The Fire Brigades Union

In the line of duty

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A report by the Labour Research Department (LRD)
for the Fire Brigades Union

November 2008

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Executive summary

The tragic deaths of four firefighters in Warwickshire, together with other deaths in Strathclyde, North Wales, Hertfordshire, Dumfries and Galloway and Central Scotland, made 2007-08 an unprecedented year for firefighter deaths in recent times.

Nine firefighters died while on duty between April 2007 and March 2008. Eight firefighters died on duty in 2007 alone, the worst year since at least 1985. The deaths of four firefighters in Warwickshire in 2007 were the worst incident of multiple firefighter fatalities in the UK since 1972.

The patchwork of official records for on-duty firefighter fatalities held by government bodies means that the number of deaths over the last 30 years is significantly understated, particularly deaths classified as natural causes. There is little analysis of trends, or detailed attempts to explain the causes of fatalities, for example at fires, road traffic accidents, from heart attacks and in training.

This investigation, using unpublished government figures, Freedom of Information returns from fire and rescue services and other sources from within the service, found that at least 122 firefighters died whilst on duty in the UK from 1978 to date, and there are probably more cases. Around two-thirds (82) of these were operational deaths.

The trend in firefighter deaths was downwards until the turn of the century. However there has been an alarming upturn in recent years. Since 2003, at least 22 firefighters have died while on duty, significantly more than in the previous period.

At least 44 firefighters have died in fires since 1978. However, firefighter deaths at fires had effectively ceased by the turn of the century. From February 1996 until October 2002 there were no recorded fire deaths in the UK.

One of the most alarming findings from this research is that firefighter deaths at fires have risen sharply in the last five years (2003-2007), with at least 13 firefighters killed at fires. This is the worst five-year period in more than 30 years.

It is not good enough to dismiss recent firefighter deaths as insignificant because of the numbers involved or because of comparisons with other countries.

One firefighter death is one death too many.

The causes of firefighter fatalities

The underlying causes of firefighter fatalities are often organisational, and involve matters that management can fix with the right policies, procedures and resources – both nationally and locally.

Investigation reports suggest that firefighter fatalities are consistently related to failures in the risk assessment process. Firefighters have been committed into situations on the basis of inadequate assessments of the risks, which has contributed to deaths and injuries. There are also concerns about some equipment, particularly for communication, and about training.

Previously unpublished Operational Assessment of Service Delivery (OASD) reports contain evidence of a litany of failures and weaknesses across the service. They show that some integrated risk management plans (IRMPs) and particular risk assessments have been woefully inadequate and some so bad as to have compromised firefighter safety. A significant number of Fire and Rescue Service policies and procedures are poor, when measured against the high standards expected to protect firefighters.

The OASD reports also found that training for emergency response was insufficient in many respects across a wide range of fire and rescue services. This includes training for incident command, insufficient time spent on realistic 'hot' training, and not enough specialist training in safety critical areas such as breathing apparatus and building construction. Important training has been cancelled in some FRSs, while others are using inadequate methods and materials.

There are failures nationally of leadership and direction. Despite the rhetoric of modernisation, there are aspects of firefighter safety today that have not improved. This research found some evidence linking the new regime and new ways of working with increased risks to firefighters. Organisational failures in risk assessment, command, training and equipment are mechanisms for increasing the risks to firefighters, and can ultimately cost lives.

There is a notable absence of substantial guidance emanating from the government, particularly the Department for Communities and Local Government (CLG). The publication of brief and general circulars is no substitute for detailed policy guidance. There is a national policy vacuum with regard to firefighter safety, and this is reflected in the fatality figures in recent years.

Historically, government 'guidance' was 'instruction' in all but name and central government inspected FRSs to ensure that suitable systems were maintained that followed the 'guidance'. Today, the contents of circulars issued by the CLG are explicitly not mandatory and audit of compliance is largely carried out by self assessment and peer review.

Over recent years, central government control has been relaxed and FRSs have been given greater autonomy. However this new regime of local governance should not extend to matters of operational guidance. New obligations such as Integrated Risk Management Planning (IRMP), Local Strategic Partnerships (LSP), and Operational Assessment of Service Delivery (OASD) mean that many FRSs no longer have the resources to develop their own operational guidance. Even if they did, what would result would be a patchwork of different approaches of varying quality that would not work together in the event of cross-border, regional or national incidents.

Many firefighters are deeply unhappy with the training provided to prepare them for emergency response. They put themselves at risk to rescue people. Their voice should be heard, digested and acted upon.

The official neglect of records and the absence of national policy leave firefighters with the impression that those in power do not care, and that their safety is not regarded as important enough to warrant close attention. The findings in this report indicate that firefighters' concerns are real, serious and worthy of consideration.

Recommendations

Since Fire and Rescue Service policy is a devolved matter, the various government departments and assemblies in England, Wales, Scotland and Northern Ireland should work together to ensure a common approach across the UK to the recording of fatalities and related matters. The same common approach needs to be discussed in relation to the development and issuing of guidance on operational matters.

A common, consistent and comprehensive reporting system for fatalities and major injuries should be introduced across the UK. It should publish figures for all firefighter fatalities, major and serious injuries and near misses from across the UK in an official annual publication, together with analysis and evaluation.

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The government should widen the definition of reportable incidents to the Health and Safety Executive (HSE) to include work-related road traffic accidents (RTAs) and heart attacks.

A national independent Fire and Rescue Service investigation unit should be established, with the remit to examine particular firefighter fatalities, major and serious injuries and near misses. This body should also advise on and disseminate lessons and guidance. Similar bodies exist for rail, marine and air investigation. With sufficient safeguards regarding independence and accountability, one option might be that such a unit might become part of the role of the Chief Fire and Rescue Adviser or equivalent for Scotland, Wales and Northern Ireland.

There is an urgent need for centrally issued, substantial, safety critical national guidance on the issues arising from recent fatalities. This should include guidance for initial attendance, risk assessment, incident command, breathing apparatus, compartment fires, high rise fires, backdraught and flashover, and heat stress. Relevant training courses and materials should be provided on these and other relevant issues. The structures for developing such policy and guidance need to take account of the devolved responsibilities in relation to policy for the Fire and Rescue Service.

Government departments and assemblies should seek to develop standards for individual integrated radio and breathing apparatus sets and individual locational tracking systems, to be introduced as early as possible.

Nationally, the government should consider imposing a duty on employers, landlords and other responsible persons at selected high risk premises to submit in writing their fire risk assessments to the local fire and rescue service. The selection of premises should be by the local FRS and should be based on the risk to occupants, firefighters, property and/or the environment. This would provide more information for risk mapping and identify potential areas for enforcement action and operational planning.

Fire and rescue services should develop systems to learn lessons from fatalities, major and serious injuries and near misses, both from incidents within their service and from others in the UK and abroad. They should ensure that policies, procedures and generic risk assessments are reviewed and updated to reflect the lessons from recent fatalities. They should ensure that safe systems of work are at the heart of IRMPs and that sufficient numbers of firefighters and senior officers are committed to fire incidents.

Fire and rescue services should initiate a comprehensive training needs analysis to identify areas where firefighters require additional or refresher training, particularly for emergency response. This would include a review of the impact of duties and workload on firefighters' operational preparedness for emergency response. They should ensure that all firefighters are given sufficient specialist training, including refresher training for fighting fires. This would focus particularly on breathing apparatus, compartment and high rise fires, ventilation, building construction and risk assessment. There needs to be an acknowledgment that emergency intervention is an essential part of the role of the service. It is the area of Fire and Rescue Service activity which places employees at the most risk of injury or death and this needs to be built into all aspects of planning.

It may be the case that in terms of community protection, fire prevention should be given a higher priority than response. However responding to fires and other emergencies is a high risk activity. In developing IRMPs, FRSs must consider the risks to employees above anything else. They should develop suitable and sufficient strategies for safe systems of work and should ring fence the financial, material and human resources required to deliver these strategies. All other business activity identified during the IRMP development process should be delivered by resources outside of the ring fence.

Introduction

Every year on 28 April trade unionists mark Workers' Memorial Day with the call to 'remember the dead, and fight for the living'. This year, firefighters and the Fire Brigades Union (FBU) had special reasons to observe it, having to commemorate the highest number of deaths in a single year since at least 1985.

The tragic deaths of four firefighters in Warwickshire, together with other deaths in Strathclyde, North Wales, Hertfordshire, Dumfries and Galloway and Central Scotland made 2007-08 an unprecedented year for firefighter deaths in recent times.

As part of its campaign on firefighter safety, the FBU asked the Labour Research Department (LRD), an independent trade union research organisation, to investigate firefighter deaths in the modern era of the Fire and Rescue Service. The intention was to commemorate the recent deaths by looking hard at the record of deaths in the last 30 years, how these were collected and how firefighters are remembered. The report would also look at the lessons learned from previous deaths so that every possible step could be taken to try to ensure that future tragedies are prevented.

Firefighters remember the dead with the dignity such sacrifice deserves. They will fight doubly hard so that these deaths have not been in vain. Firefighters expect that lessons are learned at national and local level, that the same mistakes are not repeated – in short that firefighters can expect to return home at the end of their shift with their bodies and minds intact. As one speaker put it at the FBU conference in May 2008: 'Let's put an end to this. We should never again have to bury one of our colleagues.'

Firefighters have an unwritten covenant with society, an unspoken agreement that their daily courage will be recognised by those who are thereby protected. Firefighters agree to put themselves at risk to rescue others. But in return they expect that their employers and the general public will acknowledge and value their unique contribution to society.

This report is part of the FBU's ongoing campaign to secure justice for firefighters, to ensure their health and safety is not compromised and that deaths are prevented now and in the future.

Aims

The objectives of the report are:

- to produce a more robust set of figures for firefighter deaths over the past 30 years;
- to analyse the trends in firefighter deaths over 30 years;
- to evaluate the causes of firefighter deaths in the context of ongoing modernisation of the Fire and Rescue Service;
- to learn lessons from past fatalities to help prevent further tragedies.

Methodology

Researchers used a mixture of quantitative and qualitative methods to compile this report. Comprehensive analysis was carried out of the official figures published over the last 30 years by Her Majesty's Chief Inspector of Fire Services (for England and Wales and for Scotland), and by government departments and bodies, including the Home Office, the Department for Communities and Local Government (CLG) and the Health and Safety Executive (HSE).

LRD made Freedom of Information requests to all 57 fire and rescue services across the UK, to obtain figures, reports and policies relating to firefighter fatalities. We also made a Freedom of Information request to the CLG and Audit Commission, to obtain copies of the Operational Assessment of Service Delivery (OASD) reports carried out in 2006. The FBU also provided the results of an extensive YouGov survey of members in August 2008, which included questions about firefighter safety.

Researchers also used the extensive records kept by the FBU, as well as receiving documentation and advice from local, regional and national FBU representatives. The Firefighters Memorial Charitable Trust (FMCT) and other organisations and individuals also provided valuable information, newspaper cuttings and other sources to help.

1 How firefighter fatalities are defined

After the deaths of four firefighters in Warwickshire in November 2007, there was much media speculation about the number of similar tragedies in recent years. In truth, no one had a clear picture of the trends in firefighter deaths, even for the past decade. This chapter examines why this is the case, looking at how firefighter fatalities are defined and counted, both officially and by other organisations.

1.1 How firefighter deaths are categorised

The first problem in assessing the trends in firefighter deaths is pinning down what has been counted officially over many years.

The most widely recorded deaths of firefighters are those classified as 'on duty'. In the narrowest sense of this term, firefighters who are killed while fighting fires are generally counted. But even on this definition, there are problems. For example, an East Sussex firefighter was killed whilst attempting to rescue his brother from a blaze at the family home. He was strictly 'off duty', but rightly the fire and rescue service said that he had 'acted in and upheld the best traditions of the British fire service'. (BBC, 8 January 2003)

Other operational incidents directly related to firefighters' work, such as deaths during water-related rescues, are also counted as 'on-duty' deaths.

'On-duty' deaths often mean those when a firefighter dies whilst in uniform or doing a shift. For example, firefighters killed in road traffic accidents while travelling in an appliance or fire service vehicle, en route or returning from an incident, are included. This might also extend to retained firefighters killed while en route responding to a call, or returning after attending an incident.

Firefighters who have died from heart attacks or breathing difficulties whilst fighting fires or during training are also usually counted as 'on-duty deaths'. However other deaths at fire stations, for example during routine activities, are recorded in some figures, but not in others.

There are further categories of firefighter deaths, which may be work-related, but are generally excluded from the on-duty figures, though they may come under 'died whilst serving'. For example, there are records of firefighters who have committed suicide whilst employed by fire and rescue services. Recent cases of firefighters in Derbyshire and Hampshire who died whilst on fire service premises have brought the issue into sharper relief.

There are numerous cases of firefighters who have died from cancer, including mesothelioma and lung disease that may have been the result of exposure to asbestos or other hazardous substances at work, either in the course of carrying out rescues or from fire service premises. These are not usually counted.

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1.2 Government documents

Given the importance of fatalities, we expected to find some clarity from government publications. However we found that what constitutes an 'on-duty' death has not been clearly defined, has varied over the past 40 years and been interpreted differently.

A 'Dear Chief Officer Letter' (DCOL 12/1969) issued by the Home Office nearly 40 years ago laid down the process for notification of the death of firefighters on duty for much of the period under review. The circular required chief fire officers to notify the chief inspector 'as soon as possible after the occurrence', rather than simply once a year for the annual return. The form required officers to report:

Where death or injury occurred	Killed	Died later from injury received	Died*
1. At a fire			
2. Travelling to or from a fire			
3. At a special service			
4. Travelling to or from a special service			
5. At drill			
6. Other circumstances			

Source: DCOL 12/1969, 27 March 1969
**Died was defined as: 'This is intended to cover cases which death occurs and is subsequently found to be from natural causes.'*

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DCOL 4/1988 replaced this circular 20 years ago. The new circular required brigades to report the circumstances of a firefighter death within 48 hours, using a similar matrix. The circular noted: 'There have unfortunately been a number of past incidents where brigades have failed to provide this information in sufficient time for this action to be undertaken.'

More recently, when responsibility for the fire service transferred from the Home Office, the Office for the Deputy Prime Minister (ODPM) issued a letter from Chief Inspector Graham Meldrum (DCOL 3/2004, 29 March 2004) and two further fire service circulars FSC 5-2005 (15 February 2005) and FSC 22-2006 (24 April 2006), dealing with fires and incidents of special interest (FOSI). These circulars made it compulsory for fire and rescue services to report Category B incidents involving 'Firefighter Death on Duty'. In May 2006 the responsibilities of the ODPM for fire and resilience were transferred to the Department for Communities and Local Government (CLG).

However neither the ODPM nor the CLG have clarified precisely what constitutes the death of a firefighter 'on duty'.

The other main official source of figures is the Health and Safety Executive (HSE). The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1985 (RIDDOR, revised in 1995), and the equivalent regulations covering Northern Ireland, placed a legal duty on employers, self-employed people and people in control of premises to report work-related deaths, major injuries or over-three-day injuries, work-related diseases, and dangerous occurrences (near-miss accidents).

The regulations apply to work activities covered by the Health and Safety at Work etc Act 1974, and include training for employment. According to the guidance, employers are required to notify HSE of the death of any person 'as a result of an accident' at work and the death of an employee 'if this occurs sometime after a reportable injury led to that employee's death, but not more than one year afterwards'.

One might expect that this broad definition would include most on-duty firefighter fatalities and would provide a valuable supplement to CLG figures. However HSE argued that neither heart attacks nor RTAs are reportable. (Communication, 18 September 2008)

There is a distinct lack of clarity over this. Large numbers of workers are required to drive vehicles as part of their employment, including various categories of professional driver. To accept that accidents involving professional drivers whilst driving should not be recorded is to accept that large numbers of work-related accidents will not be recorded.

Fire and rescue services also provided some guidance as to their own criteria for deaths on duty. For example, Royal Berkshire FRS stated that, 'A wholetime member of staff is not on duty until they are at work and booked on duty, as they do not respond to pagers etc. like an RDS [retained] member of staff would.' It added: 'Death on duty is taken to mean died whilst actually on shift, at work or responding to a call if retained duty system. Death in service is taken to mean died whilst being employed with RBFRS.' (Communication, 7 August 2008)

Royal Berkshire suggested that this would exclude wholetime firefighters from the on-duty list if they had died travelling to or from work. However CLG data obtained for this research counted such cases as on duty.

All these considerations make it difficult to produce definitive figures on firefighter fatalities, even for the last decade. More clarity is required – by way of a discussion between all stakeholders – to define the meaning of work-related deaths in the service. There are at least two examples of how to proceed that should be considered.

1.3 Alternative systems

The Firefighters Memorial Charitable Trust

The most comprehensive criteria for recording firefighter deaths in the UK have been drawn up by the Firefighters Memorial Charitable Trust for the United Kingdom Firefighters Memorial. In March 2008, the Board of Trustees produced a set of guidelines on the matter. (Communication, 21 April 2008)

The trust will include 'any firefighter whose death was recorded to be due to an injury or illness sustained as a direct result of the execution of their duties'. This includes:

- 'In the execution of their duties: whilst on or off duty and engaging in any activity consistent with the duties of a firefighter.'

- 'As a result of their duties: Death occurring some time after the incident from which the effects of the injury or illness sustained became apparent and formed the primary cause of death.'

The trust also includes another group of fire service personnel generally not counted in official figures, namely support personnel who have died in operational incidents and training.

The United States Fire Administration (USFA)

There are also lessons to be learned from other fire and rescue services across the globe. For example, the United States Fire Administration (USFA) has a more robust system of collecting, commemorating and disseminating information on firefighter fatalities. The scale of deaths in the USA (around 100 annually), coupled with the experience of 11 September 2001, has put the issue in the spotlight in recent years.

In its most recent report into fatalities in 2007, the USFA provides a very useful definition of on-duty death that incorporates most of the concerns raised by this research:

> 'On-duty fatalities include any injury or illness sustained while on duty that proves fatal. The term "on duty" refers to being involved in operations at the scene of an emergency, whether it is a fire or non-fire incident; responding to or returning from an incident; performing other officially assigned duties such as training, maintenance, public education, inspection, investigations, court testimony, and fundraising; and being on call, under orders, or on standby duty except at the individual's home or place of business. An individual who experiences a heart attack or other fatal injury at home while he or she prepares to respond to an emergency is considered on duty when the response begins. A firefighter who becomes ill while performing fire department duties and suffers a heart attack shortly after arriving home or at another location may be considered on duty since the inception of the heart attack occurred while the firefighter was on duty.' (USFA, 2008, 2-3)

The National Fire Protection Association (NFPA) in the United States uses a similar definition, which includes illnesses (such as heart attacks) when the exposure or onset of symptoms occurred during a specific incident or on-duty activity. The federal law in the United States was amended in 2003 to broaden those families eligible for benefits arising from incidents of firefighter cardiac arrest.

1.4 The case for a review

There is a clear case for examining the definition of work-related fire service deaths in the UK, and in particular clarifying what constitutes an 'on-duty' death. Such a definition should be broad enough to encompass the full range of work-related matters.

This is not just a fire service issue. Large numbers of workers across a wide range of jobs suffer from occupational disease and ill health. Assessing the extent to which particular deaths are caused by work is a matter for scientific investigation, but ignoring the connections between work and mortality is no solution.

