Historical Analysis of Fatalities in Accidental Dwelling Fires between 2008/09 and 2022/23

AUDIENCE

TO BE PRESENTED TO:
Authority
Strategic Leadership Team

PREVENTION
STRATEGY & PERFORMANCE

Document Control

Amendment History

Version / Issue No.	Date	Author	Remarks / Reason for Change
1.0	TBC	J Fielding	

Sign-Off List

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Distribution List

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Related Documents

Reference No.	Title	Author	Version & Date
1.0	Analysis of Fatalities in Accidental Dwelling Fires between 1st April 2022 and 31st March 2023	J Fielding	TBC

Ownership

Has it been agreed with the client that this is a publicly owned document?
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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 AM Thomas and received on 01/04/2023.

The Manager[1] 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 May 2023, 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 May 2023.

The final report, which will always be in PDF format, would be produced by May 2023, 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 2022/23. 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 2022/23 there were **108** fire deaths due to accidental dwelling fires; these deaths are attributed to **101** fire incidents.
- Between 2006/07 and 2010/11, the number of 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 15 year high of 16 deaths during 2015/16. Since 2015/16 fire deaths have dropped, with 7 during 2016/17 and lows of 4 for 2017/18 2018/19 and 2021/22. During 2022/23, there were 10 recorded deaths, the highest since 2015/16.
- When analysed by district, Wirral saw 34 deaths, followed by Liverpool with 31. When aggregated to incidents per 100,000 population; Wirral has the greatest number of deaths with 10.6 deaths per 100,000 population, while Liverpool's ratio is much lower, with 6.4 per 100,000 population. Sefton is the 2nd highest with 9.0 deaths per 100,000 population,
- The risk of death in accidental dwelling fires increases with age, 75 and above age range being at greatest risk.
- Concerning the demographic of fire fatalities, there is a bias towards male victims with 65 fatalities (60.2% overall). Female victims accounted for 43 deaths (39.8% overall).
- Concerning racial profile, the vast majority of victims were White British – accounting for 102 victims or 94.4% overall. A further victim was White Irish and 5 were Black Asian Minority Ethnicity (BAME). Proportionally, the 5 BAME victims equate to 4.6% of deaths, this is just short of the Merseyside proportion of BAME population which according to the 2021 Census sits at 8.3%.
- In 68 out of 108 fire fatalities, the victim was the sole occupier. Taking all living circumstances into account, 76 victims were alone at the time of the fire that claimed their lives.

Incident Summary

- Concerning deprivation and the use of Department for Levelling Up, Housing and Communities Index of Deprivation (IOD) 2019, the general trend is that fatalities tend to occur more often in deprived areas, with fewer fire deaths occurring in areas of less deprivation. When the average age of victims is added to the equation it has been found that victims tend to die younger in deprived areas with older victims being found in areas of less deprivation.

- In 62 incidents a smoke alarm was fitted and actuated (61.4% in total). There were 7 incidents where smoke alarms were fitted and did not actuate. On 15 occurrences there was no smoke alarm and a further 6 incidents where the fitted smoke alarm was inoperable (i.e. no batteries). There were 9 occurrences where it was unknown whether the smoke alarm actuated and 2 incidents where the level of damage done to the property was so severe it was unknown whether a smoke alarm had been fitted.
- 64 Home Fire Safety Checks (HFSC) were completed with victims prior to the incidents, which claimed their lives. 37 did not have an HFSC.
- When analysing ignition sources it was found that of the 101 fatal incidents, 48 were from of smokers' materials. Since 2009/10, when 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 from smoker's materials have increased leading to a high of 8 during 2015/16, though this has fallen since. During 2022/23, 3 deaths were attributed to smokers' materials.
- When analysing the ignition source and room of origin; 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, overall 28 incidents (27.7%) were the result of this combination.
- Victims aged above 65 are more likely to be involved in a fire where the careless use of heating appliance has taken place; this ignition source is most predominant in the living room.
- By month, the greatest number of deaths occurred during the autumn/winter months, particularly between November and January. The month of April also tends to have high counts of fire deaths.
- Peak times for incidents where a fatality occurs are between 02:00 - 03:59, 07:00 - 08:59, 15:00 - 15:59 and 21:00 – 21:59.

3. *Introduction*

The purpose of this report is to analyse fatalities from accidental dwelling fires (ADF) between 2008/09 and 2022/23; analysing the circumstances and demographic background of such occurrences, using business intelligence to target risk and prevention work.

Compared to other incident types that Merseyside Fire & Rescue Authority (MFRA) attends, fire fatalities are relatively low in number, although 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 & 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 2016 to interpret and graphically represent figures.
- MapInfo Professional 17 which was used to tag incidents with geographical information

The calculation for fatalities per 100,000 population is:
*(sum of Fatalities / sum of Population) * 100,000*

Population figures are based on Census 2021 estimates published by the Office for National Statistics. Although this data takes place over a 15 year period, for clarity a single year of population is used for calculations.

Index of Deprivation 2019 (IOD 2019) has been used to measure the levels of deprivation where fire fatalities took place[2].

The IOD 2019 data was then analysed in two ways:

- At a local level the IOD 2019 data was restricted to solely Merseyside, this data was then split into 10 bands with equal counts, each representing a decile of relative localised deprivation. This data is merged with fatality incident data and analysed.
- At a national level the IOD 2019 data has not been restricted to Merseyside, the national dataset is split into 10 equal bands, with each band being a decile of deprivation. This data was merged with fatality incident data and analysed.

The Index of Deprivation 2019 was sourced from the Department for Levelling Up, Housing and Communities.

Data used in this report was 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. Please note the data contained within this report includes some information that is still awaiting Coroner agreement and as such the figures contained may be subject to change.

Fire fatalities include any person who has died as 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 are sourced from the following:

[2] IOD ranks deprivation in the form of an index, where low numbers indicate Super Output Areas (LSOA) which have high levels of deprivation and high numbers indicating Super Output Areas with least deprivation

- 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, accounting for 86 incidents within the entire dataset.

Data Limitations:

The findings within this report is 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 caution.

The injury analysis within Appendix A is based on criteria used to measure Performance Indicator: DC13 Number of injuries from accidental dwelling fires. This is based on a count of persons injured by fire and required hospital treatment.

5. Results

5.1 Victims of Fatal Accidental Dwelling Fires

The following section is based on the details of victims who died because of an accidental dwelling fire. In total between 2008/09 and 2022/23 there were **108** victims and as such the following tables and charts all equate to this figure.

