
**CROSS GOVERNMENT GROUP
ON GAS SAFETY AND CARBON
MONOXIDE (CO) AWARENESS**

ANNUAL REPORT 2016/17

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Introduction

The Cross Government Group on Gas Safety and Carbon Monoxide (CO) Awareness reconvened in June 2009 to ensure a joined-up approach across departments, the devolved administrations and other governmental bodies to improve gas safety and tackle CO risks from all fuels. The Group, whose members are listed below, also aims to develop effective Government strategies and promote knowledge and understanding of gas safety and CO risks and how to manage them.

- Department for Business, Energy & Industrial Strategy (BEIS)
- Department for Communities and Local Government (DCLG)
- Department of Culture, Media and Sport (DCMS)
- Department of Health (DH)
- Health and Safety Executive (HSE)
- Health and Safety Executive for Northern Ireland (HSENI)
- Health Protection Scotland (HPS)
- Home Office
- Office of Gas and Electricity Markets (Ofgem)
- Public Health England (PHE)
- Scottish Government
- Welsh Government
- Public Health Wales (PHW)

Gas safety and more broadly CO awareness is a truly cross government issue with the majority of Government departments, the devolved administrations and other governmental bodies having an interest from their particular perspective. This report provides a summary of the work carried out by members of the Cross Government Group on Gas Safety and CO Awareness under four key headings:

- Consumer Awareness
- Supporting Professionals
- Research
- Legislation and Securing Justice

Activities in this Report cover the period Autumn 2016 to Autumn 2017.

A representative from the Cross Government Group attends the meetings of the All Fuels Forum which was created to facilitate meetings between the All Party Parliamentary Carbon Monoxide Group (APPCOG) and other stakeholders to encourage debate and action on issues relating to CO. Further information can be found at: <http://www.policyconnect.org.uk/appcog/>

The Cross Government Group maintains a watching brief on current initiatives that will be useful or of interest and when possible invites a representative involved in gas safety or CO issues to provide an update of their work.

Carbon monoxide poisoning is a serious and preventable form of poisoning. Each year there are about 30 deaths from accidental CO poisoning in England and Wales (ONS Statistics)¹ and

¹ The figure of '30 deaths a year' used in this report is based on the average number of accidental poisonings by other gases and vapours (X47) and where the secondary cause of death was the toxic effect of carbon monoxide (T58) from 2011-2015

in excess of 200 non-fatal cases that require hospitalisation. Further statistical data from DH (covering England and Wales), HPS, HSENI and HSE is provided in the final section of this Report.

The DH, HPS, HSENI and HSE figures reflect the differences in the relevant data sources. The DH, HPS and HSENI data is based on public health information and excludes self-harm where that has been coded, but it is likely that self-harm is under-reported. HSE collects data on incidents which are reportable under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR) (<http://www.hse.gov.uk/riddor/>) (and previously under the 1995 Regulations). The Regulations apply to events, which arise out of or in connection with work activities covered by the Health & Safety at Work etc Act 1974. The Regulations require gas conveyors and LPG suppliers to report incidents where someone has died, lost consciousness, or been taken to hospital for treatment to an injury where gas is likely to be a cause.

CONSUMER AWARENESS

DH/PHE: Policy

Department of Health (DH) and Public Health England (PHE) attended and provided continuous input into the Cross Government Group on Gas Safety and CO Awareness meetings as well as into the All Party Parliamentary CO group meetings, on CO policy-related matters.

HSE and HSENI: Gas Safe Register

Ensuring that the public understand the role of the Gas Safe Register, and therefore trust the advice it provides on CO and other gas safety matters, remains a key objective.

To this end the Register continues to undertake consumer awareness activities on gas safety issues throughout the year, alongside the higher profile campaigns such as a Gas Safety Week. This 'always on' approach, combined with dedicated brand awareness campaigns help us to position the Register as a trusted source of advice.

Collaboration is also key, whether with specific organisations such as the Fire and Rescue Services or by creating broader collaborative campaigns such as Gas Safety Week, we build and magnify credibility by working with those who have credibility and reach within their own audience groups.

Since the redesign of our website last year onto a more sustainable platform we have spent a great deal of time analyzing how consumers use the site, where they look for information, and how easily they can access key messages and services. In terms of website design the landscape has changed enormously in the last few years and consumers have high expectations.

