



# Historical Analysis of Fatalities in Accidental Dwelling Fires within Wirral, between 2004/05 and 2014/15 Quarter 3

**VERSION 1.1**

## STRATEGY & PERFORMANCE

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### Related Documents

Title: Historical Analysis of Fatalities in Accidental Dwelling Fires within Wirral, between 2004/05 and 2013/14                      Date of Document: 22/11/2013

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## Introduction

The purpose of this report is to analyse fatalities from Accidental Dwelling Fires (ADF's) in Wirral between 2004/05 and 2014/15 up to end of Quarter 3; analysing the circumstances and socio demographic background of such occurrences and identifying business intelligence to target risk and prevention work.

Compared to other incident types that Merseyside Fire & Rescue Service (MF&RS) 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 Service's Service Delivery Plan as Local Performance Indicator (LPI) 45 which is reported to Authority on a quarterly and annual basis.

## Summary

- Since 2004/05 when 4 fire fatalities took place in Wirral there have been gradual reductions in fire deaths, with a low of 1 death during 2010/11. Since 2010/11 the number of Accidental Dwelling Fire Fatalities have increased reaching 3 fire deaths in both 2012/13 and 2013/14. Up to the end of Quarter 3 2014/15 there was 1 reported Accidental Dwelling Fire Fatality.
- When analysing incidents by month the winter month of January saw the greatest number of fire deaths (5).
- Concerning the demographic of fire fatalities, there is little bias towards gender with 14 male and 12 female fatalities. When age is analysed the four age groups at greatest risk are the: 40-44, 45-49, 75-79 and 80-84 groups. Concerning age and alcohol involvement, it appears the middle age groups (40-44 and 45-49) were more involved with alcohol than the older age groups (75-79 and 80-84).
- When analysed by district, Wirral had 26 fatalities; 2 behind Liverpool which had the greatest count. Wirral has the greatest proportion of fatalities per 100,000 population (8.12) compared with any other district.
- Concerning Deprivation and the use of Community and Local Government's (CLG) Indices of Multiple Deprivation (IMD) 2010, the general trend on the Wirral is that a large number of fatalities occurred in deprived areas (10-20% decile) and also in more affluent areas (50-60% decile).

- A further analysis was conducted into the lifestyles of victims using Customer Insight Community Profiles and identified one distinct segmentation "3 - Middle income residents living in privately owned properties" where 11 of the 26 fatalities took place.
- When analysing Ignition Sources it has been found that of the 26 fire fatalities, 15 were as a result of "Smokers Materials". When analysing the fire room of origin 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. This is a similar pattern when alcohol consumption is taken in to account.
- Finally, a large proportion (69.2%) of victims were 'Alone at the Time' when the incident occurred.

## Methodology

The software used in this report includes:

- Microsoft Excel 2010 to interpret and graphically represent figures.
- MapInfo Professional 11 was used to tag incidents with geographical information, including the tagging of incidents with Customer Insight Community Profile<sup>1</sup> data. (Customer Insight Community Profiles has been developed by MF&RS in conjunction with Liverpool John Moores University to identify groups most at risk).
- The calculation for fatalities per 100,000 population is:  
(Count of Fatalities / Population) \* 100,000
- Population figures are based on Census 2011 overall population figures.
- Indices of Multiple Deprivation (IMD) 2010 was utilised to analyse levels of deprivation in the areas where fire deaths took place.<sup>2</sup>

Data used in this report has been supplied by the Merseyside Fire & Rescue Service Incident Investigation Team; with the coroner ultimately determining the cause of death. The date range of data runs from 1<sup>st</sup> April 2004 to the 31<sup>st</sup> December 2014.

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 Service measures this as LPI 45 - *Number of fatalities from accidental dwelling fires.*

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<sup>1</sup>The Customer Insight Community Profiles have been developed for the whole of the Merseyside area. The community profiles uses 130 local datasets aggregated to the 'Output Area' geography. These datasets are analysed and the results are a series of 10 profiles describing the characteristics and lifestyles of communities.

<sup>2</sup> Uses IMD 2010 to create a localised deprivation index, in essence grouping deprivation by 10% bands  
W:\Data & Projects\Projects\Fatalities Wirral\January 2015 Report Update\10 year fatality trend analysis within Wirral Update v1.1.docx

**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.

It is also important to note that some of the data during 2014/15 is still pending confirmation by the coroner and therefore fatality numbers could be subject to change subsequent to this report.

