CORGI Carbon Monoxide Report

Contents

Introduction

In 2006 carbon monoxide poisoning was put in the spotlight after the tragic deaths of two young children in Corfu. However, in the UK carbon monoxide poisoning claims many more lives each year and leaves countless more chronically ill, possibly living with the after-effects of poisoning for the rest of their lives. But what is the scale of the carbon monoxide threat? Who are the most vulnerable groups within our communities? Where are the regional hot spots and what are the issues exacerbating the problem?

To answer these questions and to encourage a wider debate among the public, consumer groups, and the trade about how best to minimise the threat of this silent killer, CORGI has developed its first-ever Carbon Monoxide Report. The Report draws on new research among consumers and the trade, plus analysis of reported carbon monoxide poisoning cases.

As the gas safety watchdog, one of CORGI's roles is to reduce the many needless, gas-related carbon monoxide incidents. This Report is a critical part of this work and hopefully a catalyst for further debate in the industry. I hope you find it useful.

Ian Powney
Chief Operating Officer
CORGI

Method

The Report draws on three pieces of research that seek to scale the problem through an analysis of the carbon monoxide cases that occurred from January 2006 up to, and including, April 2007 and that resulted in death or injury.

There is no single, reliable data source for these cases, so they have been drawn from media reports and the work of CORGI's own investigations team, which investigates gas-related incidents on behalf of the Health & Safety Executive, the police, Npower, Southern Electric, Powergen and Scottish & Southern and other interested parties. Carbon monoxide poisonings that were car related, suicides or the result of fire are not included in this analysis.

The second bespoke piece of research used in this Report was commissioned by CORGI and examines the scale of the illegal gas worker problem. It is a legal requirement for any business carrying out gas related work to have their competence assessed and therefore be registered with CORGI. Yet many thousands of illegal gas workers continue to operate in the UK. To gauge the scale of this worker population and the threat they pose, we examined interviews among 123 illegal gas workers. These are supported by the results of a survey of 707 CORGI registered installers in May 2007.

A report released in September 2006 by the All Party Parliamentary Gas Safety Group, that explored the level of carbon monoxide awareness in the UK, has shown the level of awareness of the average member of the public to be low. The best defence the UK public can have against carbon monoxide poisoning is knowledge. To measure the level of consumer awareness of carbon monoxide poisoning, the Report examines the results of a tailored online study of 1,102 consumers completed in May 2007 by Tickbox.

Summary

There were 102 carbon monoxide poisoning incidents, claiming 50 lives and causing 218 injuries, between January 2006 and April 2007. Undiagnosed cases, plus the lack of central reporting on the issue mean the overall figures for injuries are likely to be much higher.

Causes
The majority of carbon monoxide incidents are avoidable – the most common cause of death through carbon monoxide poisoning comes from faulty or poorly maintained gas appliances (28%).

Vulnerable Groups
Children and the elderly are vulnerable groups, and they account for 50% of the fatalities and 54% of injuries. The over 55s are most likely not to have a carbon monoxide alarm because they don't think they are vulnerable to poisoning. Furthermore, one in four in this group last had their appliances checked at least three years ago.

People in rented accommodation – such as students – are also particularly at risk (27% of incidents). A key problem for tenants is that 35% struggle or forget to get an up-to-date gas safety record from their landlord.

Ethnic minority groups who cannot speak English are also at risk. The concerns are that some are perhaps more likely to be in poorer rented accommodation and some cases have shown they would prefer to have their gas work done by friends or relatives rather than let 'strangers' (CORGI registered members) into their homes.

Timing & Regions
53% of the carbon monoxide incidents in 2006 were in the winter months (Nov – Feb) at the very time when CORGI members are at their busiest. Furthermore, there have been 24 incidents in January and February 2007 alone.

Per head of population, the worst hit region for carbon monoxide poisoning is Yorkshire – where 18% of the incidents, eight fatalities and 18 injuries occurred. People in this region are twice as likely to suffer a carbon monoxide incident than people from Northern Ireland and Scotland. Yet people in this area are least likely to think they are at risk from carbon monoxide poisoning.

Wales is the second most at risk hotspot, and here the results of the consumer survey showed the participants were the worst at being able to tell whether their gas appliance is working safely, by identifying a correctly burning gas flame.

Although it suffers the highest number of incidents (20% of the total), once population differences are factored in, the Midlands becomes the fourth ranking hotspot behind the North East, which is in third place.

Causes
Carbon monoxide poisoning is usually an accumulation of events, which on their own may not appear too serious, but when combined can become deadly. Faulty appliances that haven't been serviced, blocked flues and chimneys, as well as basic owner errors, such as blocking air vents, account for 45% of cases.

Illegal gas workers are another major problem. There are an estimated 3,000 illegal gas installers operating in the UK who have never been CORGI registered. The quality of their work has never been verified. On average these workers carry out approximately 279,000 gas jobs each year.

The Future
To improve the situation, all those involved in the trade and in consumer protection should focus on:

- Better data collection to scope and trend the problem
- Zero tolerance on unsafe gas work carried out by CORGI registered members
- Further research into vulnerable areas and groups
- More consumer education
- New thinking for new industry entrants
- A more transparent and credible approach to illegal gas worker reporting
- Illegal landlord reporting

Although they only account for just over 8% of the incidents investigated by CORGI, their detrimental impact is far greater than this because they are less likely to be educating consumers. For instance over 89% of CORGI members surveyed said they help play an important role in educating consumers about good gas safety practice, which can reduce the aforementioned avoidable incidents.

Illegal workers are twice as likely as CORGI members to be involved in a carbon monoxide incident investigated by CORGI. CORGI registered members are very worried about illegal gas workers – one in five say that more often than not they go to a home where an illegal gas worker has quite clearly been working. These illegal gas workers trained typically 5 years ago and 37% aren't sure how they keep up to date with legislation or developments, making their unregulated work all the more dangerous. Yet cynicism within the trade inhibits 23% from reporting illegal workers, the feeling being that nothing will happen if they do.

