Mosaic Analysis of Warwickshire Inpatient Alcohol-related hospital admissions

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Introduction

Alcohol misuse has health and social consequences borne by individuals, their families and the wider community. This analysis forms part of the Warwickshire Adult Alcohol Treatment Services Needs Assessment 2011/12 and is intended to inform and support local alcohol policies by providing a greater understanding of people admitted to hospital with alcohol attributable conditions.

The report will profile Warwickshire residents being admitted to hospital using Mosaic; identify where they are located across the County and what engagement techniques would prove most effective in communicating with these target groups in order to profile future advice and guidance on alcohol consumption.

Key Findings

- Data was provided from Warwickshire PCT showing inpatient admissions for diagnoses with high and entire alcohol attributable fractions (a fraction of 0.5 or above) for the period April – March 2008/09, 2009/10, 2010/11. Of the 4,044 addresses provided, 2,993 (75%) were matched to Mosaic.
- Mosaic Groups K (*Residents with sufficient incomes in right-to-buy social houses*), and O (*Families in low-rise social housing with high levels of benefit need*) are much more prevalent in the admissions profile when compared with the county profile. A Group O resident is over five times more likely to be admitted to hospital for an alcohol-related condition than a Group L resident.
- Interestingly, it isn't just the County's most deprived households who tend to have a high propensity to be admitted for an alcohol attributed condition. Group E residents (*Middle income families*)

living in moderate suburban semis) are also over-represented (although not to the same extent) in the alcohol admissions profile when compared with the overall Warwickshire population.

- There is a choice to be made whether to target volume in terms of the groups with the greatest number of people admitted to hospital or those most *at risk* of being admitted for alcohol-related conditions. With increasingly limited resources it seems sensible to target the most vulnerable.
- The analysis demonstrated that by focusing attention on the five key Mosaic Types in terms of risk (O69, K50, K51, E20, O68) 18% of patients admitted for high and entire alcohol attributable fractions could be targeted by engaging with just 7% of households in the county. Also by targeting these Mosaic types, we may also be able to engage with people who are drinking excessively but have not yet been admitted to hospital for an alcohol-related condition.
- The types of households that are most likely to be admitted for alcohol-related conditions are also the type of households that are most likely to have the following characteristics: Council/housing association; low incomes & high deprivation; low qualifications; benefit claimants; children under 5; high expenditure on alcohol, tobacco & narcotics and poor health.
- In terms of engaging with people from these groups, there are some clear messages from the Mosaic data. Internet-based publicity would, generally, not be effective, neither would telephone or post communication in terms of service channels. The channel that would engage these residents is face-to-face communication (Table 6).





 However, when considering the best ways to communicate in terms of information channels (which is different to service delivery channels) the preference for accessing information (relative to other Mosaic Groups) is SMS text and national newspapers.

Mosaic

Mosaic is a tool for understanding household and customer types, and allocates every household in the Country to one of 69 categories. It is built from Experian's UK Consumer Dynamics Database and uses a total of 400 variables. It includes the edited Electoral Roll, Experian Lifestyle Survey information, Consumer Credit Activity, self-reported demographics and consumer behaviour alongside the Post Office Address File, Shareholders Register, House Price and Council Tax information and ONS local area statistics. Mosaic can be joined to customer/patient data to add value and help develop a stronger understanding of residents' behaviours, needs and preferences.

Mosaic operates at two levels – Groups and Types. There are 15 Groups, which are then sub-divided into 69 Types. For more information on Mosaic, please visit the <u>Observatory's blog</u>.

Methodology

Alcohol attributable fractions

Attributable fraction values are the proportion of conditions within a population attributable to exposure to a specific risk factor. An alcohol attributable fraction is the attributable fraction due to alcohol i.e. 1=100%, 0.25 = 25% of cases are attributable to alcohol.

For the purposes of this analysis, we have used inpatient admissions for diagnoses with high and entire alcohol attributable fractions (an alcohol-attributable fraction of 0.5 or above). Therefore, alcohol is casually implicated in 50% or more of the condition; for example, this may include hypertensive diseases, various cancers and falls. Whilst it is therefore not possible to say that <u>all</u> the hospital admissions used in this analysis will be attributed to alcohol, the data used provides us with the best indication of the types of people being admitted for conditions most likely linked to the overconsumption of alcohol.