## Results

**Chart 1: Fatalities in Accidental Dwelling Fires in Wirral between 2004/05 and 2014/15 Quarter 3**

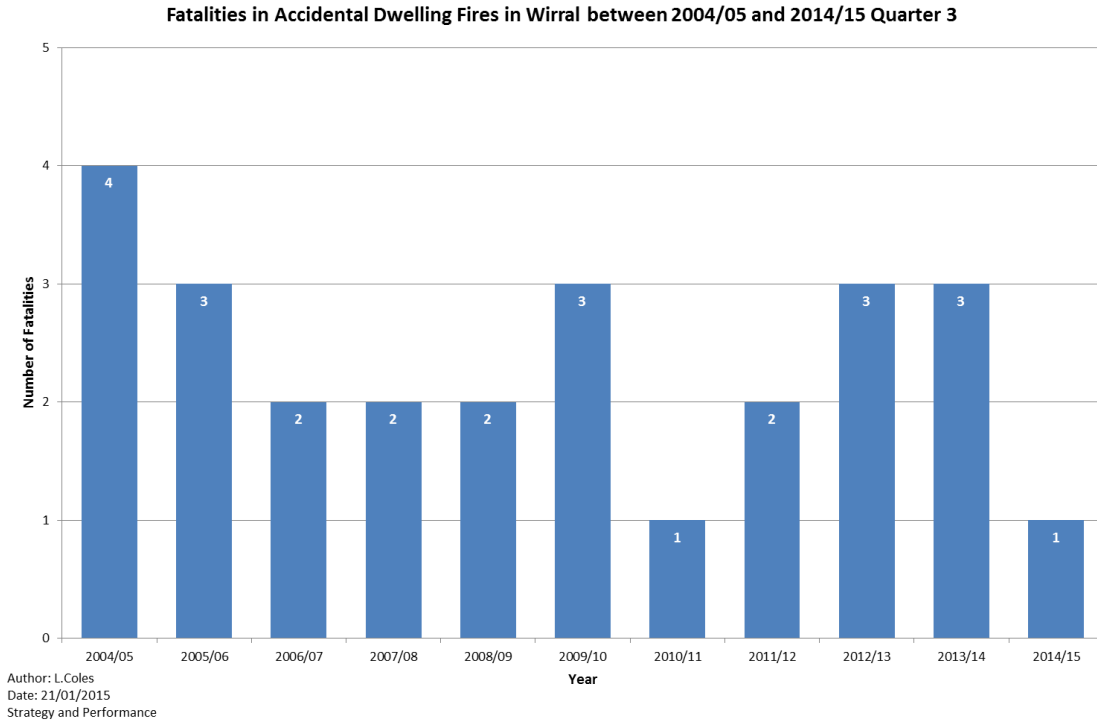


Chart 1 illustrates an overall reduction in the number of fatalities in Accidental Dwelling Fires (ADF's) within Wirral district between 2004/05 and 2014/15 so far. Although consideration must be given to conclusions drawn on this data as the volume of data is relatively small.

2004/05 had the greatest number of ADF Fatalities with 4, whereas in recent years there have been fewer deaths, for example 2010/11 witnessed only 1 ADF Fatality along with 2014/15 which also witnessed 1 ADF Fatality up to the end of Quarter 3.

**Table 1: Comparison of total fatalities by district and populations between 2004/05 and 2014/15 Quarter 3**

Counts	Knowsley	Liverpool	Sefton	St Helens	Wirral	Merseyside
Fatalities	9	28	15	10	<b>26</b>	89
Rate Per 100,000 population	6.16	5.95	5.49	5.67	<b>8.12</b>	6.42

Table 1 allows a direct comparison of fatality numbers between the five Merseyside districts by aggregating the data to incidents per 100,000

head of population. The table shows that overall Liverpool has had the greatest number of incidents with 28 followed by Wirral with 26.

When population counts are taken into consideration, Wirral has proportionally seen the greatest count of fatalities of any other district, with 8.12 per 100,000 population. This is also greater than the Merseyside average of 6.42 deaths per 100,000 population. Liverpool had a high actual number of victims, with 28, however the district had a much lower ratio of 5.95 fatalities per 100,000 population when compared to other districts. For example, Knowsley had a low actual number of fatalities (9) but a higher proportion of fatalities per 100,000 population (6.16) compared to Liverpool (5.95).