Our analysis has shown that while consumers do value the information the Register provides on the website the majority are focused on finding or checking an engineer. To that end we are continuing to review the user journey and experience to maximise the effectiveness of the tool. By improving the user experience we can then make our other safety messages easier and more effective to present.

Although CO risks remain central to our consumer messaging we also ensure we discuss and make consumers aware of other gas safety risks such as explosion or fire. The high profile nature of a gas explosion tends to result in levels of media interest not generated in a CO incident (in all but the most serious of cases).

<http://www.bbc.co.uk/news/uk-england-york-north-yorkshire-39568100> (Haxby)

<http://www.bbc.co.uk/news/uk-scotland-tayside-central-39342041> (Callander)

<http://www.bbc.co.uk/news/av/uk-england-northamptonshire-38959524/suspected-gas-explosion-in-northampton-town-centre> (Northampton)

<http://www.bbc.co.uk/news/uk-england-manchester-38650207> (Manchester)

<http://www.bbc.co.uk/news/uk-england-tyne-40910241> (Sunderland)

(Note, these are examples of reported incidents. Further investigations may have gone on to identify alternative or further contributory causes for the incidents.)

There is continued interest in and attention paid to public safety concerns and we always ensure our campaigning messages are practical and offer solutions rather than being alarmist.

The Register's summer campaign is a good example of this. We know that in the warmer summer months, when heating is less likely to be on, it is more difficult to engage consumers. For that reason summer campaigns tend to focus on seasonal messages such as safety on holiday and when camping, equipping people with safety messages that they will retain when they return home.

This year we had a particular focus on younger people attending music festivals and the topic of the safe use of disposable barbecues. In addition to a tailored press release, we partnered with festival organisers, local radio stations and worked with local media outlets on innovative new approaches like Facebook Live broadcasts.

Although the use of disposable barbecues is technically outside of the remit of the Register there was no challenge as to why this topic was being covered – reinforcing the view that the Register is seen as a natural source for overall gas safety/CO advice.

Key GSR statistics

- 74k registered businesses, 130k registered engineers
- 440k telephone calls
- 1.2m Building Regulations notifications

Social Media

- Twitter GSR – (Verified account) followers – 21,700+
- Facebook GSR (Verified account) followers 35,000+
- LinkedIn Followers – 3,653
- Instagram followers – 4,131
- YouTube Subscribers – 548 / YouTube video views – 253,000+

Website (from 1 Oct 2016 – 1 Oct 2017)

- Sessions – 3,111,698
- Page views- 25,564,287

Most viewed pages – 1. Homepage, 2. sign in (for engineers), 3.find an engineer

HSE: Domestic gas e-Bulletin

Since last year's report, subscription to HSE's Domestic gas e-Bulletin has risen from approximately 32,000 to over 36,000 <http://www.hse.gov.uk/gas/ebulletin.htm>.

HSE: Gas Safety Week

HSE supported Gas Safety Week, attending the launch and via social media.

HSENI: Carbon Monoxide Awareness Month

November 2016 was the fourth year of the Northern Ireland Carbon Monoxide Awareness Month. HSENI continued to support CO awareness via social media and local press reminding the public to keep chimneys and flues swept and what to do if they suspect CO may be present in their home. Other messages highlighted the range of appliances which have the ability to produce CO if not maintained:



HSENI Carbon Monoxide Awareness Month activity on Social Media

Facebook: Total *reach of the campaign on Facebook was – **8,869**

**Definition of total reach is calculated based on the unique number of people who could have potentially seen the updates.*

Twitter: Total *Impressions of the campaign on twitter was – **47,517**

**Impressions: times a user is served a Tweet in their timeline or search results.*

HSENI Public Health Agency and local authorities

Throughout 2016/17 Home Safety Officers, employed by local councils, with funding support from the Public Health Agency, provided a free and confidential home assessment service to those most at risk of a home accident. These vulnerable groups included families with children under the age of 5 years, people over 65 years of age and households with other vulnerable people.

In 2016/17, 6,509 homes were visited, and in 5,368 of these homes CO was identified as a potential hazard due to the presence of a CO-producing appliance located in the house or adjoining garage. Around 41% of the homes (2,209) did not have a CO detector, with older people (49%) being less likely to have a monitor in place than families with children under 5 (34%).

