Public Health England

Protecting and improving the nation's health

Local Alcohol Profiles for England (LAPE); methodological review of the crime indicators

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Executive summary

The Local Alcohol Profiles for England (LAPE) contain a set of indicators that are used by a range of organisations across England to monitor the impact of alcohol on local communities, and to assess the effectiveness of initiatives that are put in place in order to reduce alcohol-related harms. Over recent years, the profiles have included three alcohol-related crime indicators which are expressed as crude rates. The three indicators were based on a methodology that uses alcohol-attributable fractions. These fractions were derived over 15 years ago. This report describes a review of the methodology used to generate alcohol-related crime indicators and concludes with a recommendation for how these indicators should be generated from now on.

Firstly, this review involved an investigation of the utility of two datasets to provide (numerator) data on the number of alcohol-related crimes committed in an area. These datasets were the Crime Survey for England and Wales (CSEW) and police recorded crime data. Both datasets have advantages and disadvantages in terms of generating alcohol-related crime indicators. Analysis of the data showed that the proportion of crimes that were reported as alcohol-related varied by crime category, local authority, time of day and day of the week. For example, crimes that occurred during the evening/night were four times more likely to be reported to be alcohol-related than those that occurred during the day. Crimes that occurred during the weekend were more than twice as likely to be reported to be alcohol-related than those that occurred during the week. A higher proportion of violence crimes were reported to be alcohol-related than other crime categories.

Historically the denominator used to calculate the crude rates of alcohol-related crimes has been the resident population. A review of this denominator was also undertaken to investigate whether other denominators should be used instead.

Following these investigations, a number of methodological options were presented at a stakeholder workshop on 28 April 2016. Following discussion, stakeholders proposed that the ‘alcohol marker’ (a variable that indicates that the crime is alcohol-related) in the police recorded crime dataset should be used to directly derive the number of alcohol-related crimes for an area. Historically it has not been possible to generate the alcohol-related crime indicators from the alcohol marker because not all police forces were collecting this data. Some police forces are collecting the alcohol marker during 2016/2017 and all forces are expected to do so by April 2017.

No alternative denominator data was identified. Stakeholders proposed that crude rates should continue to use the resident population of an area as the denominator. The crude rates will reflect total alcohol-related crime in relation to the size of the resident population and, as such, the indicators will represent the impact of crime on the local community.

Police recorded crime data underestimates total crime because not all crimes are reported to the police. The use of multipliers to account for this underestimation, derived from the CSEW, was discussed by stakeholders. Further investigation of multipliers showed that, while nationally accepted multipliers are available for some crimes, they

are not available for all crimes included in the police recorded crime dataset. Applying multipliers to some, but not all, crimes would be confusing.

Invitations were sent to users of LAPE data but none were able to attend the stakeholder workshop. The stakeholders that did attend felt it was essential to gain the views of data users on the proposed methodology. For this reason, an online survey was set up and invitations were extended to data users via a number of channels. The survey was open between 24 June and 19 July 2016 and 41 people participated.

Questions were asked about the usefulness of the proposed methodology, the use of multipliers and the relative importance of different crime categories. In general, respondents were supportive of the proposed methodology. Two thirds said they felt it would provide useful data and a further quarter said that it might provide useful data. There was some support for the use of multipliers to account for under-reporting of crimes in police recorded crime data but this was not overwhelming. Only one third of respondents stated that the use of multipliers would definitely be useful. In light of survey results, future LAPE data will include the following crime-related indicators:

- total crime
- violence against the person
- sexual offences
- public order offences

Conclusions

To conclude, this review culminates in the following: four alcohol-related crime indicators will be included in LAPE. These are total crime, violence against the person, sexual offences and public order offences. Indicators will be crime-based (not person-based). These indicators will be expressed as crude rates. The alcohol-marker in police recorded crime data will be used to generate numerator data on the number of crimes per area and the resident population will be used as the denominator. Each crime will only be counted once (where there are multiple offenders per crime) but a person committing two alcohol-related crimes within a year will be recorded twice. The proposed indicators will therefore account for repeat offending. The proposed indicators will be a measure of the impact of crime on the local community.

Police recorded crime data for 2015/2016 is the first year of data that will be included in LAPE. Not all police forces were reporting the alcohol marker during 2015/2016 and crude rates will be estimated for local authorities whose data is not available. Reporting of the alcohol marker is expected to be mandatory from April 2017. Police reported crime data for 2015/2016 will not be available until July/August 2017. So it is not possible to include alcohol-related crime indicators in the LAPE dataset until this time. After this, the alcohol-related crime indicators will be updated annually.

1.0 Background and aim

The Local Alcohol Profiles for England (LAPE) provide information for local government, health organisations, commissioners and other agencies to help monitor the impact of alcohol on local communities and to assess the impact of services and initiatives which are put in place to reduce alcohol-related harms. Three of the indicators are crime-related:

- alcohol-related recorded crime
- alcohol-related violent crime
- alcohol-related sexual offences

These indicators are derived by applying alcohol-attributable fractions to the latest police recorded crime data for an area and then dividing by the resident population in that area in order to calculate a crude rate. The attributable fractions came from the Home Office New English and Welsh Arrestee Drug Abuse Monitoring System arrestee survey (NEW-ADAM), which involved interviewing and collecting urine samples from arrestees held within custody suites in 15 locations in England and Wales between 1999 and 2001 (Cabinet Office 2003a). The attributable fractions were derived by identifying the proportion of arrestees whose urine tested positive for alcohol by offence type and are described in Table 1 (Cabinet Office 2003b).

Table 1: NEW-ADAM Alcohol-Related Attributable Fractions

Offence	Attributable fraction
Criminal damage	0.47
Violence against the person	0.37
Other	0.29
Drug offences	0.19
Burglary	0.17
Fraud and forgery	0.16
Sexual offences	0.13
Theft and handling stolen goods	0.13
Robbery	0.12

These attributable fractions were generated over 15 years ago and it is not clear that they still accurately reflect the proportion of crimes that are alcohol-related. It is therefore not clear that the current methodology used to calculate the alcohol-related crime indicators represents the best methodology available. What is known is that the alcohol-related crime indicators are used by a range of organisations across England and Wales for monitoring and planning purposes.

Aim

The aim of this project was to review the methodology used to generate the alcohol-related crime indicators included in LAPE and to make recommendations on how these indicators should be generated in the future.

Objectives

1. To identify datasets that can be used to generate the alcohol-related crime indicators.
2. To analyse the data from these datasets in order to ascertain the proportion of crimes that are alcohol-related.
3. To analyse crime data and ascertain whether the contribution of alcohol to crime varies by factors such as the time of day or day of the week in order to identify whether fixed attributable fractions are appropriate.
4. To analyse crime data and ascertain whether people commit more than one alcohol-related crime in a year.
5. To investigate the use of the resident population as the most appropriate denominator when calculating alcohol-related crime rates.
6. To set up a stakeholder workshop and present and discuss options for calculating alcohol-related crime indicators.
7. To finalise the methodology for calculating alcohol-related crime indicators.

2.0 Datasets available to generate alcohol-related crime indicators

2.1 Police recorded crime data[1]

Police recorded crime data consist of details of incidents that are reported to the police which the police decide are crimes. Ideally, recorded crime data would include a variable to indicate whether or not a crime was alcohol-related. This would negate the need to calculate alcohol-attributable crime fractions because each year the proportion of police recorded crimes that were alcohol-related could be calculated directly from this dataset. Unfortunately the police recorded crime dataset does not contain information on whether or not the crime was alcohol-related (Office for National Statistics 2015a).

Some police forces are reporting an extended data set of recorded crime to the Home Office Data Hub and this record level data contains more detailed information about the crimes, including whether alcohol was an aggravating factor (called the 'alcohol marker' in this report). In 2015, 21 of the 43 police forces in England and Wales provided data on whether crimes were alcohol related (Office for National Statistics 2015a).

However, there has been no standard definition of an 'alcohol-related crime'. So it is likely that different police forces have been recording alcohol-related crime differently. Furthermore, it is not mandatory for details on aggravating factors to be recorded. So it is possible that forces have been recording alcohol in some, but not all, offences (Office for National Statistics 2015a). Of key importance in terms of the interpretation of data, the alcohol marker indicates that alcohol influenced the crime. It does not say if it was the offender who was drinking, or the victim or both.

Analysts at Greater Manchester police force conducted a small scale test on one weeks' worth of data comparing the alcohol marker against the Modus Operandi field in order to ascertain whether the two fields corroborated. Key words included in the comparison were alcohol, drunk, drinking, drink, intoxicated, inebriated and under the influence. In this one week, 193 crimes had the specified words in the Modus Operandi text; of these 104 (54%) also had the alcohol marker completed. The remaining 89 crimes were reviewed and in 46 (52%) of these the alcohol marker should have been completed to indicate the crime was alcohol-related (Phil Li, personal communication, 13 July 2015).