This was recognised earlier this year by Jukka Takala, the head of the European Agency for Safety and Health. He said that a worker dying of a heart attack on his or her way to work should be categorised as a work-related death and that work-related conditions are underestimated by official figures. (*Irish Times*, 31 March 2008)

A more accurate reckoning between work and ill health will also help protect more people from harm. It would require all employers, including fire and rescue services, to assess the risks faced and to put better preventative and control measures in place.

2 Official figures for firefighter deaths on duty

In addition to the difficulties in defining firefighter fatalities clearly, another reason for confusion is the disparities in the officially published figures. In particular, changes in the government department responsible for the Fire and Rescue Service, different definitions and systems in different parts of the UK, the use of calendar and financial years, together with the dissolution of the Fire Service Inspectorate, have made comparison across the decades extremely difficult.

In this chapter and in Appendix A at the end of the report, we outline the published figures available, in order to make an initial estimate of the scale of deaths in the fire service over the past three decades. Although some information was obtained for years prior to 1978, it was felt that this date represented a suitable cut-off point, coming at the beginning of an earlier wave of changes in the service. Therefore this research was confined to the last 30 years.

2.1 National figures

Fire Statistics United Kingdom reports

The only government source that covers the whole of the UK for the period under review is the Fire Statistics United Kingdom reports, published annually. These contain figures for the calendar year, and go back at least to 1978.

We compiled a composite table from these reports, which is reproduced as Table A1 in Appendix A. According to these publications, in total ***44*** firefighters died in fire-related incidents between 1978 and 2006, the last year for which figures are available. Of those deaths, nine were attributed to burns, six to being overcome by gas/smoke, five from burns and being overcome, and 20 unspecified. (There was no breakdown for the four deaths between 1978 and 1980.)

However these figures refer to fatalities only from fires, and therefore do not capture firefighter deaths attributed to other causes, such as water-related incidents or road traffic accidents (RTAs).

HSE reports

The Health and Safety Executive (HSE) collects national figures under the RIDDOR reporting arrangements. These cover England, Wales and Scotland. Northern Ireland figures are collected separately under similar legislation by HSE Northern Ireland. Although RIDDOR came into force in 1986, HSE was only able to provide figures from 1996-97 to 2007-08. The figures were provided for the financial year (April to March). They were not published in a specific HSE report, but were available on request as part of HSE's annual publication of fatality statistics. The annual breakdown is set out in Appendix A, Table A2. In total, HSE recorded ***16*** firefighter deaths between 1996-97 and 2007-08.

2.2 Constituent parts of the UK

England

The Fire and Rescue Service Operational Statistics Bulletin, published by the Department for Communities and Local Government (CLG) and before that the Office for the Deputy Prime Minister (ODPM), covers only the financial years since the turn of the century. This report gives figures for the number of firefighters killed on duty for England and previously for England and Wales, as well as a breakdown of which fire and rescue service the firefighter worked for. These are set out in Appendix A, Table A3. In England, a total of ***ten*** deaths were registered between 2001-02 and 2006-07, eight during operational incidents and two in training.

Wales

The Welsh Assembly has published figures for fire and rescue services in Wales for the 2005-06 and 2006-07 financial years separately. These are set out in Appendix A, Table A4. No fatalities were reported in either year. Earlier figures were published with English figures by the CLG/ODPM in the Operational Statistics Bulletin, where ***one*** death was recorded, during operational duty.

Home Office figures for England and Wales

Older figures for England and Wales are contained in the annual reports of the HM Chief Inspector of Fire and Services (HMCIFS), published by the Home Office until 2000-01. The reports usually referred to firefighter fatalities in their introduction, as well as inside in Part III, Operations. The figures cover both England and Wales, and refer to a range of deaths while on duty, including deaths while attending fires, road traffic accidents, in training, from 'routine activities' and from

natural causes whilst at work. They were published by calendar year from 1978 until 1992, and by financial year from 1993-94 until 2000-01. The aggregate figures, together with comments on the cause of death collated from the reports, are set out in Appendix A, Table A5.

In total, ***84*** firefighters were killed in on-duty incidents in England and Wales over that period. Some 39 were fire-related. Significantly this figure is more than that identified in Fire Statistics United Kingdom. Of these 39, seven were due to incidents in training or drill, 16 to road traffic accidents (RTAs), and 15 to natural causes. Some cases overlap two categories, and some cases are not attributed consistently in different years.

Scotland

Figures for Scotland have been provided by separate annual reports of HM Chief Inspector of Fire and Rescue Services (HMCIFS) for Scotland. These figures are given for the calendar year, but the criteria for reporting appear to be different from the England and Wales reports.

In recent years, figures have been listed in Appendix 3, Changes in Wholetime Strength, which includes both operational personnel and control room staff. There are no figures for retained firefighters in Scotland.

Two categories, 'deceased on duty' and 'deceased off duty', have been listed from the 1999-2000 report to date. Prior to that, between 1991 and 1998-99, deaths were listed 'attributable to service' and 'not attributable to service' in Appendix 3. Before that deaths 'attributable to service' and 'not attributable to service' were listed in Table 2 of the reports. Operational staff and control room staff were not distinguished before 1986.

The figures do indicate which brigade the firefighters worked for at the time of their deaths. However there is no information provided on the cause or circumstances of deaths. This information, along with the other data, is set out in Appendix A, Tables A6 and A7. In total ***eight*** firefighters in Scotland died on duty or in circumstances attributable to service between 1978 and 2006-07.

Northern Ireland

Northern Ireland administrations have not published figures on firefighter fatalities. However, Bairbre de Brún, Minister of Health, Social Services and Public Safety, made a public statement covering some of the period under investigation on 27 June 2000. She told the Northern Ireland Assembly: 'I think we need to mark quite clearly our regret that nine firefighters lost their lives, and that hundreds of firefighters were injured in the last 30 years.' (Northern Ireland Assembly, Tuesday 27 June 2000)

The Northern Ireland Fire and Rescue Service (NIFRS) has published details of individual firefighter fatalities in its annual reports, and provided copies for this research (Communication, 18 September 2008). These indicated that there were ***five*** deaths between 1978 and 2007.

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3 Consolidated figures for on-duty firefighter deaths since 1978

This chapter presents further results of our investigation into firefighter fatalities. In order to verify the official figures and to identify any gaps or mistakes in the record, the Labour Research Department (LRD) undertook comprehensive research into firefighter fatalities over the past 30 years, utilising a range of other sources of data.

We were given unrestricted access and support from the FBU, both at its head office and from regional officials and local representatives. We were able to utilise the FBU Executive Council Annual Reports, which include an obituary page containing the names and brigades of all members who died in the previous year. We were also able to search the full record of the FBU's magazine *Firefighter*, which reported particular deaths and provided other useful information. We were able to obtain internal FBU circulars covering the whole period, some electronically and others on microfilm, which also provided important information.

The Firefighters Memorial Charitable Trust assisted our research by providing confirmation of important information from their extensive records. The results of our research will be given to the trust, so that it can investigate the additional cases we were able to identify.

3.1 Parliamentary question

Our research was greatly assisted by Andrew Dismore MP. On 18 June 2008 Dismore asked the Secretary of State for Communities and Local Government: 'How many firefighters died on duty in each fire authority in each year since 1986; and how many of these deaths were (a) the result of attendance at (i) fire, (ii) road traffic and (iii) other incidents, (b) occurred while the firefighter was undertaking training and (c) resulted from natural causes?'

Fire Minister Parmjit Dhanda set out information covering the financial years 1986-87 to 2007-08 and for England alone, which is reproduced in Appendix B, Table B1. In total, ***60*** deaths were recorded over the 20-year period, with 24 attributed to fires, one to road traffic incidents, 12 to natural causes and four to training.

The breakdown indicates a big leap in firefighters dying in fires for the most recent year, and for the most recent five-year period compared to previous five-year periods over the last two decades.

3.2 Additional information from the CLG

We also sought more detailed information from the Department for Communities and Local Government (CLG) going back to 1978. The request was made on 21 April 2008. It took the department over three months to send a response. However, the data was generally more reliable than the published sources. The CLG figures and breakdown are set out in Appendix B, Table B2.

The CLG made the following distinction with its figures:

- operational fatality = death occurring in circumstances where the individual is either en route to, at or returning from, an incident;
- on-duty fatality = death occurring in circumstances where the individual is en route to the fire station (e.g. RDS personnel responding to an emergency call) or on Fire & Rescue Service premises.

In total 49 operational fatalities were registered, and 24 additional on-duty deaths recorded. The department had additional information on 25 other deaths, making

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a total of ***98*** deaths in all. Six deaths were recorded as off duty.

3.3 Information from fire and rescue services

In order to obtain information directly from fire service employers, we submitted a Freedom of Information request to every fire and rescue service in the UK. We received communications from every service, although the information provided varied hugely.

In Scotland, Strathclyde FRS was one of the most disappointing returns. We were initially told that because of an ongoing investigation into a recent death, no information could be provided. We sought a review of the decision, only to be informed that the service did not have records, even for reports of deaths in recent HMCIFS for Scotland reports. We were referred to Graeme Kirkwood, a former employee of Strathclyde FRS who has maintained a website on the Scottish fire service, who provided valuable information. However a number of outstanding matters were not resolved.

By contrast both Highlands and Islands and Fife FRSs were able to clarify all the cases raised after their initial returns. Similarly, we were able to clarify an important case with the Lothian and Borders FRS. Grampian recorded no cases, but only had records going back to 1990.

The Northern Ireland Fire and Rescue Service (NIFRS) provided information on five firefighters who died whilst on duty and followed up many requests on our behalf.

We received a prompt and detailed response from the South Wales FRS for on-duty deaths. North Wales provided a limited return, while Mid and West Wales gave only verbal confirmation that no deaths had taken place under its jurisdiction.

We received prompt responses from Tyne and Wear, Durham, Northumberland and Humberside FRSs. Both the West Yorkshire and South Yorkshire FRSs followed up particular enquiries we made and clarified some important cases. We had to provide our own data for confirmation to Cleveland. The North Yorkshire return came in late.

Greater Manchester and Lancashire FRSs were able to clarify a number of cases (the latter after we sought a review of the initial return), and Cumbria FRS checked some examples from the 1970s at our request. Regrettably, the Merseyside FRS initially rejected our approach and only provided limited information after several formal and informal interventions by researchers.

West Midlands FRS was able to provide copies of book of remembrance entries and helpfully found additional information after the original request. Nottingham, Warwickshire and Lincolnshire FRSs all provided useful clarification. Cambridgeshire FRS sent a good return and the Essex FRS provided details of cases that were not well recorded in some official figures. Northamptonshire only had records going back to 2006. There were initial problems with Norfolk, but these were resolved after a review was requested.

We received a comprehensive return from the Royal Berkshire FRS and from London. Oxfordshire, Buckinghamshire and Isle of Wight FRSs were able to clarify some cases, despite the absence of some records. In the South West of England, we received a good response from Devon and Somerset FRS, but records for Somerset were not available prior to the merger of Devon's and Somerset's services in April 2007 (Communication, 11 September 2008). Cornwall FRS sent valuable reports about three cases, but could not confirm others we enquired about.

3.4 On-duty firefighter deaths since 1978

The results of our investigation into on-duty deaths are contained below in Table 3.1. This brings together information from all the published and unpublished sources we were able to access. We decided not to include the names of the firefighters killed, although we were able to identify most of them from the sources. Some fire and rescue services felt unable to provide names because of concerns about surviving family and friends. We were very sensitive to this concern and therefore concluded that identifying the firefighters by name was unnecessary.

Every effort was made to verify the information with individual fire and rescue services. The current name of fire and rescue service is used in the table for clarity. Where the fire and rescue service was not able (or willing) to confirm particular details, this is indicated with an asterisk [*].

Table 3.1: Firefighter on-duty fatalities from 1978 to 2008

Fire and rescue service (current name)	Role	Age	Date of death	Operational	Fire	RTA	Natural causes	Training	Other
Lancashire	W		26/01/1978				■		
Cumbria [*]	W		20/07/1978						
Northumberland	R	52	12/09/1978				■	■	
London	W		18/10/1978	■	■				
Strathclyde [*]			29/10/1978	■			■		
Avon	W	34	06/11/1978					■	
Northern Ireland	W	53	16/11/1978	■	■				
West Yorkshire [*]	W	40	30/11/1978	■			■		
Lincolnshire	R	41	08/03/1979	■			■		
Devon & Somerset	W	25	05/07/1979	■		■			
London	W		26/01/1980	■	■				
Humberside	W		02/05/1980	■		■			
Kent	W		06/08/1980	■					■
Highlands & Islands		42	01/03/1981	■	■				
London	W	26	30/04/1981	■	■				
Highlands & Islands		25	21/05/1981	■	■				
London	W	26	24/05/1981	■	■				
Devon & Somerset	R	39	31/10/1981	■			■		
Lincolnshire		48	30/11/1981						
Strathclyde [*]	W	43	01/05/1982	■			■		
West Midlands		29	19/08/1982	■	■				
Durham	W	26	05/09/1982	■		■			
Durham	W	24	05/09/1982	■		■			
Avon		24	18/10/1982			■			
Cornwall [*]			02/11/1982					■	
East Sussex			25/04/1983			■			
West Yorkshire	W	31	27/04/1983	■	■				
Cornwall [*]			01/06/1983				■		
London			26/06/1983	■			■		
West Midlands		32	22/09/1983	■	■				
Tyne and Wear	W	54	11/1983				■		
Northern Ireland	W	49	16/01/1984	■					■
Northern Ireland	R	51	29/06/1984	■	■				
Lincolnshire		31	01/09/1984	■	■				
Warwickshire	W	37	27/10/1984	■			■		
Devon & Somerset [*]			17/01/1985	■		■			
Cleveland	R	40	07/03/1985	■		■			
West Midlands		25	03/07/1985	■		■			
Dorset	R	29	16/07/1985				■		
Norfolk	W	33	23/11/1985	■	■				
Isle of Wight		31	17/12/1985			■			
West Midlands			1985				■		
Lincolnshire [*]		62	07/01/1986				■		
Staffordshire			31/07/1986			■			
North Wales	R		04/03/1987	■					■
Oxfordshire	R		18/03/1987	■	■				
Dorset	W	47	16/10/1987	■		■			
Dorset	W	46	16/10/1987	■		■			
Hertfordshire	W	34	31/10/1987	■		■			
London	W		18/11/1987	■	■				
Norfolk	R	28	01/12/1987	■	■				
Cheshire	W		03/11/1988				■	■	
Cambridgeshire	W	41	22/03/1989	■	■				
Humberside	R		14/06/1989				■	■	
Hampshire	R	33	23/08/1989			■			
Lancashire	W		28/10/1989				■		
Buckinghamshire	R		29/10/1989				■		
Lancashire	W	33	05/05/1990	■	■				
South Wales	W	40	08/07/1990			■			
Kent	W		05/08/1990	■	■				
Buckinghamshire	W		24/08/1990	■		■			
Cornwall	W	31	05/11/1990					■	
Oxfordshire	W		19/12/1990			■			
London	W		10/07/1991	■	■				

Table 3.1: Firefighter on-duty fatalities from 1978 to 2008 *(continued)*

Fire and rescue service (current name)	Role	Age	Date of death	Operational	Fire	RTA	Natural causes	Training	Other
London	W		10/07/1991	■	■				
South Wales	W	27	24/07/1991			■			
Norfolk	W	35	05/11/1991	■		■			
Lincolnshire	R	38	02/02/1992	■	■				
Cleveland	W		02/06/1992				■	■	
West Midlands	W	22	28/07/1992	■	■				
London	W		30/09/1992	■		■			
Lothian & Borders	R	37	14/01/1993	■		■			
London	W		10/05/1993	■	■				
Hereford & Worcester	W		06/09/1993	■	■				
Hereford & Worcester	R		06/09/1993	■	■				
Cornwall		32	03/09/1994	■	■				
Hampshire	W	45	12/02/1995	■			■		
Northern Ireland	R	40	09/09/1995	■					■
Tayside		43	04/12/1995	■					■
South Wales	R	43	01/02/1996	■	■				
South Wales	R	33	01/02/1996	■	■				
Avon	W	21	04/02/1996	■	■				
Greater Manchester	W	40	15/05/1996	■		■			
South Yorkshire		48	24/05/1996				■	■	
Strathclyde [*]		49	02/07/1996	■			■		
Devon & Somerset	W	36	14/06/1997					■	
Royal Berkshire	W		29/12/1997			■			
Staffordshire	R	45	19/03/1998				■		
Devon & Somerset	R	52	10/10/1998	■			■		
Warwickshire	R	54	08/01/1999	■			■		
Greater Manchester	R	40	05/09/1999	■					■
Hereford & Worcester	R	33	14/01/2000				■	■	
Oxfordshire	W	39	21/01/2000			■			
Strathclyde [*]		39	12/02/2000			■			
West Sussex	R	41	24/02/2000			■			
Lancashire	W		15/06/2000				■		
Hampshire	R	54	22/10/2000	■			■		
Essex	W	45	06/02/2001				■		
Essex	R	47	10/09/2001					■	
Leicestershire	W	44	31/10/2002	■	■				
West Midlands	W	52	17/03/2003					■	
Greater Manchester	W	53	24/03/2003	■			■		
Greater Manchester	W	54	10/05/2003				■		
Humberside	W	29	03/08/2003				■	■	
Northern Ireland	R	50	02/11/2003	■	■				
South Wales	W	28	23/05/2004	■	■				
London	W	36	20/07/2004	■	■				
London	W	27	20/07/2004	■	■				
Hertfordshire	W	26	02/02/2005	■	■				
Hertfordshire	W	28	02/02/2005	■	■				
Leicestershire	R	43	24/09/2006	■			■		
East Sussex	photo	63	03/12/2006	■	■				
East Sussex	R	49	03/12/2006	■	■				
Strathclyde	W	53	01/05/2007	■			■		
North Wales	R	30	05/06/2007				■		
Hertfordshire	W	46	16/06/2007	■	■	■			
Dumfries & Galloway	W	42	17/07/2007	■			■		
Warwickshire	R	27	02/11/2007	■	■				
Warwickshire	W	44	02/11/2007	■	■				
Warwickshire	R	20	02/11/2007	■	■				
Warwickshire	R	24	02/11/2007	■	■				
Central Scotland	W	46	23/01/2008	■		■			
Total = 122 cases	**65W/33R**			**82**	**44**	**29**	**36**	**13**	**6**

Sources: FBU data, CLG communication 30 July 2008, FMCT communication 2 June 2008, Home Office, Freedom of Information communications from fire and rescue services, May-October 2008. NB Operational deaths are classified from the CLG definition. Both deaths in East Sussex 03/12/2006 are counted as operational.
Role: W – wholetime, R – retained

3.5 Analysis of the figures

Comparison with official sources

There are a number of differences between our table and the official figures available from government sources.

Firstly, some fire and rescue services were able to identify mistakes in the record, where firefighter fatalities had been wrongly attributed to their service in statistical tables. This has the effect of reducing the total number of fatalities over the 30-year period.