Advice was given to all relevant homes and over 3,000 leaflets were provided. In addition, 1,909 CO detectors were provided to low income households and vulnerable groups who were assessed as being at risk. The CO alarms were distributed along with relevant promotional materials thus assisting in the education and protection of vulnerable households identified during home safety checks as being most at risk of CO poisoning.

HSENI Public Health Agency: Summer safety message to watch out for CO away from home

The Public Health Agency of Northern Ireland issued a timely summer reminder to the many families who go camping, caravanning or boating, and the subsequent dangers of CO poisoning.

The Agency reminded the public that while CO is usually associated with domestic fossil fuel burning appliances, everyone should be aware that in holiday homes, caravans and on board boats, faulty gas cookers, appliances or petrol-powered generators can also lead to CO poisoning. They also highlighted the dangers of bringing gas and charcoal BBQs into tents and other small enclosed spaces.

HSENI: Gas Safety

Continued expansion of the natural gas networks led to further planned visits and inspections within the natural gas transmission and distribution sectors of the industry to ensure compliance. In partnership with the Gas Safe Register, proactive and reactive visits and inspections were concluded in the downstream private industrial and commercial sectors with enforcement action being pursued as necessary. During the course of 2016/17 the HSENI gas safety team continued to remind dutyholders and members of the public of the risks from CO poisoning as part of their routine works. CO awareness is not restricted to gas installations and includes other fossil fuel burning appliances.

PHE: Communications

PHE supported Carbon Monoxide Awareness Week through social media, advising people how to reduce their risks of being poisoned over winter, linking to the [PHE CO blog](#), an NHS Choices video on CO poisoning and linking to [CO advice during a flood](#).

PHE supported Gas Safety Week, co-ordinated by Gas Safe Register, in September 2016, via social media and linking to NHS Choices video on CO poisoning.

PHE launched the Cold Weather Plan, which included CO messages (See latest plan: <https://www.gov.uk/government/publications/cold-weather-plan-cwp-for-england>).

PHE circulated a Cold Weather communications toolkit to local authorities and the NHS, which included messages about getting appliances checked before winter.

PHE: Health Protection Directorate – CRCE/ Environmental Hazards and Emergencies Department

PHE (Extreme Events and Health Protection Group) and Department of Health advice on avoiding CO poisoning is included in relevant documents advising the public, for example the

“Cold Weather Plan for England” (<https://www.gov.uk/government/publications/cold-weather-plan-cwp-for-england>) and “Flooding: Advice” (<https://www.gov.uk/government/collections/flooding-health-guidance-and-advice>).

PHE Keep Warm, Keep Well leaflet

This is a cross government document coordinated by PHE and is public facing. It contains information and advice on CO safety around ensuring gas appliances are properly serviced and installed by qualified gas engineers, installation of CO detectors, dangers of solid fuels and where to find registered engineers. There are also links to webpages where the public can find more information on CO safety.

PHE Flooding: advice for the public

This is a public-facing advice leaflet that contains lines on the dangers of using diesel or petrol powered generators indoors to either pump flood water out of buildings or to dry the interior of a building after flooding.

Welsh Government/PHW: General activities

PHW continues to develop a Wales-wide CO surveillance system to inform understanding of the burden of CO and facilitate targeted interventions. Annual analysis of the epidemiology of CO incidents in Wales will be carried out and fed into a range of multi-agency groups, including the CO in Wales Working Group. During the period 1 September 2016 to 31 August 2017 11 CO-related incidents were recorded by the Environmental Health Protection team of PHW.

Inequalities in the burden of CO impacts in Wales may become the focus of future interventions.

PHW published a comprehensive news item on their website to correspond with CO Awareness Week 2016 to remind health professionals about reporting CO-related incidents, and an item encouraging people to be mindful of the dangers of CO and to take note of the signs and symptoms

- <http://www.wales.nhs.uk/sitesplus/888/news/43378>
- <http://www.wales.nhs.uk/sitesplus/888/news/43326>

PHW: Local authority information

Local authorities in Wales can access a range of CO information through the Public Health Wales website. (<http://www.wales.nhs.uk/sitesplus/888/page/50368>)

Welsh Government: CO website pages

The Welsh Government publishes a postcard-sized safety advice detailing 3 simple steps which householders can take to reduce the risk of CO poisoning in the home. Welsh Government regularly contacts key interested bodies to make them aware of the availability of free hard copies of the advice. These include Wales’ Fire and Rescue Service, LAs, higher education establishments (specifically student unions and student accommodation officers) and charities.

