



Historical Analysis of Fatalities in Accidental Dwelling Fires between 2008/09 and 2017/18

AUDIENCE

**TO BE PRESENTED TO:
Authority
Strategic Management Group**

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**COMMUNITY RISK MANAGEMENT
STRATEGY & PERFORMANCE DIRECTORATE**

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1.2	25/05/2018	J Fielding	Minor Amends

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Strategic Management Group		
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Related Documents

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Ownership

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1. Agreement

For the purpose of this report the following agreement was made between the client and the Strategy & Performance Directorate.

This work was requested by Area Manager Guy Keen and received on 01/04/2018.

The Manager¹ has approved this report/ piece of work can be undertaken by the Strategy & Performance Directorate.

If the scope of the work changes, authorisation must be again obtained and would be noted within the version control document sheet.

It was agreed that this report would be produced in draft format by June 2018, and would be sent electronically to the Director of Strategy & Performance and Client for comment.

The Manager / Client agreed that their comments would be received back by June 2018.

The final report, which will always be in PDF format, would be produced by June 2018, subject to receiving comments.

¹ Deb Appleton

2. Summary

The purpose of this report is to analyse the circumstances and contributing factors concerning deaths in accidental dwelling fires attended between 2008/09 and 2017/18. Fatalities in accidental dwelling fires, are relatively rare compared to other incidents that Merseyside Fire and Rescue Service attends, though their impact is most severe to the families and friends of the deceased.

In summary this report presents the following findings:

Victim Summary

- Between 2008/09 and 2017/18 there was a total of 78² fire deaths as a result of accidental dwelling fires; these deaths are attributed to 73 fire incidents.
- Between 2008/09 and 2010/11, the trend for fire deaths was falling, with (at the time) lows of 5 deaths during both 2010/11 and 2011/12. However from 2012/13 the count of fatalities increased year on year leading to a 10 year high of 16 during 2015/16. Since 2015/16 fire deaths have dropped with 7 during 2016/17 and a new low of 4 during 2017/18.
- When analysed by district, Wirral had the greatest overall number of fire deaths with 29, closely followed by Liverpool with 23. When aggregated to incidents per 100,000 population, Wirral has the greatest number of deaths with 0.91 deaths per 100,000 population, while Liverpool's ratio is much lower, with 0.49 per 100,000 population.
- The risk of death in accidental dwelling fires increases with age, with the 45-49 and particularly the 75 and above age groups being at greatest risk.
- Concerning the demographic of fire fatalities, there is a bias towards male victims with 45 fatalities. Female victims accounted for 33 accidental dwelling fire fatalities.
- Concerning racial profile, the vast majority of victims were White British – accounting for 73 victims or 93.6% overall.
- In 49 out of 78 fire fatalities, the deceased was the sole occupier. Taking all living circumstances into account, 55 victims were alone at the time of the fire that claimed their lives.

Incident Summary

- Concerning Deprivation and the use of Community and Local Government's (CLG) Indices of Multiple Deprivation (IMD) 2015, the general trend is that fatalities tend to occur more often in deprived areas, with fewer fire deaths occurring in areas with less deprivation. When the average age of victims is added to the equation it has been found that victims die younger in deprived areas with victims being older in less deprived areas.
- When deprivation and alcohol consumption are analysed, data identifies that in both the most deprived and least deprived deciles alcohol plays an important role. Within the most deprived decile, 7 of 12 incidents

² Please note: due diligence should be applied when drawing conclusions from such a small data set. It is entirely possible that increases in fatalities over the past five years could be coincidental, but conversely could also be part of a larger issue.

involved alcohol consumption and within the least deprived decile, 3 of 5 incidents involved alcohol.

- Concerning Smoke Alarm actuation, in 41 incidents a smoke alarm was fitted and actuated. There were 6 incidents where smoke alarms were fitted and did not actuate. On 13 occurrences a smoke alarm was not fitted and a further 5 incidents where the fitted smoke alarm was inoperable (i.e. no batteries). There were 7 occurrences where it was unknown whether the smoke alarm actuated and 1 incident where the level of damage done to the property was so great it was unknown whether a smoke alarm had been fitted.
- 46 Home Fire Safety Checks (HFSC) were completed with victims prior to the incidents which claimed their lives. 27 did not have an HFSC.
- When analysing Ignition Sources it has been found that of the 73 fatal incidents, 36 were as a result of *Smokers Materials*. Since 2009/10, where 7 deaths were the result of Smokers materials, there was a gradual reduction with only 1 death attributable to this ignition source during both 2011/12 and 2012/13. However since 2013/14, deaths as a result of Smokers Materials have increased leading to a high of 8 during 2015/16. During both 2016/17 and 2017/18 fatal fire incidents as a result of Smokers Materials fell back to 3.
- When analysing the room of origin of the fire and the ignition source, it has been found that *Smokers Materials* were responsible for the majority of fire fatalities in both the *Living Room* and the *Bedroom*. When Smokers Materials are combined with Alcohol, 16 of the 36 incidents were the result of this combination.
- The elderly are more likely to be involved in a fire where the *Careless Use of Heating Appliance* has taken place.
- When analysing incidents by month the greatest number of deaths occurred during the autumn / winter months; particularly between November and March. The month of April also tends to have high counts of fire deaths.
- Concerning fire deaths and day of week, deaths are most likely to occur on Fridays and Mondays.
- Peaks in incidents where a fatality occurs are between 07:00 to 08:59 and 02:00 to 03:59, with a secondary peak between 15:00 – 15:59.

3. Introduction

The purpose of this report is to analyse fatalities from accidental dwelling fires (ADF) between 2008/09 and 2017/18; analysing the circumstances and demographic background of such occurrences; identifying business intelligence to target risk and prevention work.

Compared to other incident types that Merseyside Fire & Rescue Authority (MFRA) attends; fire fatalities are relatively rare, though their impact is most significant to family members, friends and the community of the deceased.

Fatalities in accidental dwelling fires are reported in Merseyside Fire and Rescue Authority's Service Delivery Plan as Key Performance Indicator DC12 which is reported to Authority on a quarterly and annual basis.