**Chart 2: Fatalities in Accidental Dwelling Fires in Wirral between 2004/05 and 2014/15 Quarter 3, by Month**

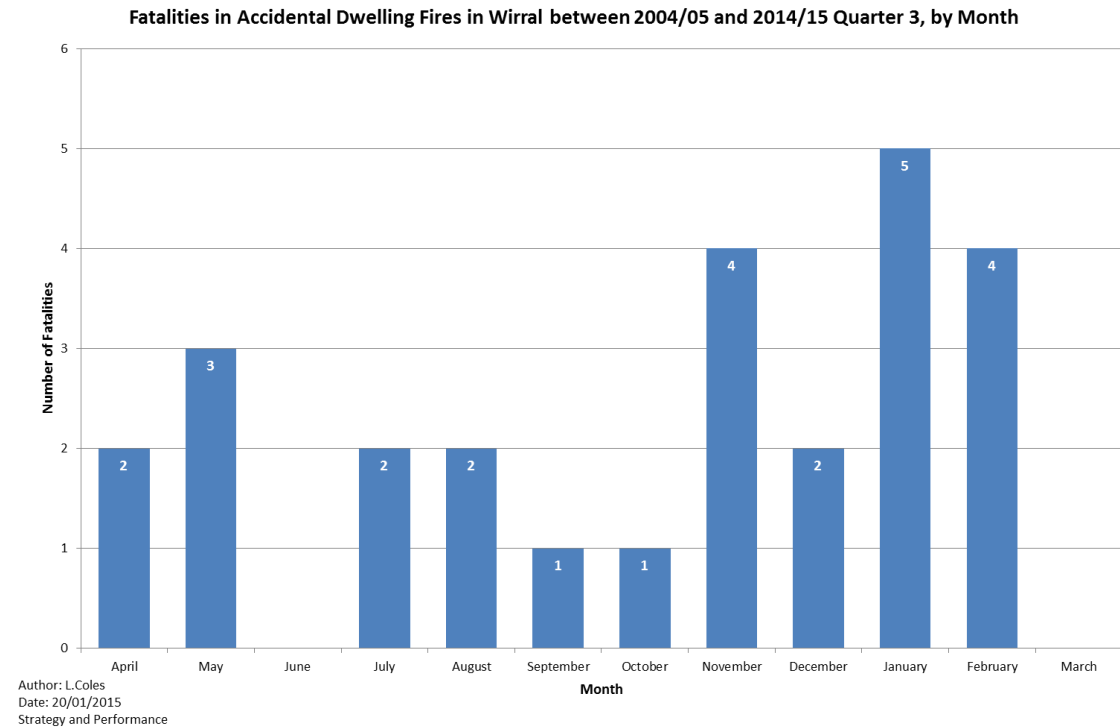


Chart 2 identifies a strong association between fatalities in Accidental Dwelling Fires and seasonality, with the winter period (colder months) seeing higher fatality numbers; particularly the month of January which saw the greatest number of ADF Fatalities (5).

