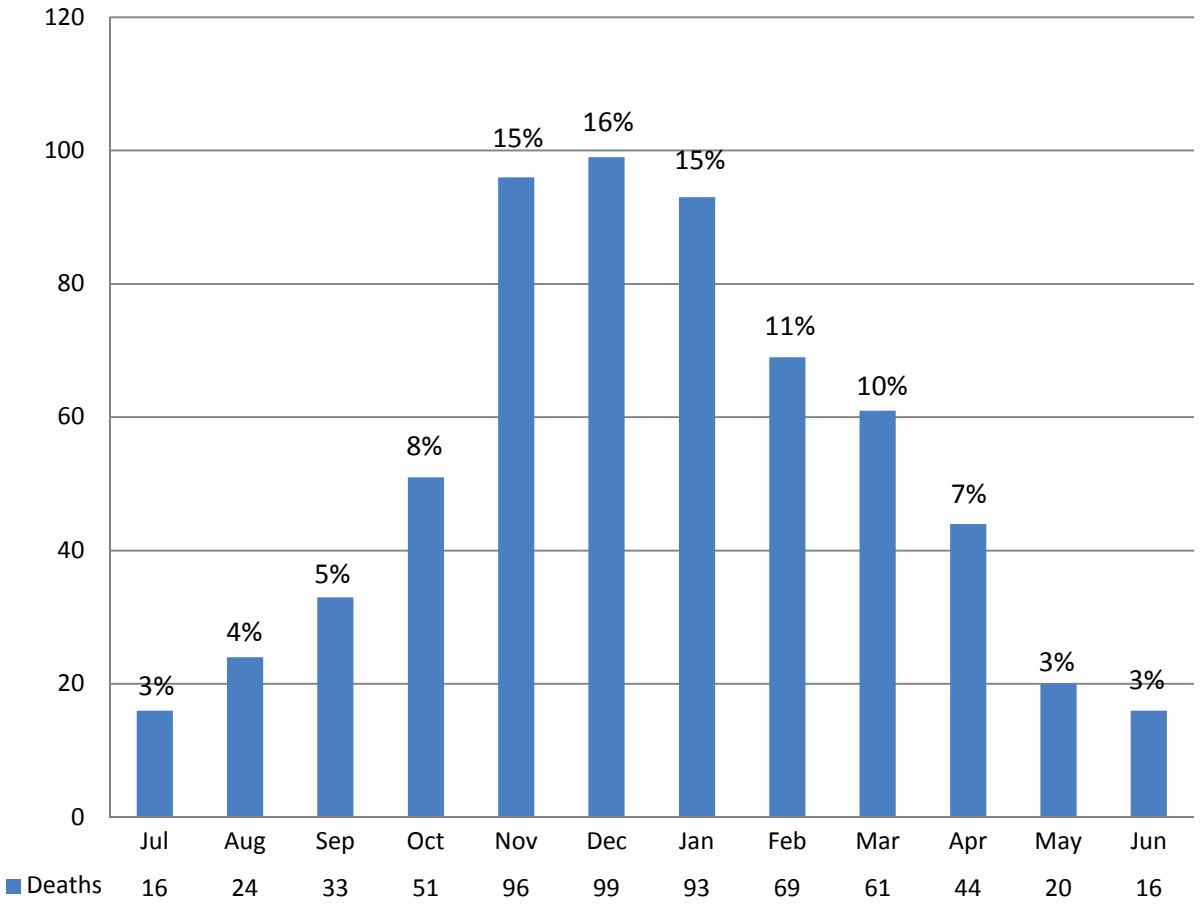
TENURE type relating to UK Deaths from unintentional carbon monoxide poisoning from 01.09.1995 to 31.08.2011.
This data is being added to regularly so chart may change



http://www.communities.gov.uk/documents/statistics/pdf/1750754 pdf
Tenure
1.1 In 2008, there were around 22.2 million dwellings in England, Table 1.1. Some 15 million dwellings (67%) were owner occupied while 3.3 million were privately rented (15%). The social sector accounted for the remaining 3.9 million dwellings which were fairly evenly divided between local authorities and housing associations (CO-Gas Safety adds - presumably 9% and 9%)

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 (17%). The incidence of deaths in council owned property looks relatively high (10% deaths higher than the 9% of the housing stock) while the incidence of deaths in housing associations (3%) looks low compared to the percentage of properties owned by housing associations (9%).
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 31.08.2011.
This data is being added to regularly so chart may change.



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

One example page of CO-Gas Safety's 12 pages from 0109.95 to 31.08.2011 of the named people who died from unintentional carbon monoxide poisoning