4. Methodology

The software used in this report includes:

- Microsoft Excel 2013 to interpret and graphically represent figures.
- MapInfo Professional 11 which was used to tag incidents with geographical information

The calculation for fatalities per 100,000 population is:

*(sum of Fatalities over 10 years / sum of Population over 10 years) * 100,000*

Population figures are based on Mid 2016 estimates published by the Office for National Statistics.

Indices of Multiple Deprivation (IMD) 2016 was utilised to analyse levels of deprivation in the areas where fire deaths took place.³

Data used in this report has been supplied by the Merseyside Fire & Rescue Authority Incident Investigation Team; with the coroner ultimately determining the cause of death.

Data used within this report is based on fatal incidents occurring in the home where the motive for the incident is judged to have been accidental.

Merseyside Fire & Rescue Authority measures this as Key Performance Indicator DC12⁴ - *Number of fatalities from Accidental Dwelling Fires.*

Fire fatalities include any fatal casualty which is the direct or indirect result of injuries caused by a fire incident even if death occurred weeks or months later. There are also occasional cases where it transpires subsequently that fire was not the cause of death. For all of these reasons, fatalities data may therefore be subject to revision.

Concerning the Long Time Series Analysis, counts have been obtained from the following:

- Between 1991/1992 – 1999/2000: Freedom of Information Request from Department for Communities and Local Government
- Between 2000/2001 – present: Incident Investigation Team archives

The time of call analysis is based on incidents which were **NOT** late calls, this accounts for 59 incidents within the entire dataset.

Data Limitations:

The findings within this report are based on available data. As fire fatalities are a relatively rare occurrence the volume of data is small. Therefore some conclusions based on the data should be approached with due diligence.

³ Uses IMD 2015 to create a localised deprivation index, in essence grouping deprivation by 10% bands

⁴ The data contained within this report contains data which is still awaiting coroner agreement and as such the figures contained are subject to change.

5. Results

5.1 Fatal Victims of Accidental Dwelling Fires

The following section is based on the details of victims who died as a result of an accidental dwelling fire. In total between 2008/09 and 2017/18 there were 78 victims and as such the following tables and charts all equate to this figure.

5.1.1 Comparison of Fatalities by District

Chart 1: Breakdown of fatalities in Accidental Dwelling Fires between 2008/09 and 2017/18 by District

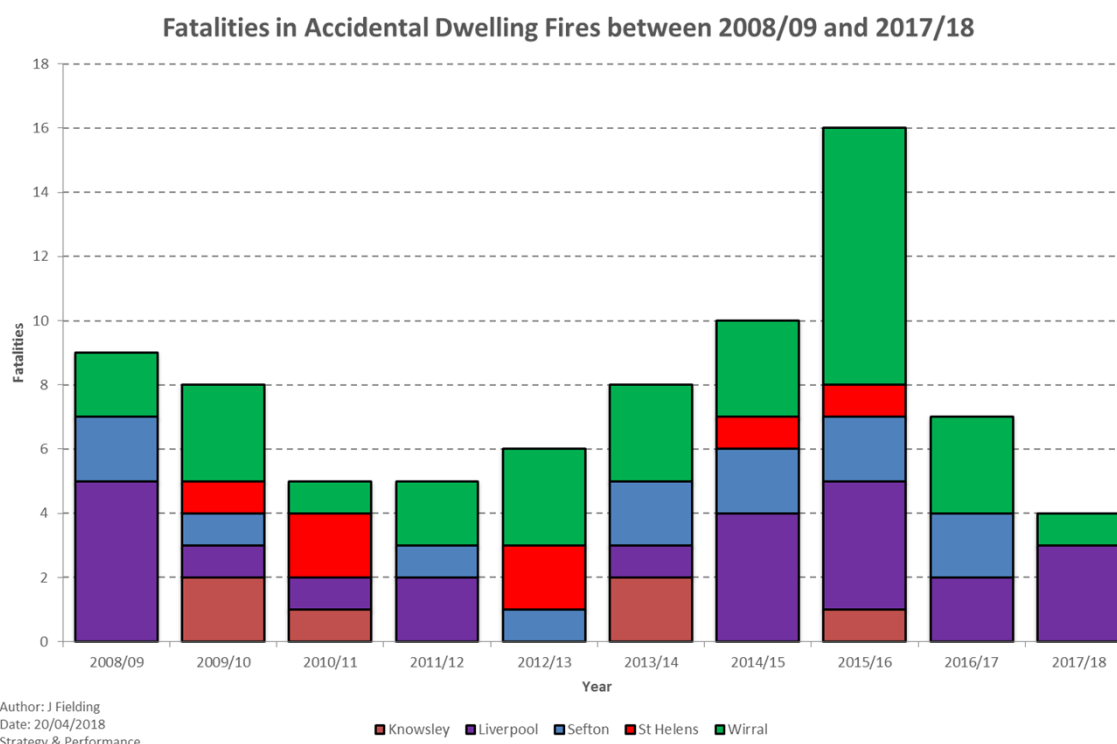


Chart 1 provides a retrospective of fatalities in accidental dwelling fires over the past 10 years. The chart identifies that over this period, fatalities have fluctuated. Prior to 2010/11, accidental dwelling fire fatalities were on a downward trend, only for an upward trend to occur between 2012/13 and 2015/16. Since the high of 16 during 2015/16, fire deaths have fallen - leading to 4 during 2017/18 - MFRA's lowest recorded number of fatalities.

Table 1: Comparison of overall total fatalities by district and population

Counts	Knowsley	Liverpool	Sefton	St Helens	Wirral	Total
Overall Fatalities	6	23	13	7	29	78
Rate per 100,000 population	0.41	0.49	0.47	0.40	0.91	0.56
Fatal Incidents	6	22	11	7	27	73

Table 1 allows a direct comparison of overall fatality counts between the Merseyside districts by aggregating the data to incidents per 100,000 head of population for direct comparison.

The table shows that there have been 29 fatal fire victims in Wirral, followed by Liverpool with 23. When overall population counts are taken into consideration – Wirral proportionally has had the greatest number of fatalities with 0.91 per 100,000 population over the 10 year period. Liverpool had a lower ratio of 0.49; therefore *proportionally*, Wirral has the greatest likelihood of an accidental dwelling fire death occurring.

Taking into account the number of fatal incidents by district, the table identifies that of the 73 incidents, 5 incidents involved 2 victims; with 2 occurring in each of Sefton and Wirral and 1 in Liverpool.