5.1.1 Long Time Series Analysis

Chart 1: Long Time Series of fatalities in Accidental Dwelling Fires between 1991/92 and 2022/23

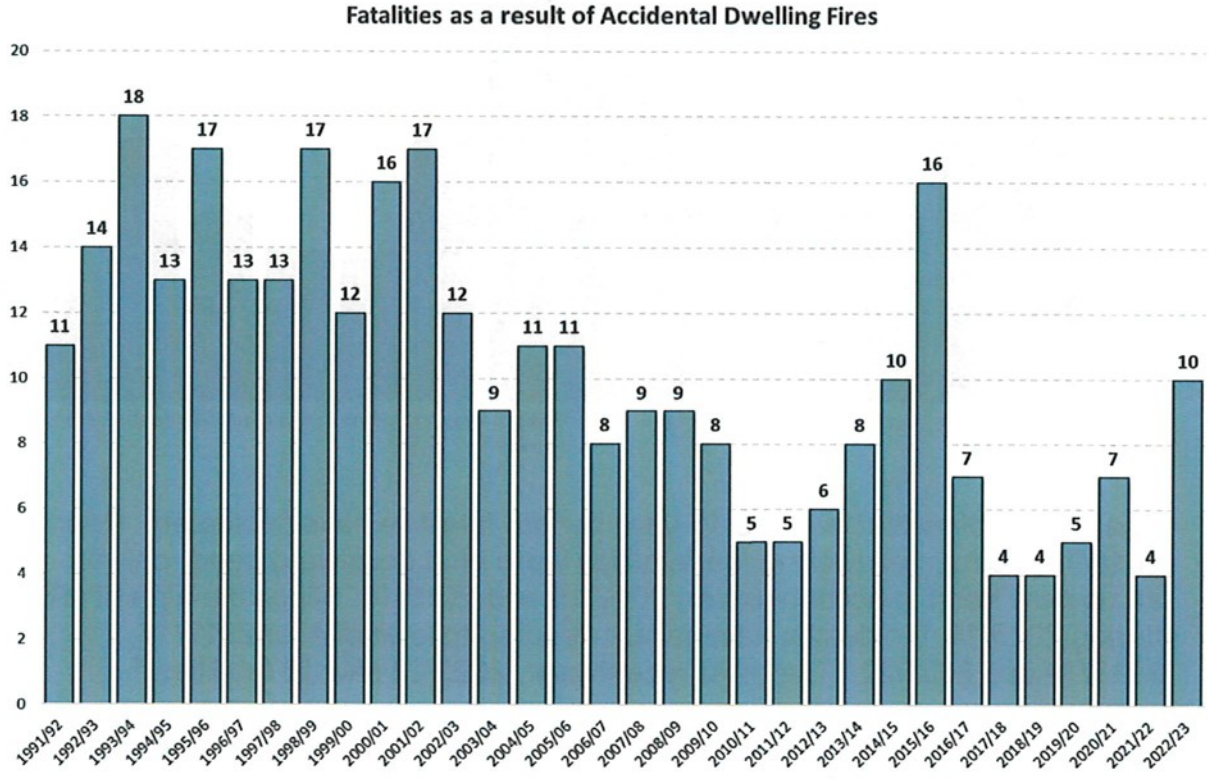


Chart 1 provides a count of accidental dwelling fire fatalities between 1991/92 and 2022/23. The chart identifies that 2015/16 resulted in the greatest number of fire fatalities in recent years (though in the past there were higher counts). Prior to 2016/17, there was an upward trend in the count of fatalities; though this upward trend was halted with the 7 deaths during 2016/17, this was then followed by lows of 4 deaths between 2017/18 to 2018/19 as well as 2021/22.

Over the 32-year period, 1993/94 had the highest number of fatalities with 18, followed by 1995/96, 1998/99 and 2001/02 with 17 each. Prior to 2022/23, in the last five years, deaths have remained low with 4 deaths in each of 2018/19 and 2021/22, there were 5 during 2019/20, 7 during 2020/21[3] and 10 during 2022/23.

[3] It is unknown whether the impacts of the Covid 19 lockdowns have had an impact on 2020/21.

5.1.2 Comparison of Fatalities by District

Chart 2: Fatalities in Accidental Dwelling Fires between 2008/09 and 2022/23 by District

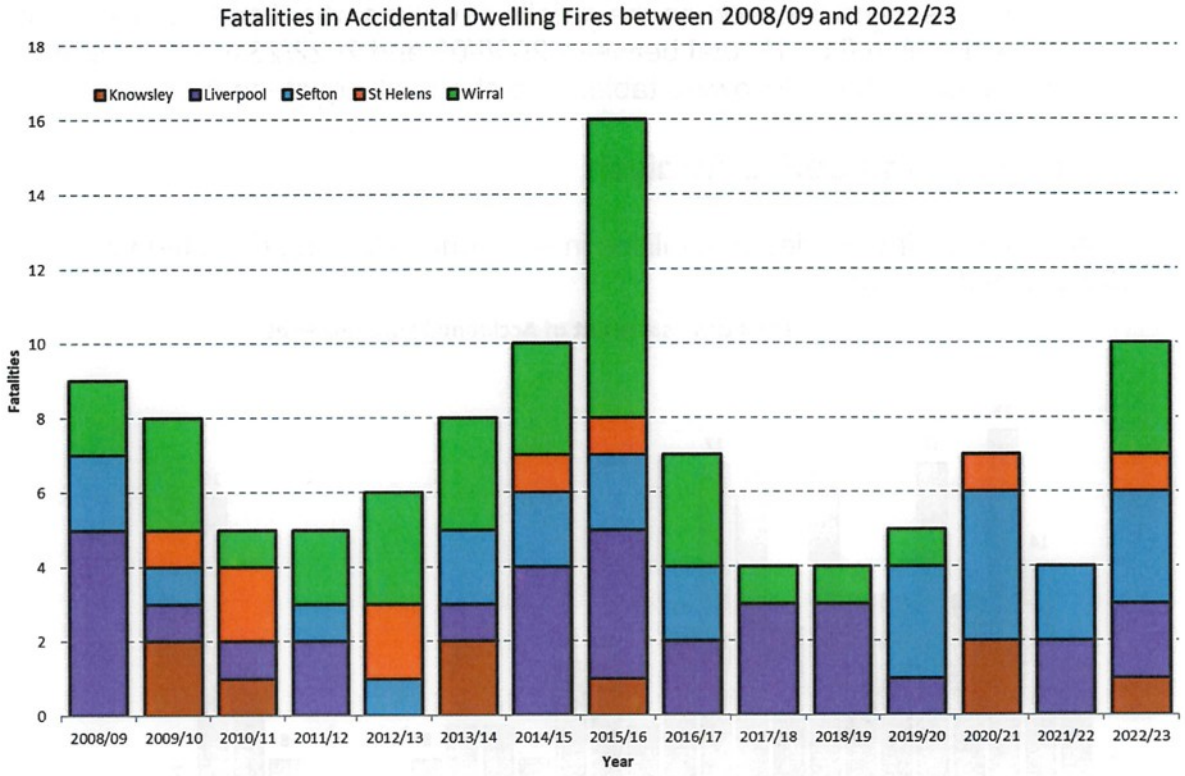


Chart 2 identifies that over the 15-year period, fatalities have fluctuated. Prior to 2010/11, accidental dwelling fire fatalities were on a downward trend, only for an upward trend to occur between 2012/13 and 2015/16. Since the high of 16 during 2015/16, fire deaths have fallen - leading to lows of 4 for 2017/18, 2018/19 and 2021/22. The most recent year, 2022/23 saw 10 fatalities.[4]

During 2022/23 all districts saw fatal incidents (the first year since 2015), with 3 deaths in both Wirral and Sefton, 2 in Liverpool and 1 in each of Knowsley and St Helens.