The alcohol marker will be reported by forces to the Home Office Data Hub as part of the annual data requirement from April 2016. Reporting the alcohol marker will be voluntary in the first year with the aim to make it mandatory from April 2017 (Kevin Smith, personal communication, 7 January 2016).

Police recorded crime data are categorised into crime categories which are subject to change over time. Table 2 describes the current police recorded crime groups and how these were mapped to the alcohol-related crime indicators included in LAPE.

[1] Section 7.0 contains updated information about the reporting of alcohol in police recorded crime data.

Table 2: Police recorded crime categories mapped to LAPE crime indicators

Police recorded crime categories[1]	Alcohol-related crime indicators in the Local Alcohol Profiles for England		
	Recorded crime	Violent crime	Sexual offences
Homicide	✓	✓	x
Violence with injury	✓	✓	x
Violence without injury	✓	✓	x
Rape	✓	x	✓
Other sexual offences	✓	x	✓
Robbery	✓	x	x
Domestic burglary	✓	x	x
Non-domestic burglary	x	x	x
Vehicle offences	✓	x	x
Theft from the person	x	x	x
Bicycle theft	x	x	x
Shoplifting	x	x	x
All other theft offences	x	x	x
Arson	x	x	x
Criminal damage	x	x	x
Trafficking of drugs	x	x	x
Possession of drugs	x	x	x
Possession of weapons offences	x	x	x
Public order offences	x	x	x
Miscellaneous crimes against society	x	x	x

✓ = included in the LAPE indicator and x = not included in the LAPE indicator. [1](Office for National Statistics 2015b).

2.2 Crime Survey for England and Wales data (CSEW)

To date, the crime-related alcohol attributable fractions have been applied to police recorded crime data in order to derive the indicators used in the LAPE. An alternative approach would be to use data from the Crime Survey for England and Wales (CSEW). The CSEW is good for monitoring long-term trends because it is unaffected by changes in levels of reporting to the police and/or police recording practices (Office for National Statistics 2015b).

The CSEW is a face-to-face survey asking people resident in households about their experiences of a range of crimes which happened to them (personal crimes) and crimes against their household (household crimes) in the preceding 12 months. This includes crimes not reported to the police. In 2013/2014 43% of comparable crimes reported to the CSEW were included in the police recorded crime data (Office for National Statistics 2015b), which suggests that police recorded crime underestimates total crime. The CSEW excludes people living in institutions such as care homes and students living in halls of residence (Office for National Statistics 2015c). In relation to offence types, the CSEW covers a narrower range of crimes than police recorded crime (Office for

National Statistics 2015c). Due to the small numbers, rape, attempted rape and indecent assault offences are not included in the overall count of personal crimes reported by the CSEW (Office for National Statistics 2015b).

The CSEW dataset consists of two files: the victim form and the non-victim form. Each case on the non-victim form refers to an individual respondent. Each case on the victim form refers to an individual incident. A maximum of six victim forms are completed per person. A long version of the victim form is completed for incidents one to three and a shorter version for the fourth to sixth incident. The order in which the victim modules are asked depends upon the type of crime being reported. Less common crimes are prioritised so that more information about these rarer events is available. When multiple incidents occurred they are considered a ‘series’ and only one victim form is completed (Office for National Statistics n.d.a). The questions relating to whether a crime was alcohol-related are only included in the long version of the victim module (Office for National Statistics 2015b) and the data on alcohol use by the perpetrator will therefore only be available for the first three crimes reported.

3.0 Analysis of crime data

3.1 Analysis of police recorded crime data

Anonymised police recorded crime data were received from Greater Manchester Police and Lancashire Police. Both datasets provided details of all crimes committed between 1 April 2014 and 31 March 2015. The two datasets adhered to the same specification so that data could be compared. However, the Greater Manchester dataset included the local authority while the Lancashire dataset included lower super output area and this was used to generate local authority. It was not possible to measure repeat offending using the Lancashire police recorded crime because there were no duplicate offender IDs within the dataset.

Police recorded crime data are crime-based. This meant that there was double counting of crimes where there was more than one offender. All crimes had a crime ID but offender ID and offender details were not available for crimes where no offender had been identified. Police recorded crime data were aggregated by crime ID in order to remove double counting of crimes. An arbitrary decision was to select the first offender when the offender IDs were ordered numerically. The sex of the offender and local authority of residence of the offender could have been different if another offender had been selected. All other data would have been the same if another offender had been selected because all other data (including whether the crime was alcohol-related) were crime, rather than offender, based. The analysis of repeat offending (only possible for Greater Manchester) was person-based.

Each offence record contained a crime identification code which was mapped to a Home Office crime category (using a coding framework provided by Greater Manchester police). Fraud and forgery are included because these crimes occurred within the police recorded crime datasets which were analysed as part of this report. However, the numbers of these crimes that appear in the police recorded crime dataset are no longer a clear reflection of the actual number of fraud and forgery offences because, since 1 April 2012, such crimes are referred to the National Fraud Investigation Bureau (Action Fraud; Phil Li, personal communication, 10 March 2016).

The police recorded crime data includes four fields relating to when the crime occurred. ‘Date from’ and ‘date to’ indicate the earliest and latest possible date and ‘time from’ and ‘time to’ indicate the earliest and latest possible time of the day. For the purpose of this work, these fields are important in determining whether the contribution of alcohol to crime varied by day of the week and/or time of the day. The date/time of the crime is not always known. For Greater Manchester, for example, the exact day of the crime was unknown for 25% of crimes reported within 2014/2015.

The ‘date from’, ‘time from’, ‘date to’ and ‘time to’ variables were used to generate the time of day and the day of the week the crime was committed. These were categorised into morning/afternoon (06:00 hours to 17:59 hours) and evening/night (18:00 hours to 05:59 hours) and week (Monday to Friday before 18:00) and weekend (Friday 18:00 to midnight on Sunday).

Differences in proportions were tested using two-sided chi square. For two by two tables, the continuity correction was used and Fisher's exact test was reported when one or more of the cells had an expected frequency of five or less. Multiple univariate analyses are likely to increase the possibility of a Type I error (Altman 1999).

Care should be taken in interpreting the results of the analysis of police recorded crime data. Firstly, it is not possible to ascertain if a none-yes response for alcohol meant that the crime was not alcohol-related, that the involvement of alcohol was unknown or the police officer did not ask/record this information. Secondary, it is possible that attribution bias contributed to the differences in the proportion of crimes that were recorded as alcohol-related. It is possible that the police officer recording the crime might be more likely to consider the involvement of alcohol in certain crimes (for example violence), or certain times of the day or week (for example Saturday evening) and therefore more be likely to ask about this and record it.

3.1.1 Greater Manchester findings

The role of alcohol in police recorded crimes

The Greater Manchester dataset comprised of 209,945 records which were aggregated to 197,394 individual crimes. In total, alcohol was reported as a contributory factor in 17,259 (8.7%) crimes (Table 3). There was a significant difference across crime categories in the proportion of crimes that were recorded as alcohol-related from 25.4% for violence to 0% for fraud ($\chi^2 = 24667.168$, df = 9, $p<0.001$). The proportions of crimes that are recorded as alcohol-related is likely to be higher for crimes where the offender has had direct contact with the victim, because the victim can confirm whether or not the offender had been drinking (for instances where the alcohol marker reflects offender behaviour).

Table 3: Alcohol-related crime, by crime category, Greater Manchester police recorded crime 2014/2015

Crime category	Alcohol-related				Total
	Yes		No/Unknown/Not asked		
	N	%	N	%	
Violence	12,235	25.4	36,022	74.6	48,257
Sexual offences	567	16.6	2,856	83.4	3,423
Other crimes	668	15.1	3,745	84.9	4,413
Criminal damage	2,002	6.6	28,512	93.4	30,514
Drug offences	416	6.4	6,039	93.6	6,455
Robbery	127	3.6	3,393	96.4	3,520
Theft/handling stolen goods	1,101	1.5	71,713	98.5	72,814
Forgery	2	1.4	137	98.6	139
Burglary	141	0.5	27,717	99.5	27,858
Fraud	0	0.0	1	100.0	1
Total	17,259	8.7	180,135	91.3	197,394

Does the contribution of alcohol vary by local authority?

The data presented in Table 4 describes the proportion of crimes that were recorded as alcohol-related according to the local authority in which the crime occurred. The highest proportion of crimes recorded as alcohol-related was in Bolton local authority (10.3%) and the lowest was reported in Salford (7.4%). The difference across local authorities in the proportion of crimes that were recorded as alcohol-related was significant ($\chi^2 = 182.942$, df = 9, $p<0.001$).