The postcard advice also provides a link to the CO web pages on the Welsh Government website at <http://gov.wales/topics/health/protection/environmental/carbon/?lang=en>.

This page was substantially revised for November 2016 and includes advice on:

- the symptoms of CO poisoning;
- potential sources of CO
- Actions to take if CO poisoning is suspected.

A cross-reference link to the Welsh Government webpage on Schedule 1 of the Building Regulations about heat-producing appliances includes information on:

- CO alarms;
- maintaining household appliances; and
- chimneys, flues and air vents.

SUPPORTING PROFESSIONALS

PHE - National Poisons Information Service

The National Poisons Information Service (NPIS) (commissioned by PHE on behalf of UK health services) Annual Report 2016/17 includes information on CO poisoning. Carbon monoxide poisoning is one of the major public health poisoning problems dealt with by the NPIS. Since July 2015, NPIS has undertaken a project funded by the Gas Safety Trust to obtain more information, in particular confirmation of exposure, from healthcare professionals contacting the NPIS.

During the first 18 months of the project, 4,851 alerts were submitted from TOXBASE and 419 calls to the NPIS telephone line regarding CO. Data was available for 1,227 patients. The majority of unintentional exposures were associated with boiler failure (280; 24.7%) or an unspecified CO leak (144; 12.7%). In 192 (17.0%) cases of unintentional exposure, activation of a CO alarm prompted the patient to seek medical attention.

<http://www.npis.org/NPISAnnualReport2016-17.pdf>

PHE - Health Protection Directorate – CRCE/ Environmental Change Department

Tools to aid diagnosis

PHE (Air Quality and Public Health) is currently working to update the algorithm for GPs on the diagnosis for poisoning to include recommendation for CO home monitoring. The current version of the algorithm can be found together with other PHE tools for professionals managing patients and investigating incidents on CO, at Gov.UK website:

<https://www.gov.uk/government/collections/carbon-monoxide-co>.

Cold weather related materials

The cold weather plan for England, which is a cross governmental framework coordinated by PHE (Extreme Events and Health Protection Group), contains information and advice around CO safety, specifically at Level 0 – year round planning. For example, the following are topics contained within actions for individuals:

- Servicing of all gas, solid fuel and burning oil appliances by registered engineers;
- Checking chimney and flues for blockages;
- Fitting audible CO alarms.

Flooding materials

PHE (Extreme Events and Health Protection Group) contribution to the flooding and health chapter of the National Flood Emergency Framework for England contains lines on the dangers of using diesel or petrol powered generators indoors to either pump flood water out of buildings or to dry the interior. This danger is also highlighted in Annex E – Communications guide, within that document.

This aspect is repeated in the on-call duty doctor's pack (internal PHE resource) and the web-learning module on flooding, further supporting professionals.

PHE Health and Wellbeing Directorate, Alcohol, Drugs & Tobacco Division

Implementation of NICE guidance on smoking in pregnancy

There is strong collaboration between PHE and NHS England, to support the implementation of NICE (National Institute of Health and Care Excellence) guidance on smoking in pregnancy (PH26). Recommendation 1 in this guidance is for midwives to conduct a CO test with ALL pregnant women as part of the process for identifying those who smoke or are exposed from other sources. Those with elevated levels should be referred via an opt-out system for specialist support to stop smoking, or further discussions initiated regarding potential exposure to CO if not from smoking.

Improving implementation of NICE Guidance is a priority in the new Tobacco Control Plan for England, the Maternity Transformation Programme and the Saving Babies Lives care bundle (to reduce stillbirth). A new on-line training module was launched in June 2016, designed to enhance communication skills and support midwifery teams to effectively carry out relevant activities (around 2000 practitioners have accessed this to date). PHE and NHS England are working through regional and local networks to support ongoing improvements in routine CO screening in maternity services.