Table 1: Comparison of overall fatality counts by district and population

Counts	Knowsley	Liverpool	Sefton	St Helens	Wirral	Total
Overall Fatalities	9	31	25	9	34	108
Rate per 100,000 population	**5.8**	**6.4**	**9.0**	**4.9**	**10.6**	**7.6**
Fatal Incidents	*9*	*29*	*22*	*9*	*32*	*101*
Population	154,500	486,100	279,300	183,200	320,200	1,423,300

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

[4] Based on the limited data available, it is not possible to determine if any of these deaths were related to the cost of living crisis. Any increase in deaths and the crisis are purely coincidental.

The table shows that there have been 34 accidental dwelling fire deaths in Wirral, closely followed by Liverpool with 31. When population counts are considered – Wirral proportionally has had the greatest number of fatalities with 10.6 per 100,000 population over the 15-year period compared to Liverpool, which had a lower ratio of 6.4 per 100,000 population. Sefton saw the 2nd highest ratio with 9.0 per 100,000 population.

Taking into account the number of fatal incidents by district, the table identifies that of the 101 incidents, 7 incidents involved 2 victims.

5.1.3 Demographic Analysis

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

Age group	Male		Female		Total	
5-9	0	*(0)*	1	*(2.7)*	1	*(1.3)*
20-24	1	*(2.1)*	0	*(0)*	1	*(1.1)*
25-29	0	*(0)*	2	*(4.2)*	2	*(2)*
30-34	2	*(4.2)*	0	*(0)*	2	*(2.2)*
35-39	1	*(2.3)*	1	*(2.1)*	2	*(2.5)*
40-44	5	*(12.6)*	2	*(4.8)*	7	*(8.4)*
45-49	4	*(9.8)*	5	*(11.7)*	9	*(9.3)*
50-54	9	*(19.2)*	0	*(0)*	9	*(8.9)*
55-59	2	*(4.1)*	4	*(7.6)*	6	*(6.6)*
60-64	6	*(13.6)*	5	*(10.7)*	11	*(14.4)*
65-69	4	*(10.9)*	3	*(7.6)*	7	*(9.6)*
70-74	5	*(14.4)*	2	*(5.2)*	7	*(13.7)*
75-79	11	*(47.2)*	3	*(10.8)*	14	*(36.8)*
80-84	5	*(30.9)*	7	*(32)*	12	*(34.4)*
85+	10	*(79.5)*	8	*(35.9)*	18	*(51.6)*
Total	65	*(9.4)*	43	*(5.9)*	108	*(7.6)*

Table 2 provides the count of fire deaths by age and sex 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 particularly the 75 and above age groups (and especially the 85+ group with a ratio of 51.6 deaths per 100,000 population).

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 R^2 value of 0.81 is achieved indicating a relatively strong statistical link between age and fire related mortality.

There is a bias towards male victims with 65 or 60.2% of total fatalities. Female victims accounted for 43 or 39.8% of accidental dwelling fire fatalities.

Concerning the racial profile of the deceased; 102 victims were described as White – British, 1 was described as White – Irish and 5 being Black Asian

Minority Ethnicity (BAME). When analysed proportionally 94.4% of victims were White British, which is higher than the Census 2021 population ratio of 87.3% and Census 2011 proportion of 91.8.

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	26		1	8			35
No	38	1	5	22	2	1	69
Unknown	4						4
Grand Total	68	1	6	30	2	1	108

Table 3 identifies that the majority of victims (68, 63%) lived alone and were alone at the time of the incident. Of the victims who cohabited, 6 were alone at the time and 30 were accompanied. In combination, 76 of the 108 victims (70.4%) 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 (69, 63.9%). Concerning victims who lived alone, 26 from 68 (or 38.2%) were known to need a carer.

Table 4: Habitation and carer status– OVER 70 Age Group Only

Status	Lived alone		Cohabited		
Carer	Alone at Time	Accompanied	Alone at Time	Accompanied	Total
Yes	17		1	7	25
No	17		1	5	23
Unknown	3				3
Grand Total	37	0	2	12	51

Table 4 identifies that the majority of victims above the age of 70, 72.5% (37) lived alone and were alone at the time of the incident. Of the victims above the age of 70 who cohabited, 12 were accompanied with 2 being alone at the time. Overall, 39 of the 51 victims (76.5%) were alone at the time of the incident. In the age group analysed, 25 victims (49%) required carers in some capacity.

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 counts in the following analysis equate to **101.**

5.2.1 Comparison of Fatal Incidents and Deprivation

Chart 3: Fatalities in Accidental Dwelling Fire incidents between 2008/09 and 2022/23 linked to deprivation[5]