**Chart 3: Fatalities in Accidental Dwelling Fires in Wirral between 2004/05 and 2014/15 Quarter 3, by Deprivation**

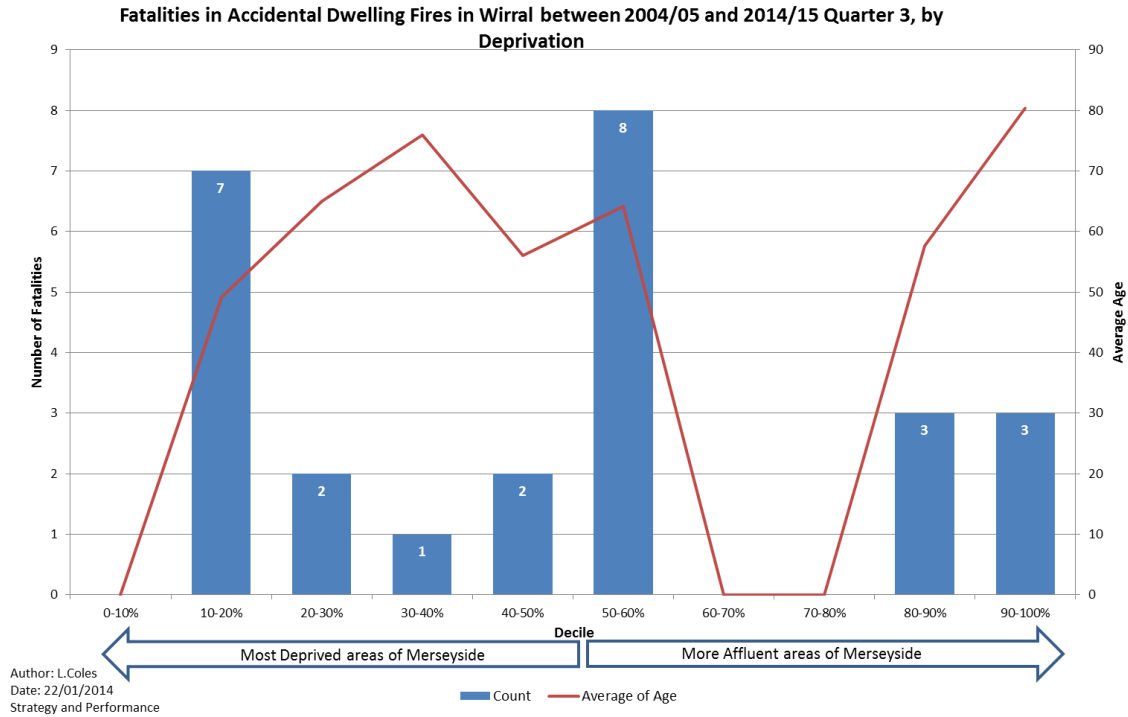


Chart 3 ranks the location of fire fatalities to the level of deprivation in the area where the incident took place<sup>3</sup>. Generally, fatalities in ADF's tend to occur in more deprived areas; however this chart illustrates a disruption in this pattern with a relatively even number of ADF fatalities occurring in deprived and affluent areas. There were 7 ADF Fatalities in areas ranked in the 10-20% deprived decile, however 8 ADF Fatalities also occurred in areas marked in the 50-60% fairly affluent decile. Furthermore, there were a noticeably large number of fatalities occurring in very affluent areas, with a total of 6 ADF Fatalities occurring in the 80-90% and 90-100% deciles. No ADF Fatalities occurred in the most deprived decile 0-10% and 70-80% decile.

<sup>3</sup> Using Indices of Multiple Deprivation 2010 (IMD)  
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**Table 2: Breakdown of fatalities according to Customer Insight<sup>4</sup>  
Community Profiles between 2004/05 and 2014/15 Quarter 3**

Customer Insight Profile Group	Count	Average Age
1 - Wealthy over 50 population living in semi-rural locations	3	73
2 - Wealthy retirees	0	0
3 - Middle income residents living in privately owned properties	11	68
4 - Average income older residents	2	64
5 - Students living in city centre locations	0	0
6 - Young families living in privately owned semi-detached homes	3	56
7 - Young families with high benefit need	1	41
8 - Residents living in social housing with high need for benefits	0	0
9 - Transient population living in poor quality housing	3	48
10 - Younger, urban population living in high levels of deprivation	3	47
<b>Grand Total</b>	<b>26</b>	<b>61</b>

Table 2 uses the Customer Insight Community Profiles; co-developed in partnership with Liverpool John Moores University. The Community Profiles use locally derived data sources to create a series of customer segmentations - as above. Traditionally it is people who live in deprived areas (segments 7-10) who are the most at risk of dying in an accidental dwelling fire. However Table 2 has identified that, in Wirral, the majority of ADF Fatalities (44.4%) have occurred in segment '3 - Middle income residents living in privately owned properties', which is consistent with the previous Indices of Multiple Deprivation (IMD) chart.

However this table has not identified a large number of fatalities in highly deprived areas as illustrated in the previous IMD chart. This disparity is potentially as a result of the geography types that the two tools use, described as follows:

- IMD is based on a geography known as "Lower Layer Super Output Area" which is an area made up of 400 dwellings or 1600 head of population.
- The Customer Insight Community Profile uses a smaller geography called "Output Area" which is 125 properties or 300 head of population. Therefore the Customer Insight Community Profiles are able to identify pockets of this segmentation type in and amongst the larger areas of deprivation and affluence as identified using Indices of Multiple Deprivation.