For example, none of the three on-duty deaths attributed to Fife FRS appear to have been recorded correctly. We are grateful to Fife FRS, who were very conscientious in tracing individual cases. Two firefighters recorded in 1985 as on-duty deaths were in fact a suicide and a cancer death. Concerning the 2005-06 case, we were sent a copy of the return Fife FRS submitted to inspectors for that year, which showed no on-duty deaths.

Strathclyde FRS was not able to confirm or deny any of the cases listed in the HMCIFS reports (1985, 1998-99 and 2003-04). These may be misprints as in the Fife cases, but could be genuine cases. There is some evidence of the latter in official reports e.g. of two firefighters killed on their way to/from work dating back to 1998 (Haseeb 2006). As these cases were not confirmed, they were excluded from the table.

However, our research found a number of firefighters who had died on duty in Scotland, and would have been included in official figures south of the border, but who were not counted. These have been added to the record in order to make comparisons with the rest of the UK more consistent. For Strathclyde, we found at least four additional firefighters who died on duty but are not recorded as such in official figures. These were in 1978, 1982, 1996 and 2000. We identified at least one case of a firefighter who died on duty whilst working for Lothian and Borders FRS in 1993, but who was not recorded because he was a retained firefighter. In addition, the Highlands and Islands FRS provided us with evidence concerning another firefighter who had died in 1981, but was not counted in official figures.

It should be emphasised that there may be other cases in Scotland, because retained firefighter deaths have not been recorded systematically over the last 30 years and because some deaths have been classed as 'off duty' or 'not attributable to service' when they should have been counted as on-duty deaths.

We also found additional information in England not always captured by officially published figures. For example, the Cornwall case (1994) was omitted from official figures although the report into the case indicated it counts as a fire death. HSE figures were far lower because of the tight criteria under RIDDOR, which does not generally count fatalities from RTAs and heart attacks.

The Operational Statistics Bulletin, published by the ODPM and CLG, omitted three firefighters – from Essex in 2001-02, from Greater Manchester in 2003-04 and from Leicestershire in 2006-07.

The parliamentary question and CLG breakdown omitted at least two cases over the last 20 years in England: Cornwall (1994), and Greater Manchester (May 2003).

However the CLG data did give rise to some new lines of enquiry:

- a case in Northumberland in September 1978, which the FRS verified;
- three cases in Lancashire in January 1978, October 1989 and in June 2000, which were confirmed;
- a case in Cleveland in June 1992, which was verified;
- a case in Royal Berkshire in December 1997, where a wholetime firefighter died travelling to work, which the FRS did verify;
- a case in London in 1983, which was verified;
- a case in the West Midlands in 1985, which was verified;
- a case in Cheshire in 1988, which the FRS was able to verify.

There were some other cases which were in the CLG figures but which the fire and rescue services were unable to verify. These were: Durham (March 1981); London (1984); Essex (1985); Cambridgeshire (1985); Northamptonshire (1986); and East Sussex (June 1989). These are likely to be additional cases, and should be investigated further.

The data collected also permitted us to detach cases in Wales from those in England, and present these separately for the last 30 years. In the case of Northern Ireland, the time series presented has not appeared in this form before.

There were some cases that we were unable to attribute to particular fire and rescue services and/or find particular dates of death. The HMCIFS report for 1980 listed six cases in all. We believe we have accurately identified the three cases attributed to firefighting, but none of those attributed to 'natural causes while on duty'. Similarly, we cannot account for one of the six cases mentioned in the HMCIFS report for 1983, two of the five cases for 1984 and three of nine cases for 1985. These were excluded from the table, but also suggest lines for further investigation.

We were able to identify some gaps using FBU sources. The Northumberland case (1978) was identified from the FBU Annual Report obituary page. The West Yorkshire case (1978) was reported in *Firefighter* magazine and on the FBU obituary page. The London case (1983) was identified using the FBU obituary page. The Devon and Somerset case (1985) was confirmed by an FBU circular. The additional West Midlands case (1985) was assisted by the FBU obituary page. The Oxford case (1990) was confirmed first by local FBU officials and then by the fire and rescue service. The South Yorkshire case (1996) was identified in an FBU circular and confirmed by the fire and rescue service. The Oxford case (2000), the Strathclyde case (2000) and the West Sussex case (2001) were confirmed by FBU circulars.

We also found some mistakes in the records as well as gaps, including recent cases. These included the spelling of names, dates (both dates of incident and dates of death) and the ages of the firefighters concerned. Every effort was made, through correspondence with individual fire and rescue services, to ensure that the information published in this report is accurate.

Aggregate figures

The following table (Table 3.2 overleaf) indicates the total on-duty firefighter deaths for each calendar year since 1978. It also contains the total number of deaths over the 30 years from 1978 to 2007, as well as constituent sub-totals.

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Table 3.2: Firefighter on-duty fatalities, by calendar year 1978 to 2007

Year	England	Wales	Scotland	N. Ireland	Total
1978	6	0	1	1	**8**
1979	2	0	0	0	**2**
1980	3	0	0	0	**3**
1981	4	0	2	0	**6**
1982	5	0	1	0	**6**
1983	6	0	0	0	**6**
1984	2	0	0	2	**4**
1985	7	0	0	0	**7**
1986	2	0	0	0	**2**
1987	6	1	0	0	**7**
1988	1	0	0	0	**1**
1989	5	0	0	0	**5**
1990	5	1	0	0	**6**
1991	3	1	0	0	**4**
1992	4	0	0	0	**4**
1993	3	0	1	0	**4**
1994	1	0	0	0	**1**
1995	1	0	1	1	**3**
1996	3	2	1	0	**6**
1997	2	0	0	0	**2**
1998	2	0	0	0	**2**
1999	2	0	0	0	**2**
2000	5	0	1	0	**6**
2001	2	0	0	0	**2**
2002	1	0	0	0	**1**
2003	4	0	0	1	**5**
2004	2	1	0	0	**3**
2005	2	0	0	0	**2**
2006	3	0	0	0	**3**
2007	5	1	2	0	**8**
Totals	**99**	**7**	**10**	**5**	**121**

NB. These figures, dreived from Table 3.1, are provisional. Further on-duty deaths may come to light.

Overall figures

The research found that the total number of on-duty firefighter deaths in the UK over the 30-year period from 1978 to 2007 was ***121***.

This means that the average number of firefighter deaths on duty annually was at least ***4.0***, or one on-duty death every three months for the last 30 years.

These figures still probably underestimate the actual scale of deaths, given the omissions and gaps in official figures.

Fatality rate per 100,000 employees

Nine firefighters died on duty over the financial year 2007-08. ***Eight*** firefighters died on duty in 2007 alone. The Fire and Rescue Service Statistics for the UK produced by CIPFA (2006) estimated the total full-time equivalent fire service personnel on 31 March 2007 at 67,328, with the headcount figure (wholetime and retained firefighters only) at 58,538.

For comparison purposes, HSE expresses fatalities over the financial year and per 100,000 workers when comparing different occupations. On the basis of the five deaths recorded by HSE for 2007-08, this equates to a rate of at least ***7.4 per 100,000***, and counting firefighters only, ***8.5 per 100,000***. If the higher figure of nine deaths is used, the rate of fatality for firefighters last year (2007-08) was at least ***13.4 per 100,000*** workers, and counting firefighters only, ***15.4 per 100,000 workers***.

Provisional figures for 2007-08 published by HSE indicate that the rate of fatal injury was 9.1 deaths per 100,000 workers in agriculture, 3.4 deaths per 100,000 workers in construction, and 1.1 per 100,000 workers in manufacturing. A more detailed breakdown by occupation was not available from HSE.

Trends in overall on-duty deaths

It is possible to identify the broad trends in firefighter fatalities over the last 30 years from the figures. The following table (Table 3.3) contains the annual UK on-duty firefighter deaths from 1978, and three-year rolling averages from 1980 to 2007.

These figures indicate a broadly downward trend in overall firefighter deaths on duty from the late 1980s until around the turn of the century. The trend then bottoms out, before rising again in recent years.

Table 3.3: Annual UK on-duty firefighter deaths and three-year rolling averages, 1978-2007

Year	Total	Rolling three-year average
1978	8	
1979	2	
1980	3	4.33
1981	6	3.67
1982	6	5.00
1983	6	6.00
1984	4	5.33
1985	7	5.67
1986	2	4.33
1987	7	5.33
1988	1	3.33
1989	5	4.33
1990	6	4.00
1991	4	5.00
1992	4	4.67
1993	4	4.00
1994	1	3.00
1995	3	2.67
1996	6	3.33
1997	2	3.67
1998	2	3.33
1999	2	2.00
2000	6	3.33
2001	2	3.33
2002	1	3.00
2003	5	2.66
2004	3	3.00
2005	2	3.33
2006	3	2.66
2007	8	4.33

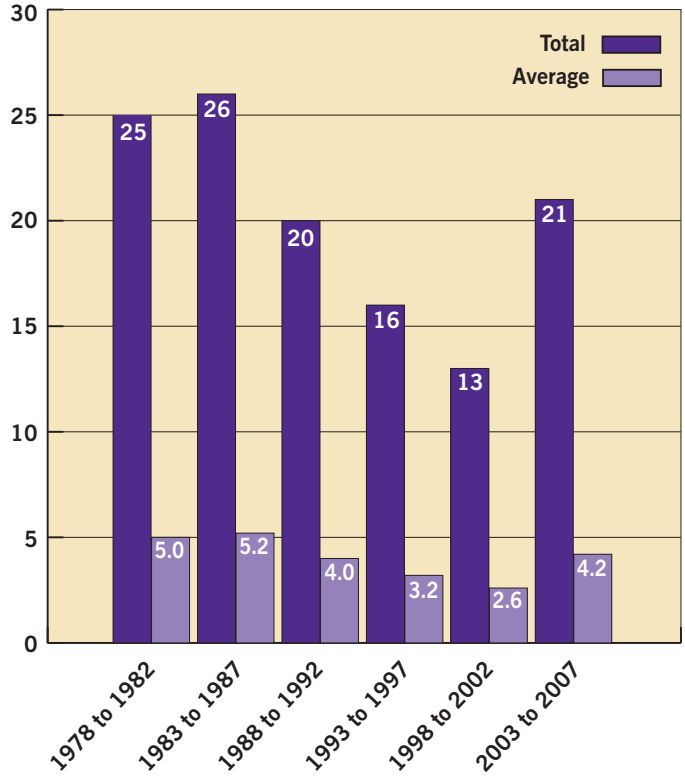
NB. These figures, derived from Table 3.1, are provisional. Further on-duty deaths may come to light.

The trends become even clearer by looking at five-year blocks, as set out in Graph 3.4.

These figures clearly indicate a downward trend in overall firefighter deaths on duty until just after the turn of the century, before rising sharply in the last five years. The last five years have been the worst for firefighter deaths since the mid-1980s and significantly worse than the previous five years. Overall firefighter deaths on duty in the last five years (2003-2007) rose by 62% compared with the previous five years (1998-2002).

Even looking at figures over three decades there is cause for concern. There were at least 34 on-duty firefighter deaths in the 1990s, significantly fewer than the 1980s (at least 47 deaths). However, firefighter deaths in the 2000s (so far 31) are almost at the same level as the 1990s.

Graph 3.4: Firefighter on-duty deaths in five-year blocks and average over the period



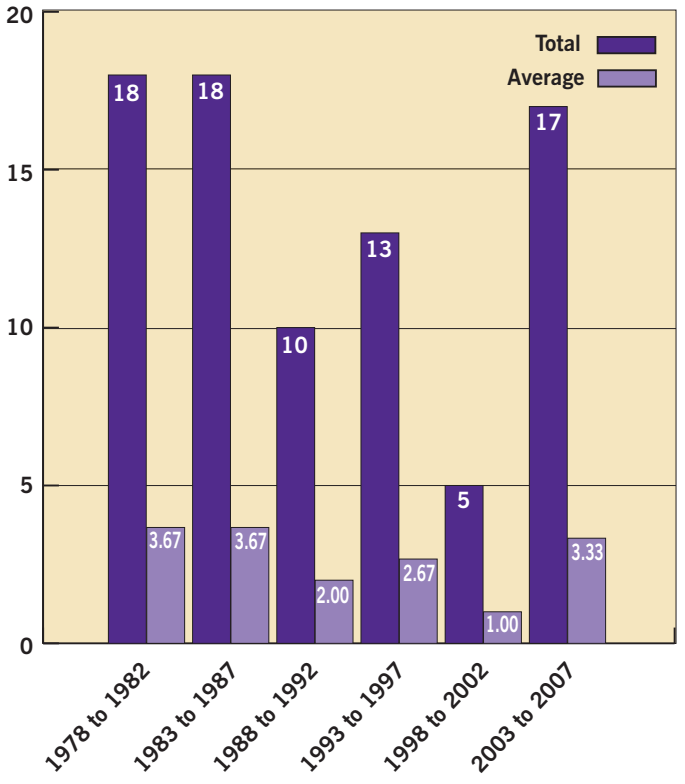
Causes of on-duty firefighter fatalities

It is possible to categorise the causes of most firefighter deaths on duty since 1978. In some cases these categories overlap. Around two-thirds (82) of the total cases since 1978 were operational deaths, following the CLG definition as 'a death occurring in circumstances where the individual is either en route to, at or returning from, an incident'. Of the remaining deaths, at least a quarter (30) were not regarded as operational by the CLG or fire and rescue services, while ten cases could not be clearly categorised from the information available. Some of these, particularly in the 1980s, may well have been operational deaths.

Many of these operational deaths occurred at fires. Other causes included deaths during water rescues (e.g. in 1999), in silos (e.g. in 1987 and 1995), attempting a rescue from a well (1995) or at other incidents. Graph 3.5 shows the pattern of operational firefighter deaths in five-year blocks, and indicates a worrying upturn in recent figures.

The figures can be broken down further. Since 1978, fire deaths accounted for 44 deaths, while 29 deaths were attributed to road traffic accidents (RTAs). Natural causes accounted for 36 deaths, while 13 deaths were attributed to training.

Graph 3.5: Firefighter operational deaths in five-year blocks and average



Fire deaths

Many of the fire deaths were the result of burns or asphyxiation. Some involved structural collapse and in one case an acetylene incident (1987). Although fire deaths account for the largest proportion of deaths (36%), these may still be underestimated. For example, firefighters who had heart attacks whilst attending to fires (e.g. in Greater Manchester 2003, Warwickshire 1999, Devon 1998 and Kent 1990) were not counted in official figures as fire deaths. Two cases in 2007 fall into this category. These are counted as 'natural causes' in Table 3.1. This is why our figure is slightly lower than the Fire Statistics UK publication.

The aggregate figure does not capture the trend involved. What is most notable from Table 3.6 is the downward trend in firefighter deaths at fires until the end of the century. There were no recorded fire-related firefighter fatalities in the UK after February 1996 until October 2002, a period of almost seven years. However, since then, and particularly over the past five years, there has been a significant upward trend.

The table indicates that 2007 was the worst year for fire deaths over the whole of the 30-year period under review. And 2007 was not simply a one-off. Average firefighter deaths in fires for the past three years have been higher than at any time since the early 1990s, and before that the early 1980s.

The trend is starkly drawn out in Graph 3.7 overleaf, which contains firefighter fire deaths in five-year blocks.

Over the five years since then (2003-2007), at least 13 firefighters have died or been killed attending fires.

Table 3.6: Firefighter deaths at fires

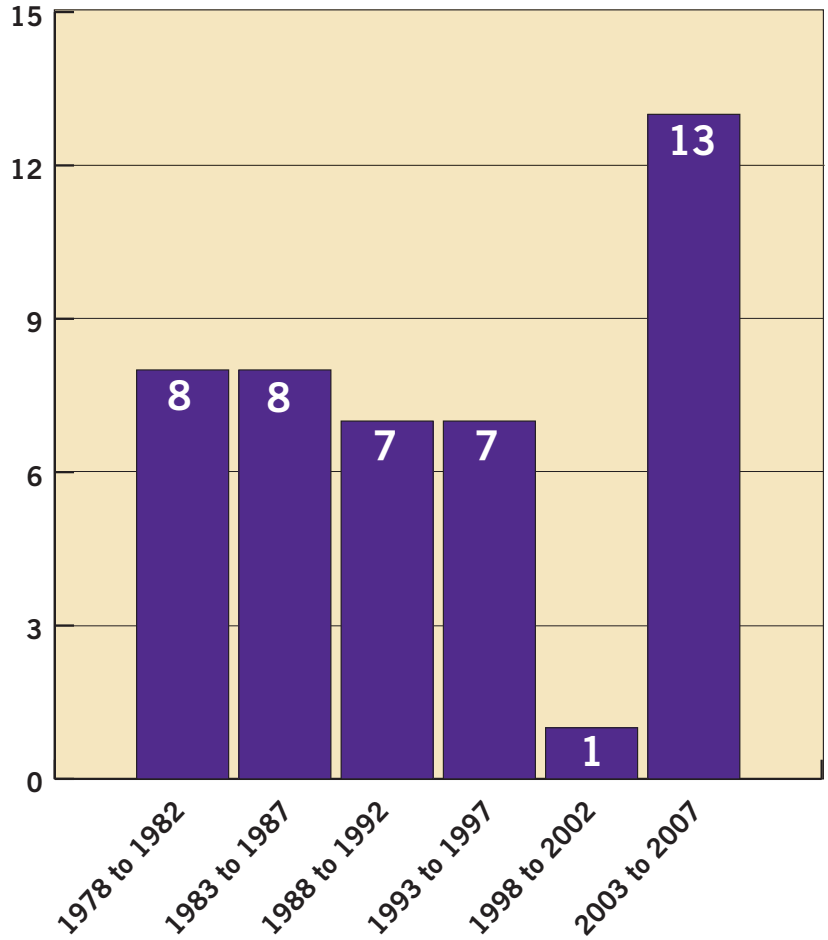
Year	Total	Rolling three-year average
1978	2	
1979	0	
1980	1	1.00
1981	4	1.67
1982	1	2.00
1983	2	2.33
1984	2	1.67
1985	1	1.67
1986	0	1.00
1987	3	1.33
1988	0	1.00
1989	1	1.33
1990	2	1.00
1991	2	1.67
1992	2	2.00
1993	3	2.33
1994	1	2.00
1995	0	1.33
1996	3	1.33
1997	0	1.00
1998	0	1.00
1999	0	0
2000	0	0
2001	0	0
2002	1	0.33
2003	1	0.67
2004	3	1.67
2005	2	2.00
2006	2	2.33
2007	5	3.00

NB. These figures, derived from Table 3.1, are provisional. Further on-duty deaths may come to light.

The figures show that for firefighter deaths in fires, the last five years have been the worst for over 30 years. In other words, one has to go back to the 1970s to find a worse time for firefighter deaths from fires.

These figures are particularly alarming given the fall in the number of fires attended over the past decade. The CLG's Fire and Rescue Services Statistical Release in March 2008 estimated that the total number of fires in the UK fell from 532,300 in 1996 to 436,600 in 2006. Despite firefighters attending fewer fires, more firefighters have died in fires.

Graph 3.7: Firefighter deaths at fires, in five-year blocks



Natural causes

The 36 deaths (30% of the total) attributed to natural causes were generally heart attacks, which took place either at operational incidents or shortly afterwards, or on fire service premises while on duty. These figures do not include firefighters who died whilst off duty from heart attacks. There are additional comments on these deaths in Chapter 4.