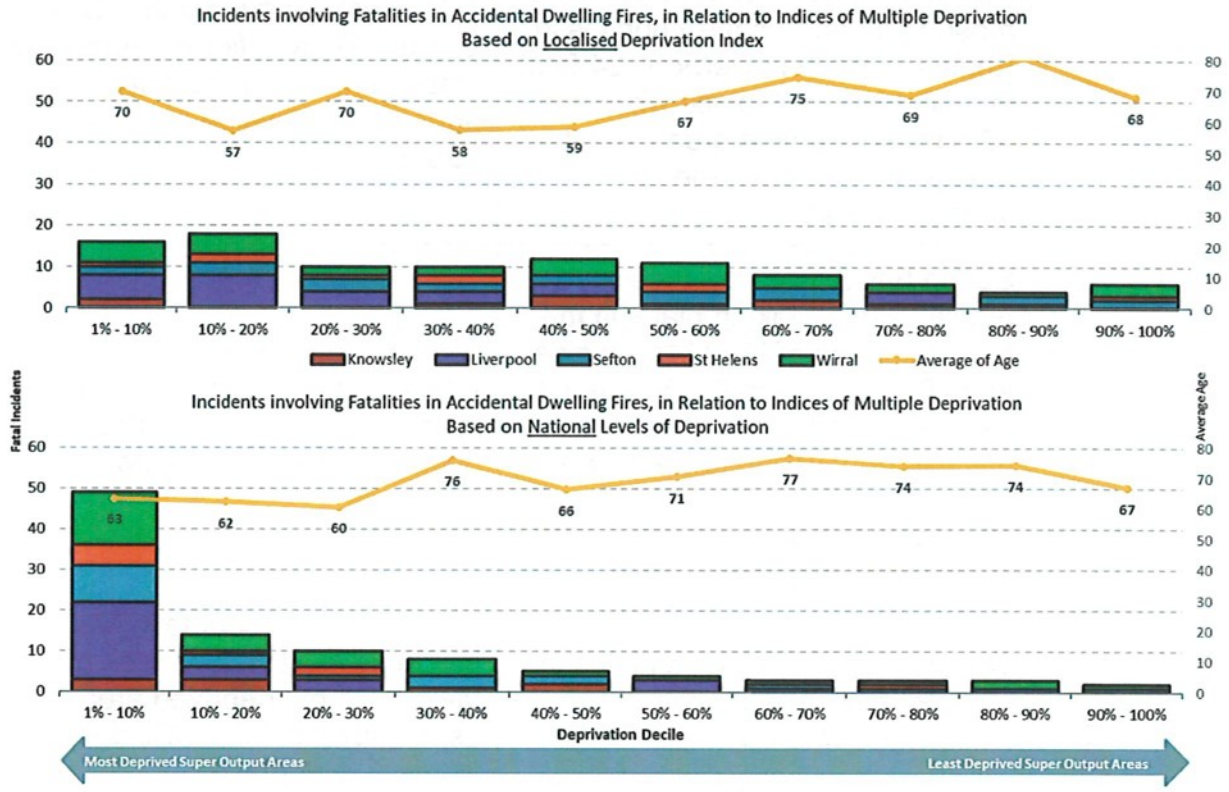


Chart 3 ranks the location of fire fatalities to the level of deprivation in the area in which the incident took place using the Index of Deprivation 2019 (IOD). Utilising a localised deprivation index, the chart demonstrates that (in general) as deprivation increases the number of fire deaths gradually increase. When applying the national IOD dataset to the fatality data, there is far more skewing[6] of the data particularly within the 10% most deprived areas. **As such, based on national levels of deprivation, the most deprived 10% decile accounted for 49 fatal incidents – 48.5% of total deaths within Merseyside.**

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.

[5] As per the Department for Levelling Up, Housing and Communities document Index of Deprivation 2019
[6] Due to the high levels of deprivation, the National IOD chart is skewed because Merseyside has more locations within the 10% most deprived areas of England.

When analysed at a district level;

District	**Local** Index of Deprivation	**National** Index of Deprivation
Knowsley	Two thirds of fatal fire incidents in Knowsley occurred within the 50% most deprived areas of Merseyside	All of the fatal fire incidents in Knowsley took place in 50% most deprived areas
Liverpool	Fatal fire incidents in Liverpool tend to occur in areas of higher deprivation, though this is due in part to the district being one of the most deprived Local Authorities in England. Within Liverpool, 24 fatal fire incidents took place within the 50% most deprived areas and 4 took place in the 50% least deprived areas.	In Liverpool, the majority of fatal fire incidents (19) took place in the 10% most deprived area. Overall 25 from 29 fatal fire incidents took place in the 50% most deprived parts of Merseyside (equal to 86.2%)
Sefton	Sefton has a more balanced profile, with 12 taking place in the most deprived 50% of Merseyside and 10 occurring in the 50% least deprived. Sefton is unusual as it has two deprivation related peaks within the 10% - 30% quintile and 50% to 70% quintile - both quintiles seeing 6 fatal incidents each	Within Sefton 18 of the 22 fatal fire incidents (81.8%) took place in the 50% most deprived areas.
St Helens	Two thirds of fatal fire incidents in St Helens occurred in the 50% most deprived areas.	The vast majority of fatal fire incidents in St Helens took place in the 50% most deprived areas, especially the 1% - 10% decile, where 5 took place.
Wirral	Wirral has a sporadic pattern, with concentrations occurring in the most deprived 1% - 20% and 40% - 60% quintiles. Within Wirral, fatal fire incidents are spread more evenly with 18 incidents taking place in the 50% most deprived areas and a further 14 taking place in the 50% least deprived areas.	The majority of fatal fire incidents in Wirral took place in the 50% most deprived areas accounting for 26 of the 32 deaths (81.3%), the 1% - 10% decile accounted for 13 incidents overall. There were 3 deaths in Wirral that took place in the 2 least deprived deciles for deprivation.

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,

underlying medical conditions, 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

	HFSC			
Status	Yes	No	Grand Total	%
Fitted & Actuated	51	11	62	61.4%
Fitted Did Not Actuate	4	3	7	6.9%
Fitted No Batteries	2	4	6	5.9%
Fitted Unknown if Actuated	6	3	9	8.9%
None Fitted	1	14	15	14.9%
Unknown		2	2	2.0%
Grand Total	64	37	101	

Table 5 identifies that in the majority of properties (62 or 61.4%) a smoke alarm was fitted and operational. In 7 cases the smoke alarm was fitted and failed to actuate, though this is more likely due to the nature of the incident rather than the performance of the smoke alarm.[7]

In 6 properties (5.9%), there were smoke alarms fitted, but with no batteries therefore not providing the early warning system a smoke alarm provides, additionally in 4 of these cases a HFSC had not taken place.

In 15 cases there was no smoke alarm fitted – again meaning no early warning system being available in the property. During 2 incidents, the level of damage done to the property was so great, it was unknown whether a smoke alarm had been fitted or not.

When analysing smoke alarm functionality against HFSC status, 63.4% (64 from 101) of properties had previously had a HFSC. Of these properties, 51 had a smoke alarm fitted, which actuated successfully. 37 properties (36.6%) did not have a HFSC visit prior to the incident.

[7] 81 from 101 (82%) properties had a fitted smoke alarm – regardless of whether it was operational. This is a lower proportion than the 2017/18 English Housing Survey where 89% of owner occupier dwellings had fitted smoke alarms

5.2.3 Ignition Source

Table 6: List of Fatal Incident Ignition Sources

Ignition Source	Detail	Total
Smokers Materials	Smokers Materials	47
	Explosion of lighter fluid, whilst filling a lighter	1
	Sub Total	**48**
Careless Use Of Heating Appliance	Careless Use Of Heating Appliance	12
	Electrical Heater too Close to combustibles	3
	Coal or Spark From Open Fire	1
	Collapsed Onto Gas Fire	1
	Sub Total	**17**
Cooking	Cooking - unattended food left on hob - misadventure	8
	Cooking - Accidental Ignition Of Clothing	3
	Chip Pan Left Unattended in Kitchen	2
	Combustible Materials Left on Hob	1
	Candle or Butane Camping Stove igniting flammable materials	1
	Cooking - Misuse of Microwave	1
	Sub Total	**16**
Electrical Fault	Electrical	3
	Fault with old wiring	2
	Overloaded Multi-tap	1
	Mains Electric Fault Overload	1
	Overloaded E-Cigarette Battery leading to rupture	1
	Rupture of Lithium Ion battery on Ebike	1
	Sub Total	**9**
Candles	Candles	6
	Sub Total	**6**
Radiated Heat	Heat Lamp Igniting Combustible Materials	1
	Radiated Heat - from halogen spotlight igniting bedding which was in contact with it	1
	Radiated Heat - from table top lamp	1
	Sub Total	**3**
Explosion Of Leaking Gas	Explosion of Gas released from broken main	1
	Sub Total	**1**
Burning Waste	Burning waste in garden which then got out of hand	1
	Sub Total	**1**
Grand Total		101

Table 6 lists the ignition sources along with limited detail concerning these circumstances. During the 15-year period analysed smokers' materials account for the majority of fatal incidents with 48 or 47.5%. Careless use of heating appliances follows, with 17 incidents and cooking with 16 incidents.