Forename	Surname	Age	DateOfDeath	FuelType	Appliance	Situation
Peter	Agar	53	30/01/2001	Petrol/Diesel	Other	Shop
Qaila	Ahmed	20	16/03/1998	Mains Gas	Gas Fire	House
Tauseff	Ahmed	23	16/03/1998	Mains Gas	Gas Fire	House
Derek	Ainsworth	54	20/02/1999	LPG	Generator	Boat
John	Aitken	63	06/04/1999	Petrol/Diesel	Engine	Garage
Wilfred	Akester		02/04/1999	LPG	Fridge	Boat
Javed	Akhtar	31	23/10/1995	Mains Gas	Gas Fire	House
					Central Heating	
Mohamed	Ali	33	00/04/1998	Mains Gas	Boiler	Flat
Deborah Ann	Alker	45	27/04/2004	Paraffin	Cooker	Other
Andrew	Allan	31	25/11/1999	LPG	Room Heater	Flat
					Central Heating	
Brian	Allen	50	27/01/2000	Mains Gas	Boiler	House
Daniel	Allen	19	12/02/2006	LPG	Other	House
Henry	Allen	88	07/12/2008	Solid	Room Heater	House
					Central Heating	
Jeffrey	Allen	47	19/09/2007	Mains Gas	Boiler	House
Nigel	Allum	24	30/12/2006	Petrol/Diesel	Generator	Caravan
					Portable Room	
Nadorasah	Ananthakumar		15/03/2001	LPG	Heater	Flat
					Central Heating	
Zoe	Anderson	24	28/12/2010	Mains Gas	Boiler	House
Thomas	Andrew	87	23/11/2010	Petrol/Diesel	Room Heater	Garage
Jean Mary	Angell	67	28/05/1998	Solid	Room Heater	House
Winifred Florence	Angell	95	28/05/1998	Solid	Room Heater	House
					Central Heating	
Harold	Archer	74	25/11/1996	Solid	Boiler	House
					Central Heating	
Stephen	Arkell	25	08/11/1995	Solid	Boiler	House
Samuel	Atkinson	57	22/02/1996	Petrol/Diesel	Engine	Garage
Elsie	Attwood	86	27/11/2007	Mains Gas	Gas Fire	House
Ray	Attwood	88	27/11/2007	Mains Gas	Gas Fire	House
Dorothy	Axford	65	02/02/2003	Mains Gas	Cooker	House
Lillian	Axford	76	07/02/2003	Mains Gas	Cooker	House
Rusel	Ayeano	29	18/10/2003	Petrol/Diesel	Generator	Workplace
					Central Heating	
Mary-Ann	Bailey	15	28/01/2004	Mains Gas	Boiler	House
					Central Heating	
Sarah Jane	Bailey	74	14/08/2007	Oil	Boiler	House
John	Baker	50	03/03/1998	Solid	Room Heater	House
					Portable Room	
Jordan	Ball	18	21/03/2009	LPG	Heater	Shed
Rachel	Barber	85	25/03/1998	Solid	Open Fire	House
David	Barns	75	22/09/1998	Petrol/Diesel	Engine	Garage
Brian	Barton	59	05/02/1998	LPG	Generator	Boat
Leslie George	Bateman	87	07/02/2008	Solid	Cooker	House
Lena	Bates	93	04/06/1998	Solid	Room Heater	House

See http://www.straightstatistics.org/article/carbon-monoxide-killer-no-official-record for an examination of the Gas Safety Trust's statistics versus ours.

Carbon Monoxide: the killer with no official record

Several papers yesterday headlined claims that accidental deaths from carbon monoxide poisoning rose sharply in the 12 months to the end of June 2011.

"CO poisoning deaths treble in a year" is *The Press and Journal's* take on the story. The *Belfast Morning Telegraph* reports that Ulster tops the UK deaths table, while the BBC says that Devon has been named as the top "hot spot" for incidents of CO poisoning.

The reports derived from the Gas Safety Trust's Carbon Monoxide Hotspot Report for 2011, which records 25 fatalities in 2010-11 against just seven the year before. It further finds that while deaths have risen the number of incidents has fallen from 72 to 50, and the number of casualties from 138 to 80.

Ulster comes high on the list because of three incidents in which a total of seven people died. In Devon, there were five incidents and two deaths. These numbers are simply too small and randomly distributed to allow a league table of hot spots to be constructed. But are they even right?

The figures are based entirely on press reports. Such sources aren't to be despised, but it says something for the dearth of reliable information about carbon monoxide deaths that they should be the sole source. While deaths that are reported are likely to be accurate as they generally originate from coroners' inquests, there may be others that are not reported at all.

Other sources of data are the Health and Safety Executive and the charity CO-Gas Safety, and both tell a very different story. The HSE data cover only those incidents caused by flammable gas, mainly piped gas but also LPG. They record 16 deaths in 2005-06, 10 in 2006-07, 13 in 2007-08, 15 in 2008-09, and (provisionally) nine in 2009-10. Delays in coroners' inquests mean that this figure is likely to be too low.

CO-Gas Safety's figures are far more convincing, although it is a small charity operating on a modest budget. It records (with names and dates) 594 people who have died in the past 15 years (an average of around 40 a year) and its data includes deaths involving gas mains, portable gas, solid fuel and petrol. It too uses press reports but it also contacts coroners to check details. The best summary of its work appears in this press pack.

The charity's most recent data (see Table) show reductions in deaths since the 1990s but a pretty steady figure for the past decade of around 30 deaths a year. In a 2009 report for the Department of Communities and Local Government, the CO-Gas Safety figures are quoted and compared with a very similar estimate for 2007 made by the Office for National Statistics of 35 deaths due to CO that year. This estimate appears to have been made at the DCLG's request and is not part of the normal ONS output.

Table CO-related deaths, 2000-2010 (source: CO-Gas Safety)

Year	00/1	01/2	02/3	03/4	04/5	05/6	06/7	07/8	08/9	09/10	Total
Solid fuel	19	5	8	3	5	8	12	10	8	5	83
Gas mains	18	6	12	10	13	9	10	12	16	8	114
Gas portable	5	6	7	8	2	8	3	5	4	4	52
Petrol	3	6	4	2	2	2	8	6	2	7	42
Oil								1	1		2
Paraffin					2			1			3
Unknown		2	6		3	3	3	1	3	1	22
Total	45	25	37	23	27	30	36	36	34	25	318

However, these figures are in sharp disagreement with the data from the Hot Spot report. There's no reason to believe that deaths in 2009/10 were as low as seven, as the Hot Spot report claims – CO-Gas Safety counted 25. So the purported increase to 25 this year found by the Hot Spot report is probably not an increase at all. Nor is it the case, if one considers all the deaths recorded by CO-Gas Safety over the past 15 years, that either Devon or Northern Ireland stand out as in any way exceptional. Both fall into the second-highest quintile for CO-related accidental deaths over that period.

What does stand out is the absence of official statistics on this cause of death. My guess is that the CO-Gas Safety figures are about as good as there are. It's extraordinary that the founder and director of the charity, Stephanie Trotter OBE, assisted by a friend, should be able to collect figures that appear beyond the heating industry. The figures are regularly updated, mostly by adding deaths for recent years because it can take three years for an inquest to be held, but very occasionally removing deaths that turn out later to have been suicides.