<sup>4</sup> The Customer Insight Community Profiles classifies Merseyside into 10 groups in terms of their socio-demographics, lifestyles, culture and behaviour. The titles devised for each segmentation are merely descriptive not prescriptive.



### Chart 4: Fatalities in Accidental Dwelling Fires in Wirral between 2004/05 and 2013/14 Quarter 3, by Ignition Source

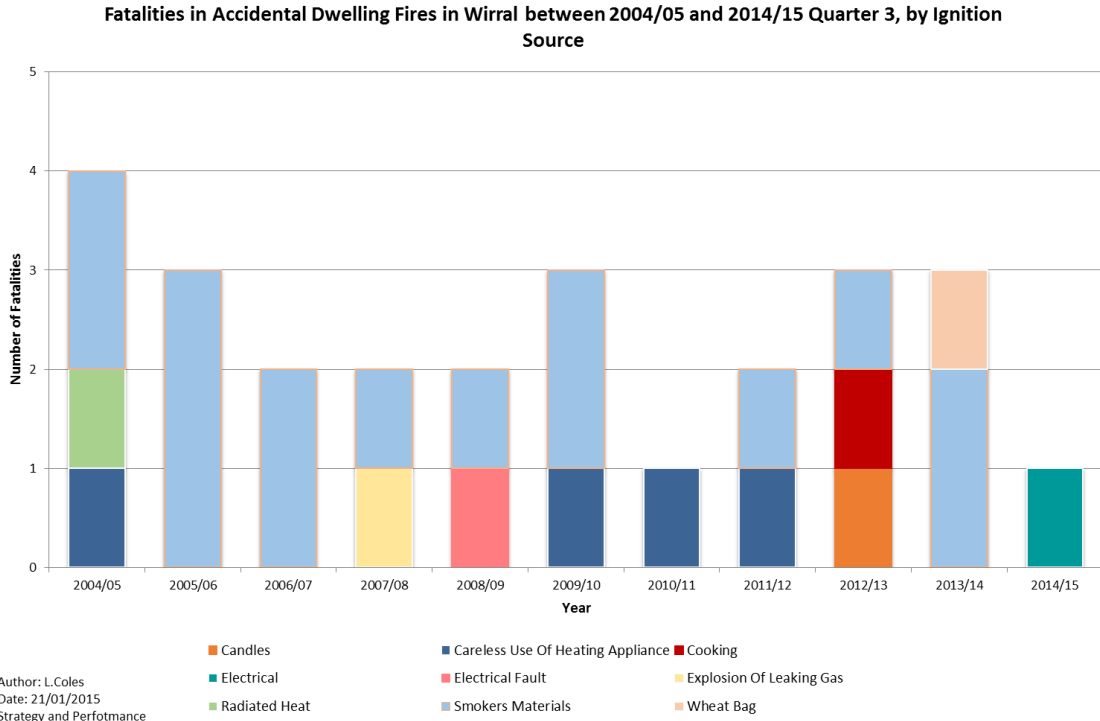


Chart 4 provides a breakdown, by year of the ignition sources involved in fatal fires. The chart identifies that deaths involving “Smokers Materials” (light blue) have been consistently high between 2004/05 and 2009/10. After this period fire deaths involving ‘Smokers Materials’ reduced to between zero and 1 incident over the following 3 years, however during 2013/14 there have been 2 ADF Fatalities involving ‘Smokers Materials’ indicating a rise in this ignition source when compared to the previous 3 years.

During 2014/15 to the end of Quarter 3, ‘Smokers Materials’ have not been the ignition source of the fire, rather the ignition source has been identified as ‘Electrical’, which has not been the cause of a fatality in an ADF over the last 10 years in Wirral.

Careless use of heating appliances presented an emerging pattern between 2009/10 and 2011/12, with 1 related ADF Fatality per year. However this ignition source has not materialised in recent years.