The average age of victims, where the cause of the fire was related to the careless use of a heating appliance was 77 years. The average age where smokers' materials were involved was 64 and for cooking it was 61. Therefore, the data suggests people above the age of 65 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

			Of which involved consumption of Alcohol		
Room Of Origin	Ignition Cause	Total	Yes	No	Unknown
Living Room	Smokers' Materials	24	13	10	1
	Careless Use Of Heating Appliance	12	3	9	
	Candles	3	1	2	
	Electrical Fault	2		2	
	Collapsed Onto Gas Fire	1		1	
	Sub Total	**42**	**17**	**24**	**1**
Bedroom	Smokers Materials	19	6	12	1
	Careless Use Of Heating Appliance	5	1	4	
	Electrical Fault	3	1	2	
	Candles	2	1	1	
	Radiated Heat	2		2	
	Cooking	1		1	
	Sub Total	**32**	**9**	**22**	**1**
Kitchen	Cooking	14	9	4	1
	Electrical Fault	2	1	1	
	Smokers Materials	2	1	1	
	Sub Total	**18**	**11**	**6**	**1**
Hallway	Electrical Fault	2		2	
	Smokers Materials	2	1	1	
	Sub Total	**4**	**1**	**3**	**0**
Bathroom	Explosion Of Leaking Gas	1		1	
	Candles	1	1		
	Sub Total	**2**	**1**	**1**	**0**
Bedsit	Smokers Materials	1	1		
	Sub Total	**1**	**1**	**0**	**0**
Garden	Burning Waste	1		1	
	Sub Total	**1**	**0**	**1**	**0**
Caravan	Cooking	1		1	
	Sub Total	**1**	**0**	**1**	**0**
Grand Total		101	40	58	3

Table 7 provides a breakdown including: room of origin, respective ignition source and whether a victim was under the influence of alcohol at the time. The table identifies that smokers' materials have a root cause in the majority of fires in the living room (24 from 42, 57.1%) and bedroom (19 from 32, 59.4%), with the cause of careless use of heating appliance also being common to these rooms.

Forty (39.6%) fatal incidents were linked to the consumption of alcohol. Where alcohol consumption is combined with smoker's' materials, then 21.8% (22) of incidents are linked to this combination of factors.

Within the living room, approximately two fifths (17 or 40.5%) of fatal fire incidents involved the consumption of alcohol. A similar trend also occurred for the bedroom, where 28.1% (9) fatal fire deaths were associated with alcohol consumption.

Within the kitchen, cooking is the most common cause of fatal fire incident with 14 overall; though 9 of these still involved the consumption of alcohol.

5.2.5 Fatal Incidents by Year and Ignition Source

Chart 4: Breakdown of Ignition Source by Year

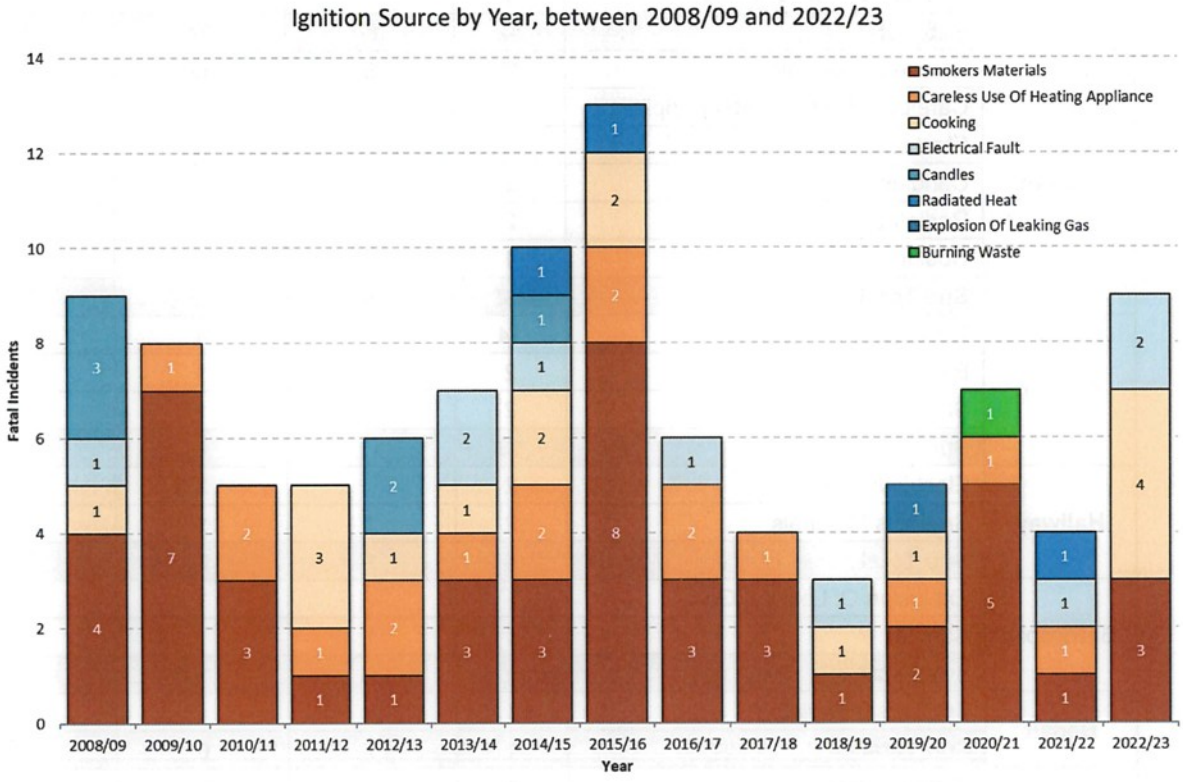


Chart 4 provides an annual breakdown of the ignition sources involved in fatal fires. The chart identifies that fatal incidents relating to smokers' materials had been falling between 2009/10 and 2011/12, however since 2013/14, these incidents were on the rise culminating in a high of 8 during 2015/16. Since 2015/16 the overall numbers of fatal incidents related to smokers' materials have fallen, although there were 5 deaths related to smokers' materials during 2020/21.

