LFB
LONDON FIRE BRIGADE

Targeting those most at risk from fire

Fifth London Safety Plan
Supporting document No.5
Consultation draft

March 2013

Targeting Home Fire Safety Visits

Background

The Incident Risk Analysis Toolkit, or 'iRAT', is an LFB term used to describe a suite of statistical analysis techniques which have been adopted to better understand where incidents occur and who is affected by them.

Developed during 2005 and launched in the autumn of 2006, iRAT combines what we know about incidents with the information we know about people and where and how they live. iRAT identifies the areas of London, and the lifestyles of the people, where incidents are most likely to occur so that preventative campaigns can be focused in those areas to reduce incidents, stop fatalities and casualties and improve London-wide performance.

iRAT can be used to identify the likelihood of any type of incident occurring, but most of the work in developing the models has focused on accidental dwelling fires (ADFs) – fires in peoples' homes, where most fire fatalities occur – where we target our home fire safety visits (HFSVs) and the majority of our prevention campaigns.

In 2008, the outputs from the statistical modelling and our knowledge about lifestyle risk were combined to create 'priority postcodes' for targeted HFSVs. Priority postcodes (which are sometimes referred to as "P1s") enable the iRAT risk information to be more easily interpreted and provide an easy tool for station-based staff to plan and prioritise their HFSV work.

This briefing focuses on the analysis that supports the identification of priority postcodes.

The 2008 analysis

To understand which types of people are at the greatest risk from accidental fires in the home, Mosaic lifestyle profile data has been used[1]. Mosaic is a commercial product (used by many public sector organisations and service providers) that describes households by different lifestyles. The segmentation approach adopted by Mosaic combines various data about household composition and activities to characterise households into groups and types.

The Brigade collects detailed information about the people involved in fatal fires, but less data is collected about people who experience fire in the home but are not killed by it. The Mosaic data can be matched to those individual incident records to give an approximation for the types of people who experience the most fires. For this reason, the Mosaic data is a valuable product as it covers every identifiable home in London in a standard and comparable format.

To determine which groups are 'at risk' the number of incidents, by Mosaic group, is compared with the base number of those lifestyles present within London. If accidental fires in the home are a random event, then the rates should be similar (for example, if Group A make up x per cent of London, then they should also have x per cent of the fire incidents). However, the data shows that fire adversely affects some groups more than others.

The Mosaic Groups, showing their number and proportion in London, together with the number of fires and casualty causing fires are shown in Table 1.

---

[1] Experian Public Sector Mosaic: http://publicsector.experian.co.uk/Products/Mosaic%20Public%20Sector.aspx

Table 1: Mosaic Groups 2008 compared to accidental fires and casualties in the home

Group	Description	# of Homes	% of Homes	# of Fires (3y)	% of Fires (3y)	# of Casualties (3y)	% of Casualties (3y)
A	Career professionals living in sought after locations	466,617	14%	1,871	11%	297	9%
B	Younger families living in newer homes	83,121	3%	299	2%	73	2%
C	Older families living in suburbia	490,714	15%	1,835	11%	342	11%
D	Close-knit, inner city and manufacturing town communities	497,919	15%	2,855	17%	509	16%
E	Educated , young, single people living in areas of transient populations	919,829	28%	4,952	29%	872	27%
F	People living in social housing with uncertain employment in deprived areas	471,751	14%	3,442	20%	727	22%
G	low income families living in estate based social housing	23,653	1%	124	1%	23	1%
H	Upwardly mobile families living in homes bought from social landlords	159,562	5%	723	4%	166	5%
I	Older people living in social housing with high care needs	53,774	2%	423	2%	88	3%
J	Independent older people with relatively active lifestyles	105,312	3%	586	3%	142	4%
K	People living in rural areas far from urbanisation	1,319	0%	6	0%	1	0%
N/A				-	0%	-	0%
	London	3,273,571	100%	17,116	100%	3,240	100%

The differences in proportions between the each Mosaic Group and the number of fires and casualties they have can be converted to an index score which highlights where particular groups are over or under represented. Using the index scale, 100 indicates no bias either way, above 100 indicates an over representation and below 100 indicates an underrepresentation. In the chart that follows the index scores for both the likelihood of an incident occurring and the chance of that incident casing a casualty (death or injury) have been combined to identify the lifestyle groups at most risk.