Table 4: Alcohol-related crime, by local authority, Greater Manchester police recorded crime 2014/2015

Local authority of the crime	Alcohol-related				Total
	Yes		No/Unknown/Not asked		
	N	%	N	%	
Bolton	1,912	10.3	16,739	89.7	18,651
Rochdale	1,621	9.7	15,044	90.3	16,665
Wigan	1,772	9.5	16,951	90.5	18,723
Oldham	1,638	9.3	16,033	90.7	17,671
Bury	1,083	9.1	10,813	90.9	11,896
Tameside	1,478	9.0	14,984	91.0	16,462
Manchester	4,512	8.3	50,140	91.7	54,652
Stockport	1,236	7.8	14,525	92.2	15,761
Trafford	885	7.5	10,903	92.5	11,788
Salford	1,122	7.4	14,003	92.6	15,125

Does the contribution of alcohol vary by the time of day?

The next analysis investigated if the proportion of crimes that were recorded as alcohol-related varied by time of day. The results of this investigation are presented in Table 5 Across all crimes, 4.8% of crimes that occurred during the morning or afternoon were recorded as alcohol-related compared to 17.9% that occurred during the evening or night ($\chi^2 = 5977.924$, df = 1, p<0.001).

Table 5: Alcohol-related crime by time of day and crime category, Greater Manchester police recorded crime 2014/2015

Crime category	Was the crime alcohol-related?	Time of the day[1]				P value
		Morning/afternoon		Evening/night		
		N	%	N	%	
Burglary	Yes	33	0.6	92	1.2	0.004
	No/don't know/not asked	5,151	99.4	7,875	98.8	
Criminal damage	Yes	348	5.2	1,542	13.0	<0.001
	No/don't know/not asked	6,354	94.8	10,284	87.0	
Drug offences	Yes	87	2.7	324	10.4	<0.001
	No/don't know/not asked	3,136	97.3	2,780	89.6	
Forgery	Yes	0	0	2	4.1	0.311
	No/don't know/not asked	73	100	47	95.9	
Fraud	Yes	0	0	0	0	-
	No/don't know/not asked	0	0	0	0	
Other crimes	Yes	177	9.8	441	25.0	<0.001
	No/don't know/not asked	1,627	90.2	1,324	75.0	
Robbery	Yes	38	3.1	83	3.7	0.390
	No/don't know/not asked	1,183	96.9	2,136	96.3	
Sexual offences	Yes	79	9.0	311	26.3	<0.001
	No/don't know/not asked	796	91.0	871	73.7	
Theft/handling stolen goods	Yes	429	1.4	550	2.9	<0.001
	No/don't know/not asked	30,106	98.6	18,666	97.1	
Violence	Yes	2063	10.9	9,369	39.9	<0.001
	No/don't know/not asked	16,822	89.1	14,135	60.1	
Total	Yes	3254	4.8	12,714	17.9	<0.001
	No/don't know/not asked	65,248	95.2	58,118	82.1	

[1] Morning/afternoon is 06:00 to 17:59 hours and evening/night is 18:00 to 05:59 hours.

Does the contribution of alcohol vary by the day of the week?

Data on the involvement of alcohol by crime category and day of the week are presented in Table 6. Across crime categories, 15.0% of crimes that occurred during the

weekend were recorded as alcohol-related compared to 6.6% that occurred during the week (χ^2 = 3230.577, df = 1, p<0.001).

Table 6: Alcohol-related crime by time of the week and crime category, Greater Manchester police recorded crime 2014/2015

Crime category	Was the crime alcohol-related?	Time of the week				P value
		Week		Weekend[1]		
		N	%	N	%	
Burglary	Yes	79	0.5	56	0.9	0.002
	No/don't know/not asked	15,906	99.5	6,494	99.1	
Criminal damage	Yes	822	5.3	1,145	11.0	<0.001
	No/don't know/not asked	14,684	94.7	9,288	89.0	
Drug offences	Yes	204	4.6	210	10.7	<0.001
	No/don't know/not asked	4,193	95.4	1,761	89.3	
Forgery	Yes	1	1.1	1	2.6	0.499
	No/don't know/not asked	94	98.9	38	97.4	
Fraud	Yes	0	0	0	0	-
	No/don't know/not asked	0	0	0	0	
Other crimes	Yes	317	12.2	326	26.3	<0.001
	No/don't know/not asked	2,278	87.8	914	73.7	
Robbery	Yes	76	3.4	49	3.8	0.590
	No/don't know/not asked	2,140	96.6	1,226	96.2	
Sexual offences	Yes	227	15.4	263	26.2	<0.001
	No/don't know/not asked	1,246	84.6	740	73.8	
Theft/handling stolen goods	Yes	630	1.4	435	2.1	<0.001
	No/don't know/not asked	43,512	98.6	20,170	97.9	
Violence	Yes	5,048	19.6	6,784	36.2	<0.001
	No/don't know/not asked	20,642	80.4	11,945	63.8	
Total	Yes	7,404	6.6	9,269	15.0	<0.001
	No/don't know/not asked	104,695	93.4	52,576	85.0	

[1] Weekend is from 18:00 hours on Friday to 23:59 hours on Sunday.

Does the contribution of alcohol vary by the sex of the offender?

Table 7 reports the differences in the proportions of crimes that were alcohol-related according to the sex of the offender (where this was known). The proportion of crimes reported to be alcohol-related is higher in this table than other tables. This is largely because knowing the sex of the offender increases the likelihood of knowing whether alcohol was involved. In total, the proportion of crimes that were alcohol-related did not differ significantly according to the sex of the offender. However, for theft/handling stolen goods, robbery and other crimes, whether the crime was recorded as alcohol-related did vary significantly by the sex of the offender.

Table 7: Alcohol-related crime, by crime category and sex of the offender, Greater Manchester police recorded crime 2014/2015

Crime category	Was the crime alcohol-related?	Sex of the offender				P value
		Male		Female		
		N	%	N	%	
Burglary	Yes	114	3.8	10	5.2	0.446
	No/don't know/not asked	2,893	96.2	184	94.8	
Criminal damage	Yes	1,448	24.5	257	23.9	0.697
	No/don't know/not asked	4,469	75.5	820	76.1	
Drug offences	Yes	348	6.6	51	8.0	0.207
	No/don't know/not asked	4,949	93.4	588	92.0	
Forgery	Yes	0	0	0	0	-
	No/don't know/not asked	58	100	16	100	
Fraud	Yes	0	0	0	0	-
	No/don't know/not asked	0	0	0	0	
Other crimes	Yes	536	16.5	87	21.5	0.014
	No/don't know/not asked	2,708	83.5	317	78.5	
Robbery	Yes	65	7.0	11	14.7	0.030
	No/don't know/not asked	858	93.0	64	85.3	
Sexual offences	Yes	441	20.4	8	12.9	0.198
	No/don't know/not asked	1,722	79.6	54	87.1	
Theft/handling stolen goods	Yes	658	5.8	142	3.9	<0.001
	No/don't know/not asked	10,729	94.2	3,521	96.1	
Violence	Yes	8,299	30.4	2,182	29.2	0.062
	No/don't know/not asked	19,030	69.6	5,280	70.8	
Total	Yes	11,909	20.1	2,748	20.2	0.715
	No/don't know/not asked	47,416	79.9	10,844	79.8	

Location of crimes

Table 8 reports the proportion of alcohol-related crimes that were committed by an offender who lived in the local authority in which the crime was committed. In many cases the local authority of the offender was not recorded. Only alcohol-related crimes with a local authority of offence and local authority of the offender were included. In general, offenders committed crimes in the same local authority in which they resided but this was not always the case. Almost a quarter (22.9%) of crimes committed in Manchester local authority were committed by people who lived in other local authorities.

Table 8: Alcohol-related crime; local authority of crime by local authority of offender, Greater Manchester police recorded crime 2014/2015

Local authority of the crime	Local authority of the offender			
	Same as offence local authority		Different from offence local authority	
	N	%	N	%
Manchester	2,279	77.1	675	22.9
Trafford	541	82.7	113	17.3
Stockport	772	85.6	130	14.4
Bury	723	87.4	104	12.6
Salford	709	87.5	101	12.5
Tameside	1,030	88.2	138	11.8
Bolton	1,317	90.4	140	9.6
Oldham	1,161	91.3	111	8.7
Rochdale	1,066	91.5	99	8.5
Wigan	1,281	96.1	52	3.9

Repeat offending

The Greater Manchester police recorded crime dataset showed that multiple crimes were committed by the same person (Table 9). Almost a quarter (22.9%) of offenders committed more than one alcohol-related crime during the year.

Table 9: Number of alcohol-related crimes per offender, Greater Manchester police recorded crime 2014/2015

Number of crimes	Offenders	
	N	%
1	9,392	77.1
2	1,870	15.4
3	547	4.5
4	209	1.7
5	89	0.7
6	28	0.2
7	24	0.2
8	7	0.1
9	7	0.1
10	5	0
12	1	0
18	1	0

3.1.2 Lancashire findings

The role of alcohol in police recorded crimes

The Lancashire police recorded crime dataset contained 95,836 records. 86,679 had a valid local authority of the crime (ie within Lancashire) and a valid crime category and were used as the basis for subsequent analyses. These records aggregated to 84,387 individual crimes. There was a significant difference across crime categories in the proportion that were alcohol-related ($\chi^2 = 9144.253$, df = 8, $p<0.001$, Table 10). Just over a quarter (27.5%) of violence crimes were recorded as alcohol-related compared to just 1.5% of burglaries.