Road traffic accidents (RTAs)

Of the 29 deaths attributed to RTAs since 1978, some cases include firefighters who died on the way to or leaving work. These have been counted by the CLG, although some fire and rescues services only count these for retained firefighters. It makes sense to include all these deaths, as work may have been a factor – for example through shift patterns and fatigue.

Local breakdown

The regional breakdown in Table 3.2 was 99 deaths in England, seven in Wales, and five in Northern Ireland. There were ten deaths listed for Scotland up to 2007, with a further death on duty in January 2008. In general, firefighter deaths have been widely geographically dispersed, taking place in both mainly metropolitan and mainly rural areas. Table 3.8 shows the individual fire and rescue services which had the highest number of deaths over the last 30 years.

Role breakdown

In terms of employment, according to CIPFA figures, the ratio of wholetime to retained in 2007 was approximately 2:1, or of the total firefighters, one third are retained and two thirds wholetime.

Some fire and rescue services were unable (and in some cases unwilling) to provide us with information on the role of the firefighters i.e. whether they were wholetime or retained at the time of their deaths.

Table 3.8: Firefighter deaths by selected fire and rescue service, 1978 to 2007

FRS	Total fatalities
London	12
West Midlands	6
Warwickshire	6
Strathclyde	5
South Wales	5
Northern Ireland	5
Lincolnshire	5
Devon & Somerset	5
Cornwall	4
Greater Manchester	4
Hertfordshire	4
Lancashire	4

In our research over the period 1978 to 2007, we could verify three-quarters of cases.

Over the period of 30 years, 64 cases were wholetime (roughly half), 33 were retained (roughly a quarter), and 24 were not ascertained.

The task was easier for the last 20 years, as roles could be identified in nine out of ten cases. Of the cases assessed from 1988 to 2007, we found that 40 firefighters were classified as wholetime, 24 as retained and 6 were unclear. Of the known cases, 63% were wholetime and 37% retained.

For the last ten years, role was identified in all but two of the 34 cases. Some 17 deaths involved wholetime firefighters (53%), while 15 involved retained (47%). This suggests that a higher proportion of retained firefighters have died on duty over the last ten years. These figures may be even worse if the records for Scottish retained firefighters were added. This aspect deserves further research.

Age breakdown

We were able to identify nearly three-quarters (73%) of the ages of on-duty firefighter deaths between 1978 and 2007, 88 out of 121 cases.

The average (or mean) age for firefighter deaths from our figures was 38 years and 5 months (38.4 years). The ages of death were distributed across almost all working ages, from the youngest (20) to the oldest (63).

The median (middle) figure in the ages of these firefighters was 39. There were two modes (i.e. the number that appears most frequently in the series), namely 33 and 40 years of age, which was the age of five firefighters who died on duty. However there were also clusters at ages 26, 31, 41, 43 and 54 (four cases each).

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4 Deaths of serving and former firefighters

This chapter discusses a wider number of firefighter deaths, beyond those deemed on duty. These are sometimes called 'death while serving', but could be extended further to other work-related deaths.

In particular we sought to obtain information on three health and welfare issues: heart attacks, cancer, and suicide.

Raising these issues may bring to light some additional borderline on-duty cases, as well as suggest further areas for research. Two studies published by the Central Fire Brigades Advisory Council (CFBAC) in 1982 and 1987 contain some assessment of these and other health issues. There have been a small number of academic studies on the causes of death of firefighters since then (for example Ide 1998 on Strathclyde).

Heart attacks

Many of the on-duty deaths by natural causes listed in HM Chief Inspector of Fire Services (HMCIFS) reports involved firefighters suffering heart attacks (see Chapter 3). Research has shown that almost half (45%) of on-duty deaths among United States firefighters are the result of coronary heart disease and that most are 'work-precipitated'. (Kales and others, 2003)

The issue deserves more attention, firstly because the link between firefighters' work and heart attacks are complex, and because none of the UK figures adequately capture the scale of the problem. If a firefighter has a heart attack whilst on duty, this may get counted. However if he or she did a shift and died the following day at home, the death is likely to be recorded as 'in service' rather than 'on duty'. No source has brought these instances together and analysed trends. More research is needed.

Cancer

There have long been concerns about the cancer risks faced by firefighters. Last year, scientists from the International Agency for Research on Cancer (IARC) classified occupational exposure as a firefighter as 'possibly carcinogenic to humans'. The assessments are due to be published as Volume 98 of the IARC Monographs. (Straif and others, 2007)

Kang et al (2008) argued that firefighters in the United States are known to be exposed to recognised or probable carcinogens, including benzene, polycyclic aromatic hydrocarbons, benzo(a)pyrene, formaldehyde, chlorophenols, dioxins, ethylene oxide, orthotoluidine, polychlorinated biphenyls, vinyl chloride, methylene chloride, trichloroethylene, diesel fumes, arsenic, and asbestos.

A number of US studies on the relationship between firefighters and cancer have been conducted, and several authors have suggested links to leukaemia, non-Hodgkin's lymphoma, multiple myeloma, brain and bladder cancer. There is also 'plausible evidence' of some association between rectal, colon, stomach, and prostate cancer, and melanoma with firefighting. However, there remain important inconsistencies in the evidence, which need to be investigated.

Suicide

Studies on suicides by firefighters were much harder to find, although there has been considerable media interest in cases reported in recent years. The FBU has some internal records of 22 suicides involving members. National officials expressed a commitment to investigate the issue in future. More research is certainly needed.

4.1 Government figures

We were able to obtain some figures for England, Wales and Scotland on the deaths of firefighters while serving from inspectors' reports, which broadly covered this area.

England and Wales

For England and Wales, HMCIFS reports from 1978 to 1998-99 contained raw figures on the number of fatalities while in service. These were generally set out in a table of Summary Recruitment, Retirements and Resignations. 'Deceased in service' refers to wholetime members only, and did not include control staff. Figures are for calendar year not financial year, except for 1998-99. These are set out in Table 4.1.

Table 4.1: Firefighter deaths in service in England and Wales, 1978 to 1998-99

Year	Total deceased while in service
1978	35
1979	20
1980	23
1981	18
1982	25
1983	30
1984	14
1985	18
1986	14
1987	27
1988	13
1989	19
1990	23
1991	19
1992	21
1993	21
1994	33
1995	20
1996	18
1997	25
1998-99	16

Source: HMCIFS reports, Summary of recruitment, retirements and resignations

Scotland

Figures for deaths not attributable to service, later reclassified as off-duty deaths, were available in HMCIFS for Scotland reports covering the whole period under review. The results are listed in Tables 4.2 (right) and 4.3 (overleaf).

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Table 4.2: Firefighter deaths not attributable to service in Scotland, 1978 to 1998-99

Year	Not attributable to service	Fire and rescue service
1978	5	5 Strathclyde
1979	2	2 Strathclyde
1980	4	1 Central; 1 D&G; 1 L&B; 1 Strathclyde
1981	2	2 Strathclde
1982	3	1 Central; 2 Strathclyde
1983	3	1 L&B; 2 Strathclyde
1984	6	2 L&B; 3 Strathclyde; 1 Tayside
1985	0	
1986	2	1 Tayside; 1 control Fife
1987	3	1 D&G; 2 Strathclyde
1988	5	1 Central; 3 L&B; 1 Strathclyde
1989	1	1 Strathclyde
1990	4	2 L&B; 1 Strathclyde; 1 Tayside
1991	3	1 Central; 2 Strathclyde
1992	4	4 Strathclyde
1993	3	3 Strathclyde
1994/95	3	3 Strathclyde
1995/96	5	1 H&I; 3 Strathclyde; 1 Tayside
1996/97	6	1 H&I; 4 Strathclyde; 1 Tayside
1997/98	3	1 H&I; 1 L&B; 1 Strathclyde
1998/99	3	1 H&I; 2 Strathclyde

Sources: HMCIFS for Scotland Reports, 1978 to 1998-99

Table 4.3: Firefighter deaths off duty in Scotland, 1999-2000 to 2006-07

Year	Total off duty	Fire and rescue service
1999/00	3	3 Strathclyde
2000/01	1	1 Strathclyde
2001/02	2	1 Central; 1 Strathclyde
2002/03	0	
2003/04	0	
2004/05	0	
2005/06	6	1 D&G; 4 Strathclyde; 1 Tayside
2006/07	3	2 L&B; 1 Tayside

Sources: HMCIFS for Scotland Reports, 1999-2000 to 2006-07

Northern Ireland

The Northern Ireland FRS reported that 20 firefighters had died whilst in its employment since 1998. Researchers found details of one case in May 2004, where a firefighter died in a water-related incident whilst off duty.

Analysis

In England and Wales the total number of deaths while in service was 452 over the 21 years we were able to obtain records for, an average of over 21 deaths per year. These figures cover only wholetime firefighters and no analysis or comments were found in inspectors' reports on their causes.

In Scotland a total 85 fire service personnel (firefighters and control) were counted as deaths in service/off duty over the 29 years, an average of almost three per year. These figures also apply only to wholetime firefighters. However they do identify which fire and rescue service the firefighters worked for, and therefore may be of use in further research.

Given the differences in the recording systems used in Scotland, we did not aggregate the two sets of figures.

4.2 Fire and rescue service data

In addition to the Freedom of Information request on on-duty deaths, we also requested information from individual FRSs. A number of FRSs provided information over various time periods, indicating that good records are kept.

For example, the Lothian and Borders FRS sent details of 30 cases, and Kent FRS provided figures for 22 cases since 1990. Highland and Islands, Staffordshire, and Royal Berkshire FRSs all had 14 cases and Derbyshire sent information on 12 cases. Information was also received from Fife, Central, Tayside, Tyne and Wear, Northumberland, South Yorkshire, Cheshire, Nottinghamshire, Warwickshire, Shropshire, Cambridgeshire, Bedfordshire, West Sussex, Oxfordshire, Buckinghamshire and Dorset FRSs. Cornwall provided information on an investigation into a suicide by one of its employees in 1996, which was also mentioned in CLG figures. West Midlands provided information about a leukaemia case in 1985.

However, insufficient information was provided to draw any substantial conclusions. This area remains significantly under-researched, despite considerable scope and data held by fire and rescue services.

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5 Case studies of firefighter fatalities

Firefighters have died and been killed in the course of their work since the inception of the fire service. The Firefighters Memorial Charitable Trust database records over 2,000 firefighters who have died in the line of duty going back to 1723. The National Memorial in London to those men and women firefighters who died during World War II contains almost 1,000 names. The Fire and Rescue Service plot at the National Arboretum in Staffordshire stands as a lasting memorial to the contribution made by all these firefighters.

The recent history of the UK Fire and Rescue Service is beset with terrible incidents. The worst in terms of loss of life was at a bonded warehouse containing gallons of whisky and rum in Cheapside Street, Glasgow. A total of 14 members of the Glasgow Fire Service and five men from the Glasgow Salvage Corps lost their lives fighting the blaze on 28 March 1960.

Seven Glasgow firefighters died during a fire at a cash-and-carry textile warehouse in Kilbirnie Street in the city on 25 August 1972. Firefighters had entered the building in search of a missing crew member and were on their way to safety when they were killed in a flashover.

The lessons of these and other fatalities have led to important safety changes. For example, after the death of a London firefighter at King's Cross in November 1987 additional safety legislation for underground stations (known as Section 12) was implemented. The Fennell report into the tragedy recommended a review of command and control training, improved communications and for a review of firefighters' personal protective equipment (PPE) in the light of injuries sustained during the fire. (The provision of personal radios to emergency service personnel who work underground has yet to be implemented, despite 7/7).

5.1 Learning the lessons of past tragedies

The following case studies indicate substantial lessons drawn from past firefighter fatalities, and point towards further areas for improvement.

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Gillender St, London 1991

On 10 July 1991 two London firefighters were killed at a fire at Hays Business Services in Gillender St, Bow. A coroner's inquest held in January 1992 recorded a verdict of unlawful killing.

An investigation by the FBU London regional committee (Wrack and Fitzpatrick n.d.) found a series of failures that contributed to the deaths. The report found:

- Hays employees delayed for seven minutes after the fire alarm went off before calling the brigade.
- Fire crews located the fire early in the incident and laid a hose. However it was never used, despite the manual of firemanship stating that water should be applied to a fire as soon as possible.
- There were major failings in command and control, including the failure to debrief crews, failure to protect members against heat stress, failure to organise reliefs, failure to organise ventilation and failure to organise firefighting.

The FBU argued that breathing apparatus training needed reviewing and reinforcing in the light of the deaths. It concluded that firefighters with less than six months' operational experience should not be breathing apparatus wearers. Subsequent work by the Union found that there were few studies on the impact of wearing breathing apparatus on firefighters, and that work duration tables were based on old armed forces research with soldiers wearing full kit, but not breathing apparatus. The FBU argued that safety margins on BA sets should be expanded and that the size of BA emergency crews should be increased to ensure the safety of initial crews.

The Management Report by the London Fire Brigade backed many of these findings. It also identified failings in the use of breathing apparatus, including defects, poor testing and failure to use on entry to the building (LFCDA n.d.). It was also damning about training failures. The Management Report argued: 'It is important that operational personnel have their judgement and behaviour tested in a controlled training environment, to enable them to confidently deal with such operational incidents as they arise. It is therefore essential that realistic training is introduced into the Brigade, particularly at recruitment level and existing operational personnel.' It concluded: 'It is evident that this form of training on a Brigade wide basis does not take place in a constructive manner. The training is inconsistent with regard [to] facilities, policy and procedures.'

Subsequently the Health and Safety Executive served two improvement notices on the London Fire Brigade for failure to provide adequate training and for failure to monitor and supervise training and instruction of operational firefighters.

Blaina, South Wales 1996

Another well-known example where lessons were learned took place after the deaths of two South Wales firefighters in Gwent. Firefighters were called to a house fire in Zephaniah Way, Blaina in February 1996. They rescued one child from the premises and returned to save others reportedly inside. Both firefighters were trapped by a delayed backdraught and killed despite the desperate attempts of their colleagues to rescue them.

Gwent FBU conducted an investigation into the deaths (Pearson and Allen n.d.). The lessons of the Blaina fire have been discussed ever since. A summary by Tony Prosser, a senior fire officer, appeared in *Fire* magazine in February this year.

Firstly, the emergency response. Initial callers stated there were no persons trapped in the house. A standard attendance of one water ladder was dispatched with six firefighters. A subsequent caller stated that a child was in the building and fire control mobilised another appliance.

Some fire and rescue services, including Gwent, routinely sent only one appliance to domestic fires. The FBU argued that: 'An initial mobilisation of two appliances on receipt of the first call to the incident would have provided an additional crew at the fire one minute and 37 seconds before the backdraught occurred. This additional crew could have begun firefighting/venting duties prior to the re-committal of the Blaina BA crew who were caught in the backdraught. The second appliance could also have provided a BA emergency team.'

The Fire and Emergency Cover (Pathfinder) Review subsequently confirmed the FBU view, and highlighted the need for a minimum of nine firefighters to carry out operations safely at a scenario like Blaina.

Secondly, national guidance and procedures for the use of breathing apparatus were not put into practice at the fire in Blaina. The FBU highlighted the pressure firefighters are under to intervene and take action,

even where the risks are great. It argued that 'firefighters feel a moral obligation at certain incidents to act immediately where life is threatened and rescues are required'. Fire services had been warned by the Review of Standards of Emergency Cover Report – Technical Paper C – Response & Resource Requirements (1985): 'It is essential to avoid situations which could motivate or pressurise firefighters to act unsafely in the interests of saving life.' Sufficient resources are needed quickly at incidents because firefighters will act immediately where life is threatened.

The FBU added: 'Modern protective clothing and breathing apparatus allow firefighters to venture into situations at operational incidents which may put them at potentially greater risk.' Breathing apparatus procedures were revised in Home Office Technical Bulletin 1/97 (TB 1/97) in the light of these failures.

Finally, these failures were exacerbated by the lack of training. Firstly, this impacted on the risk assessment. The FBU report noted: 'The Officer in Charge of the initial attendance was not in a position to carry out a suitable and sufficient risk assessment of the dangers to his initial BA Crew due to inadequate training…' Secondly, crews were not trained adequately. The FBU investigation noted: 'The crews attending the incident had not been provided with specific, structured training in how to recognise the indicators of a potential backdraught and the tactics to reduce the risk of a backdraught occurring.' The report pointed out that: 'There is currently no practical training given to firefighters regarding backdraught in the UK.' The FBU recommended that within five years 'sufficient practical training facilities must be provided to enable all firefighters to receive basic and continuation training using real fire training techniques and procedures'.

In the aftermath of the incident, the HSE served enforcement notices upon Gwent Fire Brigade related to training for operational risks. HSE stated:

- 'The training provided did not adequately equip firefighters to recognise and deal with the situation (i.e. the backdraught) encountered at Blaina.'
- The recording and monitoring of the training of 'watch-based training was not sufficiently rigorous to spot areas which had not been covered adequately'.
- Materials used to support such training as was, was 'not sufficient to ensure quality training (e.g. comprehensive bibliographies, lecture packs, overhead slides)'.
- 'Few firefighters in Gwent had received useful hot fire training.'

More than a decade earlier, HSE had produced a Health and Safety Guidance Note Occasional Paper No 8, Training for Hazardous Occupations, which emphasised the need to expose firefighters to risks similar to those that they would face on the incident ground. Subsequently, training methods and materials were improved.

Greater Manchester September 1999

Another death that prompted changes in working practices involved a Greater Manchester firefighter. On 5 September 1999 a firefighter drowned whilst attempting to rescue a 15-year-old boy at Simon's Lodge, a small lake near Bury, north of Manchester.

The coroner's jury recorded an open verdict at the inquest in 2000. The Health and Safety Executive prosecuted the Greater Manchester (GMC) Fire and Rescue Service in 2004 for breaching the Health and Safety at Work Act 1974, but the authority was acquitted.

The FBU argued, based on HSE evidence, that GMC had failed over a lengthy period to address the risks associated with water rescues before the fatality.

- Firefighters had received no training on water rescues.
- The risk assessment carried out in 1998 ranked water rescue as a 'moderate' risk.
- No operating procedure had been developed for water rescues.
- The first rescuers on the scene had no proper equipment.

GMC had been warned by a firefighter as early as 1994 that water rescues were being carried out without adequate equipment. Two years before the firefighter's death, a divisional officer had pointed out that the only existing piece of equipment that could be used was a rope tied around personnel, which he said 'must raise the issue as to whether a safe system of work exists'. (*Firefighter* magazine, November/December 2004)

Alan Anderson, FBU health and safety rep, said that before the death 'we had no risk assessment, no training and no equipment and it was the same in a lot of other brigades'. He added: 'Within six months of the death we had a water policy, a risk assessment, training, buoyancy aids, floating ropes, throw ropes and inflatable hoses.'

The FBU argued that although the legacy of the death was that every other firefighter was safer, it should not have taken a death to put these measures into place.

GMC said during the trial that it had been 'too busy' for five years to deal with the health and safety issues surrounding water rescues. They also appeared to argue that the fire service was so different from other occupations that health and safety law should not apply or should not be applied as rigorously.

Kevin Brown, FBU Greater Manchester brigade secretary, said: 'There was a catalogue of systematic failures over many years. The verdict is that these failings did not add up to a breach of criminal law but it does not free them from the responsibilities which they bear.'