5.1.2 Long Time Series Analysis

Chart 2: Long Time Series of fatalities in Accidental Dwelling Fires between 1991/92 and 2017/15

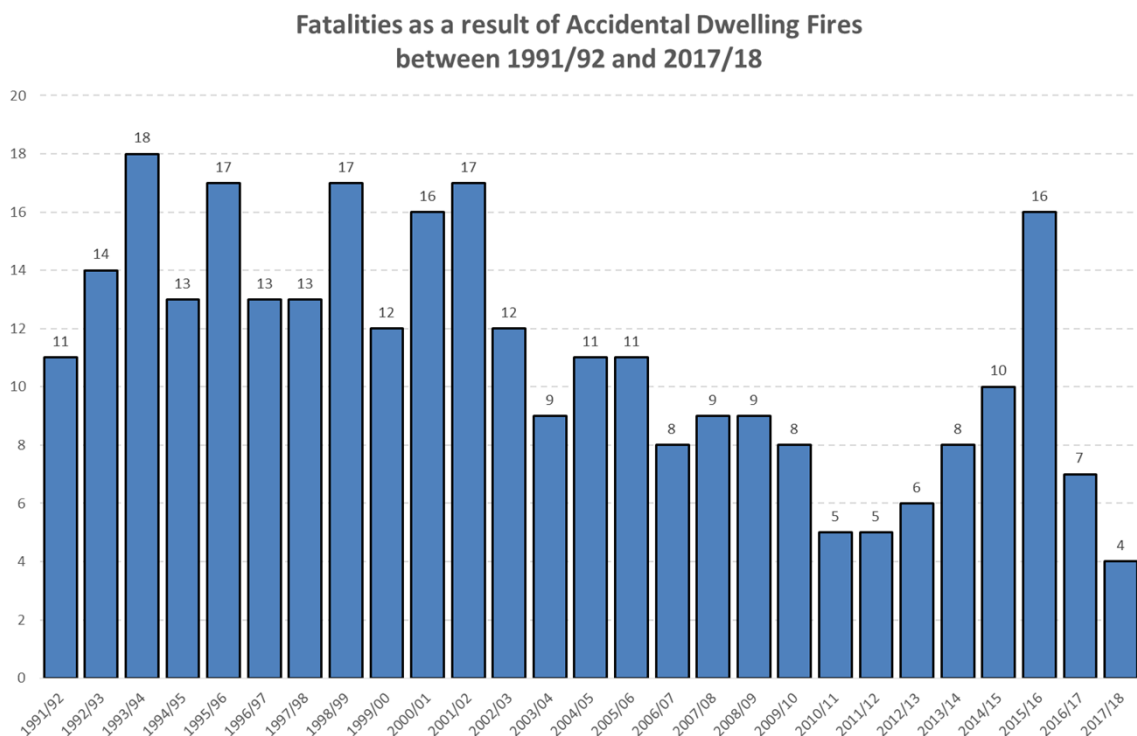


Chart 2 provides a count of accidental dwelling fire fatalities between 1991/92 and 2017/18. The chart identifies that 2015/16 resulted in the greatest number of fire fatalities within recent years, though in the past there were higher counts. Prior to 2016/17, there was an upward trend in the count of fatalities, however this upward trend was halted with the 7 deaths for 2016/17 and a low of 4 during 2017/18. Over the 27 year period, 1993/94 had the highest number of fatalities with 18, followed by 1995/96, 1998/99 and 2001/02 with 17 each.

5.1.3 Demographic Analysis

Table 2: Fatalities by Age and Gender (with fatalities per 100,000 population ratio)

Age group	Male		Female		Total	
5-9	0	(0)	1	(0.3)	1	(0.1)
25-29	0	(0)	2	(0.4)	2	(0.2)
30-34	1	(0.2)	0	(0)	1	(0.1)
35-39	1	(0.2)	0	(0)	1	(0.1)
40-44	4	(0.9)	2	(0.4)	6	(0.6)
45-49	4	(0.8)	5	(1)	9	(0.9)
50-54	5	(1.1)	0	(0)	5	(0.5)
55-59	2	(0.5)	3	(0.7)	5	(0.6)
60-64	3	(0.8)	2	(0.5)	5	(0.6)
65-69	1	(0.3)	2	(0.5)	3	(0.4)
70-74	4	(1.5)	1	(0.3)	5	(0.9)
75-79	8	(3.7)	3	(1.1)	11	(2.2)
80-84	3	(2.1)	6	(2.8)	9	(2.5)
85+	9	(9.6)	6	(2.9)	15	(2.7)
Total	45	(0.7)	33	(0.5)	78	(0.6)

Table 2 provides the count of fire deaths by age and gender along with the ratio of fire deaths per 100,000 head of population. The table identifies several age groups at greatest risk from a fatality in an accidental dwelling fire, including the 45-49⁵ group and particularly the 75-79, 80-84 and 85+ age groups.

When the ratio of deaths to proportion of population is taken into account it is apparent that with age the risk of mortality as a result of an accidental dwelling fire increases significantly. Applying a regression analysis to the available data a R² value of 0.57 is achieved indicating a moderate statistical link between age and fire related mortality.

There is a bias towards male victims with 45 fatalities. Female victims accounted for 33 accidental dwelling fire fatalities.

Concerning racial profiling of the deceased; 73 victims were described as *White – British*, 1 was described as *White – Irish* and 4 from the category “*Other*”. When analysed proportionally 93.6% of victims were White British which is slightly higher than the Census 2011 population ratio of 91.8%.

⁵ Of note within the 45-49 age group, 6 of the 9 victims had consumed alcohol prior to the incident

5.1.4 Habitation and Carer Status

Table 3: Habitation and carer status

Status	Lived alone		Cohabited		Other Circumstance		
Carer	Alone at Time	Accompanied	Alone at Time	Accompanied	Alone at Time	Accompanied	Total
Yes	16		1	6			23
No	30	1	4	15	2	1	53
Unknown	2						2
Grand Total	48	1	5	21	2	1	78

Table 3 identifies that the majority of victims (48 from 78 or 61.5%) *Lived Alone* and were *Alone at the Time* of the incident. Of the victims who *Cohabited*, 5 were *Alone at the Time* and 21 were *Accompanied*. In combination 55 of the 78 victims (70.5%) were alone at the time of the incident.