<https://www.nice.org.uk/guidance/ph26>

http://elearning.ncsct.co.uk/vba_pregnancy-launch

<https://www.gov.uk/government/publications/towards-a-smoke-free-generation-tobacco-control-plan-for-england>

Smoking in Pregnancy Challenge Group -“Test your breath” postcard and other resources

The Smoking in Pregnancy Challenge Group has produced resources and publications to inform women of the risks of smoking in pregnancy, including CO exposure. The most widely used is the “test your breath” postcard that informs pregnant women about the risks of CO and the CO test, and a briefing for midwifery staff to encourage them to conduct the CO screening test. Working with PHE, the Group have been able to make enough of these available so that every pregnant woman can be given a postcard and each member of the midwifery team receive a briefing for the past two years. Maternity services can order these directly and, in some areas, the postcards are being included in booking packs.

<http://www.smokefreeaction.org.uk/SIP/index.html>

PHE: Meetings

A PHE representative attended the All-Party Parliamentary Carbon Monoxide Group (APPCOG) panel discussion on Detection and Technology, which was organised on 12 October 2016. The panel was chaired by Baroness Finlay of Llandaff and looked at the recommendations concerning CO detection, contained in the APPCOG's most recent report.

PHE scientists attended the Carbon monoxide: Biomarkers Workshop funded by Gas safety Trust and British Toxicological Society on 7 September 2017.

Welsh Government/Public Health Wales

The Carbon Monoxide in Wales Working Group was established by PHW in 2014 to co-ordinate and lead on CO work in Wales, drawing on its membership from various organisations, including the emergency services, health boards, LAs, industry and the voluntary sector. The CO Working Group has not met in the past year and efforts have been made to revitalise and provide a more sustainable approach to future management of the group. Discussions between PHW, the Welsh Government and housing experts are still ongoing to agree the future approach. The Group's web pages are still available and PHW continue to work with partners to provide a consistent response to support CO incidents.

PHW is actively engaged in responding to CO-related incidents alongside partner organisations such as local authorities, fire and rescue services and the Welsh Ambulance Service. PHW reviews the response to all CO-related incidents of which it is notified with the objective of improving response where needed.

The Welsh Government continues to provide comprehensive CO advice on its website (<http://gov.wales/topics/health/protection/environmental/carbon/?lang=en>) which includes advice for health professionals, incorporating information on diagnosis, investigations and management of suspected poisonings from CO (<http://gov.wales/docs/phhs/publications/151113copoisoningen.pdf>).

In November 2016, in support of Carbon Monoxide Awareness Week, the Welsh Government issued a Welsh Health Circular (WHC (2016) 052) on behalf of the Chief Medical Officer for Wales and Chief Nursing Officer for Wales to all health professionals in Wales encouraging their vigilance to the signs and symptoms of CO poisoning in their patients (<http://gov.wales/topics/health/nhswales/circulars/health-professional/?lang=en>). The letter also alerted them to the availability of a diagnostic algorithm (see below). The Welsh Health Circular was also the subject of an item on the NHS Wales GPOne Primary Care website. During CO Awareness Week, an item was also included in the weekly Welsh Government email news service to schools to raise awareness of the symptoms of CO poisoning. The Chief Medical Officer for Wales also issued a number of tweets on the subject.

PHW: Algorithm for health professionals

To coincide with Carbon Monoxide Awareness Week November 2016 the Carbon Monoxide in Wales Working Group produced and distributed an algorithm to support medical/health professionals in identifying and managing suspected CO poisoning in their patients. This was redistributed via Welsh Health Circular WHC(2016) 052. This algorithm is available on PHW's website: <http://www.wales.nhs.uk/sitesplus/888/document/251948>

RESEARCH

PHE- Health Protection Directorate – CRCE/ Toxicology Department

As part of the NIHR HPRU, PHE scientists have been undertaking a study of foetal carboxyhaemoglobin (CO-fHb) levels in blood-spot samples collected from neonates in the catchment area for the John Radcliffe Hospital, Oxford. This is a feasibility study, and will also serve as an indicator of incidence of elevated CO-fHb levels.