Consumer ignorance is a key problem, which creates a climate where illegal gas workers can flourish. Our research shows that 32% of consumers fail to ask to see a CORGI ID card – CORGI members predict the number is closer to 55%. Consumers are also ill equipped to protect themselves. While the use of smoke alarms in homes is high (90%) 69% don't have a carbon monoxide alarm. 42% of consumers don't get their appliances checked annually and one in four admit they don't know the symptoms of carbon monoxide poisoning. Even one in five of those who claim they do, got it wrong.

A shortage of CORGI members is another issue giving illegal gas workers the space to operate. 23% of CORGI members say they are too busy, 30% turn down work at least every week and 29% don't find it easy to find qualified gas employees. Furthermore, new entrants struggle to get the experience they need to become CORGI registered – almost half of CORGI members never offer apprenticeships.

The National Picture

In the 16-month period from 1st January 2006 to 30th April 2007 there were 102 carbon monoxide incidents in the UK. These resulted in 50 deaths and a further 218 injuries. In the first four months of 2007 there were 40 incidents, 48% up on the same period last year.

The actual figures will be higher than this. For example, CORGI's investigations team examined 20 of these confirmed carbon monoxide incidents. Eight were fatal and 12 non-fatal. However, the team also investigated a further 37 occurrences, which are not included in the above figures. This is because while the victims showed all the signs of carbon monoxide poisoning, i.e. they had elevated carbon monoxide levels in their blood, no carbon monoxide levels could be detected at the incident address.

However carbon monoxide poisoning may well have been the root cause as John Gregory, CORGI's Technical Services Consultant explains:

"Sometimes we fail to find a carbon monoxide problem at the address because we simply cannot recreate the correct mix of circumstances; wind speed and direction and general weather conditions may have all contributed to the incident. That's not to say carbon monoxide poisoning didn't take place, indeed the carbon monoxide levels in people's blood suggests on a number of occasions that it must have. We just can't absolutely verify it by recreating the problem when we investigate."

This makes it difficult to show the true number of carbon monoxide poisonings. There could also be higher injury figures than presented in this Report, due to undiagnosed cases. In some cases the victims reported they felt ill for some time, and saw doctors/healthcare professionals who didn't diagnose the problem. Given the flu-like symptoms of carbon monoxide poisoning, this mistake can be easily made.

This suggests a significant number of people may be visiting doctors' surgeries on a regular basis, suffering from carbon monoxide poisoning and their symptoms are not being linked with this silent killer. This may impact on their long-term health. The problem is not being diagnosed, and because the carbon monoxide levels found in the blood haven't reached such a level that it is considered or classified as a major incident, it is not being picked up in the statistics.

	Incidents	Fatalities	Casualties
2006	62	36	128
2007 (Jan-April)	40	14	90
Totals	102	50	218

A mother of two discovered by chance that she was suffering from carbon monoxide poisoning. She had been to her GP complaining of nausea and dizziness, but was told she must be pregnant. During a college class, she volunteered to take a breath test to demonstrate a non-smoker's carbon monoxide levels.

However, the machine showed her level to be six times higher than it should be. A blood test confirmed the diagnosis and she was told to take her family to hospital for tests. Her husband and two children were also being poisoned and an investigation found that their boiler was unsafe.

Scale of Injury

While many will understandably focus on the fatality figures, the injury figures should not be underestimated. No statistics have been collated through which we can gauge the long-term affects of carbon monoxide injury. However, anecdotal evidence suggests many of the 218 casualties, which have arisen through carbon monoxide poisoning in the last 16 months, will be living with the after-effects for a long time. Further research needs to be conducted to determine what the effects of long-term carbon monoxide poisoning are.

A brother and sister were poisoned by carbon monoxide 22 years ago. There was an illegally fitted water heater seeping carbon monoxide into their apartment. The brother died and his sister was left confined to a wheelchair permanently paralysed once regaining consciousness from a five-month coma.

The Winter Danger
As you would expect, consumers are most vulnerable when they are using their gas appliances the most, which is during the peak winter months of November through to February. In 2006, 53% of the incidents occurred during this time frame and these were the most devastating, accounting for 67% of the deaths.

Date	Months	Incidents	Fatalities	Casualties
2006	Jan	7	8	7
	Feb	6	3	15
	March	7	1	10
	April	7	5	16
	May	3	2	4
	June	5	2	8
	July	3	1	6
	Aug	0	0	0
	Sept	3	0	8
	Oct	1	1	0
	Nov	9	5	41
	Dec	11	8	13
Total		**62**	**36**	**128**
2007	Jan	15	8	30
	Feb	9	3	20
	March	4	0	6
	April	12	3	34
Total		**40**	**14**	**90**
Combined Totals		102	50	218

Influence of Illegals
CORGI investigated 1,810 complaints against illegal workers between 1st Jan 2006 and 30th April 2007. Furthermore, **although the sample size is small**, carbon monoxide cases investigated by CORGI were twice as likely to involve illegal gas workers as CORGI members.

Nine of the reported incidents are due to installation faults and two thirds of these are due to poor workmanship carried out by illegal gas workers. Given that these numbers are just the start point for the carbon monoxide incidents, and "fully illegal" workers – i.e. those who have never been CORGI registered, and have therefore never had the standard of their work verified – are carrying out approximately 279,000 gas jobs per year across the UK (46% servicing or repair jobs and 54% installations), the impact of this illegal gas worker group on consumer health is likely to be high. Illegal gas workers are discussed in detail on page 16.

Furthermore, the good consumer practice that CORGI members encourage – 89% promote annual gas safety checks to their customers – is less likely to be delivered in the thousands of households employing "fully illegal" gas workers.

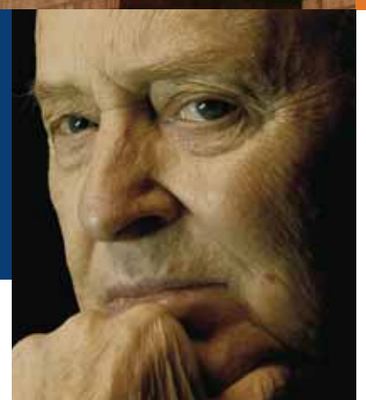
An elderly couple died from carbon monoxide poisoning when they left the door open on their enclosed coal fire. This meant the lethal fumes escaped into the room and overcame the elderly couple.