Chart showing Mosaic Groups by their combined fire/casualty risk index
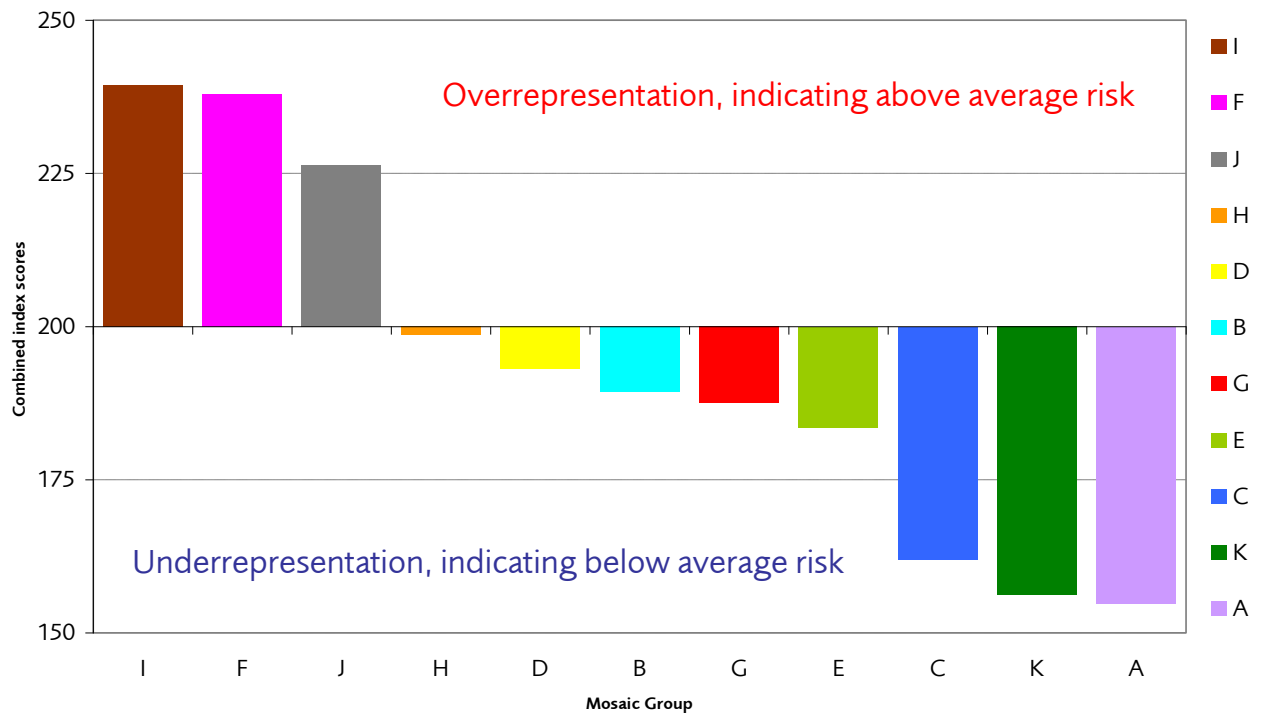
From this analysis the target groups for home fire safety visits were identified as groups I, F and J. A summary description of the lifestyles of those groups is presented below[2];

■ **Group I** – generally consists of elderly people who are mostly reliant on state benefits, and live in housing designed by local authorities and housing associations. Some live in old people's homes or sheltered accommodation, while others live in small bungalows, set in small enclaves within larger council estates. Most of these people spend money only on the basic necessities of life.

■ **Group F** – is comprised of many people who are struggling to achieve the material and personal rewards that are assumed to be open to all in an affluent society. Few hold down rewarding or well paying jobs and, as a result, most rely on the council for their accommodation, on public transport to get around and on state benefits to fund even the bare essentials. The lack of stability in many family formations undermines social networks and leads to high levels of anti-social behaviour among local children.

■ **Group J** – consists mostly of pensioners who own their homes and who have some source of income beyond the basic state pension. Many of these people have, on retirement, moved to the seaside or the countryside to live among people similar to themselves. Today many of these people have quite active lifestyles and are considered in their purchasing decisions.