As she puts it on her website: "We are shocked that our data is better than Government's. We try to check most deaths with Coroners and we have built up a good relationship with them over the 15 years we have been doing this. We also check with other bodies, such as the Solid Fuel Association, which has always been extremely helpful to us."

It's also rather shocking that nobody is trying harder to fill this gap. ONS has demonstrated that it has the capacity to make an estimate, but doesn't do so on a regular basis. The evidence is that the number of deaths has fallen since the 1990s, but it is still unacceptably high. There are also many "near-misses" and in September the Department of Health issued experimental data derived from Hospital Episode Statistics suggesting that 4,000 people a year attend A&E departments with CO poisoning. The DH also believes that there are 50 deaths a year, and 200 injuries that require admission to hospital. This suggests that the deaths recorded by CO-Gas Safety may be an underestimate.

The Hot Spots report was researched and compiled by an undergraduate at St John's College, Cambridge. No offence to him, and I'm sure he did the best with the data at his disposal, but I think it's time greater efforts were made to measure this significant cause of death. The Gas Safety Trust records that it has spent more than £170,000 on data collection and analysis since September 2007, employing a number of consultancies to do the work. The Hot Spots report is not the only publication it produces using this data, but it is the one most likely to be read by gas consumers.

CO-Gas Safety, meanwhile, is seeking grants to continue its work.

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Nigel Hawkes

http://www.wcsjnews.org/users/nigel-hawkes

Nigel Hawkes

Profile

Submitted by Nigel Hawkes on Fri, 2009-06-19 12:33
Personal
First name:
Nigel
http://www.wcsjnews.org/users/nigel-hawkes

Last name: Hawkes
Biography:
Nigel Hawkes is a science journalist with more than 40 years experience. A graduate in metallurgy from Oxford, he has written about science, health and international affairs in a career that began on the staff of Nature and included long spells at The Observer (1972-90) and The Times (1990-2008). He retired from The Times in 2008 after eight years as Health Editor, and is now a columnist for British Medical Journal and Director of a new pressure group, Straight Statistics, which campaigns for the honest presentation and use of statistical data by government, media, and others.. He has written a number of books, including Structures, a book about building and civil engineering, and more than 40 science and technology titles for children and teenagers. He was appointed CBE in 1998 for services to the newspaper industry and science, and was the Medical Journalists Association health writer of the year in 2007.
Professional
Title:
Founder
Institution:
Straight Statistics
Conference Speaker:

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To Whom it May Concern
As far as we know none of the directors of CO-Gas Safety, nor our patron nor anyone with any connection with the charity knew Nigel Hawkes or of him, before he wrote the article on page 23.

Cost benefit analysis of a modest levy

A levy would save funds or even produce surplus funds, because the cost of each sudden death is £1,683,810 and the average cost of injury is £34,496. Both these figures are taken from DOT figures at 2008 prices*. I have recently been informed by HSE that there are HSE prices and these are at 2009 prices but oddly are much lower*

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 statistics of unintentional deaths and injuries from CO

	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	Totals
Deaths from unintentional CO	31	31	22	29	33	39	31	36	23	28	= 303 Divided by 10= 30
Near misses from unintentional CO	87	145	171	213	153	329	192	263	187	155	= 1895 Divided by 10 = 190

*From the death of Katie Overton aged 11 who died in 2003 and Elisabeth Giauque aged 6 who died in 2005, it is obvious that even with the death of a previously healthy child, CO can be missed. This leads us to the conclusion that many deaths and injuries from unintentional CO are misdiagnosed and that these figures are just the tip of an iceberg. Also, we are convinced that many of those presenting at the GP with TAT (Tired All the Time) have in fact suffered poisoning by CO and other fuel toxins.

So 30 deaths per year at £1,502,000.....£45,060,000
190 near misses per year at £17,400.....£3,306,000
Total average cost per year
of these unintentional CO deaths & injuries…….……..……£48,366,000
So a fuel safety levy of £2 per household per year (£44 million) would save the taxpayer/society over £4 million per year.
A fuel safety levy of a mere £1 per household per year (£22 million) would save the taxpayer over £ 26 million per year.

DH statistics released Autumn 2011 are 50 deaths and 4,000 to A & E each year in England and Wales.
Costs then just of England and Wales are:-
50 deaths at £1,502,000……£75,100,000
4,000 near misses at £17,400……£69,600,000
Total……....**£1,44,700,000**

* Please note that the most recent HSE figures for 2009 prices are:-
Workplace fatal accidents £1,502,000
Reportable injuries £17,400 (All CO incidents are reportable under RIDDOR).
http://www.hse.gov.uk/economics/eauappraisal.htm
**Please note that the Department of transport most recent figures are for 2008 and these are:-*
'Cost of a life' is £1,683,810, serious injury £189,200, slight £14,590 with an average of all injuries being £34,496.
Please see http://www.webtag.org.uk/webdocuments/3_Expert/4_Safety_Objective/3.4.1-draft.htm
It seems very odd to us that the costs have reduced since 2008. However, see for explanation given to us please email us at office@co-gassafety.co.uk

Winners of the 2010-11 Competition

North

Winner Francesca Pitfield Age at entry 11

School Sheffield High School, Tel. 0114 266 1435

Teacher Sarah Groombridge

MP Paul Blomfield MP Lab. for the School

Nick Clegg MP, Lib. Dem. Deputy Prime Minister for the residential address of the winner

South

Isobel Porter Age at entry 11

School William Ransom Primary School, Tel. 01462 624 777

Teacher Steve Mills

MP for the school and residential address of the winner – Mr. Peter Lilley Con.

A Big Thank you to the Sponsors of our Competition – The Department of Health

We have funding from the DoH until 2013 for the competition.

Also thank you to those who have generously given to us.