5.2 Recent firefighter deaths

The most recent firefighter deaths are the subject of ongoing investigations, which prevent a detailed analysis at this point. However in other cases, the FBU, fire and rescue services and other bodies have published reports which suggest a number of lessons still need to be learned to prevent further tragedies.

Gorteen House Hotel, Northern Ireland November 2003

A Northern Ireland firefighter was killed at the Gorteen House Hotel, Limavady on 1 November 2003. During an operation to vent a fire in the bar store, a catastrophic and sudden failure of the flat roof structure occurred. The firefighter fell into the fire below. Although fellow crew members courageously rescued him, he died from his injuries.

A joint management/ FBU investigation was instigated (Gough and Maguire n.d.). It examined training records, health and safety records, and accident records of the personnel involved as well as breathing apparatus information. The Health and Safety Executive for Northern Ireland and the Police Service for Northern Ireland also carried out investigations.

The major failure concerned dynamic risk assessment. This was defined as 'the continuous process of identifying hazards, assessing risk, taking action to eliminate or reduce risk, monitoring and reviewing, in the rapidly changing circumstances of an operational incident'. (Dynamic management of risk at operational incidents – a fire service guide, 1998)

The report found that: 'There is no evidence from the witness statements or the Incident Command Board that any update of the dynamic risk assessment had been undertaken and expressed to operational personnel.'

Investigators decided that: '…a reappraisal of the firefighting tactics should have confirmed that operations were taking place within the third phase of the risk philosophy. ("We will not risk our lives at all to save lives or property that is already lost.") The store room and its contents were already lost. In this respect it can only be concluded that the dynamic risk assessment that had been carried out initially, did not keep pace with the speed of development of the incident, and resulted in a failure of control measures that hither to had been accepted as adequate.'

They added: 'It is also difficult not to conclude that ultimately a life was lost in trying to save property which itself was already lost.'

The investigation also found that there did not 'appear to have been any recent opportunity for training specific to working on roofs, including flat roofs at either station'. It warned: 'It is important that the Northern Ireland Fire Brigade supports an ethos whereby how well fires have been fought are determined by both firefighters and managers, not by how quickly they were brought under control, but by how safely.'

The investigation made recommendations to prevent a re-occurrence. It argued that the brigade needed to:

- provide safety critical information in a more focused and easily digestible manner with appropriate training aids;
- enhance the operational validation process;
- reaffirm dynamic risk assessment, incident command and fire behaviour training, especially for first attending officers;
- provide training for officers nominated to carry out the tasks of an incident training officer;

- provide both theoretical and practical training for working on roofs;
- extend the performance review of command to a wider geographical area;
- provide a means whereby learning outcomes from all significant incidents can be promulgated throughout the brigade.

The NIFRS told the Labour Research Department that it had reviewed its policies on command operations and collapsed structures and was in the process of reviewing other standard operating procedures (SOP). It had issued a Working at Height SOP (Communication, 2 July 2008). Jim Quinn, FBU brigade secretary in Northern Ireland, confirmed that these changes have taken place.

Bethnal Green, London July 2004

Two London firefighters were killed at a fire on the Bethnal Green Road in London on 20 July 2004. Firefighters were called to a three storey shop and dwelling, and rescued two people from the roof. Others were sent to the basement to ventilate the fire, and this was where the two firefighters were killed, over an hour after the original call.

An FBU investigation into the tragedy found that 'there were readily identifiable failures which could be said to have contributed to, and certainly didn't prevent' the deaths. It concluded that 'the underlying responsibility for the causes for these failings are a failure of management in providing safe systems of work and the resources and training to ensure their implementation'. (Dark and others 2004)

The FBU investigation identified a number of actions, events and decisions that gave rise to concern. Some of the key issues identified were:

- There was very little communication via radio.
- Radio communications outside the incident were poor which affected command and control.
- The crews were working to the point of exhaustion when this condition should have been realised by themselves and the officers at the scene.
- There were insufficient crews to provide breathing apparatus teams and emergency teams or to fulfil fireground tasks.
- Only three crews were led by an officer. All were Leading Firefighters, one of whom was temporary.
- There was little or incomplete organised briefing and debriefing.
- Ventilation was carried out with no covering jets.

The report commented: 'It has become Brigade policy to commit inexperienced firefighters into incidents in BA [breathing apparatus] whilst in their probation. There has never been consultation on this matter, nor has it been possible to discover when or why the Brigade policy was changed.'

A report by senior accident investigator Robert Hill into the fire echoed many of the FBU concerns, and pointed to other failings. The report identified three immediate causes of the fatalities:

- There was insufficient weight of attack on the fire, because a hose-reel rather than main jets was the only method used to apply water to the fire in the basement.
- There was no continuous flow of water onto the burning materials in the basement.
- The crew fighting the fire were in the basement at the time when ventilation took place at the rear of the first floor of the building, resulting in them being exposed fatally to fire and extreme heat.

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It pointed out that the firefighters who died 'had no direct verbal contact with Command officers or firefighters outside, therefore could not be warned (directly) about the possibility of any further ventilation or told to withdraw, or be told about signs of imminent danger'. (Hill 2005)

The report also identified four underlying causes at the incident:

- insufficient understanding of the fire-spread potential of the burning materials, which led to an incomplete assessment of the risks;
- insufficiently effective debriefing of crews to gain information about the layout and conditions inside the premises, which led to an incomplete knowledge of the risks;
- ineffective maintenance of the means of escape for successive basement fire-fighting crews;
- effective emergency action not taken when conditions deteriorated.

In addition, it identified the organisational underlying causes with:

- resources;
- procedures;
- performance monitoring of emergency operations;
- training.

The report emphasised that members of the public were not at risk in the basement area at any point. 'Officers were told by the occupants on the roof within a few minutes of first attending the fire that there was no one else occupying the building. Therefore the people at risk apart from those on the roof would be firefighters entering the building to fight the fire. The best practice procedure of backing up the water supply by setting into a hydrant when there is a known fire was not done as expected within minutes of arrival.' (Hill 2005)

It pointed out that 'several BA wearers came out of the premises exhausted and with fire-gear steaming' and that this 'should have prompted a change in tactics to replace hose-reels with main jets either taken in by crews and operated by them, or operating lashed off but unattended'. (Hill 2005)

On training, it concluded:

- 'Station organisation and administration, staff utilisation and working routines require review to ensure that sufficient time is set aside to focus on effective operational continuation training.'
- 'There has been a reduction in large scale BA exercises, which may mean that officers and firefighters are having less opportunity to practise the important tasks of briefing BA crews before being committed, and debriefing once tasks are complete.'
- 'The practical/real fire continuation training provision should be reviewed to ensure maintenance of operational staff competence.' (Hill 2005)

The FBU investigators made 68 recommendations, including:

- an increase in the number of senior officers available on the fireground;
- guidance on correct procedures needs to be re-issued, re-emphasised by increased levels of BA training and enforced on the incident ground;
- all personnel to undergo training which involves experiencing heat stress and being able to observe the effects in others;
- development of locational tracking systems be continued and introduced as early as possible;
- that the brigade provides backdraught and flashover training for all personnel;
- increase minimum size of appliance crew to five, including minimum of one watch commander and one crew commander;
- that a radio and BA set be identified or developed, so that London firefighters can be supplied with communications integrated into the breathing apparatus set;
- the authority must review the impact of this workload [Community Fire Safety] on training and operations.

It also referred to the lesson of earlier London firefighter deaths. Recommendation 65 stated: 'A ridership never rising above four on pumps and a shortage of firefighters and crews always working with unfamiliar officers and team members contributed significantly to the fatalities which occurred at Gillender Street [in 1991].' And it added: 'An almost intimate knowledge of one's station ground was a finding arising from the fatal fire at Villiers Road [in

1993]. The lessons learned from Villiers Road are as relevant now as when they were first written.'

The report by Robert Hill also made a series of recommendations, some of which he reported had been acted upon by August 2005. It highlighted insufficient BARIE (breathing apparatus radio interface equipment), and claimed that the brigade had decided to allocate additional radio equipment whenever BA is used. It also claimed that more comprehensive guidance for command officers for briefing and debriefing BA crews had been amended. On training, the report called for the provision of real fire training for experienced firefighters and for incident commanders, which again it said were now in place.

A coroner's inquest in June-July 2006 also reinforced the findings of these investigations. After the inquest, the widow of one of the firefighters said: 'The London Fire Brigade should take some huge lessons from this as a lot of their mistakes were hugely unnecessary. This will hopefully stop anyone else going through what we went through.' (BBC, 23 June 2006)

The father of the other firefighter, who had been in the service himself, was more forthright. He said: 'I came here two weeks ago with my pride intact. Now I despise the fire brigade for what went on and just want them to say mistakes were made and they will put them right on the strength of what went on.'

The FBU was also critical. Gordon Fielden, FBU regional chair and one of the investigating team, said: 'Obviously the FBU has a view on a number of issues that relate to this particular incident, but the underlying causes are that a lack of efficient real training and a change in policy have allowed the operational readiness of the London Fire Brigade to be at the poorest standard it's been for more than 30 years.'

Harrow Court, Hertfordshire February 2005

Two Hertfordshire firefighters died at a fire at a block of flats at 85 Harrow Court, Silam Road, Stevenage on 2 February 2005. The firefighters had rescued one victim and were attempting to rescue another when they were killed.

In contrast to the cooperation shown by Northern Ireland FRS following the Gorteen House Hotel fire in 2003, Hertfordshire FRS refused to agree a protocol for a joint investigation and the FBU was forced to produce its own independent report (Stanbridge, Matthews and Noakes 2007). The FBU report made 73 recommendations, taking note of other investigations by Hertfordshire FRS and by fire expert Paul Grimwood.

The report found that the deaths would 'almost certainly' have been prevented had Hertfordshire FRS ensured adequate procedures, training and resources were systematically in place. It also found that adequate procedures, training and emergency response resources would have 'significantly reduced' the life-threatening risks facing firefighters attending the incident.

The review of the HFRS Integrated Risk Management Plan found that a minimum of 13 firefighters in the initial attendance for high rise incidents would have enabled the service's safe systems of work to be implemented in full. The report echoed the Review of Standards of Emergency Cover Report – Technical Paper C – Response & Resource Requirements (1985) which states: 'It is essential to avoid situations which could motivate or pressurise firefighters to act unsafely in the interests of saving life.'

The FBU investigation concluded that 'the conduct of Hertfordshire Fire & Rescue Service (HFRS) significantly contributed to the deaths' because it had failed to comply satisfactorily with relevant fire and health and safety legislation and guidance. The FBU also said that Stevenage Borough Council may have contributed to the deaths because they failed to undertake a review of the smoke alarm installations.

Key FBU recommendations to Hertfordshire FRS included:

- to ensure that all firefighters receive regular training in all aspects of active fire safety measures;
- to ensure that there are sufficient firefighters on the initial attendance so that one firefighter can be detailed as forward/sector commander;
- to ensure that all firefighters receive regular training in all aspects of compartment fires and ventilation of high rise buildings;
- to ensure that all their firefighters receive regular training and monitoring in all aspects of high rise procedures, and ensure that the initial crews take the correct equipment up to the bridgehead. This could be achieved by the introduction of a high

rise pack containing all of the equipment recommended in the policy document;

- to reintroduce the practice of regular inspections of all high rise buildings;
- to actively enforce the Fire Safety Order to ensure that the passive and active fire safety measures incorporated into the building for the protection of firefighters are present and effectively maintained;
- to immediately revise its high rise incidents procedures;
- to immediately revise its breathing apparatus procedures and bring them back into line with TB 1/97;
- to immediately revise its incident command system;
- to prepare a new dynamic risk assessment training programme;
- to immediately initiate a comprehensive training needs analysis;
- to review and properly resource joined-up, theoretical and practical high rise incident training consistent with revised standard operating procedures;
- to develop a protocol for a joint investigation, or a protocol that protects the safety representative's rights to full disclosure, access to documents, the provision of information/evidence, and the right to have private discussions with employees.

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The FBU report also made crucial recommendations to the CLG, including:

- to create national (England and Wales) Fire and Rescue Service standard operating procedures for fire fighting in high rise residential buildings which align with the guidance for the fire safety design strategies in such buildings;
- to immediately revise the high rise incidents generic risk assessment.

In June 2006, the CLG issued circulars (32/2006 and 71/2006) on fighting fires in high rise buildings. These highlighted the importance of familiarisation visits and specific risk assessments covering jets and the risk of heat stress. However the FBU is still not satisfied with the advice provided by the CLG on the matter.

A coroner's inquest in March 2007 recorded a narrative verdict on the firefighters' deaths. After the inquest, Matt Wrack, FBU general secretary, said: 'The FBU investigation concluded that Hertfordshire fire authority failed to put in place proper procedures, did not have adequate training and did not send enough firefighters in the initial response to tackle this fire safely. But this tragic loss of life could have happened in any number of fire authorities across the UK, it was only by misfortune that it happened in Stevenage.'

He added: 'The entire fire service and government need to learn the lessons of what happened in Stevenage. There must be an end to the constant pressure to cut frontline fire crews and cut corners with training and other safety critical activities.'

The father of one of the firefighters was also critical of the fire and rescue service. He said after the coroner's verdict: 'I don't believe the tragedy had anything to do with individual errors but was directly because Herts Fire and Rescue Service – like so many others across the UK – have not been giving their fire crews the hands-on practical training and preparation needed to deal safely with the dangerous incidents they are sent to and to the standards that we as a society expect from them.' (*Firefighter* magazine, May 2007)

5.3 How are lessons from firefighter fatalities learned and disseminated?

Accident investigations provide detailed and valuable information on particular fatalities. Most of the recent reports referred to in this chapter based their investigations on the HSE guidance, Successful Health and Safety Management (HSG 65), which requires that accident investigations establish what happened, how it happened and why it happened.

In order to learn the lessons of such tragedies, establishing the lines of causation is essential. A report by WS Atkins for HSE looked at the various techniques available for establishing the underlying or root causes of an incident. The report warned: 'It is only by adopting investigation techniques which explicitly identify root causes, i.e. the reasons why an incident occurred, that organisations may learn from past failures and avoid similar incidents in the future.'

The definition of a root cause is 'the most basic cause that can be reasonably identified and that management has control to fix'. Basic cause refers to the 'specific reasons as to why an incident occurred that enable recommendations to be made which will prevent recurrence of the events leading up to the incident'.

The report argued that the root causes of an incident are to be found at the highest level of management, including policy, organisation, planning and implementation, measurement of performance and review of performance.

The joint report on the fatality in Northern Ireland in 2003 made a similar argument that has enormous significance for this research. The investigators wrote: 'Safety culture must be more than a combination of administrative procedures and individual attitudes to safety, and the whole organisation must *aspire to learning and applying appropriate lessons* from uncontrolled incidents and accidents.' (our emphasis)

The 'whole organisation' in the report was mainly referring to the Northern Ireland Fire Brigade, but the argument was equally valid for the whole of the Fire and Rescue Service. A number of clear lessons stand out from these cases.

Firstly, in every case there were failings in the assessment of the risks. This is particularly notable given that in two of the three most recent cases, lives were not at stake when the firefighters were killed. In every case there were policy failures, with inadequate standard operating procedures and failures in incident command. These relate to the failures in risk assessment, but are not reducible to them.

Secondly, the training given to operational firefighters is another central area of concern. This includes particular training to deal with known hazardous situations (such as working at height, working in basements and working in high rise buildings), and as well the form that training takes. In particular, the need for active, realistic training for these and other well-known situations comes across clearly from an analysis of these reports.

Thirdly, there are particular concerns at these incidents that very clearly come under the control of management and could be stipulated more clearly. For example, there were concerns about initial attendance and about familiarisation and previous inspection in the Harrow Court deaths. These are matters where prior decisions about resources have a direct material effect on circumstances into which firefighters are placed.

It would be wrong to identify these failures simply with individual fire and rescue services. A key question arises from these reports: How are lessons learned across the Fire and Rescue Service?

It is not clear that copies of the investigation reports have even been circulated throughout the service. Only the FBU has made its reports available widely, for example on its website and in its publications or, in the case of Harrow Court, on a DVD. No synthesis of the various reports has been produced by the CLG. At most additional, bland and, in the circumstances, very brief circulars have been sent out by the department in the light of some of these deaths. No explicit monitoring of the changes needed to ensure incidents like these do not occur again seems to have taken place. No substantial, updated guidance has been issued which reflects the changes in policies and SOPs necessary across every fire and rescue service.

At present there is no agency that takes responsibility for examining these cases, or investigation specialists with continuity over several cases to extract the lessons and share them with other fire professionals. This brief extends to other major injuries and near misses, which might also help prevent firefighter fatalities.

This contrasts with other important safety investigations, for example in the transport sector. The

Marine Accidents Investigation Branch investigates incidents at sea and disseminates the lessons in publicly available reports. The Air Accidents Investigation Branch investigates air incidents and also publishes its findings. And the Rail Accidents Investigation Branch deals with rail incidents and also makes them available. Such a role might be appropriate for the Chief Fire and Rescue Advisers, provided they are sufficiently independent of government interference and control.

In this context it is possible to identify a policy vacuum at the heart of the Fire and Rescue Service. Clearly some individual fire and rescue services have learned lessons from the experience of firefighter deaths in their brigades. However, it is not at all clear that these lessons have been shared, disseminated and tangibly acted upon across the Fire and Rescue Service. The fragmentation of the service, coupled with the lack of direction and leadership from the top, must also be part of any explanation if the underlying root causes of firefighter deaths are to be found.

There are perhaps some signs that this failure is being recognised. A recent paper on Operational Guidance for the Practitioners' Forum may offer a possible way forward. The FBU has welcomed the principles set out in the paper, in particular the assumption that materials produced would have the status of an 'approved code of practice'. If agreed, this would heighten the importance of any guidance produced and put additional pressure on fire and rescue services to comply.

There are other experienced bodies available within the service that can assist with this process. The Fire Service College, if it were provided with adequate funding, could help to provide quality advice and training to ensure that lessons are learned.

6 Assessing firefighter safety since modernisation

This chapter looks at the context in which firefighters work, and in particular at the impact of modernisation. Many of the key causes of firefighter fatalities established through investigations, such as risk assessment, standard operating procedures, incident command, training and equipment (Chapter 5) have undergone 'reform' in recent years. This chapter contains previously unpublished information evaluating these important areas and their significance for firefighter safety.

6.1 The context: modernisation of the Fire and Rescue Service

The Fire and Rescue Service has undergone rapid change in the last five years. The process of what the government has called 'modernisation', beginning with the Our Fire and Rescue Service White Paper in 2003, built on earlier changes such as risk assessment and the turn to community fire safety. Modernisation has led to significant changes centrally and locally, which provide the context for any discussion of recent firefighter fatalities.

This is acknowledged officially. For example, the Audit Commission's Fire and Rescue Performance Assessment (2008) noted: 'Fire services have been modernising over the last five years. At the heart of modernisation is the emphasis on identifying risk and fire prevention. As a result the firefighter role has changed to focus more on prevention and protection work in local communities.'