Incident Types
Tragically, 54% of carbon monoxide poisoning incidents representing 67% of the fatalities and 44% of the injuries appear avoidable. The common causes are faulty appliances (28 incidents), installation faults (9) blocked chimneys and flues (7) or owner error (11).

These incidents could have been avoided through basic good safety practice such as having appliances installed and subsequently checked and maintained annually by a CORGI registered member, only using qualified professionals, ensuring any appliances are appropriately ventilated, chimneys and flues are clear and recognising danger signs such as an unhealthy flame on a gas appliance.

Blocked chimneys and flues are a particular risk at the end of the summer, when fires or appliances begin to be used again. Even if people are following good practice and having their chimney swept every year, there is a risk of the chimney or flue becoming blocked by nesting birds during the spring and summer periods, possibly leading to a serious carbon monoxide incident. People who live with interconnecting boundaries are also at risk if their neighbours have issues with their appliances, chimneys or flues. Cases have been reported where the carbon monoxide has seeped through into the property nextdoor.

Causes	Incidents	Fatalities	Casualties
Gas Explosion	2	1	2
Blocked Chimney	5	6	2
Blocked Flue	2	1	2
Faulty Appliance	28	6	57
Installation Error	9	4	27
Gas Leak	13	0	62
Owner Error	11	16	8
No Details	32	16	58
Total	102	50	218



A grandmother and her two grandsons were killed, while her daughter and a friend were hospitalised when a man illegally installed their gas boiler. He didn't fit a flue pipe to the appliance, which resulted in the three being fatally poisoned by carbon monoxide and the other two are left with permanent brain damage. The illegal gas worker was only sentenced to twenty months in prison.

Regional Hotspots

Every part of the country has been touched by the problem but the most vulnerable regions, when we take into account population levels, are Yorkshire, Wales, the North East and Midlands.

Top 4 Hotspots
Yorkshire
Wales
North East
Midlands

Factoring in population levels, people in Yorkshire are six times as likely to suffer from a CO incident than people in the South East and four times as likely as those in the South West. Although the Midlands has the highest number of incidents, its population is a third less likely than people in Yorkshire to be hit by carbon monoxide poisoning. Analysing why these regions in particular are so vulnerable is complex and would require a more detailed study exploring issues such as levels of rented accommodation, age demographics and levels of illegal gas installers.

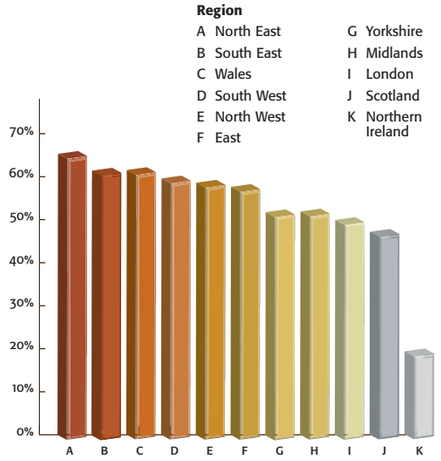
However the consumer research highlights some interesting gaps between the geographies. For instance, despite topping the risk list, people in Yorkshire and the North East are almost the least likely to think they are at risk from carbon monoxide poisoning.

The Welsh are significantly the worst in terms of knowing how to tell from the flame if their appliance is burning satisfactorily – 19% failed this test. Given their risk levels, it is worrying that people in Yorkshire also appear to lag behind most in terms of having appliances checked.

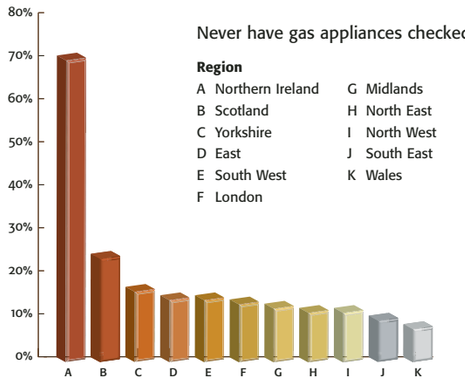
The recommended good practice is to have appliances safety checked and serviced every year. However, one in ten in all of the poorest performing regions, (apart from Wales) never have their appliances checked at all.

One in seven Londoners admits using an illegal gas worker to work on their gas appliances – it is the region most likely to do so. Almost 40% of Londoners live in rented accommodation – this makes them a particularly vulnerable group.