PHE has received GST funding together with Frimley Park Hospital, SGUL, University of Surrey and others for a study of incidence of elevated CO-Hb levels in patients attending these two emergency departments. The project will be used to:

- Validate the COMA (Companions, Outside, Maintenance, Alarm) mnemonic during triage to identify those patients with symptoms indicative of CO poisoning who are likely to be exposed to CO;
- Test novel analytical methods for the quantitation of CO-Hb using GC/MS and high resolution mass spectrometry;
- Investigate seasonal effects, undertake some biomarker discovery work using lipidomics and metabolomics and use the elevated CO-Hb levels to trigger premises inspections by gas engineers who will measure ambient CO levels and assess appliances.

PHE- Health Protection Directorate – CRCE/Chemicals and Environmental Effects Department

The Environmental Epidemiology Group has started two projects in 2016:

- A PhD project for study of CO exposure measurement error by a combination of analytical chemistry and epidemiology methods. This is a collaboration of PHE with Brunel University and Toxicology Department at Lausanne Hospital, Switzerland, funded by GST. A doctoral student started working in December 2016. Initial experimental results have been presented at a meeting in London in September 2017.
- A PhD project for study of CO exposure in residential settings, focusing on repeated exposure and chronic health effects, in particular neurological. A collaboration with Bartlett School of Architecture at UCL (Ben Croxford), funded by the Government of Taiwan. Ke-Ting Pan, a public health researcher from Taipei, was recruited and started work in September 2016.

PHE: Health and Wellbeing Directorate - West Midlands Centre

The Health and Wellbeing team produced a report in April 2017 from a study into the effectiveness of educational/behavioural initiatives to help reduce low CO poisoning in families with children aged 0-4. The funding was received from the PHE Research Pump Priming Fund (PPF) Grant (2015-16). Its aim was to facilitate the development of a strong proposal in collaboration with the Child Accident Prevention Trust that will set out clear methodology for a study into the effectiveness of educational/behavioural initiatives to help reduce low CO poisoning in families with children aged 0-4, including those from socially disadvantaged groups.

LEGISLATION AND SECURING JUSTICE

DCLG: Smoke and Carbon Monoxide Alarm (England) Regulations 2015 - Consultation

The Government published an eight-week consultation (<https://www.gov.uk/government/consultations/review-of-the-smoke-and-carbon-monoxide-alarm-regulations-2015>) on 7 November to invite views and comments on the effectiveness of the Smoke and Carbon Monoxide Alarm (England) Regulations 2015 which came into force on 1 October 2015. They require private rented sector landlords in England to have at least one smoke alarm installed on every storey of their rental properties and a CO alarm in any room containing a solid fuel burning appliance. Landlords must ensure alarms are in working order at the start of each new tenancy. During the passage of the regulations through Parliament in 2015, ministers committed to review them in 2017. The consultation does not indicate any intention to change the regulations. Any legislation brought forward as a result of the review would be subject to appropriate assessment and its own consultation.

HSE/HSENI: Enforcement activities

HSE continues to work to secure justice and provide consumer protection where gas safety incidents are highlighted. This may be through the issue of an enforcement notice or prosecution in the event of a breach of the law. 8.7% of HSE's prosecution informations² in 2016/17 were brought under the Gas Safety (Installation and Use) Regulations 1998.

Significant cases have included:

- A Northamptonshire building firm constructed a shelter around a flue at a childminder's home. The firm was fined £40,000 and the company director was given a 26-week prison sentence, suspended for 12 months. (<http://press.hse.gov.uk/2016/building-company-fined-for-putting-childminder-and-children-at-risk/>)
- An unregistered Cambridgeshire fitter who carried out dangerous work at four properties. He was sentenced to 16 months imprisonment. (<http://press.hse.gov.uk/2017/worker-jailed-for-unsafe-gas-work/>)
- A Swansea gas engineer left appliances in a dangerous condition leading to CO poisoning of the residents and himself. He was fined £933. (<http://press.hse.gov.uk/2017/self-employed-plumber-sentenced-after-unsafe-gas-work/>)
- A London plumber who worked on over 1000 properties and the firm that contracted him without checking his credentials were prosecuted. The plumber was sentenced to six months imprisonment, suspended for two years, with 50 hours unpaid work requirement. The firm was fined £ £90,000. (<http://press.hse.gov.uk/2017/unregistered-plumber-and-company-fined-after-unsafe-gas-work/>).