Some of the significant reforms over the past five years include:

- the Fire and Rescue Services Act 2004;
- the shift from national standards of fire cover to local Integrated Risk Management Planning (IRMP) based on local risk assessments;
- the introduction of the Regulatory Reform (Fire Safety) Order 2005, consolidating over 100 pieces of fire legislation;
- the Fire and Rescue National Framework, including targets for reducing home fire deaths and deliberate fire setting;
- the abolition of the Fire Inspectorate;
- the proposed introduction of nine regional control centres;
- individual personal development training plans;
- the abolition of the Fire Safety Advisory Board (FSAB) and the Central Fire Brigades Advisory Council (CFBAC) and their replacement with the Practitioners' Forum;
- the transfer of responsibility for fire to the Department for Communities and Local Government (CLG);
- new statistical methods for calculating targets and presenting information on the Fire and Rescue Service.

The FBU has been critical of many of these changes and the way they have been implemented. The lack of central guidance and policy has led to a fragmented approach, giving rise to a 'postcode lottery' of community and firefighter safety. Some of this has been masked by the repackaging of statistics, as the recent FBU report, *Tragedy, Loss, Hope, Help* has demonstrated.

Although national standards remain for vital areas such as recruitment and for incident command, the FBU remains convinced that the loss of national standards of fire cover is to the detriment of communities and the safety of firefighters.

Local IRMPs have had many flaws and weaknesses, including their failure to use robust and risk-based data to evidence proposals. In some cases, IRMPs have been used to force through local cuts, closing fire stations, removing appliances and cutting the number of firefighters. Whilst the FBU strongly supports fire prevention measures, including community and youth engagement and the use of smoke alarms and sprinklers, it does not believe fire authorities are justified in diverting resources to these areas at the expense of emergency response. It argues that both are necessary.

Some of the FBU's concerns were echoed by the House of Commons Communities and Local Government Committee Fire and Rescue Service Report, 2005-2006, particularly on IRMPs, regional controls and national resilience. Others within the fire service have voiced similar concerns. For example, last year Steve Dudeney, assistant divisional officer in London, argued that firefighters needed to spend more time on basic rescue work, particularly on training given the recent wave of fatalities. (*Fire Rescue* 1, 7 November 2007)

6.2 Operational Assessment of Service Delivery (OASD) reports

Although many of the measures associated with 'modernisation' have not been in place for long, there is some evidence that modernisation has exacerbated the unevenness of the service and contributed to key safety failures. Some of this evidence comes from the government's own auditing process, known as the Operational Assessment of Service Delivery (OASD).

The OASD process attempts to measure how well fire authorities are planning, organising and delivering their operational fire and rescue services. The most recent assessments were undertaken by the Department of Communities and Local Government (CLG) for the Audit Commission. The process involved two stages.

In July 2006, fire and rescue services were given six weeks to complete the self assessment using the Toolkit (CLG 2006f). In the autumn of 2006, field teams visited each fire and rescue authority to review the self assessment and make their own judgement.

Both assessments looked at five 'key lines of enquiry':

- risk analysis;
- preventative and protection services;
- operational preparedness;
- call management and incident support;
- emergency response.

Short summaries of these reports are available on the Audit Commission website. However, the substantial reports by fire professionals (usually around 20 pages long) have not been made available publicly. These were obtained using a Freedom of Information request in August 2008.

Only fire authorities in England were included, covering 45 at the time. Merseyside and Kent were regarded as 'excellent' by the Audit Commission and therefore were not required to undertake OASD.

In the self assessment exercise, 18 fire and rescue services regarded themselves as 'performing strongly' (the highest mark), 26 'performing well' and one as 'adequate'. None regarded themselves as 'inadequate'.

In the audited reports, only 11 fire and rescue services (24%) were regarded as 'performing strongly', while 28 (62%) were 'performing well' and six (13%) were considered 'adequate'. None were regarded as 'inadequate', although one (Isle of Wight) was considered inadequate in two of the categories (operational preparedness and emergency response). This meant that more than one in four (12) assessments were changed: seven FRSs were downgraded from 'performing strongly' to 'performing well' and five from 'performing well' to 'adequate'.

The reports contain much that is positive about fire and rescue services. For example, the community safety schemes with schools and young people were held up as good practice. (CLG 2007c, Appendix 1)

The potential value of such an audit was summed up by one particular comment praising Wiltshire's significant event investigations and debriefs. The auditors wrote: 'Thus the organisation shows that it learns from its experience and considers ways to improve its service and enhance firefighter safety.'

Undoubtedly some improvements have been made since the OASD assessments were made, although the scores awarded are regarded as valid at least until 2009. A number of problems relevant to firefighter fatalities were highlighted – even in areas where management performance was considered strong. These are detailed below.

Risk analysis

There were problems with risk management and with risk assessments in Northamptonshire, Shropshire, East Sussex, Hampshire, Avon, Gloucester and Wiltshire. For example auditors wrote that 'there is no overarching risk management policy consolidating the assessment of existing and potential risk within the communities' for Hampshire (considered a strong performer overall), East Sussex and Gloucestershire.

Shropshire was criticised because 'at present the FRA is not able to complete a comprehensive assessment of all risk that exists within the county', whilst for Northamptonshire 'various sources confirmed that there are a number of risk assessments being carried out within the service outside of any formal process'.

There was particular concern in the Isle of Wight, where auditors argued: 'There was no evidence found of the use of station based local response standards or a process to review the speed and weight of operational response.'

Geographical mobilisation was highlighted as a concern in Hertfordshire while response standards were raised in Oxfordshire and the Isle of Wight. The report on Hertfordshire stated: 'The use of geographical mobilising creates a potential risk to crews who attend incidents outside of their normal working area. It was identified that currently, crews may respond to incidents without available risk information on site specific risks and therefore may be at risk in the initial stages of an incident. However, control measures do exist to mitigate this risk.'

Similarly, in Oxfordshire: 'Station plans showing areas of "high risk" and areas where response standards cannot be met were not available at some of the stations visited and there was insufficient information to identify appliances that do not meet the response standards.'

Preventative and protection services

Outdated policies were found in South Yorkshire, Warwickshire, Hampshire, and Cornwall. South Yorkshire was criticised for not maintaining the public register, legally required under the Environment & Safety Information Act 1988. Auditors wrote: 'When the register was cross checked against premises files it was found that prohibition notices had been withdrawn six years previously or where still valid the premises had not been re-visited for a number of years to ensure the prohibition notice was not being breached.'

Training for preventative and protection services was raised as an area for improvement in Northamptonshire, Cambridgeshire and the Isle of Wight. Auditors argued that in Cambridgeshire 'the basic level fire safety training for operational service delivery staff on stations is inadequate', while on the Isle of Wight: 'No evidence was provided to the team prior to or during the review of a training policy or training strategy for prevention and protection services.'

Hereford and Worcester had problems with high risk premises, whilst some inspections had not been carried out in West Midlands and Hertfordshire. Concerns were raised about the number of home fire safety checks in Essex and Suffolk and about building control in Suffolk.

Operational preparedness

The situation regarding operational preparedness was even more significant. Although Royal Berkshire was considered to be operating strongly overall and for operational preparedness in particular, auditors found that: 'There was clear evidence that RBFRS is operating at significantly below their retained duty system (RDS) establishment. RBFRS's IRMP identifies that the peak

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time for emergency incidents coincides with the peak of RDS unavailability.'

Risk critical information was not available in Northumberland, Humberside, Lincolnshire and Suffolk. Auditors visiting Northumberland found: 'It is possible that stations who are potentially the first to attend an incident overlook amended risk critical information…'

There were even greater concerns in Lincolnshire: 'Following a review of the risk critical information held on front line appliances, much of it was found to be out of date. As a consequence the decision was made to remove risk premises folders while detailed updating is carried out. During the interim it was considered that risk cards… were sufficiently robust to ensure safe working at incidents. It was clear that operational staff did not understand the reasons behind this action and felt vulnerable as a result. This has resulted in front line appliances in LFRS currently having no risk specific information on premises previously identified as posing a risk.'

Some important documents and policies were out of date in Northumberland, Buckinghamshire and the Isle of Wight. For example, in Buckinghamshire auditors found that 'a number of key policy documents are in need of updating to reflect current legislation and guidance... These include the policy for Training and Staff Development and the ICS [incident command system] policy'.

The situation in the Isle of Wight was considered serious enough to warrant a verdict of 'performing inadequately' for operational preparedness, with firefighters potentially at risk as a result. The report stated: 'There is no overarching Operational Preparedness Policy/Strategy. In the main, operational procedures are currently under review and have not been updated to reflect changes in guidance and key legislation with many procedures not being reviewed on a systematic basis. On two fire stations the review team visited, risk critical information was not removed from the Fire Appliance 'Dynamic Risk Assessment Aide Memoir' (DRAAM) file leaving operational staff potentially at risk.'

A wide range of concerns were raised about training. Greater Manchester was considered to be 'performing strongly' in all five categories and overall, yet auditors found that 'the training and development programme provided is not fully meeting the needs of the service'. They added: 'The Personal Development Record (PDR) process used to identify training needs and inform the next years training plan is not effective. Many courses requested within this process have not been provided and staff expressed frustration and a lack of confidence in the system... Whilst there are many embedded training activities spread across the service, the deficiencies highlighted above may be leaving some operational staff exposed to risk.'

The connection between risk assessment and training was well made in the Avon report. It identified inconsistencies in risk identification. Auditors concluded: 'This had the effect of a lack of understating of high, medium and low risks amongst stations. It also impacted on training protocols at each station and the frequency of training due to training regimes being based on risk. In some instances tactical plans were out of date by some considerable time, they also lacked detail and clarity.'

Training had been cancelled in Northumberland, Humberside, Nottinghamshire, Essex and Surrey (for retained firefighters). Essex was considered to be 'performing strongly' for operational preparedness and indeed the other four categories, yet auditors noted that 'RDS (Retained Duty System) staff expressed concern about courses being cancelled at short notice and felt that there was insufficient training time available for them to meet all the needs of their training programme'.

Failings in training policy and strategy were found in South Yorkshire, Leicestershire, Warwickshire, East Sussex and West Sussex. In Cornwall 'the breathing apparatus and tactical firefighting (TAFF) course attended by frontline staff every 18 months is not currently assessed for individual competence meaning that whilst crews are refreshed in core skills, they are not formally assessed and may not be competent'.

A lack of hot fire training was found in Humberside, Derbyshire, Northamptonshire, Hertfordshire and Wiltshire. The situation was worst in Hertfordshire, where auditors reported: '[Hertfordshire] FRS has had to cease using its "hot fire" training facility. As a consequence some operational staff expressed their concerns due to the fact that they are no longer able to experience realistic hot fire training.'

The lack of hot fire training was attributed to inoperative training towers in Shropshire, Humberside and Leicestershire. In Shropshire, auditors reported: 'The training facilities at a number of stations are considered to be inadequate. This is exemplified by the lack of training towers available at six fire stations. These towers have been decommissioned due to their structural instability.'

On Humberside, the report stated: 'Currently only [Humberside] FRA staff undertaking phase one training participate in"hot" fire training. Whilst the remaining operational staff are able to observe hot fire phenomena, there are currently no facilities for staff to gain practical experience in a controlled environment. This has been recognised by [Humberside] FRA who are planning to provide dedicated facilities for compartment fire behaviour training. At present this type of training is currently not available to all operational staff and remains an area for improvement.'

A related concern was monitoring. Concerns were raised in West Sussex, particularly for incident command. The report stated: 'The monitoring of crews and incident commanders with regard to operational effectiveness and personal development is sporadic and uncoordinated. A safety audit is required at incidents with four to six appliances or more, but at smaller incidents personnel are monitored on an informal basis with issues being raised during "hot" debriefs. Some personnel were identified as not having been monitored in their role for long periods, some had been monitored but received no feedback and some believed they had been monitored due to the presence of an officer but were not sure and received no feedback.'

Staff felt ignored in Lancashire where auditors reported that 'there is strong opinion expressed by the station based personnel that their opinions and concerns were not being listened to by the authority and that they were only finding out about changes after they had been implemented'.

In Norfolk concerns about disenfranchisement were linked to poor reporting of near misses. The report stated: 'Liaison arrangements for Health and Safety between the Service and Representative Bodies are not working satisfactorily. There are concerns about capacity of existing arrangements, the lack of safety representatives and a meeting structure that is not as effective as it could be. There is also a perception of poor levels of near-miss reporting as the figures seem too low to reflect the realistic position.'

Emergency response

The worst area for negative comments was emergency response – absolutely central to firefighter safety.

In the West Midlands, Shropshire and Devon, concerns were raised about response levels. In the West Midlands, the maximum number of appliances unavailable for normal response is set at 15. However auditors found evidence that this standard had been breached during the first time slot in each day from 0800 to 1100 when as many as 18 appliances may be off the run.

Auditors also identified problems with firefighters sent to incidents without the necessary safety information. In Suffolk they found that: 'There was insufficient evidence to substantiate that all stations maintain copies of operational risk critical information such as High Risk Cards for risk sites within their station area for use by standby appliances.' The report added: 'Ostensibly fire appliances relocated to provide cover at another fire station could be mobilised to an incident at a High Risk premises without having the necessary information to hand to deal safely and effectively with the incident.'

The assessments found that a number of key standard operating procedures were missing or outdated in some fire and rescue services. These were for acetylene (Northumberland and the Isle of Wight), work at height (Northumberland), water incidents (the Isle of Wight) and silos (Staffordshire) – all hazards that have resulted in firefighter fatalities over the past 20 years.

Incident command policies were found to be outdated in South Yorkshire, Hereford and Worcester (where safe systems of work were not recorded), Staffordshire, East Sussex and Somerset. In Oxfordshire, the incident command policy was more than ten years old and 'systematic operational audit or active monitoring of performance on the incident ground appears to have stopped two to three years ago owing to a shortfall in organisational capacity'.

The Hereford and Worcester report stated: 'The active monitoring of operational competence at incidents was found to be in need of attention with no formal mechanism for recording whether safe systems of work had been implemented at incidents.'

Similarly, in Wiltshire some personnel 'expressed the view that there was a lack of exercises to test Command structures and operational procedures at local, district or Service levels'.

Most significant, given the analysis in Chapter 5, were failings in incident command training. These were identified in Northamptonshire, Nottinghamshire, Northamptonshire, Norfolk, West Sussex, Oxfordshire, Isle of Wight, Wiltshire, Greater Manchester, London and Hampshire. The last three cases are particularly alarming, as they were regarded as 'performing

strongly' overall and in London's case 'performing strongly' in emergency response.

The London report stated: 'The provision of continuation training (other than incident command training) for competent officers is not currently formalised. Evidence was available to demonstrate training is being carried out within individual command groups but neither the content nor process for recording this is standardised across the Service. As a result the approach to the provision of training for officers is, at times, inconsistent.'

In Greater Manchester, auditors found that there was 'limited evidence' of effective arrangements in place to secure the competence of officers especially those in supporting roles. The report stated: 'Examples were found of officers in a range of roles who have no plan for the maintenance of operational competence, have not received incident command training for 18 months and are not aware of the last time they were monitored at incidents.'

Hampshire was another authority regarded as a strong performer. Auditors found: 'There was evidence that managers had undertaken incident command training. However there was no evidence that this training is regularly updated or refreshed and that personnel are assessed in non-operational situations. Without this ongoing maintenance of competence it [Hampshire FRS] cannot ensure that incident command procedures are being implemented in accordance with policy.'

Two issues were identified in Norfolk regarding incident command. Auditors found 'several examples of recent occasions when the person temporarily in charge of an appliance had not received appropriate ICS [incident command system] learning and development'. On top of that, 'examples were found of incident types recognised within the mobilising system for which no supporting generic risk assessment exists'.

Widespread problems were found with the recording of training, as well as organising training for particular safety critical tasks. In Derbyshire driver training was found to be a problem: 'There is limited evidence that the arrangements to train, develop, and maintain the competence of personnel are effective. Many stations have incomplete training materials that do not extend to the full range of incidents… There are substantial numbers of operational drivers (78 out of 170 retained drivers and 48 out of 193 wholetime drivers) overdue for emergency fire appliance driver (EFAD) training.'

Breathing apparatus training was considered a problem in Derbyshire and in Cornwall. The verdict on Derbyshire is worth quoting at length, given the range of concerns:

> 'The training department is not delivering consistent training to ensure operational competence. The implementation of IPDS is not equal across the Service with one area not having an advisor to support staff development. Refresher training in several areas is behind schedule including, breathing apparatus supervisors/positive pressure ventilation training, emergency fire appliance driving and annual breathing apparatus…
>
> 'The policy relating to turnouts and attendances allows, in exceptional circumstances, for RDS crews to mobilise to incidents without sufficient numbers of breathing apparatus (BA) wearers or a qualified pump operator. There is no evidence of a comprehensive risk assessment for this procedure or adequate guidance detailing actions and adequate control measures to be adopted.'

Auditors found debriefing sessions were poor or non-existent in Northumberland, Nottinghamshire, Hereford and Worcester, Suffolk, Oxfordshire and the Isle of Wight. Middle managers' training was considered a problem in Hereford and Worcester, Staffordshire, Shropshire and East Sussex, while crew managers were being sent out without proper training in Durham and Darlington, South Yorkshire and Oxfordshire.

Crewing levels were considered an area for improvement in Greater Manchester, Cambridgeshire, West Sussex (for retained), Buckinghamshire, Royal Berkshire (for retained) and Somerset – affecting both wholetime and retained crews.

The West Sussex report stated: 'The maintenance of adequate staffing levels at RDS stations to fulfil the needs of WSFRS has been identified as an area for improvement. Ten appliances off the run during the day is not an unusual occurrence, a proportion of which are single appliance RDS stations.' Similarly in Somerset: 'Due to staff secondments to special projects, including combination activities, staffing at whole-time crewed stations are occasionally below normal levels. In some instances this impacts on the ability of personnel to carry out training activities.'

Some equipment issues were raised in Cheshire, even though it was considered as 'performing strongly'. Auditors found 'instances where de-commissioned items of equipment have been reintroduced without

correct testing, though this did not appear to be a widespread issue'.

In Hertfordshire, concerns were raised about Personal Protective Equipment (PPE), in part because of outsourcing. The report stated: '[Hertfordshire] FRS have outsourced their responsibilities with regards to the cleaning and maintenance of Personal Protective Equipment (PPE). During visits to stations a number of examples were given whereby personnel who have moved stations due to transfers or promotion, have submitted their PPE for cleaning or maintenance and had experienced difficulties in having it returned to them.'

6.3 The views of firefighters

Evidence of the deterioration of safety over the last five years under modernisation also comes from another authoritative source: namely, the evaluations of firefighters themselves. In August 2008 the FBU asked the YouGov research organisation to poll members about safety and other concerns. Around 2,000 fire service personnel were polled and the results confirm the serious issues raised by the OASD reports and in fatality investigation reports.

Adequacy of operational training

Fire crews were asked directly to rate the adequacy of their operational training over the previous 12 months. The majority (53%) said it was less than adequate. More wholetime firefighters (59%) believed their training was inadequate, although the majority of retained firefighter (51%) were still unhappy with it. Firefighters with less than five years on the job were significantly happier with their operational training than those with 11-15 years.

There was significant regional variation. The regions where firefighters felt their operational training was less than adequate were Wales (59%), the West Midlands (57%), London (56%), Scotland and the North West (both 55%). This compared with Northern Ireland (32%), and Yorkshire and Humberside (34%).