Scotia Gas Networks, who are sponsoring the competition for Scotland and also paying for our press packs

CoGDEM, who are providing some CO alarms

Kane International – which is paying for the charity tea at the House of Lords.

CO-Gas Safety Poster Competition

Registered Charity Number:1048370
www.co-gassafety.co.uk

Calling all Primary Schools
and Pupils aged 10-11!
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 Schools Poster Competition for a fifth year to highlight the dangers of CO and other dangers from using fuel that burns.

Entry is FREE and PRIZES are at least £300 for each winning pupil and at least £500 for each winning school!

Competition for this year closes 31st July 2012

All the details are on the website
www.co-gassafety.co.uk/competition.html

There are three regions, North England and South England and now, (thanks to sponsorship by Scotland Gas Networks), Scotland, so there will be 3 winners.

You could ask your audience to spot the CO dangers in this picture

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

RULES

1. The competition asks students to produce an informative, accurate and eye-catching poster warning of the dangers of Carbon Monoxide (CO) poisoning and/or fumes and/or how to avoid them. Material about CO and how to avoid it and other fuel toxins can be found at www.co-gassafety.co.uk/competition.html
2. There will be one year group Year 6 in Primary School (ages 10-11) in the autumn term 2011 (or any other student who joins this year in 2011-July 31st 2012 but who is the correct age as specified above).
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 photographed and emailed (1 entry per person per email) in JPEG format to: postercompetition@co-gassafety.co.uk
6. Entries should reach CO-Gas Safety by no later than midnight on July 31st 2012. To avoid any confusion **please make sure that each entry/poster is clearly labelled on the poster itself with the name and age of the student and the name and address of the school** and please repeat this information in the accompanying email.
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.
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. The charity will try to clear up any ambiguities that may be brought to its attention (email office@co-gassafety.co.uk) and rules may be amended accordingly from time to time in order to clear up any such ambiguities brought to our attention.
9. Provided there are enough entrants, there will be two regional winners, North England and South England. Prizes will be £300 for each winning student and at least £500 for each winning school* (although if we obtain more sponsorship, we may increase this).
10. For those being home educated*, parents can nominate either a school or a Local Education Authority etc. to receive the £500 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.
11. By entering all entrants, (if winners), agree to attend a prize presentation at a venue to be notified to the winners, probably at the Houses of Parliament usually during the last week of January in the year following (e.g. if poster sent by 31.07.2012 wins, prize giving end of January 2013). Please note that the charity has funding from the Department of Health to continue this competition for three years from 2010 to 2013. Scotia Gas Networks are sponsoring the entry for Scotland this year (2011-2012).
Reasonable expenses for travel, food and accommodation costs for attending the prize giving venue of students and a parent/guardian will be reimbursed provided receipts are received. At the event one overall winner for England may be announced selected from the regional winners.
12. Upon entry, all entrants agree that all copyright and other intellectual rights to the posters will become the property of the registered charity, CO-Gas Safety.

For further information please visit www.co-gassafety.co.uk or email office@cogassafety.co.uk

'If you have any queries or worries please email
Stephanie Trotter OBE office@co-gassafety.co.uk'

SCHOOLS POSTER COMPETITION
INFORMATION ABOUT CARBON MONOXIDE

SECTION ONE
TO BE READ BY PUPILS/STUDENTS WITH THEIR PARENTS AND TEACHERS BEFORE DESIGNING A POSTER

The Silent and Invisible Killer
Every year about 40 people in the UK are recorded as having died of carbon monoxide poisoning. Hundreds more suffer ill-effects as a result of exposure to carbon monoxide: sometimes they are permanently disabled. Carbon monoxide can be emitted from faulty domestic heating and cooking appliances.
CO-Gas Safety believes that even these figures are the tip of an iceberg for many reasons:-

1. GPs rarely test for carbon monoxide.
2. Dead bodies are not automatically tested for carbon monoxide.
3. Heating and cooking appliances are often not tested for carbon monoxide.

Greater awareness of the dangers of carbon monoxide and other products of combustion and toxins in fuel as well as the need for ventilation, proper servicing and chimney sweeping could prevent these tragedies.

What is carbon monoxide?
Carbon Monoxide (CO) is a toxic gas, which can be emitted from the burning of any fuel.

Can you name any fuel that burns?

Gas (mains or bottled), solid fuel (coal, wood, etc) petrol, oil, paraffin.

Can you find any possible sources of carbon monoxide in this picture?

Why is Carbon Monoxide called CO?

The fuels that we use on a daily basis all contain carbon. Sources of carbon include charcoal, oil, natural gas and petrol. When we burn these fuels the carbon combines with oxygen in the air. If there is enough air, carbon dioxide is produced. Carbon dioxide or CO2 is formed from one atom of carbon and two atoms of oxygen.

Carbon monoxide, CO is formed from one atom of carbon and one atom of oxygen.

So you can see that the less oxygen there is at the flame the more likely it is that carbon monoxide will be formed. This is why it is so important to burn fuels in a well ventilated area.

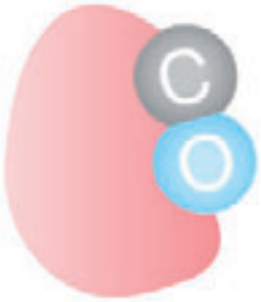
The dangers of carbon monoxide

Carbon monoxide is a highly toxic gas. Less than 2% of CO in the air can kill in two minutes (see page 26 Table 23 at http://www.hse.gov.uk/foi/internalops/hid/spc/spctosd30-annex.pdf).

Low level exposure of CO over a long period can cause brain and neurological damage.