Incidents involving careless use of heating appliances have remained relatively consistent, with the exceptions of 2018/19 and 2022/23 where no deaths were attributed to this cause.

Fatal incidents linked directly to cooking and cooking practices have fluctuated between the years, with the exceptions of 4 incidents during 2022/23.

Of note was that during 2022/23, one of the incidents related to an Electrical Fault was due to a lithium ion battery rupturing on an E-Bike. This incident resulted in 2 deaths.

5.2.6 Fatalities by Month and Ignition Source

Chart 5: Fatal Fire Incidents by Month and Ignition Source

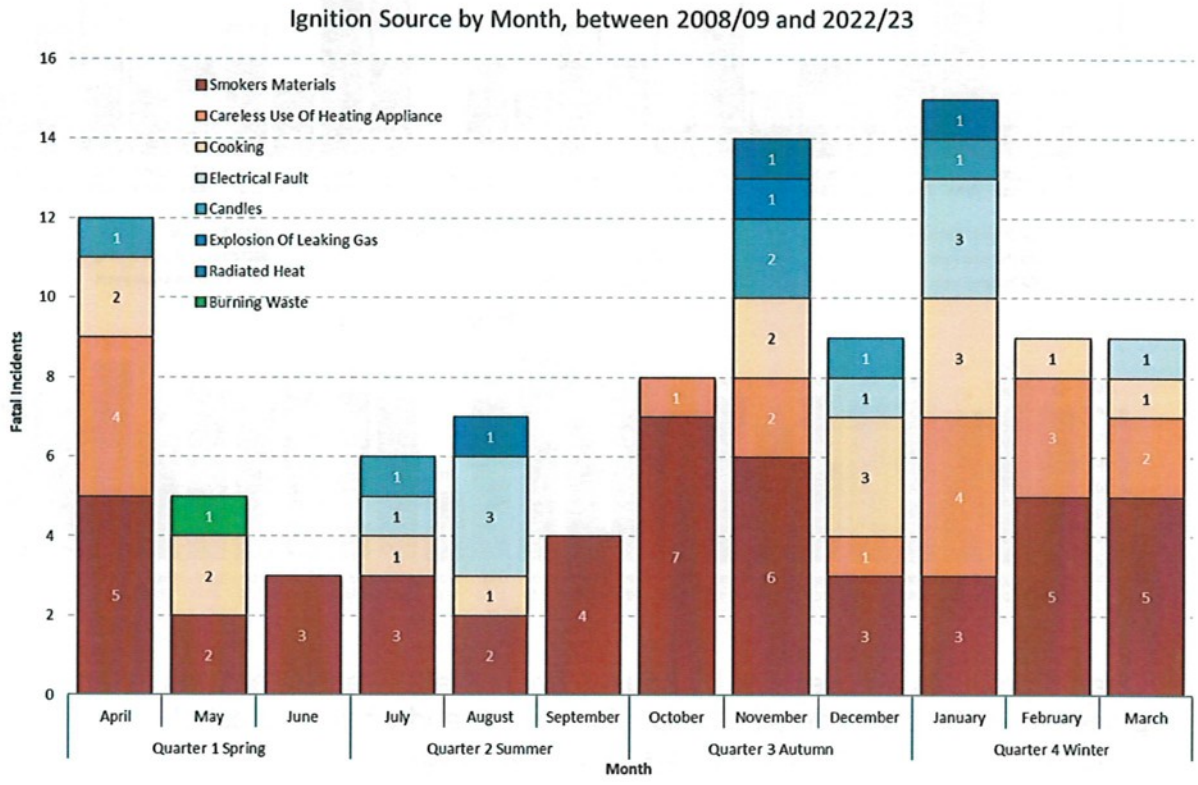


Chart 5 identifies that there are more fatal fire incidents taking place during quarters 3 (Autumn) and 4 (Winter).

When smokers' materials are analysed by quarter; the overall numbers of fatalities are relatively consistent, with: 10 incidents in Quarter 1, 9 in Quarter 2, 16 in Quarter 3 and 13 in Quarter 4.

Fatalities involving smokers' materials are lower during the spring and summer months, especially during: May and August. The months of: October, November, April, February and March have the highest counts.

During winter/early spring, when the weather is most inclement - careless use of heating appliances is more common.

Cooking related deaths are sporadic, and incidents involving electrical faults are most common during August and January, peak months for Summer and Winter respectively.

5.2.7 Analysis of Incidents by Time of Call

Chart 6: Fatalities by hour and whether Alcohol Consumption occurred[8]

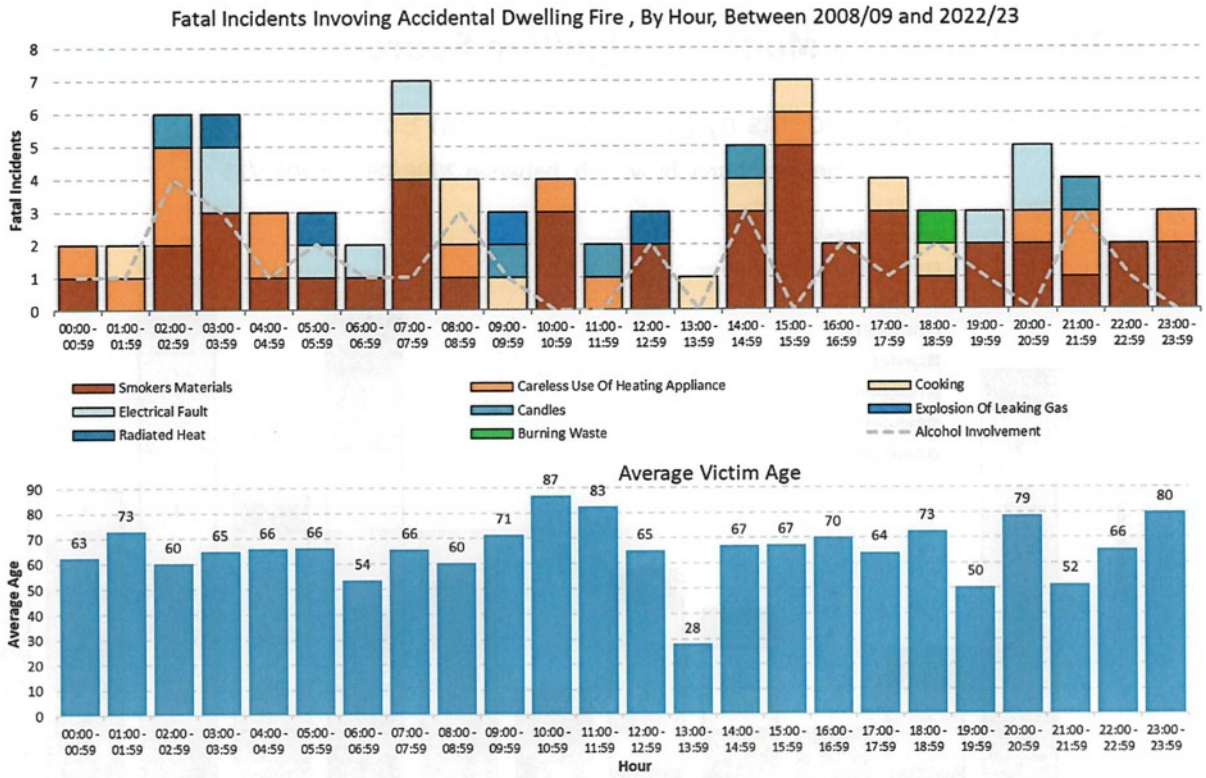


Chart 6 provides an overview by hour of when a fatal fire incident has taken place. The chart also details the ignition source and whether alcohol consumption had taken place as well as the average age of victims.