NHS Warwickshire Caldicott Guardian approval was required due to the need to use patient identifiable address data in the initial stages of this piece of work. Detailed address level information was needed to accurately join a Mosaic group and type to each individual record. This matching exercise was carried out within the NHS Warwickshire Public Health Department to ensure patient confidentiality. This enabled a profile of the various socio-demographic groups getting admitted for alcohol attributable conditions to be generated. Only this aggregated profile data was then passed on to the Observatory.

The data provided from Warwickshire PCT is for three full financial years (April – March 2008/09, 2009/10, 2010/11). The data relates to hospital admissions, therefore, if a patient re-enters treatment during the year, they will be recorded twice (or three times etc.) and this will be reflected in the analysis below.

Of the 4,044 addresses provided, 2,993 were matched to Mosaic (74.5%) and the profile is shown below.





		mooure	
		Number	%
	A - Residents of isolated rural communities	68	2.3
	B - Residents of small and mid-sized towns with strong local roots	344	11.5
	C - Wealthy people living in the most sought after neighbourhoods	90	3.0
	D - Successful professionals living in suburban or semi-rural homes	245	8.2
	E - Middle income families living in moderate suburban semis	462	15.4
	F - Couples with young children in comfortable modern housing	185	6.2
	G - Young, well-educated city dwellers	88	2.9
	H - Couples and young singles in small modern starter homes	126	4.2
	I - Lower income workers in urban terraces in often diverse areas	218	7.3
	J - Owner occupiers in older-style housing in ex-industrial areas	288	9.6
	K - Residents with sufficient incomes in right-to-buy social houses	435	14.5
	L - Active elderly people living in pleasant retirement locations	69	2.3
	M - Elderly people reliant on state support	97	3.2
	N - Young people renting flats in high density social housing	77	2.6
	O - Families in low-rise social housing with high levels of benefit need	201	6.7
	Total admissions	2,993	100
Sour	ce: Experian, 2010 (percentage figures may not sum due to roun	dina)	

Table 1: Breakdown of alcohol attributable admissions using Mosaic



Figure 1: Alcohol Attributable Admissions and Warwickshire Profile



The graph above compares the profile of alcohol attributable admissions (where over 50% of cases are alcohol related) in Warwickshire over the past three financial years with the general Warwickshire population. Those above the line are over-represented in the alcohol admissions profile when compared with the Warwickshire population. For example, Groups E, K and O are much more prevalent in the admissions profile when compared with the county profile. Similarly, Group D is identified as the dominant group in terms of Warwickshire's total population but is significantly under-represented when looking at the admissions profile. The main discrepancies appear to be with Group D (under-represented) and K and O (over-represented) households. Group D households account for 15% of the Warwickshire population but only represent 3% of the admissions profile. Conversely, Group K households account for under 7% of the Warwickshire population but represents 15% of the current admissions profile. This over-representation is the case for a number of groups (Groups E, I, J, K, N and O).





Table 2 illustrates the *propensity* or likelihood for each Mosaic Group in Warwickshire to be admitted to hospital for alcohol attributable conditions, based on index values. An index value above 100 means that the Mosaic Group is more likely than 'average' to be admitted for an alcohol attributable condition, i.e. the percentage of existing alcohol-related admissions in this Group is more than the percentage in the overall Warwickshire population. Conversely, a value below 100 means that this Mosaic Group is less likely than 'average' to be admitted to hospital with an alcohol attributable condition. We can see that Mosaic Groups O and N have the highest propensity to be admitted to hospital for an alcohol-related condition (index values of 268 and 220). A Group O resident is over five times more likely to be admitted to hospital for an alcohol-related condition than a Group L resident.

Targeting volume or risk?

There is a choice to be made whether to target volume in terms of the groups and types with the greatest number of people admitted to hospital or those most *at risk* of being admitted for alcohol-related conditions. With increasingly limited resources it seems sensible to target the most vulnerable.

Figure 2: Mosaic Groups at risk of being admitted to hospital with an alcohol-related condition



Source: Mosaic 2010

Figure 2 shows those Mosaic groups that fall above the line and therefore have an index value of over 100, have a greater propensity to be admitted to hospital for an alcohol attributable condition. Conversely, those groups that fall below the line are less likely to be admitted for an alcohol-related condition.