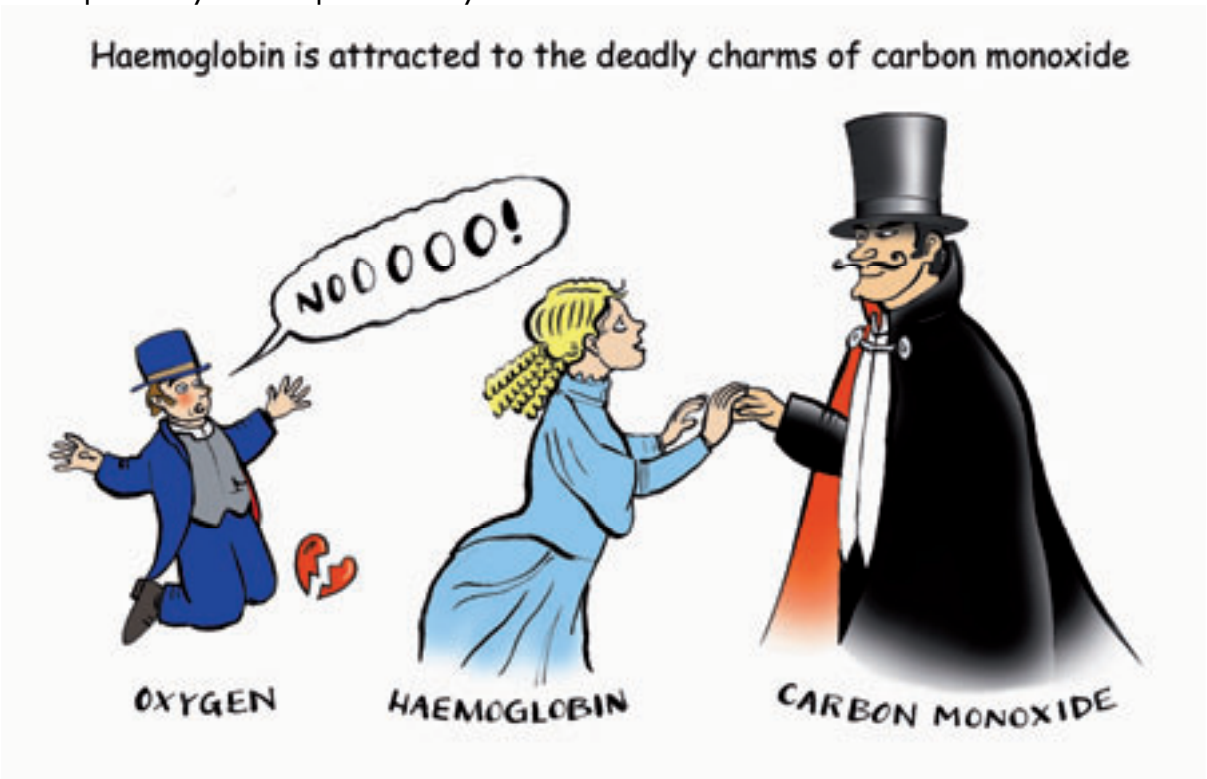
Why is carbon monoxide so toxic?
The red blood cells in your bloodstream carry oxygen to all parts of the body. Each red blood cell contains molecules of haemoglobin. Oxygen binds to the haemoglobin and when it gets to where it is needed in the rest of the body, the oxygen breaks away.

Carbon monoxide can also bind to the haemoglobin but it doesn't break away again.



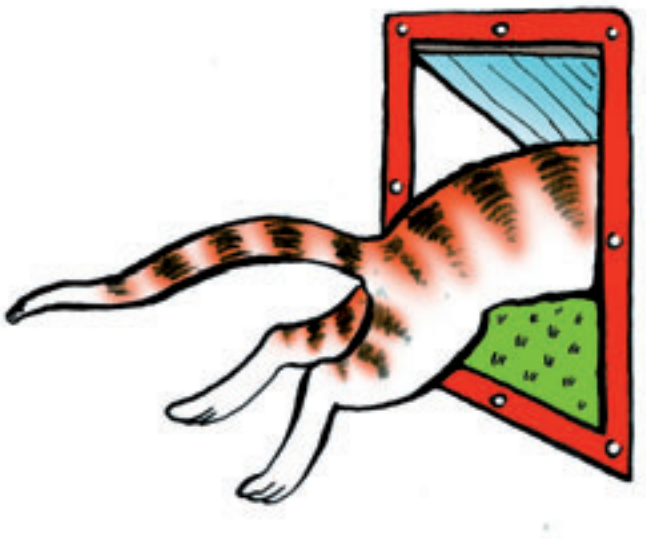
Effectively carbon monoxide blocks the haemoglobin, making it useless for carrying oxygen.

This explains why CO can poison in tiny amounts.



CO cannot be sensed using human senses, (hearing, seeing, tasting or feeling).

Do you know that miners used to take canaries down the mine?
Do you know why?
Because the poor canary (being very small) would die first and this would alert the miners to the presence of CO or other toxic fumes.
These days, special equipment, such as a flue gas analyzer, is needed to test appliances and/or the air in a room for CO.
Animals can still warn of dangers in the home. You may find your cat won't stay in the house.
Dogs may also behave strangely or have a sore throat or mouth.



Please note that although you can't smell CO itself, you just might be able to smell some of the other products of combustion, which may have escaped into the room rather than gone up a chimney, (because it is partly blocked for example). Sometimes people describe this smell as 'gassy' and think there has been an escape from a gas pipe supplying natural gas to the house or appliance.

Recent research shows how widespread the problem is
Recent research undertaken by University College London has found:-

1. '23% of homes had one or more defective gas appliance;
2. 8% of homes were judged to be at risk of dangerous levels of CO; *(equates to about 4.5 million people in the UK)*
3. 45% of homes had received no information on the dangers of CO; and
4. A higher prevalence of problem appliances was found in the homes of vulnerable people (young, old, those in receipt of benefits).'