**Table 3: Room of Origin and Ignition Source with whether the victim had consumed alcohol prior to the incident**

Location of Fire	Cause	Alcohol Involvement			
		Yes	No	Unknown	Total
<b>Living Room</b>	Smokers Materials	4	3		7
	Candles		1		1
	Careless Use Of Heating Appliance		1		1
	Cooking	1			1
<b>Bedroom</b>	Smokers Materials	2	1	2	5
	Careless Use Of Heating Appliance		3		3
	Electrical				0
	Radiated Heat		1		1
	Wheat Bag		1		1
<b>Bedsit</b>	Smokers Materials	1			1
<b>Hallway</b>	Electrical Fault		1		1
<b>Kitchen</b>	Explosion Of Leaking Gas		1		1
	Smokers Materials	1			1
<b>Lounge</b>	Electrical		1		1
<b>Working in another property</b>	Smokers Materials	1			1
<b>Grand Total</b>		<b>10</b>	<b>14</b>	<b>2</b>	<b>26</b>

Table 3 provides a breakdown of the fire's room of origin, its respective ignition source and whether the victim was under the influence of alcohol at the time. Based on the fire room of origin, the majority of fires started in either the bedroom (10 deaths) or the living room (10 deaths).

It appears from Table 3 that a combination of 'Smokers Materials' and alcohol particularly in the bedroom and living room are a common cause of fatalities in accidental dwelling fires. In addition, the careless use of heating appliances in the bedroom with no alcohol involvement is another main cause of fatalities.

**Table 4: Habitation status at time of incident and whether deceased was known to have a carer**

Carer	Did Not Live Alone			Lived Alone			Not Specified	Total
	Accompanied	Alone at the Time	Unknown	Accompanied	Alone at the Time	Unknown		
Did not have a carer	4	2	0	0	8	1	0	15
Had a carer	0	2	1	0	5	0	0	8
Unknown	0	1	0	0	0	0	2	3
<b>Grand Total</b>	<b>4</b>	<b>5</b>	<b>1</b>	<b>0</b>	<b>13</b>	<b>1</b>	<b>2</b>	<b>26</b>

Table 4 identifies that the majority of victims (13 of 26 or 50.0%) 'Lived Alone' and were 'Alone at the Time' of the incident. Furthermore, of the victims who 'Did Not Live Alone', 5 were 'Alone at the Time'. In total 18 of the 26 fatalities (or 69.2%) were alone at the time of the incident.

Concerning whether a victim had the requirement for a carer or not, the majority of victims did not have a carer (15 of 26, or 57.7%).

**Table 5: Fatalities by Age Group and Gender**

Age Group	Male	Female	Total
0-4	0	0	0
5-9	0	0	0
10-14	0	0	0
15-19	0	0	0
20-24	0	0	0
25-29	0	0	0
30-34	1	0	1
35-39	2	0	2
40-44	2	1	3
45-49	0	4	4
50-54	1	1	2
55-59	1	0	1
60-64	1	0	1
70-74	0	2	2
75-79	3	1	4
80-84	1	3	4
85+	2	0	2
<b>Grand Total</b>	<b>14</b>	<b>12</b>	<b>26</b>

Table 5 identifies that over the time frame analysed there is little bias in gender towards fire fatalities in accidental dwelling fires. Four age groups are at greatest risk from a fatality in an accidental dwelling fire, 2 middle aged groups and 2 older aged groups, such as the: 40-44, 45-49, 75-79 and 80-84 age groups.

**Table 6: Fatalities by Age Group and Alcohol Involvement**

Age Group	Alcohol Involvement		
	Yes	No	Unknown
0-4	0	0	0
5-9	0	0	0
10-14	0	0	0
15-19	0	0	0
20-24	0	0	0
25-29	0	0	0
30-34	1	0	0
35-39	1	1	0
40-44	2	1	0
45-49	3	0	1
50-54	1	1	0
55-59	1	0	0
60-64	1	0	0
70-74	0	1	1
75-79	0	4	0
80-84	0	4	0
85+	0	2	0
<b>Grand Total</b>	<b>10</b>	<b>14</b>	<b>2</b>

Table 6 shows that there is a pattern between age group and alcohol involvement in ADF Fatalities. It identifies that in the older age groups (70-74 to 85+) there was no alcohol involvement at the time of the incident. Nevertheless, the two age groups 40-44 and 45-49 who are at greatest risk from a fatality in an accidental dwelling fire accounted for having the greatest alcohol involvement at the time of the incident. All of the fatalities in the 45-49 age group involved alcohol (3) and 2 out of the 3 deaths in the 40-44 age group involved alcohol.