2008 Summary

From the 2008 analysis around 630,000 homes were identified as being in a Priority Postcode. This represented 19 per cent of the homes in London which accounted for 26 per cent of the accidental dwelling fires and 30 per cent of the casualties they caused.

Mosaic's new public sector segmentation

The postcode and household details in Mosaic are updated annually (so allowing new homes to be incorporated), but at the end of 2009 Experian (the providers of Mosaic) undertook a detailed update of the Mosaic Public Sector product. This update involved a whole new segmentation analysis to create a new set of Groups and Types. It isn't surprising that there are similarities between the profiles of the lifestyles in the two segmentations, but Mosaic 2009 has 15 Groups (compared with 11 previously) and 69 Types (compared to 64 previously).

Updating the priority postcode analysis

As with the analysis undertaken in 2008, the new Mosaic segmentation data has been used with the Brigades incident data so that comparisons can be made between the proportions of each type of lifestyle in London and the number of incidents they experience.

---

[2] Multimedia Guide to Mosaic Public Sector – Summary descriptions

Table 2: New Mosaic segmentations compared to accidental fires and casualties in the home

Group	Description	# of Homes	% of Homes	# of Fires (3y)	% of Fires (3y)	# of Casualties (3y)	% of Casualties (3y)
A	Residents of isolated rural communities	1,170	0%	4	0%	1	0%
B	Residents of small and mid-sized towns with strong local roots	72,131	2%	215	1%	36	1%
C	Wealthy people living in the most sought after neighbourhoods	228,145	7%	927	5%	125	4%
D	Successful professionals living in suburban or semi-rural homes	34,800	1%	82	0%	8	0%
E	Middle income families living in moderate suburban semis	382,946	12%	1,436	8%	300	9%
F	Couples with young children in comfortable modern housing	28,094	1%	77	0%	7	0%
G	Young, well-educated city dwellers	1,020,303	31%	4,554	25%	805	24%
H	Couples and young singles in small modern starter homes	188,927	6%	946	5%	207	6%
I	Lower income workers in urban terraces in often diverse areas	458,907	14%	2,636	15%	531	16%
J	Owner occupiers in older-style housing in ex-industrial areas	36,571	1%	129	1%	28	1%
K	Residents with sufficient incomes in right-to-buy social housing	60,041	2%	245	1%	47	1%
L	Active elderly people living in pleasant retirement locations	57,110	2%	239	1%	41	1%
M	Elderly people reliant on state support	61,520	2%	647	4%	98	3%
N	Young people renting flats in high density social housing	634,196	19%	5,566	31%	1,130	33%
O	Families in low-rise social housing with high levels of benefit need	36,688	1%	213	1%	49	1%
U		-	0%	-	0%	-	0%
London		**3,301,549**	**100%**	**17,916**	**100%**	**3,413**	**100%**

From the new Mosaic segmentations, only two groups emerge as being significantly above average for fire likelihood and casualty causing dwelling fires. As a result of the new segmentation, Group L, which is similar to the previous Group J (i.e. more wealthy and active older people), no longer has the higher level of casualty causing fires and so drops back to being an average group.

The two groups that form the new target group for priority postcodes are now Group M and Group N. These groups are characterised as[3]:

■ Group M –contains large numbers of pensioners in their later retirement years, many of whom live on low incomes in social housing or in care homes. This group contains many older pensioners who no longer have the physical and mental ability to maintain the homes and gardens in a manner which was within their capability in earlier retirement years. The majority are people who, on account of their low incomes, lived in a house on a council estate where they could never realistically look forward, on retirement, to more than the basic state pension. These people tend to live in a mix of different types of accommodation. Some live in nursing homes or in sheltered accommodation and benefit from the services of a resident warden, others in accommodation designed for semi-independent older people, such as modest bungalows on a council estate or council accommodation not designed for this Group but nonetheless quite well suited to its needs.