The above is taken from an HSE Press Release 02.10.06

Symptoms of CO poisoning include:

- Headaches
- Nausea, (feeling sick)
- Exhaustion, (feeling unnaturally tired)
- Drowsiness, (wanting to go to sleep more than usual)
- Dizziness, (feeling funny as if you are going to fall over when standing up and perhaps feeling funny sitting down)
- Vomiting, (being sick)
- 'Flu like' symptoms, (generally feeling unwell. Some people suffer tummy aches and quite often different people suffer from different symptoms)
- Palpitations, (feeling your heart beat oddly)
- Chest pain, (pain in your chest)
- Collapse without necessarily losing consciousness, followed by unconsciousness and perhaps death.

The elderly and young are at higher risk than healthy adults. If you are suffering any of the symptoms, especially if more than one person in the house is suffering, you may be at risk of CO poisoning.

Please bear in mind that family members can suffer different symptoms, for example, the mother may be tired and have a headache, the son may be dizzy and act strangely and always want to be out of the house, the daughter may have a bad stomach ache, while the father may just be bad tempered. The problem is that such symptoms could be nothing or they could be CO.

Diagnosing CO poisoning

Doctors are generally poor at diagnosing CO. Doctor John Henry, former Consultant Physician at the National Poisons Unit, surveyed 200 general practitioners. He sent them symptoms of CO poisoning and requested their diagnoses. Although many sensible suggestions were made, not one GP suggested CO as a cause of these symptoms.

Some doctors' surgeries have equipment, (sometimes called a Smokelysler or ToxCo), to analyse breath for CO. This is easy, painless and provides an instant result. If this shows CO, a simple blood test may be required to confirm the diagnosis. However, a blood or breath test can produce a falsely negative result if too much time has passed between exposure to CO and tests being carried out. Do not assume that your appliances are safe just because the test results were negative.

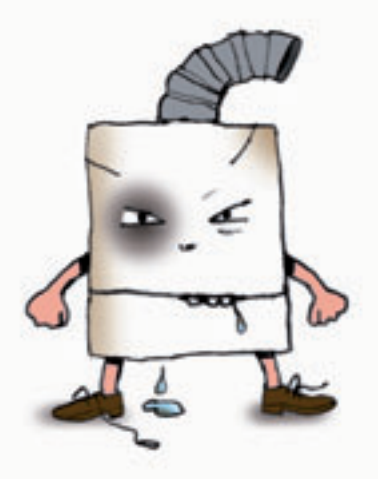
What do I do if I suspect I have been exposed to CO?

1. Get out of the house or place where the poisoning is occurring (e.g. workplace, garage, etc.) or if you can't do this
2. Open all windows and doors and turn off all appliances.
3. Call the Gas Emergency number on 0800 111999 (e.g. from a neighbour's house)
4. Get to your GP or to the Accident and Emergency department at a hospital as soon as possible and ask for an immediate blood or breath test for CO. Find someone to go with you if possible. A visit to a doctor may also be helpful to prove CO poisoning or at least to record symptoms suffered by you that are consistent with CO poisoning. If exposure to CO is severe, treatment with hyperbaric (high pressure) oxygen is often recommended.

Can CO pass between houses?

Yes, through a joint chimney for example. Alternatively CO or other products of combustion can leak from the flat above or the flat below.

Please note that the National Gas Emergency Service, (responsible for gas emergencies) has no equipment to trace CO. We think this is like sending someone out to trace radioactivity without a Geiger counter!



How safe is your boiler?

Take these simple steps to CO safety - it's just commonsense

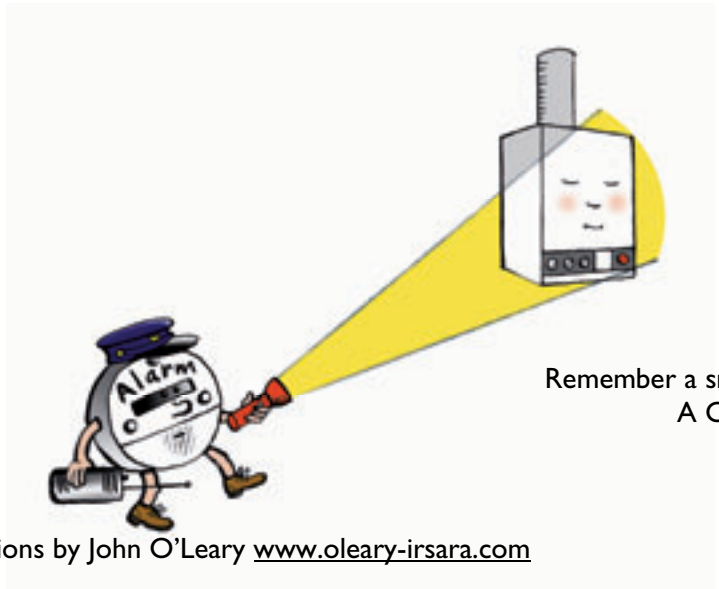
1. Look at all your appliances. Do they look unsafe?
   They should look clean (i.e. no soot or dirt around it and no water leaking from it) and burn with a blue flame.

2. Have all appliances installed and serviced at least once a year by a properly qualified person. For gas appliances this means that only someone who is on the Gas Safe Register should inspect or service them.
   Don't be shy about asking for proof of their training and experience - it's your money and your life. You can check that the individual who comes to your house is qualified to work on that particular appliance on the Gas Safe Register website
   https://engineers.gassaferegister.co.uk/
   Ensure that your gas fitter uses a flue gas analyser or similar equipment to check for CO gas.

3. Make sure chimneys and flues are swept regularly, at least once a year, by a fully qualified sweep.
   Make sure the chimney does not end in the loft or leak into the loft. It is important that chimneys and flues are kept clear so that all the products of combustion go harmlessly up the chimney and not back into the house.

4. Do not block vents or air grilles. Make sure you have some ventilation (open a window). If there is enough oxygen reaching the flame carbon dioxide will be formed, NOT carbon monoxide.