Dynamic risk assessment training

Over a third (34%) of fire service personnel polled said they had not received dynamic risk assessment training in the past 12 months. A higher proportion of wholetime firefighters (38%) than retained (30%) said they had not had the training.

Some 14% said they had received specialist dynamic risk assessment training, although nearly one in five (18%) said they had only been trained using a DVD. The worst regions for no dynamic risk assessment training were the North West (49%), the North East (43%) and the West Midlands (41%).

The majority of firefighters (52%) had received half a day or less of dynamic risk assessment training and only a quarter (24%) had received more than a day of dynamic risk assessment training.

Breathing apparatus (BA) training

Firefighters were asked whether they had received specialist breathing apparatus training. Overall, just over a third (35%) said they had. Some 13% said they had not received any BA training in the previous 12 months, though some of those were officers. The region with the highest proportion of those who had not had BA training over the previous year was in Northern Ireland, where over a fifth (21%) said they hadn't.

Over a third (36%) said their BA training had been for a day or less, whilst less than 40% had had BA training lasting for more than two days.

BA refresher training was also a cause for concern. Almost a quarter (24%) said they had not received any BA refresher training in the previous 12 months, with almost a third (32%) of those in London missing out, and 29% of those in Northern Ireland. Some 14% of those who done refresher training for BA had only watched a DVD.

Hot fire/fire behaviour training

A similar picture emerged for hot fire/fire behaviour training. Over a third (36%) said they had not received any hot fire/fire behaviour training in the previous 12 months, with almost two in five (39%) of wholetime firefighters citing this as a concern.

More than half the firefighters in Northern Ireland (53%) said they had not received hot fire/fire behaviour training in the last 12 months. Nearly half the firefighters in the East of England (47%) Wales (46%) and the North West (45%) also said they had not received such training over that period.

There were also concerns about the duration of this training. More than a third (36%) spent less than four hours doing hot fire/fire behaviour training, with the majority doing a day or less. Less than 10% did three or more days hot fire/fire behaviour training. The regions where firefighters had received up to half a day's hot fire/fire behaviour training were the North West (53%), Wales (51%), Yorkshire and Humberside (44%) and East of England (44%).

Quality was also an issue. Although a third (34%) had received specialist hot fire/fire behaviour training, 14% received it via DVD whilst one in nine (11%) relied on their basic training.

Building construction training

Almost half (48%) of those polled said they had not received any building construction training in the last 12 months. Only 5% said they had received specialist building construction training and 15% said their training had consisted of a DVD or similar method.

The regional picture was highly uneven. In the North East, three in five (60%) had not received building construction training, followed by 59% in the North West and 53% in both the South West and Northern Ireland. The West Midlands (51%) and the South East (50%) were also poor on this score.

The quality and duration of training were also of concern. Nearly two-thirds (65%) had received half a day or less of building construction training, while fewer than one in ten had had more than two days.

Large scale training exercises

Only just over a quarter (27%) of fire service personnel said they had taken part in a large scale training exercise in the previous 12 months. Firefighters in Scotland (11%), the South West (18%) and London (19%) were worst off in terms of large scale exercises.

Improvements in training?

Fire crews were asked whether the quantity and quality of operational training had improved over the previous 12 months. Almost three in five (59%) did not believe that it had and over a quarter (27%) said it had not improved at all. The figure was significantly higher for wholetime firefighters, with 71% disagreeing with the view that improvements had taken place, compared with 55% of retained firefighters.

Asked whether inadequate or insufficient in operational training was compromising the safety of firefighters, four-fifths (80%) believed that it had been compromised to some degree, whilst over a third (37%) believed very strongly that firefighter safety had been compromised by inadequate or insufficient training. Some 44% of wholetime firefighters agreed very strongly that inadequate or insufficient training was compromising their safety.

The regional picture was again highly uneven, with firefighters in the North West, the West Midlands and the North East arguing most strongly that operational training had not improved at all in the previous 12 months. Firefighters in the West Midlands, Wales and the North West in particular believed that inadequate or insufficient training had compromised their safety.

Resources

Fire crews were asked about cuts in frontline personnel. More than three-quarters (76%) agreed very strongly that the Fire and Rescue Service must stop cutting frontline personnel if it is to provide a coherent, effective and safe response to the incidents it was expected to attend, and 95% opposed cuts in frontline personnel.

Asked about the effects of the imposition of regional control centres on safety, only 2% said it would improve, while 85% thought safety would worsen. Nine out of ten (92%) of firefighters also believed that regional controls would worsen the response to incidents.

Instead, fire crews believe that the £1.5 billion being wasted on regional controls could be better spent on operational training (89%), more frontline equipment (75%), more frontline personnel (74%) and modern communications equipment for every firefighter (59%) – all measures that would significantly enhance safety in the light of recent and previous fatalities.

These results voice the legitimate concerns of a representative group of firefighters. They register the deep dissatisfaction fire crews have with the new regime and the grave concerns they have for their safety.

That is reason enough for the government, FRA members and senior FRS managers to take note and listen.

7 Findings

7.1 There is no definitive record of on-duty firefighter fatalities in the UK. Neither the government nor many fire and rescue services have a complete picture of the extent of fatalities over the last 30 years.

7.2 Different definitions of on-duty firefighter fatalities appear to have been used across the UK. Although fire deaths and incidents involving water rescue and road traffic accidents have generally been counted, other causes of deaths such as heart attacks while at work have sometimes been omitted.

The figures

7.3 The patchwork of official records for on-duty firefighter fatalities held by various government bodies means that the number of deaths over the last 30 years is significantly understated, particularly deaths from natural causes. There is little analysis of trends, or detailed attempts to explain why fatalities have occurred and to evaluate their causes, for example at fires, road traffic accidents, from heart attacks and in training.

7.4 The research published here for the first time, using unpublished government figures, Freedom of Information returns from fire and rescue services and other sources from within the service, found that at least 122 firefighters have died whilst on duty in the UK from 1978 to date, and there are probably more cases. Around two-thirds (82) of the total cases were operational deaths.

7.5 Nine firefighters died while on duty between April 2007 and March 2008. Eight firefighters died on duty in 2007 alone, the worst year since at least 1985. The deaths of four firefighters in Warwickshire in 2007 were the worst incident of multiple firefighter fatalities in the UK since 1972.

7.6 The trend in firefighter deaths was downwards until the turn of the century. However since then, and especially since 2003, there has been an alarming upturn. In the five years 2003-2007, 21 firefighters died on duty. In the previous five years there were 13 fatalities.

7.7 At least 44 firefighters have died in fires since 1978. Firefighter deaths at fires had effectively ceased by the turn of the century – from February 1996 until October 2002 there were no recorded fire deaths in the UK. Yet in the last five years (2003-2007), at least 13 firefighters have been killed at fires.

7.8 These figures are prima facie cause for concern, especially the trend in fire deaths, and warrant further investigation. It is not good enough to dismiss recent firefighter deaths as insignificant because of the numbers involved or because of comparisons with other countries. One firefighter death is one death too many.

7.9 There are a number of cases that have not been verified. Dozens of known cases have not been recorded in official government publications. Some firefighters, such as retained firefighters in Scotland, have not been recorded at all. There are gaps on the Firefighters Memorial.

7.10 Little research has been carried out in the UK on causes of firefighter deaths whilst serving. There are few recent figures on work-related deaths through heart attacks (off duty), cancers and suicide, despite widespread anecdotal evidence for these deaths.

The causes of firefighter fatalities

7.11 The right approach, following the Health and Safety Executive guidance, is to seek the underlying or root causes of fatalities, from thorough investigation reports and analysis. These deeper causes are often organisational, and involve matters that management can fix with the right policies, procedures and resources – both nationally and locally.

7.12 Investigation reports suggest that firefighter fatalities are consistently related to failures in the risk assessment process. Firefighters have been committed into situations on the basis of inadequate assessments of the risks which have contributed to deaths and injuries.

7.13 Recent investigation reports indicate serious failures in the training of firefighters for emergency response, particularly fighting fires at height and in compartments. They also raise

concerns about some equipment, particularly for communication.

7.14 Assessments of the operational capability of fire and rescue services as a whole indicate many serious deficiencies, which impact on firefighter safety. Operational Assessment of Service Delivery (OASD) reports contain evidence of a litany of failures and weaknesses across the service.

7.15 Some risk management plans (IRMPs) and particular risk assessments have been woefully inadequate and some so bad as to have compromised firefighter safety. A significant number of fire and rescue service policies and procedures are poor, when measured against the high standards expected to protect firefighters.

7.16 Training for emergency response is insufficient in many respects across a wide range of fire and rescue services. This includes training for incident command, insufficient time spent on realistic, hot fire training, and not enough specialist training in safety critical areas such as breathing apparatus and building construction. Courses have been cancelled while others are using inadequate methods and materials.

7.17 Looking at the situation from the frontline, firefighters themselves are deeply unhappy with the training provided to prepare them for emergency response. They put themselves at risk to rescue people. Their voice should be heard, digested and acted upon.

Modernisation

7.18 It is not enough to break down the analysis of firefighter fatalities into particular incidents, in particular fire and rescue services, and focus on particular technical failures. A high level approach is also required, looking at failures nationally in terms of leadership and direction.

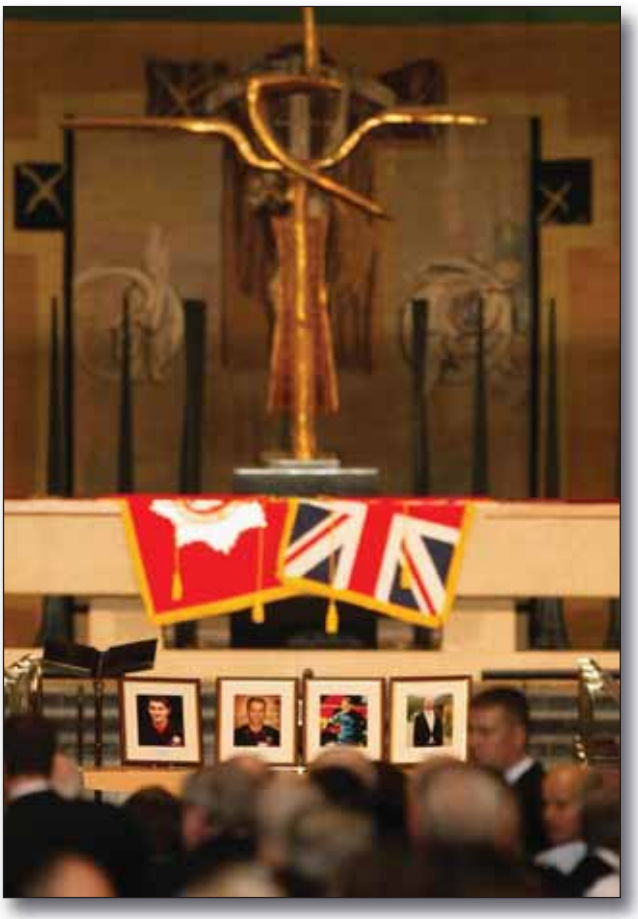
7.19 Despite the rhetoric of modernisation, there are aspects of firefighter safety today that have not improved over the last five years.

7.20 This research found some evidence linking the new regime and new ways of working with increased risks to firefighters. Organisational failures in risk assessment, command, training and equipment are mechanisms for increasing the risks to firefighters, and can ultimately cost lives.

7.21 There is a notable absence of substantial guidance emanating from the CLG. The publication of brief and general circulars is no substitute for detailed policy guidance. There is a national policy vacuum with regard to firefighter safety, and this is reflected in the fatality figures in recent years. A recent paper on Operational Guidance for the Practitioners' Forum appears to recognise these failures and may offer a possible way forward.

7.22 The official neglect of records and the absence of central policy leave firefighters with the impression that those in power do not care, and that their safety is not regarded as important enough to warrant close attention. The findings in this report indicate that firefighters' concerns are real, serious and worthy of consideration.

7.23 There is also a concern arising out of changes in fire safety law which put the onus on



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employers and responsible persons to carry out risk assessments. HSE argues that compliance with general health and safety risk assessment is poor among some employers. Some employers are not complying fully with the law on fire risk assessments. This has a particular impact on firefighters entering unfamiliar workplaces and public places in emergency situations.

7.24 Access and facilities for firefighters are required in new buildings. The suitability of proposed access and facilities for firefighters can only be assessed by competent fire safety staff who have operational experience. Firefighting risks in existing buildings can best be identified by fire safety staff who have operational experience. But fire safety staff must inspect the right buildings, and they must have systems to pass on the information gathered. The practice of directly appointing fire safety staff means that in some cases, matters that are relevant to operational safety are not identified by those undertaking fire safety activities because they have no operational experience.

7.25 Fire safety enforcement departments are being degraded and reduced in size. Senior fire safety roles are being removed and/or reduced in number. This means that there is no career path within fire safety enforcement departments and staff are not encouraged to show commitment to the role and to pursue continuous professional development.

7.26 When operational safety issues are identified by fire safety staff with firefighting experience, few FRSs have adequate formal systems in place to enable such information to be passed on to operational crews.

7.27 Fire safety inspections/audits are currently prioritised towards buildings that present a life risk to occupants. Buildings that present a life risk to firefighters should be prioritised equally.

7.28 Under the heading 'Effective Response', the English Fire & Rescue Service National Framework 2008-11 states that: 'Whilst overall the assessment [2007 OASD] was generally positive, there were some areas for improvement identified which were common to a number of authorities – training and development of staff, the currency and provision of risk information, the balance between prevention, protection and response and learning from experience and incident command training.'

Following this paragraph there is one 'must' for the gathering of operational risk information and then three paragraphs that discuss false alarm reduction, new dimensions, partnership working and co-responding.

All future National Framework documents must fully recognise that, while an option of last resort, intervention at emergencies is a function of FRSs, and that executing that function places employees at risk. National Framework documents must place an obligation on FRSs to continuously improve safe systems of work and to fully implement any recommendations made by relevant bodies following investigations into firefighter fatalities.

7.29 IRMPs should identify risk to the community and describe strategies to reduce these risks by employing properly resourced safe systems of work. This is particularly important when considering risk reduction strategies that are delivered through direct intervention.

However, there is evidence that many IRMPs are not practical, strategic documents. Instead they are unfocused and visionary. Other IRMPs rightly emphasise fire prevention and protection strategies, but then neglect intervention strategies other than to propose fire station closures or the downgrading of appliance availability.

It may be desirable to prioritise prevention over response, but as long as FRSs do respond to emergencies, IRMPs must describe strategies for responding to the range of emergencies identified as being reasonably foreseeable, and they must describe the resource requirements necessary to respond to these emergencies in such a way that safe systems of work are ensured.

Reviews of IRMPs must take account of lessons learned from firefighter injuries and fatalities so that there will be a reduced likelihood of reoccurrence in the future.

8 Recommendations

The government

8.1 Since Fire and Rescue Service policy is a devolved matter, the various government departments and assemblies should work together to ensure a common approach across the UK to the recording of fatalities and related matters. The same common approach needs to be discussed in relation to the development and issuing of guidance on operational matters.

8.2 The government, the Department for Communities and Local Government (CLG), Scottish Executive, Welsh Assembly and the Northern Ireland Department for Health, Social Services and Public Safety should review existing reporting procedures, in consultation with FBU and employers' representatives and other bodies in the fire service. This should result in the introduction of a common, consistent and comprehensive reporting system for fatalities and major injuries across the UK. Given the state of official figures, government departments and assemblies should liaise with the Firefighter Memorial Charitable Trust (FMCT) in improving existing data on past deaths and ensuring that any future cases are reported appropriately.

8.3 The government should widen the definition of reportable incidents to the Health and Safety Executive to include work-related road traffic accidents (RTAs) and heart attacks.

8.4 Figures for all firefighter fatalities, major and serious injuries and near misses from across the UK should be published in a single annual publication, together with analysis and evaluation.

8.5 A national independent Fire and Rescue Service investigation unit should be established, with the remit to examine particular firefighter fatalities, major and serious injuries and near misses. This body should also advise on and disseminate lessons and guidance. Similar bodies exist for rail, marine and air investigation. With sufficient safeguards regarding independence and accountability, one option might be that such a unit might become part of the Chief Fire and Rescue Advisers' role.

8.6 Government departments, national/regional assemblies and Chief Fire and Rescue Advisers should issue substantial, safety critical national guidance on the issues arising from recent fatalities. This should include:

- minimum standards on the initial attendance;
- revised generic risk assessments;
- minimum standards for regular operational training in all aspects of fire safety;
- minimum standards for breathing apparatus procedures;
- minimum standards for the incident command system;
- minimum standards for dynamic risk assessment training;
- specialist training in all aspects of compartment fires and ventilation of high risk buildings;
- national standard operating procedures for fire fighting in high rise residential buildings;
- guidance on heat stress;
- minimum standards for backdraught and flashover training for all personnel.

This guidance should have the status of an approved code of practice, as suggested in a recent Practitioners' Forum paper.

8.7 Government departments and assemblies should seek to develop standards for individual integrated radio and breathing apparatus sets and individual locational tracking systems, to be introduced as early as possible.

8.8 Government departments and assemblies should commission research on the impact of firefighter workload on safety, looking particularly at training, operation preparedness and emergency response.

8.9 Government departments and assemblies should provide resources for fire and rescue services to enforce the Fire Safety Order on matters such as risk assessment and passive and active fire safety measures.

8.10 Under the Fire Safety Order, government should consider imposing a duty on employers, landlords and other responsible persons at selected high risk premises to submit in writing their fire risk assessments to the local fire and rescue service. The selection of premises should be by the local FRS and should be based on the risk to occupants, firefighters, property and/or the environment. This would provide more information for risk mapping and identify potential areas for enforcement action and operational planning.

Fire and rescue services

8.11 Fire and rescue services should ensure that they record and report firefighter fatalities to the relevant government bodies and the FMCT.

8.12 They should develop systems to learn lessons from fatalities, major and serious injuries and near misses, both from incidents within their service and from others in the UK and abroad.

8.13 Fire and rescue services should ensure that policies, procedures and generic risk assessments are reviewed and updated to reflect the lessons from recent fatalities. They should ensure that safe systems of work are at the heart of IRMPs and that sufficient numbers of firefighters and senior officers are committed to fire incidents.

8.14 Fire and rescue services should initiate a comprehensive training needs analysis to identify areas where firefighters require additional or refresher training, particularly for emergency response. This would include a review of the impact of duties and workload on firefighters' operational preparedness for emergency response. They should ensure that all firefighters are given sufficient specialist training, including refresher training for fighting fires. This would focus particularly on breathing apparatus, compartment and high rise fires, ventilation, building construction and risk assessment. The Fire Service College, with additional funding, could help to provide quality training to ensure that lessons are learned.

There needs to be an acknowledgment that emergency intervention is an essential part of the role of the service. It is the area of Fire and Rescue Service activity which places employees at the most risk of injury or death and this needs to be built into all aspects of planning.

Recent years have seen a greater priority given to preventative activity within the Fire and Rescue Service. However, responding to fires and other emergencies is a high risk activity. In developing IRMPs, FRSs must consider the risks to employees above anything else. They should develop suitable and sufficient strategies for safe systems of work and should ring fence the financial, material and human resources required to deliver these strategies. All other business activity identified during the IRMP development process should be delivered by resources outside of the ring fence.