Concerning whether a victim had need of a carer or not, the majority of victims did not have a carer (53 of 78, or 67.9%). Many of the victims who *Lived Alone* (16 of 49, or 32.7%) required a carer.

Table 4: Habitation and carer status– OVER 60 Age Group Only

Status	Lived alone		Cohabited		Other Circumstance		
Carer	Alone at Time	Accompanied	Alone at Time	Accompanied	Alone at Time	Accompanied	Total
Yes	14		1	5			20
No	18		1	6	1		26
Unknown	2						2
Grand Total	34	0	2	11	1	0	48

Table 4 identifies that the majority of victims above the age of 60 (34 of 48 or 70.8%) *Lived Alone* and were *Alone at the Time* of the incident. Of the victims above the age of 60 who *Cohabited*, 11 were *Accompanied* with 2 being *Alone at the Time*. Overall, 37 of the 48 victims (or 77.1%) were *Alone at the Time* of the incident. In the age group analysed, 41.7% (20) of the victims had access to carers.

5.2 Incident Related Analysis

The following analysis is based on the **count** of incidents, not the count of victims – as in the previous section. Therefore the following tables equate to **73**.

5.2.1 Comparison of Fatal Incidents and Deprivation

Chart 3: Fatalities in Accidental Dwelling Fire incidents between 2008/09 and 2017/18 linked to deprivation⁶

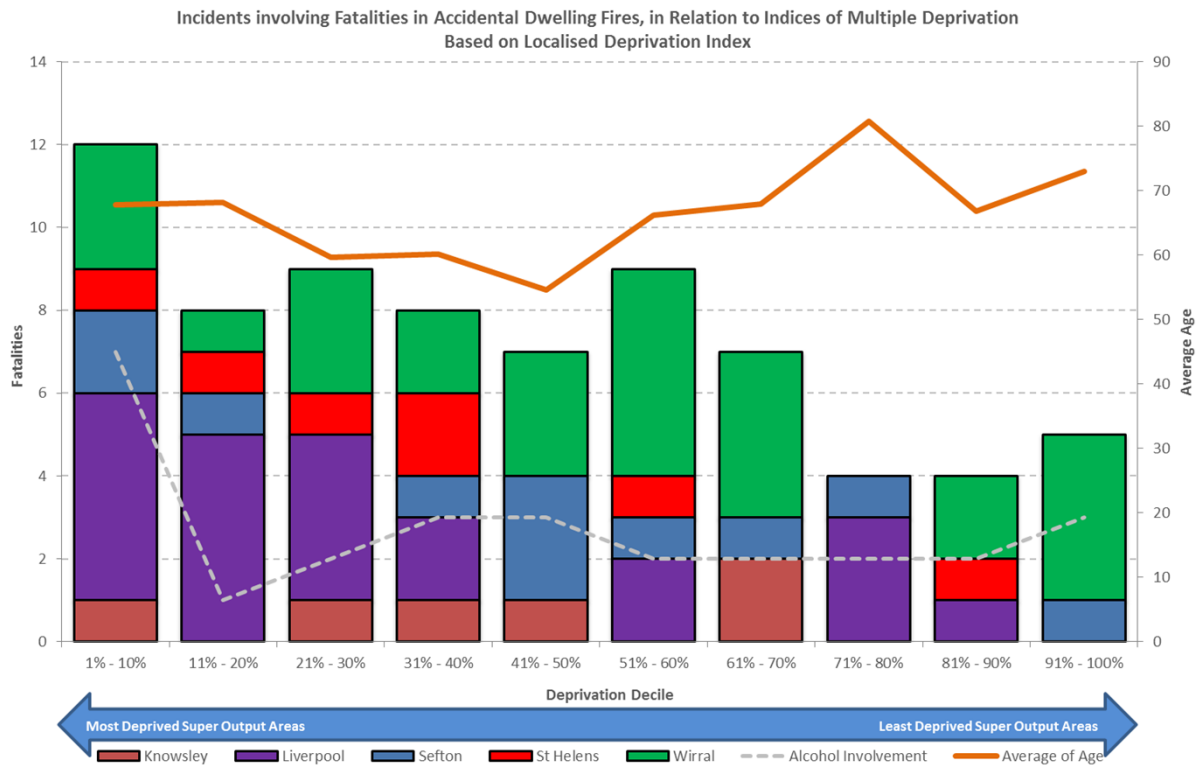


Chart 3 ranks the location of fire fatalities to the level of deprivation in the area in which the incident took place using Indices of Multiple Deprivation 2015 (IMD). Utilising a localised⁷ deprivation index, the chart demonstrates that as deprivation increases the number of fire deaths gradually increase.

When analysed at a district level;

- Fire deaths in Liverpool tend to occur in areas of higher deprivation.
- Wirral has a sporadic pattern, with concentrations occurring in moderately deprived areas between the 31%-40% and 61%-70% deciles. Additionally there are more fatal incidents occurring in areas of areas of less deprivation, with 15 incidents taking place in the 50% least deprived areas (including 4 in the least deprived decile) and 12 incident taking place in the most deprived areas.
- St Helens and Knowsley have generally had fatalities within the more deprived 50% of deciles.

⁶ As per the CLG document Indices of Multiple Deprivation 2015

⁷ Please refer to Appendix A to view a comparison of fatalities based on the localised deprivation index and against the National (English) index.

- Sefton has a different pattern with a grouping of fatal incidents occurring in the moderately deprived 41%-50% decile. Within Sefton, 7 fatalities took place within the 50% most deprived areas and 4 took place in the 50% least deprived areas.

The chart also identifies the average ages of the victims by each deprivation decile group. In general terms the chart identifies that fatal fire victims in deprived areas tend to be younger. By contrast, in less deprived areas victims tend to be slightly older.

The average youngest age of victim was in the moderately deprived 41%-50% decile, a difference of 11 years when compared to the 51%-60% decile⁸.

Also included on the chart is the count of incidents where alcohol had an influence on the victim, by each deprivation decile. The chart identifies that alcohol consumption plays a key role at each end of the deprivation spectrum, for instance within the most deprived decile, 7 from 12 incidents were related to alcohol. Likewise within the least deprived decile, 3 from 5 incidents involved alcohol consumption.