All incurred significant court costs in addition to the sentences imposed.

Prosecutions of landlords continued for a variety of offences including: failure to provide landlord's gas safety records; using unregistered gas fitters to carry out work; carrying out illegal work themselves; and failure to ensure safety of appliances.

² In health and safety cases, criminal proceedings are commenced by the laying of an Information in the magistrates' court. The Information is normally accompanied by a summons, which is intended to secure the accused's attendance at court, in order to answer the allegation(s) made against him/her contained in the Information.

Further information on the HSE website: HSE Public Record of Convictions is at <http://www.hse.gov.uk/Prosecutions/> and the Media Centre <http://press.hse.gov.uk/> includes press releases relating to prosecutions.

HSE and Gas Safe Register: Enforcement

Gas Safe Register supports enforcement activity through incident investigation and operational support; they undertake visits with HSE, HSENI and local authorities. The field operations teams also complete inspections to identify unsafe gas work and assess engineers' competence.

STATISTICS

This section includes statistical data from DH, HPS, HSENI and HSE on CO fatalities. The various parties use specific, but different criteria in what they record. The figures reflect the differences in the relevant data sources.

The DH, HPS, HSENI data is based on public health information and excludes self-harm where that has been coded, but it is likely that self-harm is under-reported. HSE collects data on incidents which are reportable under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013 (RIDDOR) (and previously under the 1995 Regulations). The Regulations apply to events which arise out of or in connection with work activities covered by the Health & Safety at Work etc Act 1974. The Regulations require gas conveyors and LPG suppliers to report incidents where someone has died, lost consciousness, or been taken to hospital for treatment to an injury where gas is likely to be a cause.

CO mortality data

On request from PHE and DH, Office of National Statistics (ONS) provided the data on mortality from CO poisoning (deaths registered in 2015-2016 in England and Wales). The data is now available online:

<https://www.ons.gov.uk/file?uri=/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/adhocs/007476numberofdeathsfromaccidentalpoisoningbycarbonmonoxideenglandandwalesdeathsregisteredin2015to2016/numberofdeathsfromaccidentalpoisoningbycarbonmonoxide.xls>
(The reference number is 007476).

Carbon monoxide poisoning is a serious and preventable form of poisoning. Each year there are around 25 deaths from accidental CO poisoning in England and Wales (ONS Statistics)³.

PHE have compiled mortality statistics from the Office of National Statistics for accidental CO poisoning 2005-2016. (Latest 10 years figures published in table below.)

For information on Northern Ireland CO data please contact Health.Protection@dhsspsni.gov.uk

For information on Scottish CO mortality data, please see <http://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/vital-events/vital-events-reference-tables> or contact statisticscustomerservices@nrscotland.gov.uk.

For information on England and Wales CO data, please contact COfeedback@phe.gov.uk

³ The figure of '25 deaths a year' used in this report is based on the average number of accidental poisonings by other gases and vapours (X47) and where the secondary cause of death was the toxic effect of carbon monoxide (T58) from 2012-2016

Number of deaths from accidental poisoning by carbon monoxide, England and Wales, 2007-16^{1,2,3}											
Code	Cause	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
V01-X59	All accidental carbon monoxide poisonings	79	85	90	65	79	65	60	55	53	49
X47	Accidental poisoning by other gases and vapours	47	39	39	32	34	25	24	26	25	16
	Occurrence at home	35	26	29	23	29	18	16	18	24	13
	Occurrence in residential institution	0	0	0	0	0	0	0	0	0	0
	Occurrence at school other institution/pub admin area	0	0	0	0	0	0	0	0	0	0
	Occurrence at sports/athletics area	0	2	0	0	0	0	0	0	0	0
	Occurrence on street/highway	1	4	1	1	1	1	0	0	0	0
	Occurrence at trade/service area	0	0	1	0	1	0	0	1	0	0
	Occurrence at industrial/construction area	4	2	1	1	0	0	1	0	0	1
	Occurrence on farm	0	0	0	0	0	0	0	0	0	0
	Occurrence at other specified place	7	3	5	6	3	5	6	5	1	1
	Occurrence at unspecified place	0	2	2	1	0	1	1	2	0	1
V01-V99	Transport accident	1	0	1	0	0	0	0	0	1	1
X00-X09	Accidental exposure to smoke, fire and flames	31	46	50	33	45	40	36	29	27	32
¹ Cause of death was defined using the International Classification of Diseases, Tenth Revision (ICD 10). Deaths were selected where the underlying cause of death was accidental (ICD 10 codes V01-X59), and where the secondary cause of death was the toxic effect of carbon monoxide (ICD 10 code T58).											
² Figures for England and Wales include deaths of non-residents.											
³ Deaths registered in each calendar year.											
<i>Source: Office for National Statistics</i>											