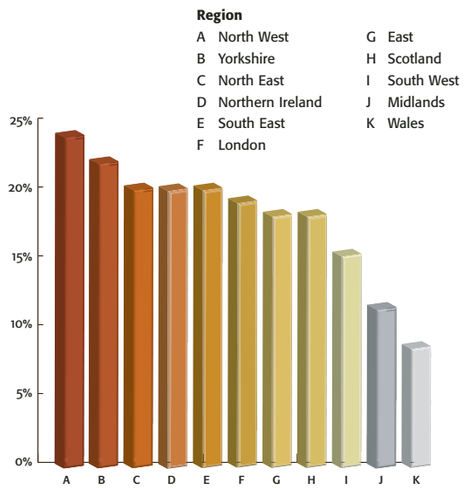
Checked within past year



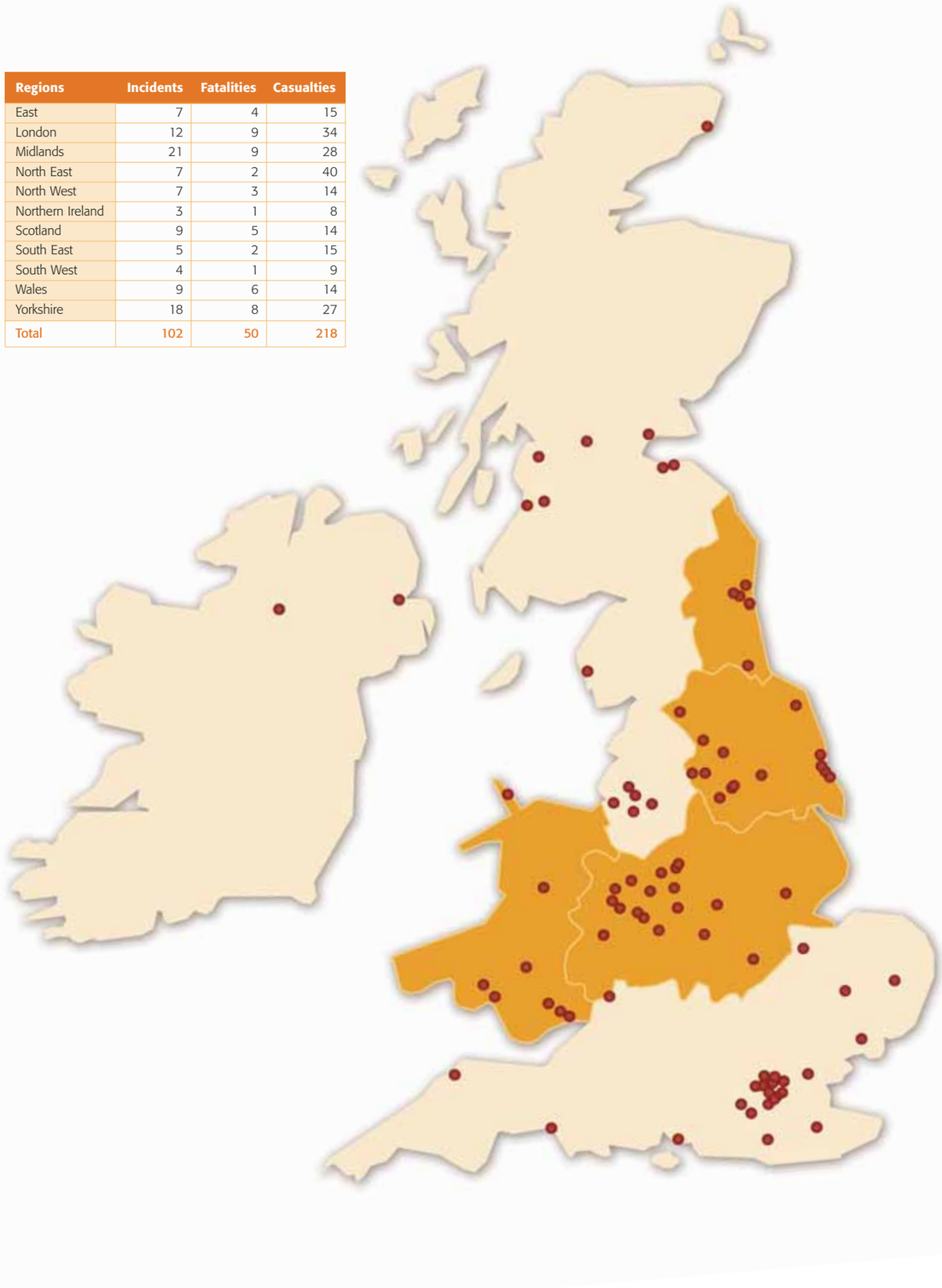
Never have gas appliances checked



I don't think I'm at risk



Regions	Incidents	Fatalities	Casualties
East	7	4	15
London	12	9	34
Midlands	21	9	28
North East	7	2	40
North West	7	3	14
Northern Ireland	3	1	8
Scotland	9	5	14
South East	5	2	15
South West	4	1	9
Wales	9	6	14
Yorkshire	18	8	27
Total	102	50	218



The Regions in Detail

Regions	Towns	Incidents	Fatalities	Casualties
East	Bury St Edmonds	1	1	0
	Colchester	2	0	3
	Essex*	1	0	2
	Harlow	1	0	5
	North Hykeham	1	3	1
	Peterborough	1	0	4
	Total	**7**	**4**	**15**
London	Barking	1	3	2
	Cheam	1	0	3
	Cricklewood	1	0	2
	Elephant & Castle	1	1	0
	Hackney	1	0	9
	Lewisham	2	0	3
	Norbury	1	1	2
	Notting Hill	1	0	1
	Southall	1	3	0
	Streatham	1	1	2
	Tooting	1	0	10
	Total	**12**	**9**	**34**
Midlands	Alfreton	1	0	1
	Bentley	1	0	1
	Birmingham	2	1	2
	Coventry	2	3	5
	Gresley	1	0	3
	Kirkby	1	0	1
	Leek	1	1	0
	Leicester	1	0	2
	Loughborough	1	1	0
	Midlands*	1	0	1
	Norbury Wharf	1	2	0
	Nottingham	1	0	3
	Oldbury	1	0	1
	Swadlincote	1	0	1
	Telford	2	1	1
	Wilenhall	1	0	1
	Wolverhampton	1	0	2
	Total	**21**	**9**	**28**
North East	Darlington	1	0	2
	Gateshead	1	0	27
	Newcastle	1	1	0
	North Tyneside	2	1	6
	Total	**6**	**2**	**37**
North West	Blackley	1	2	0
	Bolton	1	0	3
	Egremont	1	1	0
	Liverpool	2	0	6
	Marple	1	0	4
	Northwich	1	0	1
	Total	**7**	**3**	**14**
Northern Ireland	Belfast	2	0	8
	Derrylin	1	1	0
	Total	**3**	**1**	**8**
Scotland	Aberdeen	1	0	5
	Ayr	1	0	1
	Cumnock	1	0	5
	Edinburgh	1	2	0
	Fife	2	1	3
	Glasgow	1	0	2
	Longriggend	1	1	1
	Musselburgh	1	1	1
	Total	**9**	**5**	**14**
South East	Portsmouth	1	0	3
	Staines	1	0	7
	Sussex	1	0	1
	Tunbridge Wells	1	2	0
	Weybridge	1	0	4
	Total	**5**	**2**	**15**
South West	Bideford	1	0	4
	Gloucestershire*	1	0	1
	Guernsey	1	1	0
	Weymouth	1	0	4
	Total	**4**	**1**	**9**
Wales	Abertridur	1	1	0
	Ammanford	1	0	6
	Blaina	1	0	2
	Brecon	1	2	0
	Brynrefail	1	2	0
	Conwy	1	0	1
	Neath	1	0	3
	Newport	1	1	0
	Powys	1	0	2
	Total	**9**	**6**	**14**
Yorkshire	Cleethorpes	1	1	1
	Cudworth	1	2	0
	Doncaster	3	1	7
	Driffield	1	0	1
	East Herringthorpe	1	0	2
	Grimsby	2	0	4
	Huddersfield	1	0	1
	Hull	2	0	2
	Humberston	1	0	6
	Leeds	1	0	1
	Normanton	2	2	2
	Rotherham	1	0	3
	Sheffield	1	1	0
	Silsden	1	1	0
	Total	**19**	**8**	**30**
Total		102	50	218