Table 2: Propensity to be admitted for alcohol related conditions

		Alcohol admissions %	Warks %	Index
	A - Residents of isolated rural communities	2.3	4.7	49
	B - Residents of small and mid-sized towns with strong local roots	11.5	11.4	101
	C - Wealthy people living in the most sought after neighbourhoods	3.0	4.5	67
	D - Successful professionals living in suburban or semi- rural homes	8.2	15.3	54
	E - Middle income families living in moderate suburban semis	15.4	11.6	133
	F - Couples with young children in comfortable modern housing	6.2	8.9	70
	G - Young, well-educated city dwellers	2.9	4.5	64
	H - Couples and young singles in small modern starter homes	4.2	5.9	71
	I - Lower income workers in urban terraces in often diverse areas	7.3	4.5	162
_	J - Owner occupiers in older-style housing in ex- industrial areas	9.6	7.9	122
	K - Residents with sufficient incomes in right-to-buy social houses	14.5	6.6	220
	L - Active elderly people living in pleasant retirement locations	2.3	4.9	47
	M - Elderly people reliant on state support	3.2	5.1	63
	N - Young people renting flats in high density social housing	2.6	1.6	163
	O - Families in low-rise social housing with high levels of benefit need	6.7	2.5	268
้อม	ce [,] Experian 2010 (percentage figures may not sum a	lue to roundi	ina)	

The benefit of the data being extracted at address level is that we can more accurately match it to the more detailed Mosaic Types as well as Groups. The table below shows the top five types in terms of the volume of alcohol related hospital admissions and the top five types for those most at risk (with the highest propensity) of being admitted to hospital for alcohol related admissions.

Table 3: Volume or risk by Mosaic Type

VOLUME		RISK
K50, E21,		O69, K50,
K51, J47,	-	K51, E20,
B05	IS I ypes	
26%	% of alcohol- related admissions	18%
16%	% of all households	7%
Source: Mosaic 2010		

The analysis demonstrated that two out of the five Mosaic types are the same in the volume and risk profile and by focusing attention on the five key Mosaic Types in terms of risk (O69, K50, K51, E20, O68) 18% of patients admitted for high and entire alcohol attributable fractions could be targeted by engaging with just 7% of households in the county. Also by targeting these Mosaic types, we may also be able to engage with people who are drinking excessively but have not yet been admitted to hospital for an alcohol-related condition.



TACKLING DRUGS Salcohol

IVES

Table 4: Top five wards with the highest number of households with the Mosaic types identified most 'at risk' of being admitted for alcohol-related conditions (Types O69, K50, K51, E20 and O68)

Ward	District/Borough	Number of potential 'at risk' households
Camp Hill	Nuneaton & Bedworth	1,368
Wem Brook	Nuneaton & Bedworth	1,106
Heath	Nuneaton & Bedworth	788
Brunswick	Warwick	786
Bar Pool	Nuneaton & Bedworth	727

Analysis at a ward level may mask variation at a lower geographical level. The table below highlights the top five Super Output Areas (SOAs) which shows Brownsover South Lake District North SOA with 487 potential households to target.

Table 5: Top five SOAs with the highest number of households with the Mosaic types identified most 'at risk' of being admitted for alcohol-related conditions (Types O69, K50, K51, E20 and O68)

SOA	District/Borough	Number of potential 'at risk' households
Brownsover South Lake District North	Rugby	487
Camp Hill Village Centre	Nuneaton & Bedworth	456
Camp Hill West & Quarry	Nuneaton & Bedworth	406
Bede East	Nuneaton & Bedworth	392
Middlemarch & Swimming Pool	Nuneaton & Bedworth	378

What this does not tell us, however, is what the needs and preferences of these types are; the next section examines the characteristics of the most prevalent Mosaic types in the alcohol-related hospital admissions profile and improves our understanding of what engagement techniques might be most appropriate.