5.2.2 Smoke Alarm Analysis

Smoke alarms provide an important early warning to residents should a fire occur within a property. It must be emphasised that in the vast majority of incidents the actuation of a smoke alarm can and does save lives; however this is not always the case, as personal mitigating circumstances like: mobility, prescription medicines and alcohol consumption can impede a victim escaping regardless of the actuation of a smoke alarm.

The following section analyses the performance of smoke alarms as well as whether a HFSC (Home Fire Safety Check) had taken place.

Table 5: Smoke Alarm Functionality & HFSC Status

Status	HFSC			%
	Yes	No	Total	
Fitted & Operated	37	4	41	56.2%
Fitted Did Not Operate	4	2	6	8.2%
Fitted No Batteries		5	5	6.8%
Fitted Unknown if operated	4	3	7	9.6%
None Fitted		12	12	16.4%
None Fitted (refused Smoke Alarm on visit)	1		1	1.4%
Unknown ⁹		1	1	1.4%
Grand Total	46	27	73	

Table 5 identifies that in the majority of properties (41 or 56.2%) a smoke alarm was fitted and operational. In 6 cases the smoke alarm was fitted and failed to operate, though this is possibly due to the nature / severity of the fire itself or the positioning of the smoke detector.

⁸ Analysis has taken place as to whether the Super Output Areas contained within the 41%-50% deciles were younger on the whole than other deciles, but there is no significant evidence to back this up.

⁹ Due to the level of damage to the property during the incident, it is unknown whether or not a smoke alarm was installed in the property

In 5 properties (6.8%), there were smoke alarms fitted, but with no batteries therefore not providing the early warning system a smoke alarm provides, additionally in all 5 cases a HFSC had not taken place. Also of note, is that in 13 cases (17.8%) there was no smoke alarm fitted - meaning no early warning system being available in the property.

When analysing smoke alarm functionality against HFSC status, 63% (46 from 73) of properties had previously had a HFSC. Of these properties; 41 had a smoke alarm fitted which operated. 27 properties (37%) did not have a HFSC prior to the incident.

There were 13 properties where no smoke alarm was fitted, in one case the occupier refused the HFSC and smoke alarm, though it should be noted that though the individual refused the visit; MFRA still had contact with that person.

5.2.3 Ignition Source

Table 6: List of Fatal Incident Ignition Sources

Ignition Source	Detail	Total
Smokers Materials	Smokers materials	36
	Subtotal	36
Careless Use Of Heating Appliance	Combustibles left too close to electrical heater	6
	Bedding falling onto gas fire	3
	Coal or spark from open fire	1
	Overheating of wheat bag in microwave prior to placing in bed	1
	Combustibles left too close to gas fire	1
	Electrical heater knocked over and ignited curtains	1
	Paper taper used to ignite gas fire dropped onto clothing	1
	Subtotal	14
Cooking	Chip pan left unattended in kitchen	1
	Combustible materials left on hob	1
	Cooking - accidental ignition of clothing	3
	Cooking - misuse of microwave	1
	Cooking - unattended food left on hob - misadventure	4
	Subtotal	10
Candles	Candles	6
	Subtotal	6
Electrical Fault	Electrical	1
	Mains electric fault overload	1
	Overloaded e-cigarette battery leading to rupture	1
	Overloaded multi-tap	1
	Fault with old wiring	1
	Subtotal	5
Radiated Heat	Heat lamp igniting combustible materials	1
	Radiated heat - from table top lamp	1
	Subtotal	2
Grand Total		73

Table 6 lists the ignition sources along with limited detail concerning the circumstance. During the ten year period analysed *Smokers Materials* account

for 36 incidents, equal to 49.3% of fire death incidents. *Careless use of Heating Appliances*¹⁰ follows, with 14 deaths and *Cooking* with 10 deaths.

The average age of victims; where the cause of the fire was related to the *Careless Use of Heating Appliance* was 78 years. The average age where *Smokers Materials* were involved was 64 and *Cooking* was 57. Therefore data suggests that the elderly are more likely to be involved in a fire where the *Careless Use of Heating Appliance* has taken place.

5.2.4 Room of Origin and Ignition Source

Table 7: Room of Origin with Ignition Source and whether alcohol consumption had taken place prior to the incident

Room Of Origin	Ignition Cause	Total	Of which involved consumption of Alcohol		
			Yes	No	Unknown
Living Room	Smokers Materials	18	9	8	1
	Careless Use Of Heating Appliance	10	2	8	
	Candles	3	1	2	
	Radiated Heat	1		1	
	Sub Total	32	12	19	1
Bedroom	Smokers Materials	14	5	8	1
	Careless Use Of Heating Appliance	4		4	
	Candles	2	1	1	
	Electrical Fault	2	1	1	
	Radiated Heat	1		1	
Sub Total	23	7	15	1	
Kitchen	Smokers Materials	2	1	1	
	Cooking	9	4	4	1
	Electrical Fault	2	1	1	
	Sub Total	13	6	6	1
Hallway	Smokers Materials	1		1	
	Electrical Fault	1		1	
	Sub Total	2		2	
Bedsit (Open plan sleeping and living area)	Smokers Materials	1	1		
	Sub Total	1	1		
Bathroom	Candles	1	1		
	Sub Total	1	1		
Caravan	Cooking	1		1	
	Sub Total	1		1	
Grand Total		73	27	43	3

Table 7 provides a breakdown of the fire's room of origin, its respective ignition source and whether a victim was under the influence of alcohol¹¹ at the time.

¹⁰ Usually involves the ignition of clothing, or other ignitable articles placed too close to a piece of heating equipment, for example a gas fire or electric heater

¹¹ A further piece of analysis was conducted analysing whether the use of Alcohol was influenced by gender. The analysis identified that the use or not of alcohol was relatively similar between males and females with 17 male victims and 13 female victims.

The table identifies that *Smokers Materials* have a root cause in the majority of fires in the *Living Room* and *Bedroom*; with the *Careless Use of Heating Appliance* also being common to these rooms.

27 (37%) of fatal incidents are linked to the consumption of alcohol. Where alcohol consumption is combined with *Smokers Materials*, then 43.2% (16 out of 36) of incidents are linked to this combination of factors.