* Specific location not verified

Weather

Some of the regional figures may be influenced by weather. For instance coastal areas have proportionately fewer incidents due to the milder climate and fewer frosts. For example, cold, frosty mornings with little or no air movement can affect the efficient operation of certain flue systems. If on such mornings the flue takes time to get going, this in turn may result in carbon monoxide build up in the home. The lack of frosts in coastal areas means they are less likely to suffer this particular weather-related problem.

This is because carbon monoxide is formed whenever carbon or substances containing carbon such as gas, coal, wood or oil are burned with an insufficient air supply. While the biggest causes will be problems such as poor maintenance/servicing, incorrect installation/commissioning of the appliance or lack of ventilation, certain weather conditions will exacerbate the problem.

Vulnerable Groups

Past research has indicated that some of the most vulnerable groups are children, the elderly and those in rented accommodation. There are also some indicators that people in some ethnic minority communities are particularly vulnerable to carbon monoxide poisoning. This appears to be due to two factors. They are proportionately more likely to be in poorer, rented accommodation. Furthermore, they appear more likely to use family friends/acquaintances to complete gas work in their homes, rather than a CORGI registered member.

Age Range	Fatalities	Casualties
Elderly (60+)	22	32
Adult (18-59)	25	96
Teenager (13-17)	0	7
Children (0-12)	3	75
No details	0	8
Total	50	218

Elderly & Young

50% of those killed or injured through carbon monoxide poisoning in the past 16 months were the elderly or children. To understand why these groups are particularly vulnerable we should first look at how carbon monoxide poisoning occurs.

The blood's haemoglobin normally absorbs oxygen in the lungs and carries it to the rest of the body. However, haemoglobin absorbs carbon monoxide approximately 240 times more easily than oxygen. So when carbon monoxide is inhaled it attaches itself to the haemoglobin, starving the body of oxygen.

The smaller or frailer the person, the more quickly the body becomes overcome by the effects of carbon monoxide, hence children and older people are particularly vulnerable.

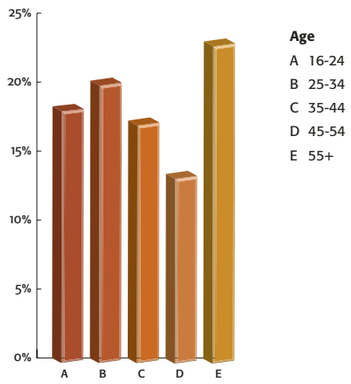
The elderly are also proportionately more vulnerable because they are less aware of the dangers – for instance in the consumer awareness study, when asked why they don't have a carbon monoxide alarm, the over 55s are the group least likely to think they are at risk from carbon monoxide poisoning.

Appliances last checked

Never	12%
3-5 years ago	6%
Over five years ago	6%

This group is also more likely to have older appliances and yet almost one in four (24%) when asked when they last had their appliances checked, say either "never" or "at least three years ago".

I don't have a carbon monoxide alarm because…
"I don't think I'm at risk from carbon monoxide."



Tenants

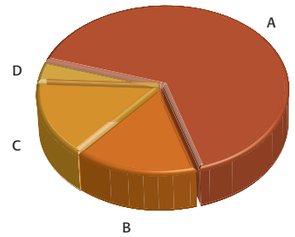
Non-owner occupiers, be they in council/private sector rented accommodation or a housing trust, are also vulnerable.

A key problem is that while landlords by law need to provide an up-to-date gas safety record, 35% of the tenants studied report that they can't get one from their landlord, or forget to ensure it's updated.

Premises	Incidents	Fatalities	Casualties
Council Rented/Housing Trust	19	1	41
Owner Occupied	30	22	55
Rented	9	2	20
Boat	2	2	2
Caravan	3	2	2
Mobile Home	3	2	4
Office	1	0	1
Hotel	2	0	9
Restaurant	1	1	0
School	1	0	27
Shipping Container	1	3	0
No Details	30	15	57
Total	102	50	218

An elderly mother and daughter died because their chimney had not been swept. There had been a build up of soot behind their solid fuel room heater preventing the deadly fumes from escaping leading to carbon monoxide poisoning.