Figure 3: Map of where the most 'at risk' households in Warwickshire



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Source: Mosaic 2010



Target Mosaic Types

Mosaic Type O69 – Vulnerable young parents needing substantial state support

Key Features:

- Vulnerable households
- Unemployment
- Single parent
- Young people
- Bus

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- Alcohol and tobacco
- Secondhand goods
- TV
- Welfare benefits

Super Output Areas that have high numbers of O69 households:

- Camp Hill Village Centre (Camp Hill N&B)
- Bar Pool North & Crescents (Bar Pool N&B)
- Camp Hill West & Quarry (Camp Hill N&B)



Mosaic Type K50 – Older families in low value housing in traditional industrial areas

Key Features:

- Middle aged couples
- Older children
- Industrial towns
- Small houses
- Routine occupations
- Some problem debt
- Few qualifications
- Budget brands
- Low incomes
- Benefit claimants

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Super Output Areas that have high numbers of K50 households:

- Goodyers End (Heath N&B)
- Keresley North & Newlands (Exhall N&B)
- Hill Top (Wem Brook N&B)
- Hurley (Hurley & Wood End North Warwickshire)





Mosaic Type K51 – Often indebted families living in low rise estates

Key Features:

- Large families
- Council estates
- Problem debt
- Shop for convenience
- Areas of deprivation
- Children have say in decisions
- Influenced by advertising
- Income topped up with benefits

Super Output Areas that have high numbers of K51 households:

- Packmores West & The Cape (Warwick West Warwick)
- Brunswick South East (Brunswick Warwick)
- Poplar Bayton Road (Poplar N&B)
- Brunswick North West & Foundry (Brunswick Warwick)



Mosaic Type E20 – Upwardly mobile South Asian families living in inter war suburbs

Key Features:

- South Asian backgrounds
- High level of skills
- Strong community ties
- Relatively large houses
- Extended families
- Multiple cars
- Specialist outlets
- Close to jobs
- Private sector employees

Super Output Areas that have high numbers of E20 households:

- Sydenham North (Willes Warwick)
- Sydenham West (Willes Warwick)
- Benn West (Benn Rugby)
- Brunswick North West & Foundry (Brunswick Warwick)





Mosaic Type O68 – Families with varied structures living on low rise social housing estates

Key Features:

- Social housing
- Many children
- Unemployment
- Anti-social behaviour problems
- Single parents
- Mobile phones
- Taxis



Super Output Areas that have high numbers of O68 households:

- Brownsover South Lake District North (Brownsover South Rugby)
- Packmores West & The Cape (Warwick West Warwick)
- Overslade North West (Overslade Rugby)

Communication Messages

The types of households that are most likely to be admitted for alcoholrelated conditions are also the type of households that are most likely to have the following characteristics:

Council/housing association Low household income

claim benefitshigh levels of deprivationHave children 0-4 years oldLow qualifications

Poor health – smoker, obesity, teenage pregnancy Terraced

High expenditure on alcohol/tobacco/narcotics

Table 6 (overleaf) describes some of the characteristics of these patients and there are some emerging trends:

- Deprivation levels are high. This will mean there is likely to be some dependence on the public sector for services.
- In terms of engaging with people from these groups, there are some clear messages from the Mosaic data. Internet-based publicity would, generally, not be effective, neither would telephone or post communication in terms of service channels. The channel that would engage these residents is face-to-face communication.





• For the five target groups, the preference for accessing information (which is different to service delivery channels) is SMS text and national and local newspapers.

Table 6: Summary Table for five target Mosaic Types

Likelihood to Connected Group Life Stage Deprivation **Receptive to...** Unreceptive to... self-serve* to Internet Vulnerable young parents Internet, Below needing substantial state Face-to-face telephone, mobile 069 Young people, single parents High Very low average support phone, post Older families in low value Internet, Middle aged couples, older Below housing in traditional **K50** High Verv low Face-to-face telephone, mobile children average industrial areas phone, post Often indebted families living Above Large families K51 in low rise estates Face-to-face Post Average Average average Upwardly mobile South Asian Large households, extended E20 families living in inter war High None significant Mobile phone Average Average families suburbs Families with varied Above Internet, mobile 068 structures living on low rise Single parents, many children Very low Face-to-face High phone, post average social housing estates * Likelihood to self-serve when accessing services Source: Mosaic 2010



Relative to other Mosaic Groups