Within the *Living Room*, approximately a third (12 or 37.5%) of fatal fire incidents involved the consumption of alcohol. A similar trend also occurred for the *Bedroom*, where 30.4% (7) fatal fire deaths were related to alcohol consumption.

Within the *Kitchen*, *Cooking* and its associated activities, is the most common cause of fatal fire incident with 9 overall, though 4 of these still involved the consumption of alcohol.

5.2.5 Fatalities by Year and Ignition Source

Chart 4: Breakdown of Ignition Source by Year

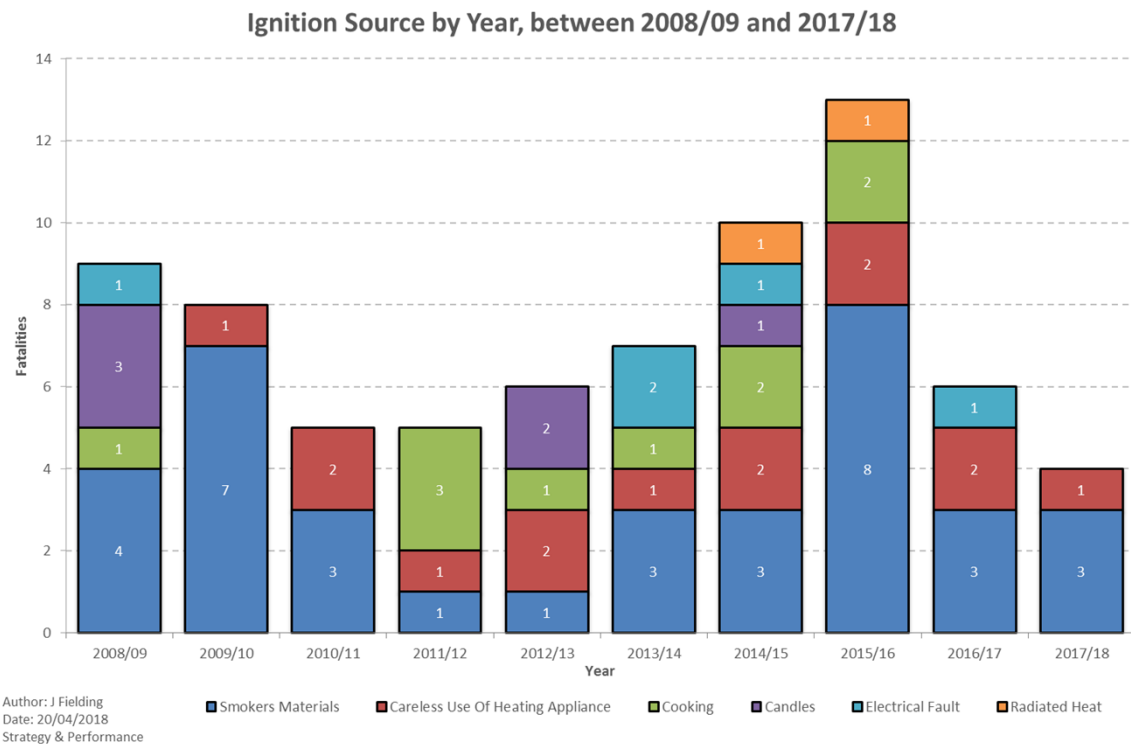


Chart 4 provides an annual breakdown of the ignition sources involved in fatal fires. The chart identifies that fatal incidents relating to *Smokers Materials* (blue) had been consistently high between 2008/09 and 2010/11, after this period fire deaths fell markedly until 2013/14, when they begin to rise again. During 2015/16, fatal incidents caused by *Smokers Materials* rose to their highest level, with 8 incidents attributed to this cause. Incidents involving *Careless Use of Heating Appliances* (red) have remained relatively consistent.

Fatal incidents linked directly to *cooking* and cooking practices (green) have fluctuated between the years, with the exception of 3 incidents during 2011/12. As a result of this peak, Fire and Rescue service personnel have used targeted campaigns promoting fire safety in the kitchen. For the past two years there have been zero fire deaths related to cooking.

5.2.6 Fatalities by Month and Ignition Source

Chart 5: Fatal Fire Incidents by Month and Ignition Source

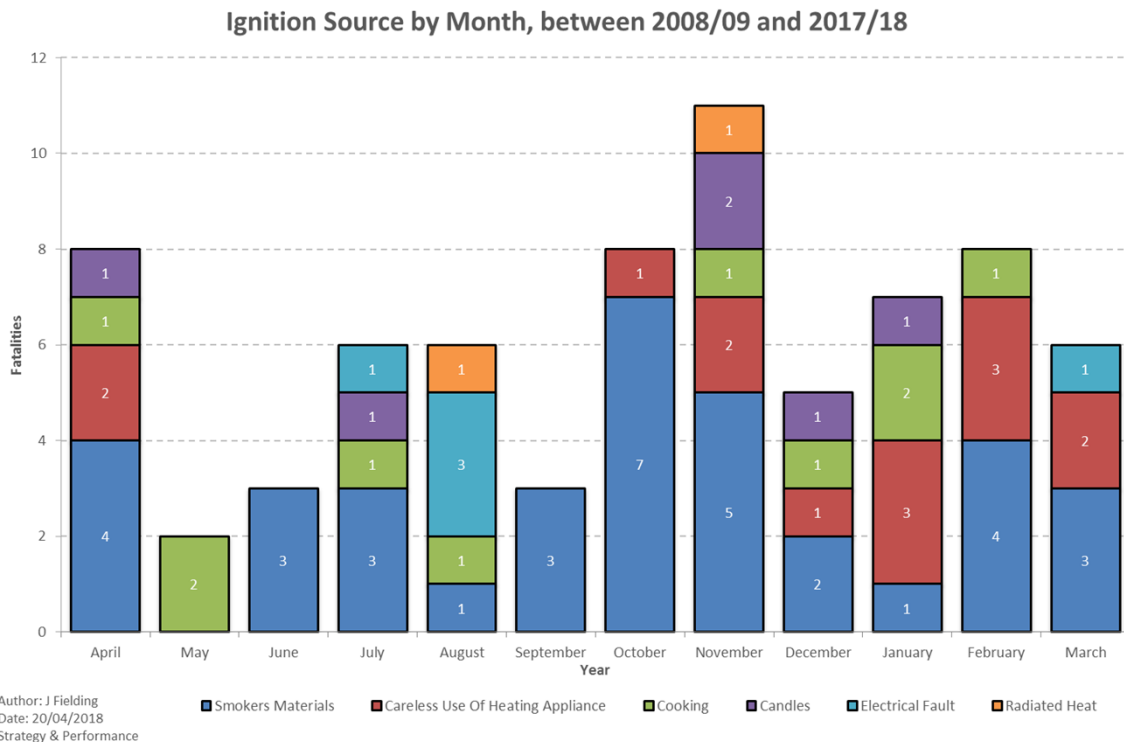


Chart 5 identifies that there are more fatal fire incidents taking place during quarters 3 (Autumn) and 4 (Winter).