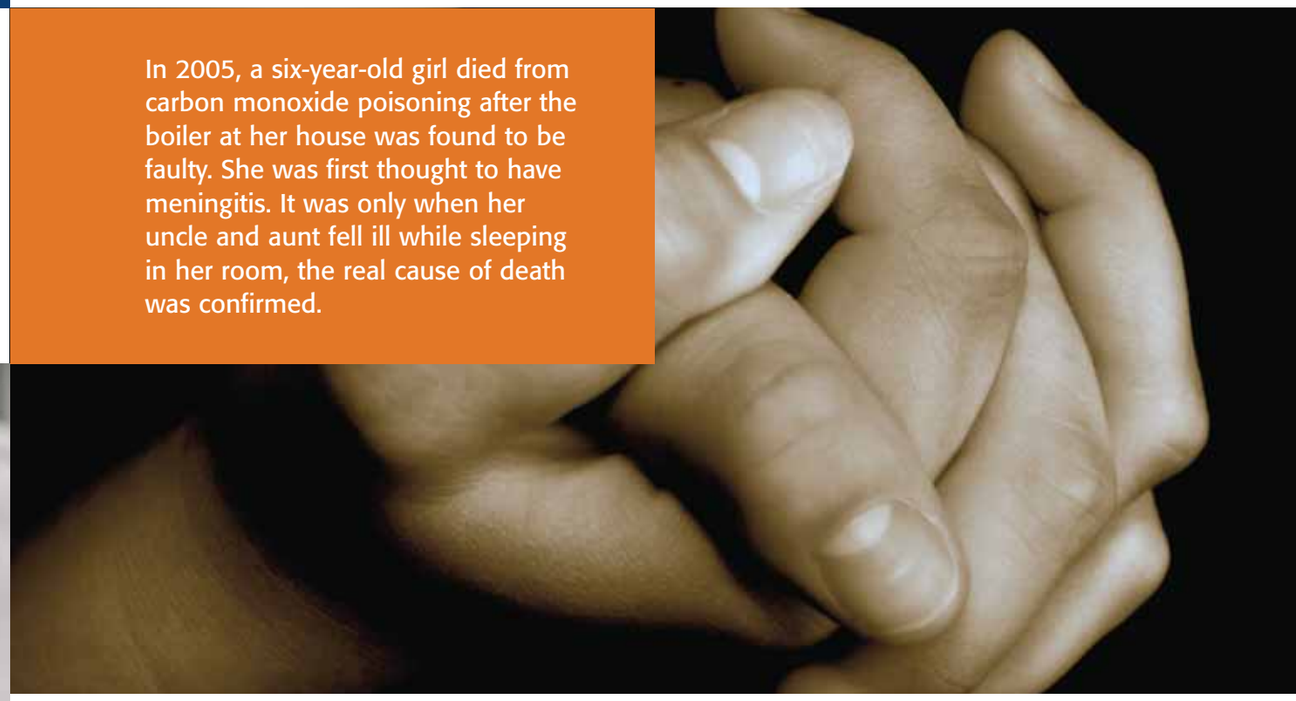
Do you ensure there is an up-to-date gas safety record?



A Yes - at all times **65%**
B Yes - when I move in, but forget about it over time **16%**
C No - didn't know it was legal requirement **15%**
D I've asked but my landlord won't provide one **4%**

*Based: 280 people in online study who are in rented accommodation

In 2005, a six-year-old girl died from carbon monoxide poisoning after the boiler at her house was found to be faulty. She was first thought to have meningitis. It was only when her uncle and aunt fell ill while sleeping in her room, the real cause of death was confirmed.



The Issues

The Report has shown that there are a number of factors influencing the carbon monoxide incidents in the UK. These include consumer awareness/education, the use of illegal workers and the shortage of qualified new workers to the sector.

Consumer Awareness & Education
The online research among 1,102 consumers suggests many are unaware of the signs and dangers of carbon monoxide poisoning.

Carbon Monoxide Alarm
69% don't have a CO alarm – yet 90% have a smoke alarm. This is because almost one in five simply don't think they are at risk from carbon monoxide poisoning and over half (55%) just have never considered it.

Appliances Checked
42% don't get their gas appliances checked annually and over one in five get them checked less frequently than every five years. When asked to spot which flame indicates whether a boiler is working correctly, 12% select the wrong flame. 24% admit they don't know the symptoms of carbon monoxide poisoning. A significant number of those claiming to know them are wrong – **35% suggest sore eyes are a symptom**. 43% don't know how to switch off the gas supply in their home.

Use of Illegals
Almost one in ten report they have used someone who is not CORGI registered to work on their gas appliances.

The CORGI ID Card

Wouldn't think to ask to see it	17%
Too embarrassed to ask to see it	9%
Was not aware it was a legal requirement for them to have one	6%

*Base 1,102 consumers

However this use of illegal gas workers could be far higher given that 32% don't always ask to see the CORGI ID card before the person starts work. According to 55% of the registered installers studied, customers never ask to see their CORGI ID card.

Does Legality Matter?
Although it is by no means fool proof (4.1% of cases investigated by CORGI involved CORGI members) CORGI registration ensures a certain level of built in competence and safety. To be registered, a CORGI member needs to be able to demonstrate appropriate and adequate knowledge, experience in the industry, qualifications, plus they must pass an ACS Assessment for each aspect of gas work that they want to perform. Then within six months of being accepted onto the CORGI register their work is inspected, drawing on a random selection of their jobs.

The assessment will include a check on the competence and safety of their work, the quality of advice being given to consumers, plus documentation. Each and every CORGI member is then given a risk assessment – based on the areas they are working in, their past performance, any complaints ever made against them and so forth – this measure determines how regularly they are inspected going forwards.

No matter what the risk level is, every three years all CORGI members are inspected by CORGI and they are re-assessed through ACS every five years. CORGI has introduced Gas Work Notification, which requires all appliances installed in

domestic premises to be notified to CORGI. This then allows CORGI access to inspect specific areas of gas installation work that may be of concern.

In addition to the rigour of the assessment processes, CORGI members offer the benefit of being kept more up to date with latest legislation and developments plus being able to access free expert advice from CORGI.

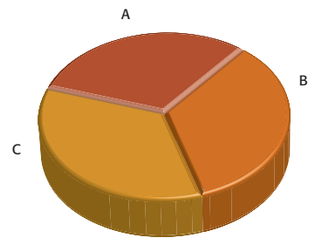
Furthermore, CORGI members are also far more likely to spread awareness of good practice than illegal gas workers. For instance 89% of CORGI registered members report they promote annual gas safety checks to their customers.

Illegal Gas Workers
By their very nature it is difficult to scope the size of the illegal gas worker market or to get a measure of the real danger they represent to consumers.

To address this, CORGI commissioned a unique study. It found that there are approximately 10,000 illegal mid-sized firms working with gas in the UK and at least a further 2,000 micro firms. Interviews with 107 of these mid-sized illegals were then conducted to explore how they operate.

Lapsed members are a potential high-risk group as their number includes workers who have been de-registered due to their incompetence/dangerous work or poor attitude to consumer safety. CORGI has de-listed 38 workers in this way since January 2006.

Types of Illegal Gas Workers



A **31%** are fully illegal – they have never been CORGI registered This means they have never been assessed to show that they are competent and safe.

B **34%** have let their CORGI membership lapse.

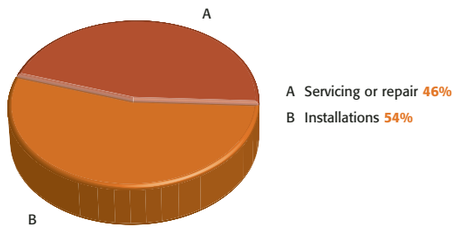
C **35%** are part-time – they hold CORGI membership through their employer's business and carry out private jobs for friends and family but do not have a personal membership.