Table 10: Alcohol-related crime, by crime category, Lancashire police recorded crime 2014/2015

Crime category	Alcohol-related				Total
	Yes		No/Unknown/Not asked		
	N	%	N	%	
Violence	5,587	27.5	14,734	72.5	20,321
Sexual offences	245	18.7	1,067	81.3	1,312
Robbery	77	15.0	438	85.0	515
Other crimes	205	13.9	1,275	86.1	1,480
Criminal damage	1,290	8.6	13,772	91.4	15,062
Drug offences	180	6.4	2,625	93.6	2,805
Theft/handling stolen goods	1,085	3.5	29,997	96.5	31,082
Forgery	3	2.7	109	97.3	112
Burglary	170	1.5	11,528	98.5	11,698
Total	8,842	10.5	75,545	89.5	84,387

Does the contribution of alcohol vary by local authority?

The proportion of crimes that were recorded as alcohol-related varied significantly by the local authority in which the crime occurred ($\chi^2 = 443.237$, df = 13, $p<0.001$; Table 11). Blackpool had the highest proportion of crimes that were recorded as alcohol-related (14.9%) and the Ribble Valley had the lowest (7.4%).

Table 11: Alcohol-related crime, by local authority, Lancashire police recorded crime 2014/2015

Local authority of the crime	Alcohol-related				Total
	Yes		No/Unknown/Not asked		
	N	%	N	%	
Blackpool	2,128	14.9	12,195	85.1	14,323
Chorley	597	11.9	4,414	88.1	5,011
Wyre	537	11.6	4,074	88.4	4,611
Lancaster	759	10.5	6,485	89.5	7,244
Fylde	298	10.4	2,560	89.6	2,858
Burnley	774	9.6	7,318	90.4	8,092
West Lancashire	430	9.4	4,157	90.6	4,587
Blackburn with Darwen	916	9.2	9,008	90.8	9,924
Pendle	448	9.0	4,532	91.0	4,980
South Ribble	368	8.9	3,781	91.1	4,149
Preston	783	8.8	8,074	91.2	8,857
Hyndburn	446	8.7	4,669	91.3	5,115
Rossendale	232	7.9	2,710	92.1	2,942
Ribble Valley	126	7.4	1,568	92.6	1,694

Does the contribution of alcohol vary by the time of day?

The proportion of crimes recorded as alcohol-related varied significantly by the time of the day (Table 12). In total, 5.3% of crimes that occurred during the morning/afternoon were recorded as alcohol-related compared to 21.8% of crimes that occurred during the evening/night (χ^2 = 2,505.604, df = 1, p<0.001).

Table 12: Alcohol-related crime by time of day and crime category, Lancashire police recorded crime 2014/2015

Crime category	Was the crime alcohol-related?	Time of the day[1]				P value
		Morning/afternoon		Evening/night		
		N	%	N	%	
Burglary	Yes	21	1.3	79	3.2	<0.001
	No/don't know/not asked	1,597	98.7	2,375	96.8	
Criminal damage	Yes	155	6.6	758	15.6	<0.001
	No/don't know/not asked	2,182	93.4	4,100	84.4	
Drug offences	Yes	18	2.2	113	11.8	<0.001
	No/don't know/not asked	783	97.8	846	88.2	
Forgery	Yes	1	1.9	0	0.0	1.000
	No/don't know/not asked	52	98.1	12	100	
Other crimes	Yes	44	11.1	107	27.6	<0.001
	No/don't know/not asked	351	88.9	280	72.4	
Robbery	Yes	13	8.2	50	18.9	0.004
	No/don't know/not asked	146	91.8	214	81.1	
Sexual offences	Yes	15	8.0	91	33.8	<0.001
	No/don't know/not asked	173	92.0	178	66.2	
Theft/handling stolen goods	Yes	270	2.6	451	7.3	<0.001
	No/don't know/not asked	10,071	97.4	5,721	92.7	
Violence	Yes	591	11.0	3,338	44.5	<0.001
	No/don't know/not asked	4,758	89.0	4,170	55.5	
Total	Yes	1,128	5.3	4,987	21.8	<0.001
	No/don't know/not asked	20,113	94.7	17,896	78.2	

[1] Morning/afternoon is 06:00 to 17:59 hours and evening/night is 18:00 to 05:59 hours.

Does the contribution of alcohol vary by the day of the week?

Data on the involvement of alcohol by crime category and time of the week are presented in Table 13. Across crime categories, 7.9% of crimes that occurred during the week were recorded as alcohol-related compared to 17.9% that occurred during the weekend (χ^2 = 1,630.011, df = 1, p<0.001). For all crime categories other than forgery and robbery, the proportion of crimes recorded as alcohol-related was significantly higher during the weekend than during the week.

Table 13: Alcohol-related crime by time of the week and crime category, Lancashire police recorded crime 2014/2015

Crime category	Was the crime alcohol-related?	Time of the week				P value
		Week		Weekend[1]		
		N	%	N	%	
Burglary	Yes	82	1.3	61	2.3	0.001
	No/don't know/not asked	6,105	98.7	2,538	97.7	
Criminal damage	Yes	474	6.6	740	13.6	<0.001
	No/don't know/not asked	6,722	93.4	4,713	86.4	
Drug offences	Yes	59	3.4	116	13.0	<0.001
	No/don't know/not asked	1,652	96.6	778	87.0	
Forgery	Yes	2	2.6	0	0	1.000
	No/don't know/not asked	74	97.4	25	100	
Other crimes	Yes	92	11.1	100	23.8	<0.001
	No/don't know/not asked	739	88.9	320	76.2	
Robbery	Yes	41	14.0	35	16.7	0.480
	No/don't know/not asked	251	86.0	174	83.3	
Sexual offences	Yes	86	14.8	103	26.9	<0.001
	No/don't know/not asked	494	85.2	280	73.1	
Theft/handling stolen goods	Yes	504	2.8	501	6.0	<0.001
	No/don't know/not asked	17,350	97.2	7,902	94.0	
Violence	Yes	2,221	21.3	3,070	38.3	<0.001
	No/don't know/not asked	8,211	78.7	4,952	61.7	
Total	Yes	3,561	7.9	4,726	17.9	<0.001
	No/don't know/not asked	41,598	92.1	21,682	82.1	

[1] Weekend is from 18:00 hours on Friday to 23:59 hours on Sunday.

Does the contribution of alcohol vary by the sex of the offender?

Table 14 reports the differences in the proportions of crimes that were alcohol-related according to the sex of the offender (where this was known). The proportion of crimes reported to be alcohol-related is higher in this table than other tables. This is largely because knowing the sex of the offender increases the likelihood of knowing whether alcohol was involved. Across all crimes, a higher proportion of crimes committed by males were recorded as alcohol-related (19.4% and 17.4% respectively; $\chi^2 = 8.880$, df = 1, p = 0.003).

Table 14: Alcohol-related crime, by crime category and sex of the offender, Lancashire police recorded crime 2014/2015

Crime category	Was the crime alcohol-related?	Sex of the offender				P value
		Male		Female		
		N	%	N	%	
Burglary	Yes	67	5.0	7	12.7	0.023
	No/don't know/not asked	1,269	95.0	48	87.3	
Criminal damage	Yes	703	29.8	91	25.6	0.121
	No/don't know/not asked	1,665	70.2	264	74.4	
Drug offences	Yes	140	6.4	20	7.9	0.447
	No/don't know/not asked	2,037	93.6	233	92.1	
Forgery	Yes	3	16.7	0	0	1.000
	No/don't know/not asked	15	83.3	1	100	
Other crimes	Yes	127	15.5	25	25.0	0.023
	No/don't know/not asked	694	84.5	75	75.0	
Robbery	Yes	30	17.0	8	40.0	0.031
	No/don't know/not asked	146	83.0	12	60.0	
Sexual offences	Yes	48	17.5	0	0	0.221
	No/don't know/not asked	227	82.5	11	100	
Theft/handling stolen goods	Yes	371	7.8	84	5.2	0.001
	No/don't know/not asked	4,400	92.2	1,527	94.8	
Violence	Yes	2,184	31.0	503	27.2	0.002
	No/don't know/not asked	4,862	69.0	1,343	72.8	
Total	Yes	3,673	19.4	738	17.4	0.003
	No/don't know/not asked	15,305	80.6	3,514	82.6	

Table 15 compares the local authority in which the alcohol-related crime was committed and the local authority in which the offender resided. Acknowledging the small numbers, there were big differences across local authorities. 30.4% of crimes committed in Ribble Valley were committed by someone who lived in a different local authority compared to 1.3% of crimes committed in Lancaster being committed by a person who lived in a different local authority.