The figure of '25 deaths a year' used in this report is based on the average number of accidental poisonings by other gases and vapours (X47) and where the secondary cause of death was the toxic effect of carbon monoxide (T58) from 2012-2016

Scotland: Mortality figures 2006-2015

Carbon monoxide deaths (ICD 10 code: X47) data from the General Register Office for Scotland. Data range 2007–2016

Mortality statistics for accidental CO poisoning in Scotland

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Deaths by CO (X47)*	0	2	1	2	2	1	0	1	4	2

National Records of Scotland, Vital Events Reference Table 6.4

*X47 Other gases and Vapours (Carbon Monoxide)

Northern Ireland: Mortality figures 2010–2016

Deaths from carbon monoxide poisoning¹ 2010–2016

Type of carbon monoxide death	ICD10 Code	Registration year						
		2010	2011	2012	2013	2014	2015	2016
Uncontrolled fire in a building or structure	X00	4	3	2	3	3	3	-
Exposure to controlled fire in a building or structure	X02	-	2	-	-	-	-	-
Exposure to ignition of highly flammable material	X04	-	1	-	-	-	-	-
Exposure to other specified smoke, fire and flames	X08	-	-	-	-	-	-	1
Accidental poisoning	X47	2	-	1	-	6	3	1
Intentional self-harm	X67, X76	3	1	5	9	1	1	2
Assault by smoke, fire and flames (includes arson, cigarettes and incendiary devices)	X97	-	-	-	-	-	-	-
Poisoning by and exposure to other gases and vapours, undetermined intent	Y17	1	-	-	-	-	-	1
Total		10	7	8	12	10	7	5

¹ Deaths from carbon monoxide poisoning have been defined using ICD10 code T58 and where carbon monoxide was mentioned on the death certificate

Health and Safety Executive published statistics

<http://www.hse.gov.uk/statistics/tables/ridgas.xlsx>

Table RIDGAS 1

Flammable gas incidents¹ resulting in injury reported in Great Britain 2012/13 – 2016/17p
Source: Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR)

¹ An incident can cause more than one fatality or injury

Type of incident		Year				
		2012/13	2013/14	2014/15	2015/16r	2016/17p
Total number of incidents		224	211	161	178	166
	Carbon monoxide poisoning	193	188	138	146	126
	Other exposure, eg to unburnt gas	6	3	3	6	4
	Explosion/fire	25	20	20	26	36
Total number of fatalities		10	6	6	8	-
	Carbon monoxide poisoning	9	3	6	7	-
	Other exposure, eg to unburnt gas	-	-	-	-	-
	Explosion/fire	1	3	-	1	-
Total number of non-fatalities		353	356	240	261	275
	Carbon monoxide poisoning	313	329	214	225	226
	Other exposure, eg to unburnt gas	6	5	3	7	5
	Explosion/fire	34	22	23	29	44

Notes

Statistics presented in these tables are for gas-related incidents in Great Britain reportable under the Reporting of Injuries, Diseases and Dangerous Occurrence Regulations (RIDDOR). For more information see www.hse.gov.uk/statistics/sources.htm

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

r =revised, p=provisional

Flammable gas incidents resulting in injury: Table 1 presents annual reported gas-related incidents that are notifiable under Regulation 11(1) of RIDDOR; this 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 (mainly piped gas but also includes bottled LPG). The statistics published 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 confirmed.

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 www.hse.gov.uk/statistics/tables/prosecutions.xlsx - Table 5

HSE also provides details of members of the public who have died in reportable domestic gas incidents on their website. For 2016/17 <http://www.hse.gov.uk/foi/fatalities/2016-17.htm>