The Greatest Danger

However, the group representing the biggest danger to the public is the "fully illegal gas workers" as at no stage has their work ever been assessed for competence. Over a third of this group's work is gas work and this amounts to 90 jobs per year.

If we scale this up based on our market size analysis, it suggests that these "fully illegal" gas workers are carrying out 279,000 gas jobs per year

Fully Illegal Gas Worker Jobs



A Servicing or repair **46%**

B Installations **54%**

Worryingly for the 279,000 households in the UK where these workers are installing boilers or servicing or repairing equipment, these illegal gas workers attended their training course less recently than any other group and have the least structured way of keeping up to date with new regulations or developments/best practice in the industry.

Research among 707 registered CORGI members verifies the scale of the illegal gas workers' business and that much of this work is substandard. For instance 81% report that they are very worried about illegal gas workers – with 21% reporting that they, more often than not, go to a job where it is clear from the standard of work in place, that an illegal gas worker has carried out the work before.

CORGI's own investigations substantiate the lower quality of work being carried out by illegal gas workers. During the time frame of this study, its investigations were twice as likely to involve illegal gas workers as CORGI members.

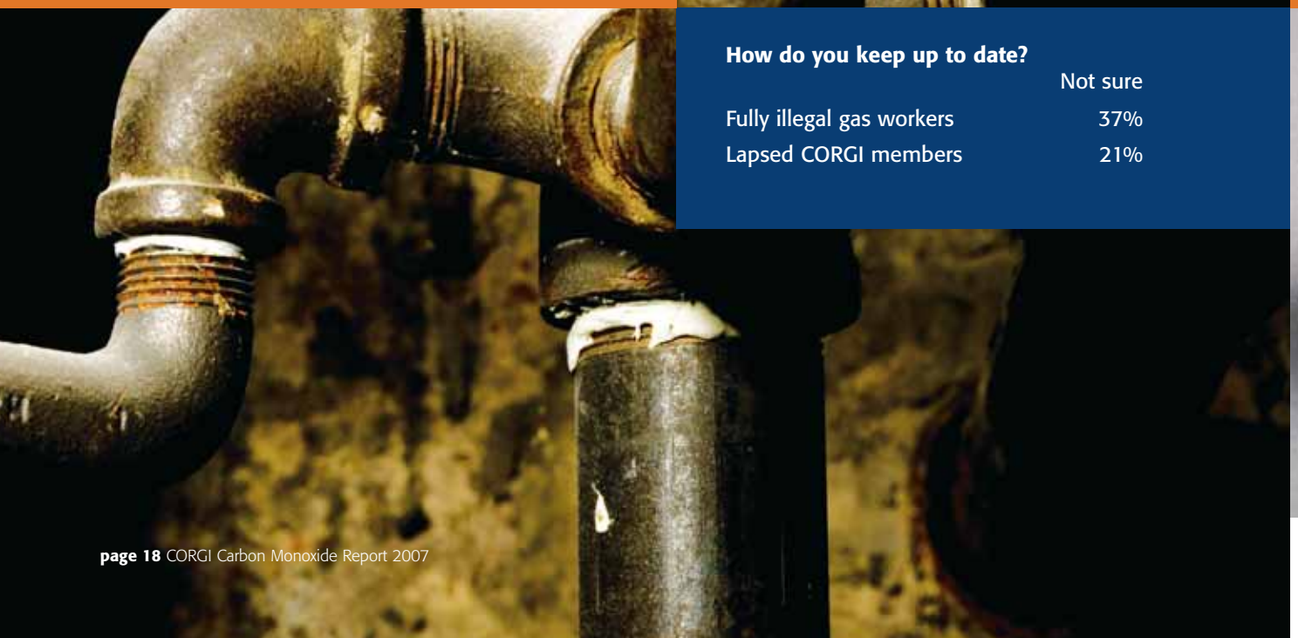
Registered installers' views…

Worried about illegal gas workers	81%
More often than not attend a job where illegal gas workers have worked before	21%
Happily report illegal gas workers	67%

*Base: 707 CORGI members

How do you keep up to date?

	Not sure
Fully illegal gas workers	37%
Lapsed CORGI members	21%



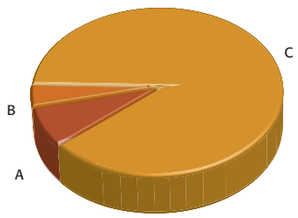
Reporting Illegal Gas Workers

Given these facts you would expect CORGI members to report illegal gas workers. However, only two thirds (67%) would happily report them. A key factor appears to be cynicism within the trade as to whether anything happens to illegal gas workers who are reported. For instance, 23% of those that wouldn't report them say this is because nothing would happen if they did.

At first glance this cynicism appears justified. 2,642 illegal gas workers were reported to CORGI during the year from 1st April 2006 until March 31st 2007. Following investigation by CORGI this led to 844 being reported to the Health & Safety Executive (HSE). Lack of evidence, and an unwillingness by the householder to back up the report mainly contributed to this relatively low number being referred onto the HSE.

This suggests that a more robust and transparent approach to fully illegal gas workers needs to be adopted. CORGI members need to be encouraged to report them, and the public – by requesting the CORGI ID card – need to know to verify their competency.

CORGI Investigations



A Illegal gas workers involved **8%**

B CORGI members involved **4%**

C Lack of servicing/maintenance **88%**

Last attended training

Fully illegal gas workers	5 years ago
Lapsed CORGI members	4 years ago
Part-time	2 years ago

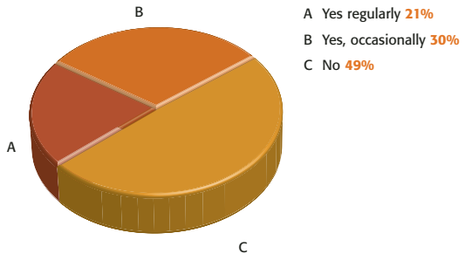
Availability of CORGI Registered Members
A key issue that enables the illegal gas workers to flourish is the shortage of CORGI registered members. The 'busyness' levels among CORGI members demonstrate this problem. Of the 707 studied, over one in five (23%) report that they are too busy and 30% say that at least every week they turn down jobs because they haven't the capacity to do them. Their workloads peak and thus availability diminishes over the winter months (November – February) – the exact time frame when most of the incidents occur – and when consumers are most vulnerable.