Table 15: Alcohol-related crime; local authority of crime by local authority of offender, Lancashire police recorded crime 2014/2015

Local authority of the crime	Local authority of the offender			
	Same as offence local authority		Different from offence local authority	
	N	%	N	%
Ribble Valley	39	69.6	17	30.4
Fylde	101	74.8	34	25.5
South Ribble	145	80.6	35	19.4
Wyre	212	81.5	48	18.5
Hyndburn	154	84.6	28	15.4
Burnley	267	85.5	45	14.4
Preston	282	86.0	46	14.0
Rossendale	92	89.3	11	10.7
Chorley	229	90.9	23	9.1
Blackburn with Darwen	359	90.9	36	9.1
Blackpool	591	91.1	58	8.9
Pendle	184	93.4	13	6.6
West Lancashire	161	94.7	9	5.3
Lancaster	306	98.7	4	1.3

3.2 Analysis of Crime Survey for England and Wales data

People completing the Crime Survey for England and Wales are asked about crimes that occurred in the previous 12 months. The 2013/2014 dataset contains 9,282 victim forms (personal or household incidents) but not all of these were included in the analysis. Firstly, a small proportion victim forms were excluded from the analyses because they were outside the reference period or because the person was not resident in England and Wales (Table 16).

The variable ‘offence’ indicates the final offence attributed to each record after data checking within the Home Office. In total, 1,753 records had an offence which was not listed in the ‘total CSEW (not including rape, indecent assault)’ categorisation of offences (Office for National Statistics 2015b) and for a further 112 records, no offence was recorded (Table 16). These records were de-selected in the analyses.

The variable ‘drinkin1’ relates to the following question: “As far as you know, at the time it happened was the person who did it under the influence of drink?” The equivalent variable/question where there were multiple perpetrators is ‘DRINKINF’ and: “As far as you know, at the time it happened were ANY of the people under the influence of drink?” The derived variable ‘drink’ amalgamates these two questions into an overarching variable: “was the person under the influence of alcohol?” [yes, no, don’t know (Office for National Statistics n.d.b)]. These questions do not ask specifically if alcohol was a causal factor and the data obtained from this question is therefore similar to the alcohol data obtained from NEW-ADAM.

In order to identify the proportion of crimes that were alcohol-related, victim forms where the drink variable was ‘yes’ or ‘no’ were selected. Victim forms where the drink variable was ‘don’t know’ or ‘missing’ were deselected. Consequently 73.5% of victim forms were deselected (Table 16). The respondent is only asked the drink questions if they saw the offender(s) and in most incidents this is not the case. Furthermore, the drink questions are only asked on the long version of the victim form [so data are only available for the first three incidents (Office for National Statistics n.d.b) when a respondent reports more than three].

It is possible to analyse incidents by the time of the week using the variable ‘whenvic2’; responses are as follows: during the week, at the weekend – Friday evening, at the weekend – Saturday, at the weekend – Sunday, at the weekend – early Monday morning, at the weekend, can’t say when, refusal and don’t know (Office for National Statistics n.d.b). It is also possible to analyse the incidents by time of the day using the variable ‘timevic2’; response are as follows: during the morning (6am to noon), during the afternoon (noon to 6pm), morning/afternoon (can’t say which), during early evening (6pm to 10pm), during late evening (10pm to midnight), during the night (midnight to 6am), evening/night (can’t say which), refusal and don’t know (Office for National Statistics n.d.b). These temporal variables are only asked in the long version of the victim form (Office for National Statistics n.d.b).

The total number of cases included in the final unweighted analyses was 1,567 or 16.9% of the original number of victim forms. For all analyses, data were weighted by ‘c11weighti’ which should be used for incident-based analysis when the intention is to make statements about characteristics of crimes (Office for National Statistics n.d.a).

When the data were weighted, the number of records included in the analyses was 2,189,313.

Table 16: Assessment of variables, CSEW 2013/2014, unweighted data

Variable	Variable description	Deselected victim forms		Reason for deselection
		N	%	
Befor99	Indicates whether or not record was within reference period	101	1.1	Outside the reference period
Offence	Final offence code after Home Office checking	1,865	20.1	Crimes not included in the 'total CSEW crime (not including rape, indecent assault[1])' categorisation (Office for National Statistics 2015b), duplicates, no offence identified, missing
Victarea and wherhapp	Victarea asks if the offence occurred within the area. If this is no, refused to answer or do not know, wherhapp asks if the offence occurred in England or Wales[1]	255	2.7	Outside England and Wales, refused to answer, do not know, missing
Drink	Indicates whether or not the offender was under the influence of alcohol	6,824	73.5	Do not know, missing

[1]It is not possible to distinguish between residency in England and Wales in the main victim form. The same dataset with local authority codes is available from the virtual micro laboratory following an application for approved researcher status. These codes could be used to remove cases that occurred in Wales.

Differences in proportions were tested using two-sided chi square. For two by two tables the continuity correction was reported and Fisher's exact test when one or more of the cells had an expected frequency of five or less. Where data were weighted, statistical tests were undertaken on unweighted data. Multiple univariate analyses are likely to increase the possibility of a Type I error (Altman 1999).

3.2.1 Crime Survey for England and Wales; findings

The role of alcohol in crimes reported via the Crime Survey for England and Wales

Valid cases were assigned their crime category according to the Home Office coding rules (Office for National Statistics 2015b). Subsequent analyses were conducted according to these crime categories. Table 17 reports the number and proportion of different crime categories according to whether the survey respondent said that the offender(s) was under the influence of alcohol when they committed the crime. The proportion of offences in which the offender(s) was drinking varies by crime category from 20.3% for acquisitive crime against the individual to 58.5% for all violence (weighted data). The proportions of crimes that are recorded as alcohol-related is likely

to be higher for crimes where the offender has had direct contact with the victim because the victim can confirm whether or not the offender had been drinking.

Table 17: Drinking status of the offender(s) by crime category, CSEW 2013/2014

Crime category	Unweighted sample size	Weighted[1]			
		Was offender under the influence of drink?			
		Yes		No	
		N	%	N	%
All household offences	667	196,388	33.8	384,103	66.2
Acquisitive crime against the household	418	94,056	27.2	251,175	72.8
Domestic burglary	188	61,193	38.3	98,483	61.7
Criminal damage	249	102,331	43.5	132,928	56.5
All personal crimes[2]	900	774,266	48.1	834,556	51.9
All violence	620	685,924	58.5	486,852	41.5
Acquisitive crime against the individual	280	88,342	20.3	347,705	79.7
All theft	635	142,535	21.4	524,511	78.6

[1]By C11weighti.
[2]Not including rape and indecent assault.

Does the contribution of alcohol vary by the time of day?

Table 18 reports whether the survey respondent felt the offender(s) was under the influence of alcohol according to time of the day, by crime category. The time of day significantly affected whether the survey respondent reported the offender to be under the influence of drink across all crime categories. The biggest difference was for all violence. The survey respondents reported the offender(s) to be under the influence of drink in 21.4% of offences that occurred during the morning/afternoon compared to 76.1% of offences that occurred during the evening/night (unweighted $\chi^2 = 126.419$, df = 1, $p<0.001$).

Table 18: Drinking status of the offender(s) by time of day and crime category, CSEW 2013/2014, weighted data

Crime category	Was offender under the influence of drink?	Time of the day[1]				P value
		Morning/afternoon		Evening/night		
		N	%	N	%	
All household offences	Yes	27,994	12.5	155,107	47.8	<0.001
	No	195,954	87.5	169,090	52.2	
Acquisitive crime against the household	Yes	22,095	14.2	69,525	39.5	<0.001
	No	133,115	85.8	106,297	60.5	
Domestic burglary	Yes	12,567	19.4	48,626	52.0	<0.001
	No	52,376	80.6	44,862	48.0	
Criminal damage	Yes	5,900	8.6	85,582	57.7	<0.001
	No	62,839	91.4	62,792	42.3	
All personal crimes[2]	Yes	104,884	16.9	669,382	68.1	<0.001
	No	514,762	83.1	313,728	31.9	
All violence	Yes	78,987	21.4	606,936	76.1	<0.001
	No	290,641	78.6	190,145	23.9	
Acquisitive crime against the individual	Yes	25,897	10.4	62,446	33.6	<0.001
	No	224,121	89.6	123,584	66.4	
All theft	Yes	29,325	8.5	110,773	35.9	<0.001
	No	314,934	91.5	197,814	64.1	

[1]Morning/afternoon includes the following original categories; morning (6am-noon), afternoon (noon-6pm) and morning/afternoon. Evening/night includes the following original categories; early evening (6pm-10pm), late evening (10pm-midnight), during the night (midnight-6am) and evening/night.
[2]Not including rape and indecent assault.

Does the contribution of alcohol vary by the day of the week?