5. As an extra safeguard buy a CO alarm to European Standards EN50291.
   This will cost around £15-£20. Alarms are available at most DIY shops and some supermarkets. CO-Gas Safety has never heard of anyone dying with an in date CO alarm in nearly 17 years but we have heard of people still feeling ill with a good alarm, perhaps from low levels of CO or perhaps from other products of combustion or toxins in fuels.



Remember a smoke alarm is NOT a CO alarm.
A CO alarm is NOT a smoke alarm.

Illustrations by John O'Leary www.oleary-irsara.com

SCOTIA GAS NETWORKS

In 2006 Scotia Gas Networks reviewed its working practices for its operatives carrying out downstream emergency work. This is work that takes place on gas pipes and fittings, up to the meter. Scotia Gas Networks were concerned that emergency work on gas escapes inevitably exposes workers to gaseous atmospheres, including carbon monoxide. The review found that the use of gas instruments to test the atmosphere was only done periodically during work activities and that atmospheres can change quickly, often becoming hazardous without warning.

Safe working procedures to exit unsafe situations or wear breathing apparatus rely on knowledge that the atmosphere is unsafe. Scotia Gas Networks concluded that its maintenance operatives should be provided with personal atmosphere monitors with alarms set at pre-determined levels. As First Call Operatives are exposed to the risk from the leakage of carbon monoxide (especially as they attend reported emergencies of carbon monoxide leakage and work on gas apparatus in confined spaces), Scotia Gas Networks decided that they should also be issued with personal atmosphere monitors.[1]

Carbon monoxide safety in the home

These personal atmosphere monitors have activated whilst First Call Operatives were attending gas escapes and reports of carbon monoxide fumes on a number of occasions. When a carbon monoxide alarm activates in customers' premises the First Call Operative is required to investigate the cause and report it to Scotia Gas Networks' incident reporting team.

Between January 2009 and February 2011, there were 118 reports of personal atmosphere monitors activating in customer's premises due to the presence of carbon monoxide whilst First Call Operatives were undertaking both emergency work and non-emergency work.[2]

Reproduced by kind permission by the All Party Parliamentary Gas Safety Group and of Scotia Gas Networks.

[1] The personal atmosphere monitors used by Scotia Gas Networks are set at 30ppm (Time Weighted Average for long term 8 hour exposure limit) and 200ppm (Short Term Exposure Limit – 15 minutes).

[2] If a CO alarm activates in a premises the first call operative is required to investigate the cause in accordance with Scotia's procedure for attending reported carbon monoxide fumes to safeguard life and assess "Immediately Dangerous" and "At Risk" situations, or if applicable to apply a "Concern for Safety" notice. All CO alarm activations must also be reported to the Scotia's incident reporting team. Other than the immediate on site actions, consistent with attending a reported CO emergency, Scotia do not undertake post incident investigations.

Thanks

Our biggest thanks go to all the families of victims and to the brave survivors of poisoning. It is incredibly difficult for victims to do this lobbying work because by telling their stories they are reliving their trauma and grief. It is also particularly hard for them when their sensible suggestions about prevention, made to try to save others, are ignored. Many people naturally want to try to put the tragedy behind them. However, without all the information we've received from victims, we could not have put forward our suggestions for improvements. This is a continuing process as new dangers are revealed. Their support is much needed and very much appreciated.

Our thanks to the teachers, who work very hard instructing their pupils about CO and inspiring them. I'd particularly like to thank Sarah Groombridge from Sheffield High School, whose pupil has won fourth year running! She has won every year the poster competition has been held. Nearly all her pupils reached the final, which we think says a great deal about her teaching ability.

Thank you very much indeed all of those who faithfully attend our events. Your presence is much appreciated. There have been so many over the years, Sheree Maher, Chris Bielby, Blane Judd, John Andrews of NAPIT, Lord Hunt of Kings Heath, Barry Sheerman MP, Kevin Budd, Leigh Greenham, Zoe Forman, Angela Love, and Jim Lambeth and Frank Brehany come to mind but there are many more.

Our thanks to Baroness Finlay who has undertaken an inquiry and brought out a report (see pages 9 & 10). We hope this report will lead to action by Government and industry.

Our thanks to Honeywell for their frequent donations of CO alarms.

I would also like to thank Jo Richards, who has undertaken the work of the data compilation and publication for embarrassingly small wages from September 1995. Without her dedicated work, this data would never have been compiled. Jo doesn't just do a good job; she cares about every death and incident and does her utmost to get to the bottom of any ambiguities and we have been very lucky to have her since 1995. Just because people work from home and are not in expensive offices doesn't mean their work isn't of the highest quality. We don't pretend that our data is perfect, but it seems that we are the only body which has been trying our hardest to collect, compile, check and freely publish data of unintentional CO deaths & injuries from all fuels for 16 years. Jo is retiring in March 2012 and we are going to miss her very much. However, she has agreed to train someone to take her place, so now all we need is the funding.

Thanks also to Carolyn Craggs, the statistician who is checking our data. She has been incredibly conscientious and yet easy to work with.

I'd also like to thank Amy Henson of Creative Leopard for her wonderfully helpful work on converting the data into pie charts, bar charts and the map of the UK. She has made preparing this press pack so much easier this year as has our computer expert Richard Banks of Tip Top Computers.

We also send our thanks to all the Coroners and Coroner's officers who have given us so much information over the years.

The data also helps us to see trends such as the grill imported from Turkey that has killed so far 6 people. It also enables us to issue what warnings we can (e.g. about the camping lamp, which killed Paul Griffiths in 2007).

We would also like to thank the civil servants, who have helped us over the years, the occasional Government Minister, MPs and those in the fuel industry, who have helped or at least have shown that they understand what we're trying to do.

I would like to thank all the directors and MPs, especially Paul Overton, Jonathan Kane, Colin Breed MP, Mike Hancock MP, Desmond Swayne, the late Alan Keen MP and Crispin Blunt MP, who have helped the charity over the years.

I would also like to thank Baroness Maddock, who has been our patron and stood by us for almost the entire 17 years.