In the CORGI Members' Survey 29% don't find it easy to find suitable, qualified gas employees. This problem is not helped by the fact that it is not easy for new entrants to get the on-the-job experience they need to secure their CORGI membership.

CORGI members are reluctant to offer that on-the-job training or apprenticeships, seeing the new entrant as a future competitor who will set up in the area once their training is completed.

So while a cohesive policy for reporting the illegal gas workers needs to be refined, work also needs to be done in conjunction with colleges, to encourage the skilled talent pool to develop.

Have you ever had an apprentice?



A Yes regularly **21%**
B Yes, occasionally **30%**
C No **49%**

Extremely Busy

January	33%	July	15%
February	32%	August	17%
March	25%	September	26%
April	19%	October	38%
May	15%	November	46%
June	15%	December	42%

Best Practice Going Forward

In light of the issues, vulnerable groups and common causes, this Report now considers what should be best practice moving forward.

Consumers
Consumer awareness and education are a priority. Consumers must be able to recognise the dangers and symptoms of carbon monoxide poisoning, to know they need to demand to see a CORGI ID card before someone starts work on gas in their home and that they should install an audible carbon monoxide alarm.

Special consideration needs to be made for ethnic minority groups for whom English is not a first language. Common sense indicates that we need to be able to give them safety information in their own languages to ensure they understand the fundamentals of gas safety in their homes.

Healthcare professionals need to be aware of the symptoms of carbon monoxide poisoning, know who the vulnerable groups are; tenants and the very young and old. With this knowledge they should be equipped to test for carbon monoxide poisoning when a patient presents with the symptoms in their surgeries.

Some of the more common gas safety problems and consumer risk areas need closer scrutiny to see if they can be pre-empted. Can there be a focused campaign around chimneys and flues following the summer season?

To counter the problem of tenant safety special measures, including a way of reporting illegal landlords, should be considered. This would include holiday lets in the UK.

Illegals
The presence of fully illegal gas workers is too great. Their trade needs to be inhibited both through the support of fresh, skilled, new talent into the sector, and through consumer demand to see their CORGI ID.

It should be made very easy for consumers to find and recognise CORGI registered members. The current path to CORGI registration does not make it easy for young installers to enter the market and operate legally. This needs investigating. The reporting of illegal gas workers should be made easier and be seen to have more effect – both among consumers and the trade.

Other trade initiatives need to be started, like the Wolsey Group stopping the sale of gas-carrying parts to non-CORGI registered installers from January 08.

Data Recording
The development of this Report has highlighted the need for a more cohesive and consistent way of collecting carbon monoxide poisoning data. This should include region, age, and incident type analysis.

Work should be conducted within the geographies identified in this study to see if there are wider trends at play. This in turn could enable the consumer education and awareness campaigns to be more finely targeted.

No data exists for the long-term affects of carbon monoxide injuries, the impact on people's lives, their ability to work, and the cost to the economy.

Also healthcare professionals need to be able to identify CO poisoning cases in the surgery. To scope the undetected cases, a pilot project could be considered to gauge the incidents potentially passing through doctors' practises.

CORGI's Role

CORGI is the only body charged by the Government's Health and Safety Executive (HSE) to maintain a register of competent gas installers in Great Britain, Northern Ireland, Guernsey and the Isle of Man.

The law says that anyone employed to carry out gas-related work must be registered with CORGI. If they are not CORGI registered, then they are working illegally and therefore, unsafely.

CORGI is not empowered to prosecute illegal gas workers, but it investigates reports from the public and CORGI members. These investigations are undertaken in order for us to pass as many details as possible onto the HSE so they can prepare a case for prosecution.

As well as running the gas registration scheme, CORGI also has a responsibility to promote the awareness of gas safety and carbon monoxide poisoning in the UK. CORGI runs campaigns regularly to help in this promotion and has also introduced several initiatives to further promote best practice. CORGI is the co-ordinating body for the Carbon Monoxide Consumer Awareness Alliance (COCAA).

This Alliance was set up in response to the All Party Parliamentary Gas Safety Group (APPGSG) Report on an inquiry into carbon monoxide awareness in 2006. The Alliance consists of all the major energy retailers, representatives across all fuel types, victim support charities and representation from manufacturers of carbon monoxide alarms. COCAA expects to take a lead on carbon monoxide poisoning awareness and expects to launch a long-term campaign in 2008.

CORGI also co-ordinates an Industry Forum with all the major merchants and manufacturers, with the key objective being to make it more difficult for illegal gas workers to operate through stopping the sale of gas appliances and fittings to non-CORGI registered members. This is only one aspect of CORGI's integrated campaign to reduce the amount of illegal gas work in the UK.

CORGI Services Ltd has developed a number of activities designed to help CORGI members and to provide gas safety information to consumers. A new consumer magazine 'Place' was first published this year and sent out with all Declaration of Safety certificates. The magazine reminds consumers to have their appliances safety checked and maintained annually by a CORGI registered member and also warns them of the dangers of carbon monoxide poisoning. This is an excellent channel to consumers and an opportunity to reinforce the key safety messages that many UK consumers are not aware of.

All profits generated from CORGI Services Ltd's activities are donated to the CORGI Trust, which has been set up in order to initiate and support activities that further gas safety and carbon monoxide awareness.

CORGI's new website, www.trustcorgi.com, provides consumers with information on how to find a CORGI registered member to do the work they need, how to check if someone is CORGI registered, how to protect themselves from carbon monoxide poisoning and responsibilities and rights for landlords and tenants.

CORGI also provides a customer contact team that gives free advice to consumers on all aspects of gas safety.

CORGI Contact Centre **0800 915 0485**
Website **www.trustcorgi.com**
Email **enquiries@trustcorgi.com**