Table 19 reports whether the offender(s) was under the influence of alcohol according to time of the week, by crime category. The time of the week in which the offence was committed significantly affects whether or not the offender(s) was reported as being under the influence of drink. The biggest difference was for all violence; survey respondents reported 39.5% of violent crimes which occurred during the week to have been committed while the offender(s) was under the influence of drink compared to 76.1% during the weekend (unweighted $\chi^2 = 67.606$, df = 1, $p<0.001$).

Table 19: Drinking status of the offender(s) by time of week and crime category, CSEW 2013/2014, weighted data

Crime category	Was offender under the influence of drink?	Time of the week				P value
		Week		Weekend[1]		
		N	%	N	%	
All household offences	Yes	72,076	21.5	109,363	51.0	<0.001
	No	263,738	78.5	105,068	49.0	
Acquisitive crime against the household	Yes	43,385	19.3	47,304	44.0	<0.001
	No	181,660	80.7	60,188	56.0	
Domestic burglary	Yes	28,204	28.9	32,023	53.4	0.002
	No	69,325	71.1	27,913	46.6	
Criminal damage	Yes	28,691	25.9	62,059	58.0	<0.001
	No	82,078	74.1	44,880	42.0	
All personal crimes[2]	Yes	258,529	31.9	506,445	65.2	<0.001
	No	551,121	68.1	270,285	34.8	
All violence	Yes	215,657	39.5	464,013	76.1	<0.001
	No	330,277	60.5	146,073	23.9	
Acquisitive crime against the individual	Yes	42,872	16.3	42,432	25.5	0.039
	No	220,844	83.7	124,212	74.5	
All theft	Yes	59,686	14.2	79,482	34.3	<0.001
	No	360,010	85.8	152,525	65.7	

[1]Weekend includes the following original categories: Friday evening, Saturday, Sunday, early Monday and weekend can't say.
[2]Not including rape and indecent assault.

Does the contribution of alcohol vary by the sex of the offender?

Table 20 reports whether the offender was under the influence of alcohol according to the sex of the offender(s), by crime category. Across all crime categories, the sex of the offender(s) did not affect whether or not the crime was reported as being alcohol-related.

Table 20: Drinking status of the offender(s) by offender sex and crime category, CSEW 2013/2014, weighted data

Crime category	Was offender under the influence of drink?	Sex of the offender(s)						P value
		Male		Female		Both		
		N	%	N	%	N	%	
All household offences	Yes	150,129	34.4	24,638	32.5	21,621	32.9	0.829
	No	286,414	65.6	51,112	67.5	44,002	67.1	
Acquisitive crime against the household	Yes	75,706	27.7	14,491	31.4	3,860	16.6	0.983
	No	197,827	72.3	31,699	68.6	19,408	83.4	
Domestic burglary	Yes	53,656	40.0	7,537	42.3	0	0	0.105
	No	80,430	60.0	10,281	57.7	5,885	100	
Criminal damage	Yes	74,423	45.7	10,147	34.3	17,761	41.9	0.268
	No	88,586	54.3	19,412	65.7	24,594	58.1	
All personal crimes[1]	Yes	608,424	49.5	107,557	39.1	54,055	53.4	0.586
	No	619,910	50.5	167,477	60.9	47,170	46.6	
All violence	Yes	537,075	60.2	96,773	46.8	52,076	71.1	0.417
	No	355,739	39.8	109,940	53.2	21,173	28.9	
Acquisitive crime against the individual	Yes	71349	21.3	10,784	15.8	1,979	7.1	0.299
	No	264,171	78.7	57,537	84.2	25,996	92.9	
All theft	Yes	107,983	21.7	24,483	21.8	5,839	11.4	0.656
	No	388,987	78.3	87,879	78.2	45,404	88.6	

[1]Not including rape and indecent assault.

4.0 Calculating rates; the denominator

The current methodology used to calculate the rates of alcohol-related crimes, uses the resident population as the denominator. Police recorded crime data show that people travel to another local authority to commit crime. People may also be likely to travel to socialise and drink alcohol. Table 8 shows that 22.9% of crimes committed within Manchester local authority were committed by people that lived in a different local authority.

Table 15 shows that 30.4% of crimes committed in Ribble local authority were committed by someone that lived in a different local authority. This is potentially problematic if this migration is systematic. For example, people migrate from surrounding local authorities into large metropolitan local authorities in order to commit crime, because the rate of alcohol-related crime will be overestimated in the large metropolitan centre and underestimated in the surrounding local authorities.

Therefore, as part of this review, the possibility of using other data sources as the denominator was investigated. More specifically, the availability of data sources that accounted for short-term migration patterns was investigated. This investigation failed to identify an alternative source for denominator.

For the CSEW, the respondent answers on behalf of the household for household crimes (Office for National Statistics 2015b). Therefore, if household crimes are included in LAPE the number of households, rather than the population, should be used as the denominator. Household estimates are available from the Office for National Statistics.

5.0 Summary

5.1 Summary of findings

- the data source has an impact on the proportion of crimes that are alcohol-related. Taking violence for example, the NEW-ADAM system reported that 37% of crimes were alcohol-related, Greater Manchester recorded crime data show that 25.4% were alcohol-related and the CSEW show that 58.5% are alcohol-related (Figure 1)

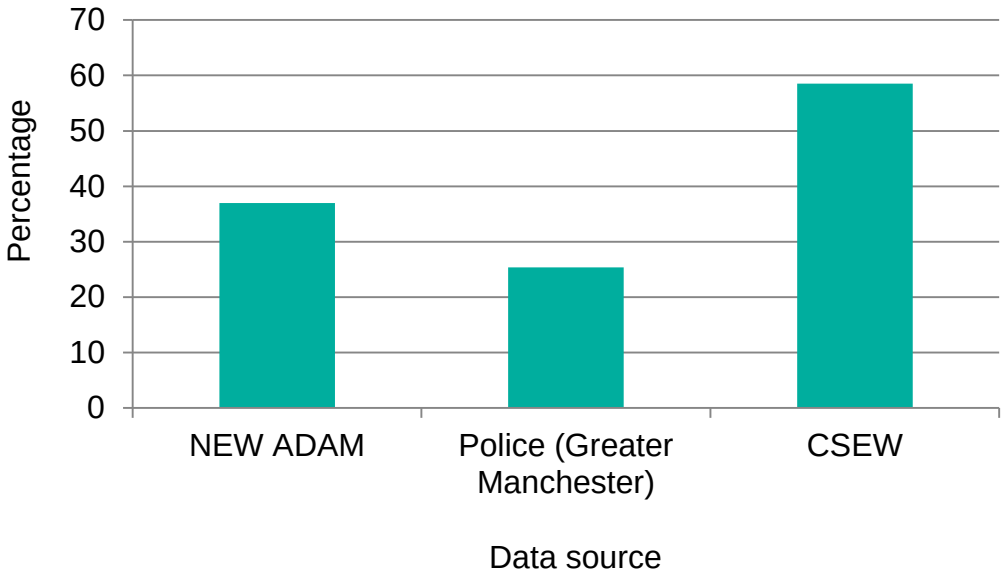

Figure 1: Percentage of violent crimes recorded as alcohol-related by data source

- the contribution of alcohol to crime varies by crime category and local authority

5.2 Summary of restrictions and limitations

- historically, the alcohol marker which is included in police recorded crime data was currently not fit for this purpose. It was not mandatory to collect this information and not all forces were doing so. Other problems include: 1) it is not possible to ascertain if a none-yes response for alcohol meant that the crime was not alcohol-related, that the involvement of alcohol was unknown or the police officer did not ask/record this information; 2) there was no standard definition of an ‘alcohol-related’ crime so it is possible that different police forces were recording these crimes differently; 3) the alcohol marker indicated that alcohol influenced the crime but it does not say if it was the offender who was drinking, or the victim or both. However, during the production

of this report, the Home Office produced a standard definition for 'alcohol-related' which all forces will be adopting[2]

- it is not appropriate to use fixed alcohol-attributable fractions because analyses of the CSEW and police recorded crime data show the proportion of crimes that are alcohol-related varies considerably by week/weekend and day/night. Alcohol-attributable fractions should take into account day of the week and time of the day
- in order to account for day of the week and time of the day, data on these variables need to be available. The police recorded crime data indicate the earliest possible date/time and the latest possible date/time the crime occurred. This information is not always known; for Greater Manchester, the exact day was unknown for 25% of crimes
- data are reported by the police to the Home Office in 2 ways: 1) record level data via the Data Hub or 2) in aggregated returns. Day/time specific alcohol-attributable fractions cannot be applied to data that are sent as aggregated data. All forces should provide data via the Data Hub by April 2016. Police forces sending data via the Data Hub are mandated to send the time and date fields. For some forces, work continues on the quality assurance of these data (Kevin Smith, personal communication, 7 January 2016)
- the CSEW is not sufficiently large to calculate direct estimates at the local authority level. The CSEW could be used to generate alcohol-attributable fractions which could be applied to police recorded crime data
- crime categories in the police recorded crime are not directly comparable to the crime categories in the CSEW. The Office for National Statistics produces a table of 'comparable crimes' which can be used to map crime categories from the CSEW to the police recorded crime for a small number of crime categories. However, this mapping is not always complete; the police recorded crime category of violence, for example, comprises many more offence subcategories than the CSEW category of violence
- there were 9,282 victim forms in the 2013/2014 CSEW dataset on which estimates would be based. However, many victims either did not have contact with the offender, or any information about them, or was unable to determine whether the perpetrator was under the influence of alcohol. In addition, a small number of victim forms could not be included in the analyses because they were cases outside the reference period, had no valid offence code, or did not occur in England or Wales. As a result, the number of victim forms is reduced to 1,567. If the data were further split by day/night/week/weekend for the comparable crime subset, the sample size on which the alcohol-attributable fractions are calculated would be small, even if multiple years were combined. The CSEW does have a three year dataset (2012/2013 to 2014/2015) which would facilitate more robust analyses than single year data

[2] Section 7.0 contains updated information about the reporting of alcohol in police recorded crime data.