When *Smokers Materials* are analysed by quarter; the overall numbers of fatalities are relatively consistent, with: 7 incidents in Quarter 1, 7 in Quarter 2, 14 in Quarter 3 and 8 in Quarter 4.

Fatalities involving *Smokers Materials* are at relatively low levels during the spring and summer months, especially during May. The months of: October, November, April and February have the highest counts. Concerning these incidents; alcohol consumption has been analysed to determine whether it is a motivating factor, but there is little evidence to suggest that this is true.

During winter / early spring; when the weather is most inclement - *Careless Use of Heating Appliance* is more common.

Cooking related deaths are sporadic, forming little pattern.

5.2.7 Fatalities by Day of the Week and Ignition Source

Chart 6: Fatalities between 2008/09 and 2017/18 by day of the week

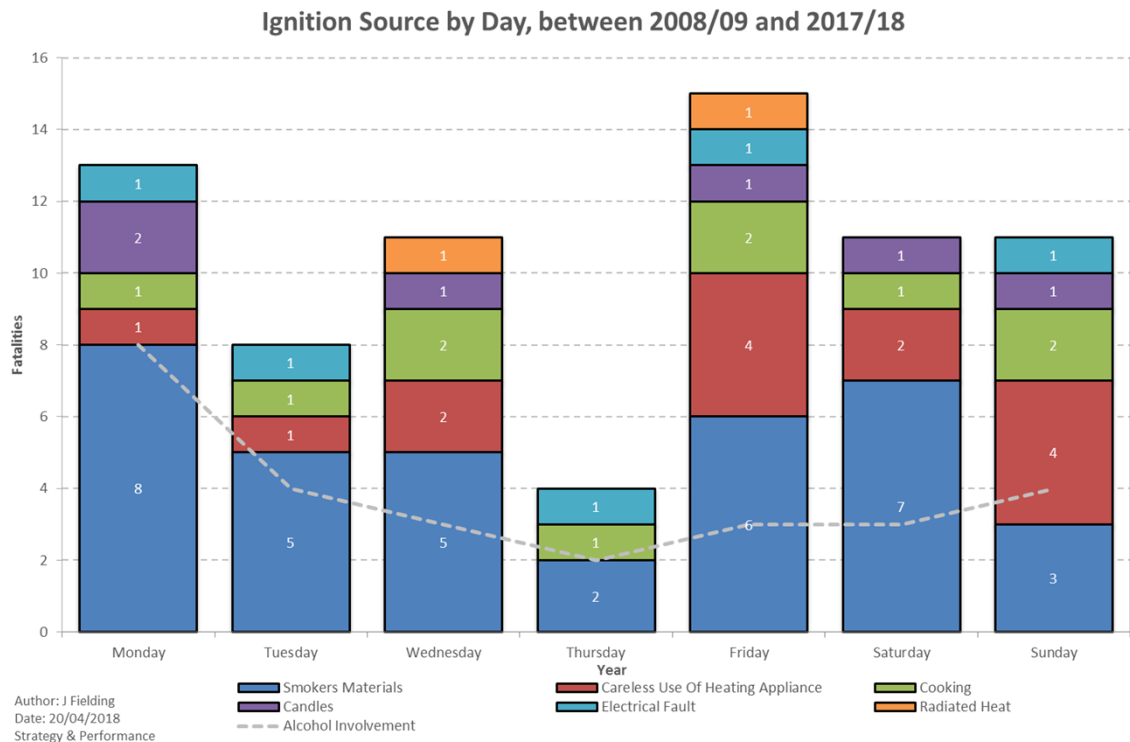


Chart 6 provides an analysis of accidental dwelling fire fatal incidents by day of the week. The chart identifies two peaks, with 13 deaths occurring on Mondays and 15 deaths on Fridays.

As mentioned throughout this report, *Smokers Materials* are the most common cause of fatal fire incidents. Chart 6 identifies that on each day, *Smokers Materials* were responsible for the simple majority of fatal incidents, with the exception of Sunday.

Concerning fatal incidents taking place on a Monday, 8 from 13 incidents involved alcohol consumption as a contributory factor. On a Friday however, only 3 of the 15 incidents, listed alcohol consumption as being a contributory factor.

5.2.8 Analysis of Incidents by Time of Call

Chart 7: Fatalities by hour and whether Alcohol Consumption was involved during the incident