In summary, the chart provides the following findings:

- Peaks in incidents occur between 02:00 - 03:59, 07:00 - 07:59, 14:00 - 15:59 and 20:00 – 20:59.
- Where there are peaks in fatal incidents, the average age of the victims is younger[9], with an average age of 60 for victims between the hours of 02:00 – 02:59, 66 between 07:00 – 07:59 and 67 between 15:00 - 15:59.
- Alcohol consumption and fire death tend to peak in the early hours (02:00 – 02:59; particularly in combination with smoking), the morning (08:00 – 08:59) and evening (21:00 – 21:59; again smoking is the predominant cause of fire). Relatively few incidents take place during the early afternoon and early evening.
- There was a single victim aged 28 during the 13:00 -13:59 hour, this is why this hour appears anomalous.

[8] This analysis is based on the time of call to a live incident, this does not include late calls, please refer to methodology for details

[9] The average age for this subset of data is 67 years of age

6. *Appendix A: 15 Year analysis of Accidental Dwelling Fire Injuries*

Though every death is a tragedy, the learning from such an occurrence is incorporated into our future planning where our aim is to prevent further deaths by implementing initiatives and activities to target individuals at greatest risk. Though the fatality data is key in identifying risk trends, it is not the only piece of data under consideration. Injury data from accidental dwelling fire data provides a far greater data set, which adds richness to the analysis. The following section briefly analyses injuries from accidental dwelling fires and identifies commonalities between fire victims.

Chart 7: Accidental Dwelling Fires and Injuries Long Time Series

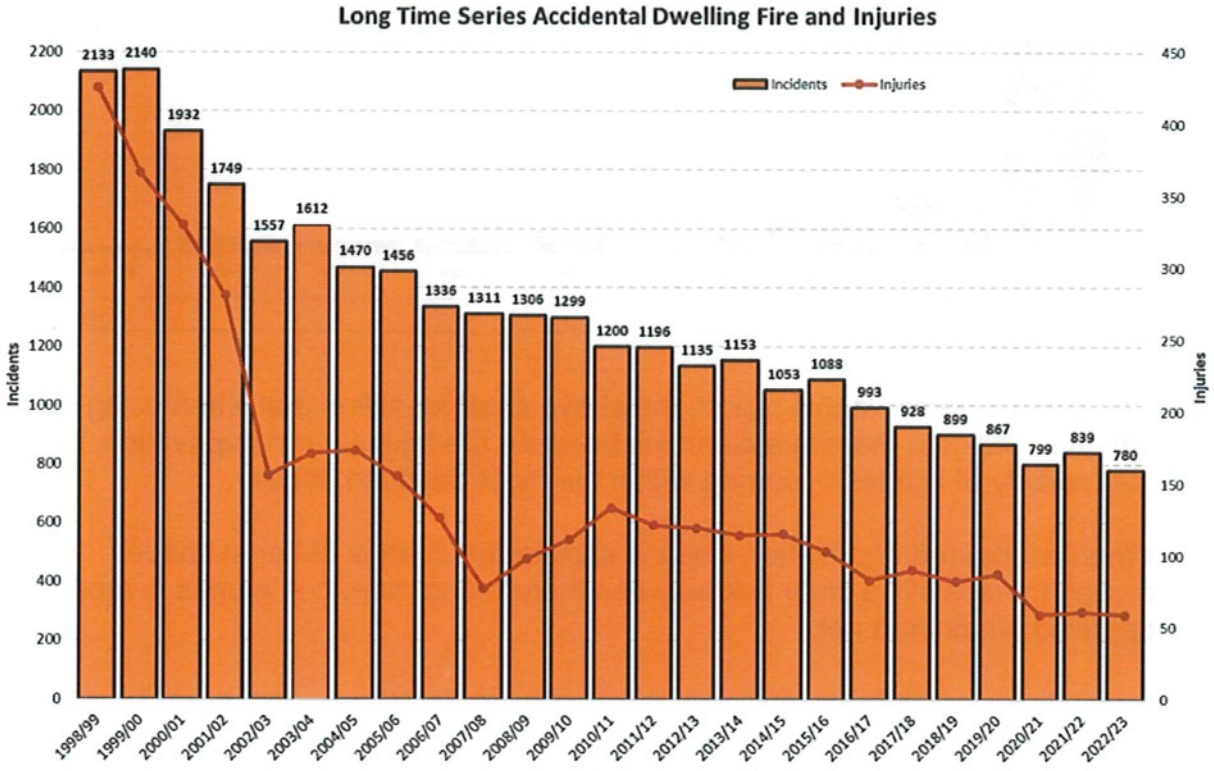
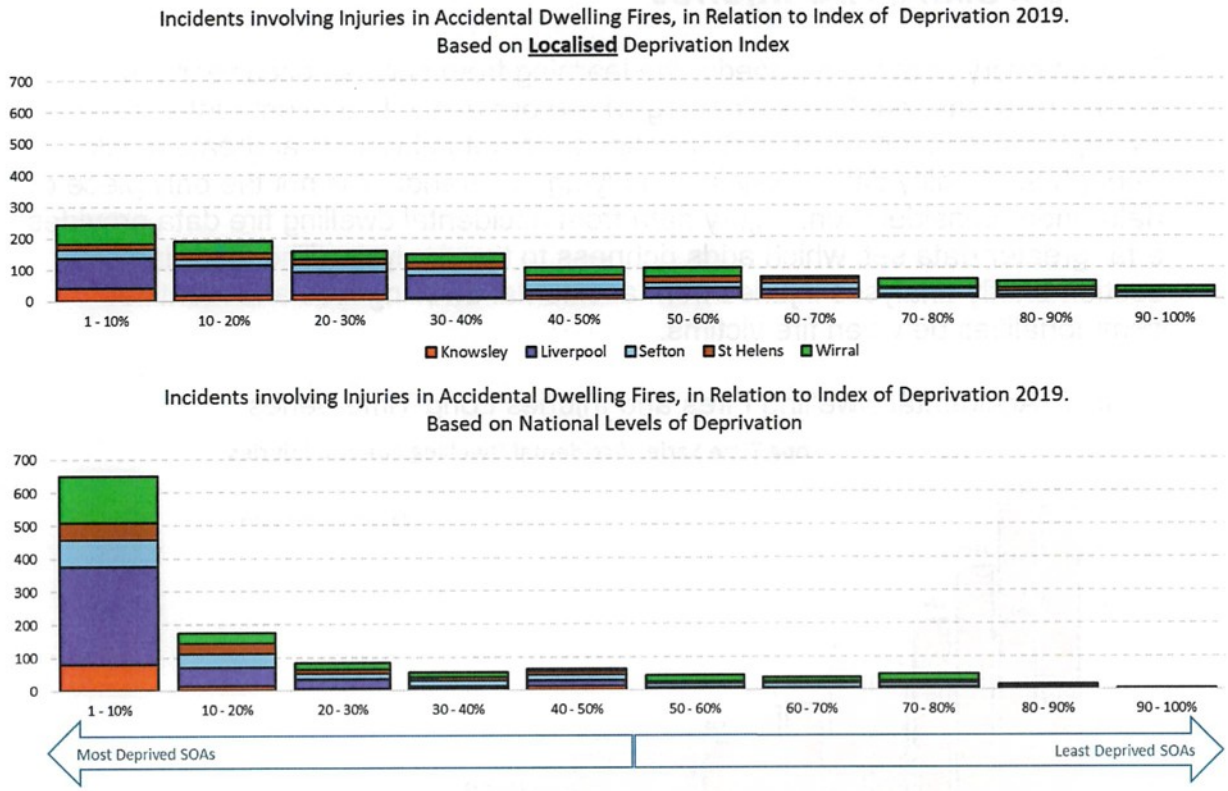