■ Group N – contains people on limited incomes mostly renting small flats from local councils or housing associations. Typically these are young single people or young adults sharing a flat. They may also be single people of older working age or even pensioners. Most live in properties that are not suited to the needs of families with children. In some areas of London, this Group contains large numbers of recent immigrants, students and young professionals, elsewhere populations are almost exclusively white. Quite a few of the larger blocks that these people live in have structural defects, and have turned out to be less attractive places to live in than their architects and planners had originally envisaged. As a result, many of them are hard to

---

[3] Multimedia Guide to Mosaic Public Sector – Summary descriptions

let. In the smaller blocks, especially in London and in Scotland, there are a number of parents with young children sometimes living in conditions of serious overcrowding. Not necessarily living in housing of their own choice, many residents are disadvantaged by living among neighbours who suffer seriously high levels of unemployment and sickness, and who experience low incomes and high levels of social deprivation.

At this stage of the analysis priority postcodes would make up 21 per cent of the homes in London and account for 35 per cent of the accidental dwelling fires and 36 per cent of the casualties they have caused. This is a marked increase in the effectiveness of Priority Postcode targeting as a result of the new segmentation.

Improving performance in outer London boroughs
Given the characteristic of Group N, it is not surprising that the majority of postcodes of this type are located towards inner London. For example, in an inner London Borough, priority postcodes can make up around 56 per cent of the homes in the borough and account for 63 per cent of the dwelling fires and 71 per cent of the casualties. Whereas in an outer London borough, priority postcodes could make up only two per cent of the homes in the borough and account for five per cent of the dwelling fires and five per cent of the casualties.

This in itself is not a problem. But as fire engines are for the most part located in their own stations, there is a need to identify sufficient and appropriate local work (local risk) for those crews to carry out. For this reason a way of identifiying the local risks of outer London boroughs was considered.

The 15 Mosaic Groups can be further segmented into 69 different Types. Analysis was undertaken to see whether any of the Types in Groups N and M presented less risk, and if that was the case (and therefore could be excluded from the total), were there any Types in the outer-London boroughs that presented a notable local risk (and should be added into the Priority Postcode list).

From the Type analysis of Groups N and M, four Types were found to have lower risk likelihood scores and were excluded from the target group (a reduction of 74,000 homes). Fourteen boroughs were examined for local risk factors and 85,000 homes in these boroughs were added to the Priority Postcode target list.

The overall effect of this 'local top-up' is that 707,086 homes in London have been identified in priority postcodes. These make up 21 per cent of the homes in London and account for 34 per cent of the accidental dwelling fires and 36 per cent of the casualties they have caused.

For example, with the local top up applied to Havering, priority postcodes now make up 10 per cent of the homes in the borough and account for 22 per cent of the dwelling fires and 27 per cent of the casualties.

	No of homes	% of homes	% of Accidental Dwelling Fires (ADF)	% of casualties	P1 ADF rate per 10,000 homes	Non-P1 ADF rate per 10,000 homes
Old	630,837	19%	26%	30%	24	19
New	707,086	21%	34%	36%	29	15

Target group for social media

Social media provides a unique opportunity to work with groups that the Brigade is not targeting through home fire safety visits.

While HFSVs have been extremely successful, they do not reach the groups in London that, while less at risk, have the most fires as a group. The Mosaic analysis shows that Group G are underrepresented for fire risk and casualty causing fires, but because they make up such a high proportion of London (31 per cent) this group is responsible for a quarter of all dwelling fires. More than one in three households in the capital fit in to Group G

– a lifestyle our communications team describe as YEPILs; Young Educated People In London. Trying to encourage this group of Londoners to change their behaviour in order to reduce fires has proven a particularly difficult challenge as they do not respond to direct forms of communication - such as local newspaper articles or HFSVs - that have proven effective with other groups of Londoners.

With YEPILs being heavy users of Web 2.0 (two-way rather than a one-way broadcast form of communication), and in particular social media, the Brigade will use the social media opportunities to help facilitate behavioural change to help Londoners help protect themselves from fire. We have already been able to demonstrate, through the use of short term social media campaigns, how we can reduce fires in this particular group. However, in the coming years, we will expand this work to develop more opportunities to nudge people into protecting themselves from fire.

Source note: *Some of this document is an extract from report FEP1740 "Home fire safety visits (HFSVs) – targeting those most at risk from fire" considered at a meeting of the LFEPA Community Safety Committee on 9 June 2011.*

Annex 1 – Map of London showing priority postcodes before the 'local top-up' is applied

Annex 2 - Map of London showing priority postcodes with the 'local top-up' is applied (existing postcode in grey)

Annex 3 – Map of London showing all priority postcodes