8.15 Operational firefighters should carry out regular inspections of all high risk buildings.

8.16 Fire and rescue services should ensure that firefighters are suitably equipped to tackle fires, including with appropriate fireground communications equipment.

8.17 Fire and rescue services should negotiate a protocol that protects the rights of Union safety representatives to full disclosure, access to documents, the provision of information/evidence, and the right to have private discussions with employees.

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Appendix A: Official published figures for deaths of firefighters

Table A1: Firefighter deaths in fires 1978-2006

Year	Total	Burns	Overcome by gas/smoke	Burns and overcome	Other/ unspecified
1978	**3**				
1979	**0**				
1980	**1**				
1981	**5**	1	1	1	2
1982	**2**				2
1983	**3**	1			2
1984	**4**				4
1985	**1**				1
1986	**0**				
1987	**3**				3
1988	**0**				
1989	**1**				1
1990	**2**	1		1	
1991	**2**		2		
1992	**2**	1	1		
1993	**3**		2		1
1994	**0**				
1995	**0**				
1996	**3**	1		2	
1997	**0**				
1998	**0**				
1999	**0**				
2000	**0**				
2001	**0**				
2002	**1**				1
2003	**1**			1	
2004	**3**	2			1
2005	**2**	2			
2006	**2**				2
Total	**44**	**9**	**6**	**5**	**20**

Sources: CLG/ODPM/DTLR, Fire Statistics United Kingdom reports, 1978-2006.

Table A2: Fire service deaths reported to HSE

Year	Fatal injuries in fire service activities (England, Wales and Scotland)	Fatal injuries in fire service activities (Northern Ireland)
1996-97	0	0
1997-98	0	0
1998-99	0	0
1999-00	1	0
2000-01	0	0
2001-02	0	0
2002-03	2	0
2003-04	0	1
2004-05	5	0
2005-06	0	0
2006-07	2	0
2007-08	5	0
Total	**15**	**1**

Source: HSE communications, 23 April 2008 and 18 August 2008, 19 September 2008

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Table A3: Firefighters killed on duty in England, 2001-02 to 2006-07

Year	Operational	Training	Routine	Total	FRS
2001-02	0	0	0	**0**	
2002-03	2	1	0	**3**	Greater Manchester, Leicestershire, West Midlands
2003-04	0	1	0	**1**	Humberside
2004-05	4	0	0	**4**	London (2), Hertfordshire (2)
2005-06	0	0	0	**0**	
2006-07	2	0	0	**2**	East Sussex (2)
Total	**8**	**2**	**0**	**10**	

Source: CLG, Fire and Rescue Service Operational Statistics Bulletin for England 2005/06, 2006/07

Table A4: Firefighters deaths on duty in Wales, 2001-02 to 2006-07

Year	Operational	Training	Routine	Total	FRS
2001-02	0	0	0	**0**	
2002-03	0	0	0	**0**	
2003-04	0	0	0	**0**	
2004-05	1	0	0	**1**	South Wales
2005-06	0	0	0	**0**	
2006-07	0	0	0	**0**	
Total	**1**	**0**	**0**	**1**	

Sources: National Assembly for Wales, 2007, Fire and Rescue Services Operational Statistical Returns for Wales 2005-06, SDR 20/2007, 28 February 2007 (Table 3.3 p.15) Fire and Rescue Service Operational Statistics for Wales, 2006-07, SDR 24/2008, 28 February 2008 (Table 3.3 p.14)

Table A5: Firefighter on-duty deaths in England and Wales, from inspectors' reports 1978 to 2000-01

Year	Total on duty	Causes
1978	5	2 'engaged in firefighting'; 1 training; 2 'natural causes while on duty'
1979	2	1 'engaged in firefighting'; 1 'natural causes while on duty'
1980	6	3 'engaged in firefighting'; 3 'natural causes while on duty'
1981	4	2 'engaged in firefighting'; 2 'natural causes while on duty'
1982	5	4 'engaged in firefighting'; 1 'natural causes while on duty'
1983	6	5 'engaged in firefighting'
1984	5	3 'engaged in firefighting'
1985	9	1 'engaged in firefighting'; 4 RTAs; 4 'natural causes while on duty'
1986	2	1 RTA; 1 'natural causes while engaged in firefighting'
1987	7	3 'engaged in firefighting'; 1 'special service call'; 3 RTAs
1988	0	
1989	2	1 'attending a fire'; 1 RTA 'responding to a call out'
1990	6	2 'attending a fire'; 3 RTA ('two in appliances, one travelling home from work'; 1 'while at a drill'
1991	4	2 'attending fires'; 1 after RTA 'while on duty'; 1 'while on drill'
1992	3	2 'attending fires'; 1 RTA 'on the way to a fire'
1993-94	3	'attending fires'
1994-95	1	'attending a fire'
1995-96	4	3 'attending fires'; 1 'natural causes while training'
1996-97	2	RTAs
1997-98	1	'while on duty but not as a result of operational activity or while attending a road traffic accident'
1998-99	0	
1999-00	4	1 special service; 3 training
2000-01	3	'during routine activities'
Total	**84**	**39 fire-related; 16 RTAs; 7 training/drill; 15 'natural causes'**

Sources: HMCIFS reports, 1978-2000/01

Table A6: Firefighter deaths attributable to service in Scotland, 1978 to 1998-99

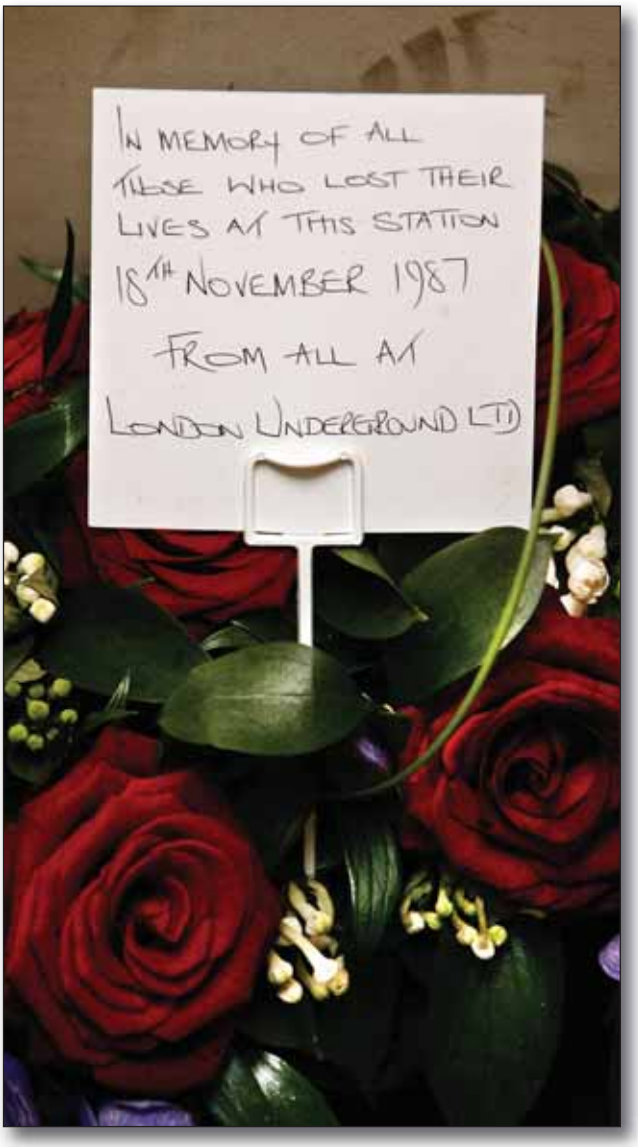
Year	Attributable to service	FRS
1978	0	
1979	0	
1980	0	
1981	1	Northern (Highlands and Islands)
1982	0	
1983	0	
1984	0	
1985	3	2 Fife; 1 Strathclyde
1986	0	
1987	0	
1988	0	
1989	0	
1990	0	
1991	0	
1992	0	
1993	0	
1994-95	0	
1995-96	1	1 Tayside
1996-97	0	
1997-98	0	
1998-99	1	1 Strathclyde
Total	**6**	

Sources: HMCIFS for Scotland Reports, 1978 to 1998-99

Table A7: Firefighter deaths on duty in Scotland, 1999-2000 to 2006-07

Year	Total on duty	FRS
1999-00	0	
2000-01	0	
2001-02	0	
2003-04	1	1 Strathclyde
2004-05	0	
2005-06	1	1 Fife
2006-07	0	
Total	**2**	

Sources: HMCIFS for Scotland Reports, 1999-2000 to 2006-07



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Appendix B: Additional CLG figures provided in 2008

Table B1: Firefighter deaths while on duty, England 1986-87 to 2007-08

Year	While attending to:			Natural causes	During training	Other	Total
	Fires	Road traffic incidents	Other incidents				
1986-87	0	0	1	0	0	0	1
1987-88	2	0	0	0	0	3	5
1988-89	0	1	0	0	1	0	2
1989-90	0	0	0	3	1	1	5
1990-91	2	0	0	0	0	3	5
1991-92	3	0	0	0	0	1	4
1992-93	1	0	0	1	0	1	3
1993-94	3	0	0	0	0	0	3
1994-95	0	0	0	1	0	0	1
1995-96[1]	1	0	0	0	0	0	1
1996-97	1	0	0	0	0	1	2
1997-98	0	0	0	1	0	2	3
1998-99	0	0	0	2	0	0	2
1999-2000	0	0	1	0	0	3	4
2000-01	0	0	0	3	0	0	3
2001-02	0	0	0	1	0	0	1
2002-03[2]	1	0	0	0	1	1	3
2003-04	0	0	0	0	1	0	1
2004-05	4	0	0	0	0	0	4
2005-06	0	0	0	0	0	0	0
2006-07[3]	1	0	0	0	0	1	2
2007-08	5	0	0	0	0	0	5
1988/9-1992/3	**6**	**1**	**0**	**4**	**2**	**6**	**19**
1993/4-1997/8	**5**	**0**	**0**	**2**	**0**	**3**	**10**
1998/9-2002/3	**1**	**0**	**1**	**6**	**1**	**4**	**13**
2003/4-2007/8	**10**	**0**	**0**	**0**	**1**	**1**	**12**

[1] Excludes one firefighter who died attending a non-fire incident while off duty
[2] Excludes one firefighter who died attending a fire while off duty
[3] Excludes one retired firefighter who died while attending a fire

Source: Hansard, Column 952W, 18 June 2008
http://www.publications.parliament.uk/pa/cm200708/cmhansrd/cm080618/text/80618w0007.htm#080618131000101

Table B2: Firefighter fatalities in England, 1978-79 to 2007-08

Fire & Rescue Service	Date	Operational	Details	Role
Warwickshire	2 Nov 07	Operational	Died at warehouse fire	Wholetime
Warwickshire	2 Nov 07	Operational	Died at warehouse fire	Retained
Warwickshire	2 Nov 07	Operational	Died at warehouse fire	Retained
Warwickshire	2 Nov 07	Operational	Died at warehouse fire	Retained
Hertfordshire	16 Jun 07	Operational	Struck by vehicle while attending car fire	Wholetime
East Sussex	3 Dec 06	Operational	Died at fireworks factory explosion	Retained
Leicestershire	24 Sep 06	Operational	Heart attack en route to an incident	Retained
Hertfordshire	2 Feb 05	Operational	Died at fire in high rise flats	Wholetime
Hertfordshire	2 Feb 05	Operational	Died at fire in high rise flats	Wholetime
London	20 Jul 04	Operational	Died at shop fire	Wholetime
London	20 Jul 04	Operational	Died at shop fire	Wholetime
Gtr Manchester	24 Mar 03	Operational	Died following collapse at grass fire (poss. heart attack)	Wholetime
Leicestershire	31 Oct 02	Operational	Died at fire in unoccupied building	Wholetime
Hampshire	22 Oct 00	Operational	Died while attending RTA (suspected heart attack)	Retained
Gtr Manchester	5 Sep 99	Operational	Drowned in rescue attempt	Retained
Warwickshire	8 Jan 99	Operational	Died while attending a car fire (suspected heart attack)	Wholetime
Devon	10 Oct 98	Operational	Died while attending a barn fire (suspected heart attack)	Retained
Gtr Manchester	15 May 96	Operational	Died of injuries (fell from appliance en route to incident)	Wholetime
Avon	4 Feb 96	Operational	Died from injuries sustained at business premises fire	Wholetime
Hampshire	12 Feb 95	Operational	Heart attack en route to AFA (automatic fire alarm)	Wholetime
Hereford and Worcester	6 Sep 93	Operational	Died at business premises fire	Retained
Hereford and Worcester	6 Sep 93	Operational	Died at business premises fire	Wholetime
London	10 May 93	Operational	Died at business premises fire	Wholetime
London	30 Sep 92	Operational	RTA on way to incident	Wholetime
West Midlands	27 Jul 92	Operational	Died of injuries sustained in tower block fire	Wholetime
Lincolnshire	2 Feb 92	Operational	Died at business premises fire	Retained
Norfolk	5 Nov 91	Operational	RTA responding to a call	Wholetime

Table B2: Firefighter fatalities in England, 1978-79 to 2007-08 *(continued)*

Fire & Rescue Service	Date	Operational	Details	Role
London	10 Jul 91	Operational	Died at warehouse fire	Wholetime
London	10 Jul 91	Operational	Died at warehouse fire	Wholetime
Buckinghamshire	24 Aug 90	Operational	RTA on way to incident	Wholetime
Kent	5 Aug 90	Operational	Died at crop fire	Wholetime
Lancashire	5 May 90	Operational	Died at business premises fire	Wholetime
Cambridgeshire	22 Mar 89	Operational	Died in explosion	Wholetime
Norfolk	1 Dec 87	Operational	Died at business premises fire	Retained
London	18 Nov 87	Operational	Died at King's Cross Tube fire	Wholetime
Hertfordshire	31 Oct 87	Operational	RTA on way to incident	Wholetime
Dorset	16 Oct 87	Operational	RTA en route to incident	Retained
Dorset	16 Oct 87	Operational	RTA en route to incident	Retained
Oxfordshire	18 Mar 87	Operational	Died in explosion	Retained
Devon	3 Oct 81	Operational	Heart attack at incident	Retained
London	27 Apr 81	Operational	Died of injuries sustained while firefighting	Wholetime
London	30 Apr 81	Operational	Died at business premises fire	Wholetime
Kent	31 Jul 80	Operational	Died of injuries sustained falling from a tree	Wholetime
Humberside	3 May 80	Operational	RTA en route to incident	Wholetime
London	25 Jan 80	Operational	Fell into hold of ship while engaged in firefighting	Wholetime
Devon	5 Jul 79	Operational	RTA on way to incident	Wholetime
Lincolnshire	8 Mar 79	Operational	Heart attack en route to incident	Retained
West Yorkshire	3 Nov 78	Operational	Collapsed on fireground and died later	Wholetime
London	1 Oct 78	Operational	Died at business premises fire	Wholetime

Fire & Rescue Service	Date	On Duty	Details	Role
East Sussex	3 Dec 06	On Duty	Died at fireworks factory explosion	Media tech
Humberside	3 Aug 03	On Duty	Collapsed whilst using station fitness training facility	Wholetime
West Midlands	17 Mar 03	On Duty	Fell from hydraulic platform during training	Wholetime
Essex	10 Sep 01	On Duty	Died following drill practice at fire station	Retained
Essex	6 Feb 01	On Duty	Heart attack at fire station	Wholetime

Table B2: Firefighter fatalities in England, 1978-79 to 2007-08 *(continued)*

Fire & Rescue Service	Date	On Duty	Details	Role
Lancashire	15 Jan 00	On Duty	Suspected heart attack while transporting turntable ladder	Wholetime
West Sussex	24 Feb 00	On Duty	Died in RTA en route to training centre	Retained
Oxfordshire	21 Jan 00	On Duty	RTA on way to work	Wholetime
Staffordshire	19 Mar 98	On Duty	Collapsed while performing maintenance duties	Retained
Royal Berkshire	29 Dec 97	On Duty	RTA on way to work	Wholetime
Devon	Jun 97	On Duty	Suicide on fire station premises	Wholetime
Cleveland	2 Jun 92	On Duty	Died of natural cuases following physical training session	Wholetime
Oxfordshire	19 Dec 90	On Duty	RTA whilst travelling home from work	Wholetime
Cornwall	5 Nov 90	On Duty	Died of injuries sustained in training accident	Wholetime
Lancashire	28 Oct 89	On Duty	Taken ill while travelling between stations: DOA at hospital	Wholetime
Buckinghamshire	25 Oct 89	On Duty	Collapsed on arrival at station	Retained
Hampshire	23 Aug 89	On Duty	RTA on way to fire station	Retained
East Sussex	15 Jun 89	On Duty	Collapsed on duty at divisional HQ and died later	Wholetime
Humberside	13 Jun 89	On Duty	Collapsed after training exercise	Retained
Cheshire	3 Nov 88	On Duty	Collapsed during drill practice (poss. heart attack)	Wholetime
Durham	25 Mar 81	On Duty	Suspected heart attack at training exercise	Retained
Avon	6 Nov 78	On Duty	Accident following drill practice	Wholetime
Northumberland	12 Sep 78	On Duty	Died whilst carrying out drill	Retained
Lancashire	24 Apr 78	On Duty	Died in sleep during night watch	Wholetime

Fire & Rescue Service	Date	Off Duty	Details	Role
East Sussex	8 Jan 03	Off Duty	Fatal injuries sustained attempting house fire rescue	Wholetime
Warwickshire	6 Oct 00	Off Duty	Collapsed	Wholetime
Surrey	26 Mar 00	Off Duty	Suicide on fire station premises	Retained
West Sussex	Feb 98	Off Duty	Died in RTA	Retained
Cornwall	Aug 96	Off Duty	Suicide	Wholetime
South Yorkshire	23 Dec 95	Off Duty	Drowned attempting to rescue a child	Wholetime

Table B2: Firefighter fatalities in England, 1978-79 to 2007-08 *(continued)*

Fire & Rescue Service	Date	Not known	Details	Role
Staffordshire	1986	Not known	No other data held	?
Northants	1986	Not known	No other data held	?
Dorset	1985	Not known	No other data held	?
West Midlands	1985	Not known	No other data held	?
Cleveland	1985	Not known	No other data held	?
Isle of Wight	1985	Not known	No other data held	?
Norfolk	1985	Not known	No other data held	?
West Midlands	1985	Not known	No other data held	?
Essex	1985	Not known	Drill practice (no other data held)	?
Somerset	1985	Not known	No other data held	?
Cambridge	1985	Not known	No other data held	?
Warwickshire	1984	Not known	No other data held	?
Lincolnshire	1984	Not known	No other data held	?
London	1984	Not known	No other data held	?
East Sussex	1983	Not known	No other data held	?
Tyne and Wear	1983	Not known	No other data held	?
West Midlands	1983	Not known	No other data held	?
West Yorkshire	1983	Not known	No other data held	?
London	1983	Not known	No other data held	?
Cornwall	1983	Not known	No other data held	?
Cornwall	1982	Not known	Drill practice (no other data held)	?
Durham	1982	Not known	No other data held	?
Durham	1982	Not known	No other data held	?
West Midlands	1982	Not known	No other data held	?
Avon	1982	Not known	No other data held	?

Source: CLG communication, 30 July 2008

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