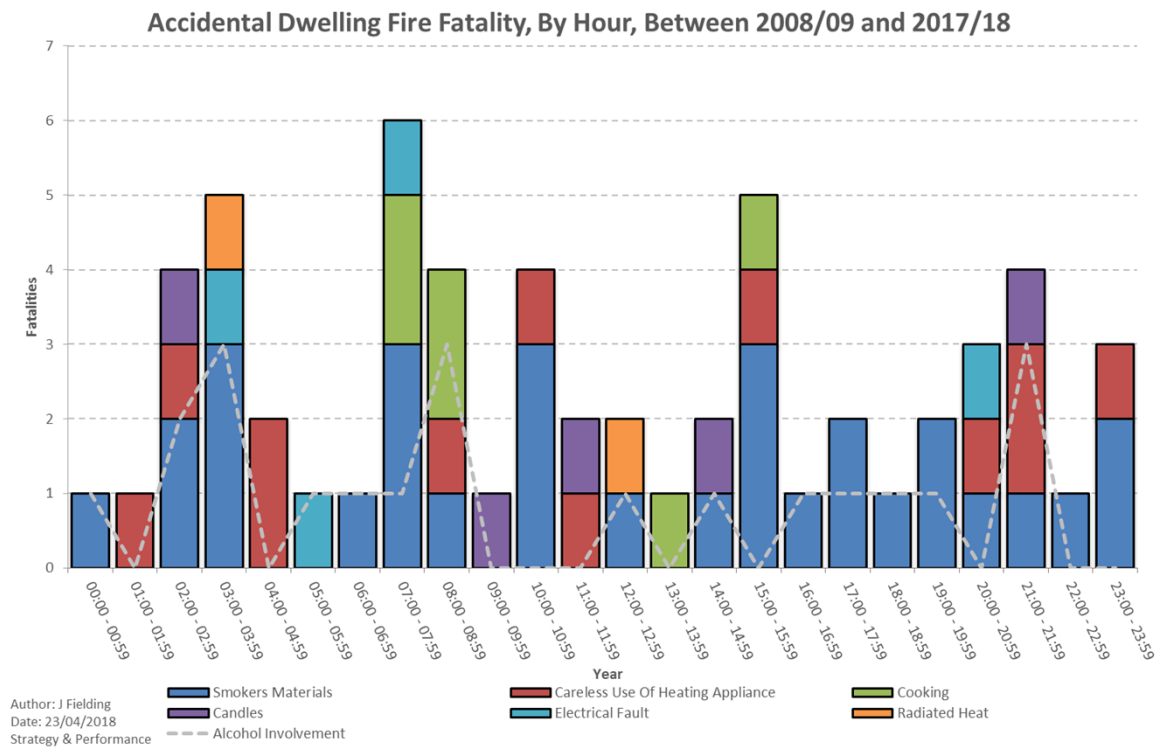


Chart 7 provides an overview by hour¹² of when a fatal fire incident has taken place. The chart also details the ignition source and whether alcohol consumption had taken place.

In summary the chart provides the following findings:

- Peaks in incidents occur between 07:00 to 08:59, 02:00 to 03:59 and 15:00 – 15:59.
- Alcohol consumption and fire death tend to occur in the early hours (02:00 – 03:59), the morning (08:00 – 08:59) and the evening (21:00 – 21:59). Relatively few incidents take place during the afternoon.
- Between 02:00 and 03:59; 5 incidents were related to alcohol consumption, 3 of which also involved *Smokers Materials*.
- Between 07:00 and 08:59, cooking is a common source of ignition; as such, 2 of the 4 incidents involved alcohol consumption as a possible causal factor.

¹² Does not include late calls

6. Appendices

6.1 Appendix A

Chart 8: Comparison of Fatalities by Deprivation using Localised Deprivation and National IMD Indexes

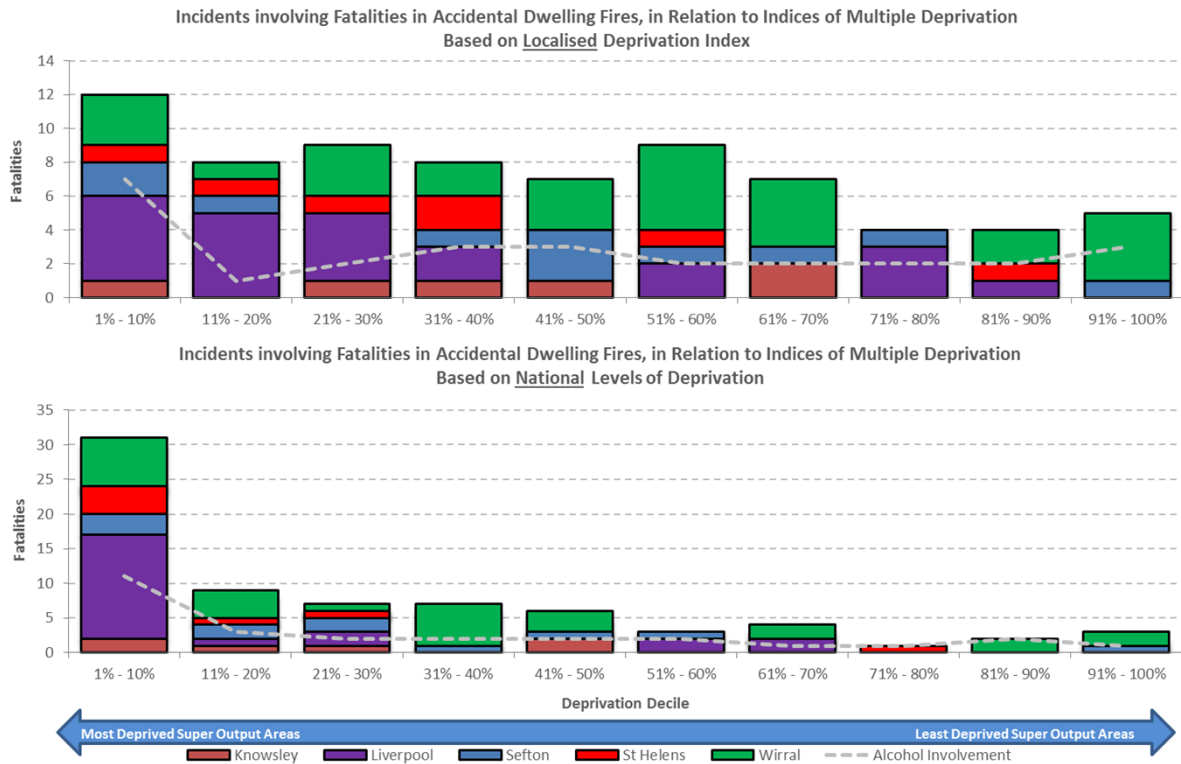


Chart 8 ranks the location of fire fatalities to the level of deprivation in the area the incident took place in, using Indices of Multiple Deprivation 2015 (IMD). Concerning the localised deprivation index, the chart demonstrates that as deprivation increases the number of fire deaths gradually increase. When the same data is placed into the context of National Deprivation, the chart clearly shows that the 1-10%¹³ deprivation decile has disproportionately high levels of fire death when compared to the localised index.

¹³ This skewing is likely due to that Merseyside does have a high number of Super Output Areas within the 10% most deprived areas of England