Chart 7 provides a long time series of accidental dwelling fire incidents and injuries between 1998/99 and 2022/23.

- The chart shows that over the 26 year period both incidents and injuries have fallen significantly, with a high of 2140 incidents during 1999/00 and low of 780 during 2022/23 – a reduction of 1360 incidents or -63.6%.
- Injuries have fallen from a high of 449 during 1998/99 to 59 during 2022/23 – a reduction of 390 incidents or -86.9%.
- Over the period, incidents have fallen gradually, though injuries have been inconsistent. This inconsistence is likely due to the nature of each dwelling fire including the potential for multiple injuries occurring at the same incident as well as the severity of the incident differing from case to case.

Chart 8: Accidental Dwelling Fires Injury incidents between 2008/09 and 2022/23 in relation to Indices of Deprivation (IOD) 2019



Like Chart 3 earlier in this report, the above chart identifies that when using national IOD data there is a clear link between fire injuries and deprivation, with the majority of injuries occurring within the most deprived decile.

When a localised deprivation index is applied the chart is flatter in shape, though there is still a clear link between there being more fire injuries in more deprived areas than not.

Chart 9: Injury in Accidental Dwelling fire population pyramid

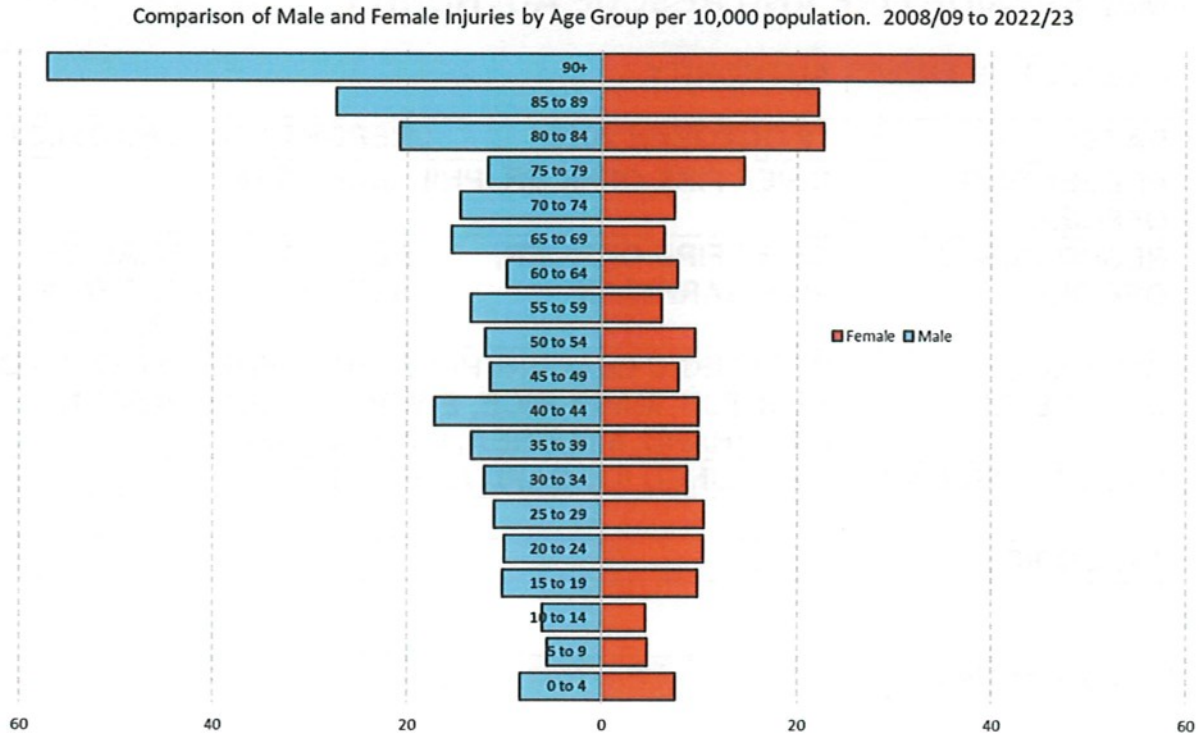


Chart 9 provides a comparison of the different age groups of those injured due to an accidental dwelling fire. The chart mirrors the findings from table 2 (earlier within this report) where there is a disproportionate number of victims above the age of 65 (equal to 27.3% of total injuries from 18.9% of the population).

Taking sex into account, proportionally 45.4% of people injured were female and 54.6% were male. This is more balanced when compared to deaths in accidental dwelling fires, where 39.8% of deaths were female and 60.2% were male.

Concerning the ethnicity profile of people injured due to an accidental dwelling fire, 86.5% were recorded as White British, with 4.2% being from a BAME background, 2.3% being White Irish / White Other and 7% not stating their ethnicity. Taking the victims who did not provide their ethnicity from the total data set, this adjusts the proportions of White British victims to 93%, BAME is 4.5% and White Irish / White Other is 2.5%.