We would particularly like to thank courageous gas installers, such as Barry Matthews.

We would like to thank John O'Leary, CO victim and children's illustrator who did all the work for us without payment and Heather Tomlinson, who bravely, while still raw with grief for her beloved son Edward, undertook the huge work of the pilot project schools poster competition.

We'd also like to thank the Corfu parents and Ed Balls MP. Without their help and the publicity they generated, the competition just wouldn't have taken off.

This year we particularly want to thank Scotia Gas Networks and the other gas emergency service companies who are equipping or trialling Personal Alarm Monitors. Flue gas analysers to test the emissions from gas appliances would be even more appreciated.

We would also like to thank our directors, particularly Molly Maher, Don Neal and Jonathan Kane, who have been directors since we started in 1995.

Thank you to Kane International which has done a great deal to sponsor us over the years. Jonathan Kane is our only industry representative but his advice, from a business perspective, and his support has been invaluable.

I would also like to thank Paul Overton, who joined us as a director in 2005, without whom the charity could not have continued. Without victims such as Molly Maher, Don Neal, Paul Overton and Stacey Rodgers, how could this work be even attempted, let alone continued for 17 years?

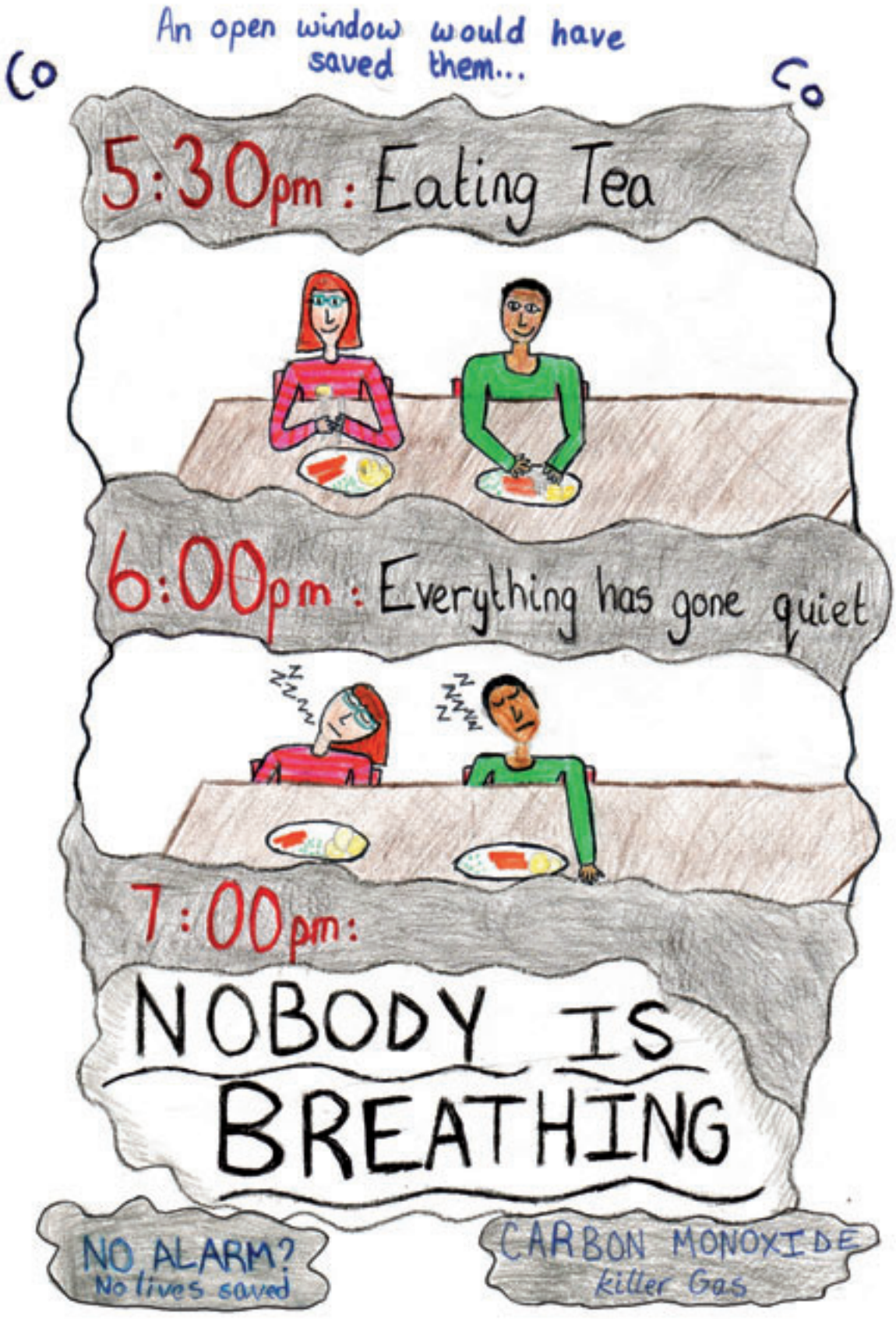
CO-Gas Safety has always been proud to be a victim based charity. We like to think that at least we've changed the way industry and Government treat victims and their organisations. Thankfully, it seems very strange now, that in 2000 we had great difficulty in even being treated as a stakeholder by the Health & Safety Executive!

We are actively seeking trustees, ideally victims or their representatives so if you think you would like to help, please get in touch by ringing 01372 466135 or emailing office@co-gassafety.co.uk

Stephanie Trotter, OBE, President & Director CO-Gas Safety

If you can help in any way, or we can help you, please get in touch with us at
Email office@co-gassafety.co.uk Tel. 01372 466135 Website www.co-gassafety.co.uk

Runner up. Daryoush Shirazi. Age at entry 10.
School: Sussex House School.
Teacher: Entered on his own account.



Winner for the South. Isobel Porter. Age at entry 11.
School: William Ransom Primary School
Teacher: Steve Mills