- the current methodology used to calculate the rates of alcohol-related crimes uses the resident population as the denominator. This investigation shows that people migrate to commit crimes outside the local authority in which they live. If systematic (ie people migrate to large metropolitan local authorities to commit crime) this is problematic because the rate of crime will be overestimated in these metropolitan local authorities and underestimated in surrounding local authorities. This investigation failed to identify an alternative data source which could be used as the denominator which takes into account temporary migration
- analysis of the Greater Manchester police recorded crime data shows that offenders commit multiple alcohol-related crimes. If the indicators are expressed as person-specific (not crime-specific) rates, and the resident population is used as the denominator, a person should only be reported once in the numerator if using police recorded crime data

6.0 Options for calculating the alcohol-related crime indicators

Findings from this investigation were presented to a stakeholder meeting held on 28 April 2016. This section describes the options for calculating the alcohol-related crime indicators included in LAPE that were discussed by the stakeholders at this meeting. Section 7.0 of this report details the outcome of this meeting.

Option 1	Option 2	Option 3
Description Do not update the methodology and continue as before. Use the existing AAFs and apply these to police recorded crime data.	**Description** Use the alcohol marker in the police recorded crime data to directly calculate the proportion of crimes that are alcohol related and use the resident population as the denominator.	**Description** Calculate AAFs for each crime category using the CSEW (three year dataset: 2012/2013 to 2014/2015) for four combinations (day/night/week/weekend) and apply these to police recorded crime data and use the resident population as the denominator.
Requirements As before.	**Requirements** Requires all police forces collect data on alcohol and in a consistent manner. Requires the data to be made publically available at the necessary geographies or willingness from the Home Office to do the analysis for us. Crimes committed by more than one person need consideration because it would not be appropriate to double count the crime.	**Requirements** Requires the Home Office to apply the AAFs to the police recorded crime and calculate estimates for all the necessary geographies (they cannot release the raw data to us so that we can do this). The Home Office they say they would need a discussion about resources. Crimes committed by more than one person need consideration because it would not be appropriate to double count the crime.
Pros Consistency across a long time frame.	**Pros** This provides a direct assessment and does not rely on the application of AAFs. Can account for multiple crimes being committed by the same person. Can select whatever crime categories stakeholders want. The indicator is easy to interpret.	**Pros** We can do this now. Can account for multiple crimes being committed by the same person.
Contras The current AAFs are based upon data collected 15 years ago. Much has changed in the last 15 years in terms of alcohol licensing and alcohol guidelines. The current methodology is based upon fixed AAFs and therefore do not account for whether the crime occurred during the day/night and week/weekend.	**Contras** The alcohol marker is not currently fit for this purpose. The alcohol marker will be reported to the Data Hub from April 2016 but reporting is voluntary in the first year. The aim is to make it mandatory from April 2017. Calculating rates using the resident population assumes people commit crimes in the area in which they live.	**Contras** Police forces supply data to the Home Office in two ways: record level data to the Data Hub or as aggregated returns. Day/time specific AAFs could not be applied to forces that send aggregated returns. All forces are moving towards providing record level data to the Data Hub. Data sent to the Data Hub contain date and time of the offence. However, some forces provide data where the time field defaults to 00.00 for all crimes.

Option 1	Option 2	Option 3
Calculating rates using the resident population assumes people commit crimes in the area in which they live. Does not account for multiple crimes being committed by the same person.		The date/time of the crime is not always known. Therefore, in a proportion of cases (25% for Greater Manchester), date/time specific AAFs could not be applied. The number of CSEW records used to calculate the AAFs (by offence category, day/night/week/weekend) will be small. AAFs could only be calculated for the following CSEW categories as these are comparable to police recorded crime categories: • violence • robbery • theft from a person • domestic burglary in a dwelling • vehicle-related thefts • bicycle theft • criminal damage to a vehicle Interpretation of the indicator is difficult for some crime categories. The police recorded crime category of violence, for example, comprises many more offence subcategories than the CSEW category of violence. Consequently, the AAFs can only be applied to a subset of police recorded crimes for violence. The violence indicator will therefore not reflect total violence. Relies on AAF rather than direct estimation. Calculating rates using the resident population assumes people commit crimes in the area in which they live. While variations in the contribution of alcohol to crimes by day/night and week/weekend can be taken into consideration other variations might exist which are not accounted for (for example differences by local authority).

7.0 Stakeholder consultation

The findings of this methodological review and the options presented in section 6 of this report were presented to stakeholders on 28 April 2016. In order to ensure a range of stakeholders were included in the consultation, invitations were sent to a number of organisations but not all organisations were able to participate (see section 11.0 for a list of the stakeholders).

7.1 Data sources and methodological options

Stakeholders discussed the data sources and methodological options presented in the earlier sections of this report. Other data sources and methodological options were also discussed. A summary of information relating to the data sources and methodological options is presented here.

New Arrestee Survey

Stakeholders asked whether it would be possible to calculate alcohol-related crimes using the existing methodology with more up to date alcohol-attributable fractions available from the latest Arrestee Survey. This suggestion was subsequently investigated and has the following limitations: the most recent survey was conducted in the year 2005/2006 and so the data is already dated; the data does not take into account the impact of time of day/day of the week on alcohol-related offending; and response bias is a significant issue. Only 23% of eligible respondents actually completed an interview in 2005/2006 and for those arrested for ‘drunk/disorderly and other alcohol’ offences the response rate was only 8% (Boreham, Cronberg et al. 2007).

Modelling

Stakeholders discussed the possibility of developing a multivariate model to measure associations between alcohol-related crime and a number of explanatory variables using the full CSEW dataset. The modelled estimates could then be used to estimate alcohol-related crime at the local level. However, this option was rejected; modelled estimates would need to be updated each year, modelled estimates often produce wide confidence intervals and the number of victim forms available in the CSEW on which to derive the model is small (see section 3.2 and Table 16 for further details).

Police recorded crime

Stakeholders from the Home Office were able to provide an update on police force reporting of the alcohol marker. In total, 28 police forces are already providing alcohol data and all forces are expected to do so from April 2017. The Home Office has introduced a definition for ‘alcohol-related’ which is as follows: any notifiable offence (crime) where it is perceived, by the victim or any other person, that the effect of alcohol consumption on the offender or victim was an aggravating factor. The qualifier should

be used where the consumption of alcohol has been associated with the offence (Home Office 2016). From April 2016 it became mandatory for police forces to record the XY coordinates (eastings and northings) or the postcode of where a crime occurred so data on the location of the crime should be robust.

While the police recorded crime data was deemed by the group as reliable, some concerns were expressed in relation to the fact that police recorded crime underestimates total crime [in 2013/2014 an investigation of this issue showed that only 43% of total comparable crimes reported in the CSEW were included in the police recorded crime data (Office for National Statistics 2015b)]. A suggestion was made to use a multiplier derived from the CSEW. This multiplier would be applied to the police recorded crime data in order to account for the underestimation in the total number of recorded crimes. A subsequent investigation of this suggestion identified a report which provided multipliers but these are not available for all police recorded crimes (Home Office 2011). A question on the use of multipliers was included in the survey of data users (see section 8.0).

Stakeholders discussed the types of crimes that were included in police recorded crime and the implications of this on the data provided. For example, a public order offence such as a fight in a bar where the victim does not wish to take the matter further would not be included in police recorded crime. Stakeholders felt it was important to consult users of the data on this issue (see section 8.0).

7.2 Calculating rates of alcohol-related crimes

The possibility of using the ‘travel to work and other geographic analysis’ data, derived from census data, as the denominator to take into account temporary migration was discussed. However, the consensus was that the resident population should be used as the denominator. In terms of the numerator it was decided that crimes should be attributed to the location of the crime rather than the residence of the offender. It was also decided that a person who commits more than one alcohol-related offence within the relevant time period should be recorded twice. The rates will, therefore, reflect total alcohol-related crime in relation to the size of the resident population and, as such, will represent the impact of crime on the local community.

7.3 Proposed methodology

Stakeholders decided that the crime indicators should be derived from the alcohol marker in the police recorded crime. This approach directly measures alcohol-related crime and can take into account variations in the contribution of alcohol to crime (for example by local authority and when the crime occurred). It will not be possible to provide this data for all forces until July 2018. In the interim, the alcohol marker will be used to produce crime indicators for those forces that are already reporting this information. For those forces not currently reporting the alcohol marker, the indicators will be estimated until July 2018. Figures derived using the interim methodology would need to be treated with caution. Data showing increases in the contribution of alcohol to crime over the first few years of reporting might simply reflect better recording of alcohol data. However, the group felt that using this interim approach would be better than

providing no data or using a totally different interim methodology which would only be operational for a couple of years.

Ideally, multipliers derived from the CSEW should be applied to police recorded crime data in order to account for non-reporting of crimes to the police. However, it is not possible to apply multipliers to all crime categories included in the police recorded crime dataset. The desire to use multipliers was assessed in the data user survey (see section 8.0).

Alcohol-related crimes will be expressed as rates. The numerator will be the number of alcohol-related crimes occurring in a local authority. The denominator will be the resident population for that area.

8.0 Data user survey

8.1 Methodology

An online survey (see the appendix) was sent to LAPE data users through existing networks. These initial contacts were also asked to circulate the survey more widely. Paper copies of the survey were available on request. The survey was open between 24 June and 19 July 2016.

8.2 Results

A total of 41 people took part in the survey. The first questions asked about the usefulness of the proposed methodology and the usefulness of applying a multiplier to police recorded crime data in order to account for the fact that police recorded crime data underestimates total crime. Responses to these questions are described in Table 21. The majority of respondents stated that the proposed method would provide useful data but support for the use of multipliers was mixed.

Table 21: Usefulness rating of the proposed methodology and multipliers; data user survey, 2016

	Will the proposed method provide useful data?		Would applying a multiplier to police recorded crime be useful?	
	N	%	N	%
Yes	27	65.9	14	35.0
Maybe	10	24.4	15	37.5
No	3	7.3	7	17.5
Do not know	1	2.4	4	10.0
Total	41	100	40	100

A number of participants also left free text comments about the usefulness of the proposed new methodology. The most frequently mentioned concern raised by participants was the robustness of police reporting. More specifically respondents were primarily concerned that forces were not recording the alcohol marker at all and that there were inconsistences across forces in what constituted an ‘alcohol-related’ crime. However, these concerns will be largely negated by the fact that forces are mandated to collect the alcohol marker from April 2017 and have been provided with a definition for what constitutes an alcohol-related crime.

A third concern raised by respondents related to the fact that the police recorded crime data is affected by recording practices and policing policies. Recording practices should be the same across forces but do change over time, and pro-active policing in relation to alcohol (such as increasing the number of night time patrols) could over-inflate alcohol-related crime rates for an area. These issues and their potential impact on alcohol-related crime rates will be described in the metadata that accompany the

indicators. Next, a number of participants requested the alcohol-related crime indicators to be provided at lower level geographies as this would support local decisions such as granting alcohol licences. Unfortunately, providing data at lower geographies is currently not possible within LAPE. Finally, in response to other comments: the indicators will be crime-based (and will therefore accommodate repeat offending); will not be presented by sex (the alcohol marker relates to an incident and not a specific person); will use the resident population as the denominator rather than the number of crimes; and the raw numbers for alcohol-related crimes will be available on the download pages in the LAPE tool.

Comments about the use of multipliers were mostly favourable. However, some participants felt that the use of multipliers would cause confusion. Many participants stated that they would like to see the reported rates, in addition to the inflated rates, if multipliers were used.

The final questions of the survey asked for feedback on the usefulness of crime categories. Responses are reported in Table 22. In line with these results, alcohol-related crime indicators included in LAPE in the future will be: total crime, violence against the person, sexual offences and public order offences.

Table 22: Usefulness rating of crime categories; data user survey, 2016

	Not at all useful		Slightly useful		Moderately useful		Very useful		Extremely useful	
	N	%	N	%	N	%	N	%	N	%
Violence against the person	0	0	0	0	3	7.9	6	15.8	29	76.3
Sexual offences	0	0	0	0	3	7.9	13	34.2	22	57.9
Robbery	0	0	6	16.7	12	33.3	9	25.0	9	25.0
Theft offences	0	0	5	13.5	10	27.0	12	32.4	10	27.0
Criminal damage and arson	0	0	2	5.4	8	21.6	14	37.8	13	35.1
Drug offences	0	0	1	2.7	13	35.1	7	18.9	16	43.2
Public order offences	0	0	1	2.9	5	14.3	9	25.7	20	57.1

‘Do not know’ responses and missing data are not reported in this table; valid percentages are presented. ‘Do not know’ responses were as follows: violence against the person (N=2), sexual offences (N=2), robbery (N=4), theft (N=3), criminal damage (N=3), drug offences (N=3) and public order offences (N=4).

Some participants provided free text comments on the types of crimes they would like to see included in LAPE. Generally, participants asked for as many indicators as possible and/or greater granularity, with indicators presented by gender, at lower geographies, by victim/perpetrator, by whether the victim had consumed alcohol and by specific crimes rather than crime categories. Unfortunately, many of these requests cannot be accommodated. In some instances, the data will not support these requests (for example data on speed awareness courses or according to whether alcohol use was by the offender, victim or both).

One respondent requested data on alcohol-related domestic violence. This was investigated and is unfortunately not possible because domestic violence data is not

available at authority level. Other requests cannot be accommodated by the LAPE team because they would necessitate a significant increase in capacity. However, it is important to note that bespoke requests for data can be directed to Local Knowledge and Intelligence Service Teams. Other participants felt that focusing on the major crime categories (rather than lower level crimes) was best because these would be more likely to have a degree of stability over time and would therefore be more reliable.

9.0 Conclusions

Following this methodological review, stakeholder workshop and data user survey, the alcohol-related crime indicators will be derived from the alcohol marker in the police recorded crime data. The indicators will be crime (not person) based. Crude rates will be calculated, with the resident population used as the denominator. Each crime will only be counted once (where there are multiple offenders per crime) but a person committing two alcohol-related crimes within a year will be recorded twice. The proposed indicator will therefore account for repeat offending. Alcohol-related crime indicators will be generated for the following:

- total crime
- violence against the person
- sexual offences
- public order offences

Police recorded crime data for 2016/2017 is the first year of data that will be included in LAPE. Not all police forces are collecting the alcohol marker in 2016/2017, so crude rates will be estimated for some local authorities. Reporting of the alcohol marker is expected to become mandatory from April 2017. Police recorded crime data for 2016/2017 will not be available until July/August 2017, so it is not possible to include alcohol-related crime indicators in the LAPE dataset until this time. After this, the alcohol-related crime indicators will be updated annually.

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Appendix; data user survey

Introduction

Background to the new method: Police forces have recently started to collect data on whether or not a crime is alcohol-related. The Home Office has introduced a definition for ‘alcohol-related’ which is as follows:

“any notifiable offence (crime) where it is perceived, by the victim or any other person, that the effects of alcohol consumption on the offender or victim were an aggravating factor. The qualifier should be used where the consumption of alcohol has been associated with the offence”.

The proposed new methodology will use the alcohol marker in police recorded crime data to calculate the number of alcohol-related crimes in a local authority. Rates of alcohol-related crime will be produced using a local authority’s resident population as the denominator.

Q1: Will this methodology provide data that you will find useful in terms of monitoring alcohol-related crime? Please select one response only.

Yes No Maybe Do not know

Q2: If you have any comments on the proposed methodology please write them here:

Q3: Police recorded crime data under-estimate total crime because not all crimes are reported to them. The Crime Survey for England and Wales has been used to evaluate this under-estimation for certain crimes. It is therefore possible to apply a ‘multiplier’ to the police recorded crime data in order to account for this underestimation. This is only possible for some crimes.

Would applying a multiplier to police recorded crime be useful? Please select one response only.

Yes No Maybe Do not know

Q4: If you have any comments on the use of multipliers please write them here:

Q5: Police recorded crime data include many crimes which can be grouped into crime categories. We would like to know which crime categories you would like to see included in the alcohol profiles. Please rate how useful you would find each of these crime groups.

	Not at all useful	Slightly useful	Moderately useful	Very useful	Extremely useful	Do not know
Violence against the person	☐	☐	☐	☐	☐	☐
Sexual offences	☐	☐	☐	☐	☐	☐
Robbery (stealing with the use of force)	☐	☐	☐	☐	☐	☐
Theft offences	☐	☐	☐	☐	☐	☐
Criminal damage and arson	☐	☐	☐	☐	☐	☐
Drug offences	☐	☐	☐	☐	☐	☐
Public order offences	☐	☐	☐	☐	☐	☐

Q6: If you have any comments on the types of crimes that you would like to see included in the alcohol profiles please write them here: