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Evaluating the impact of minimum unit pricing in Scotland on harmful drinkers

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Contents

1. Background

In 2012, the Scottish Government passed legislation to implement a minimum unit price (MUP). This decision was informed by evidence, including from our team, suggesting that the policy will reduce alcohol consumption and related harm, particularly among low income harmful drinkers.[1] The policy is currently subject to a legal challenge which is expected to conclude in 2017 and implementation will only take place if the challenge fails. If MUP is implemented, the legislation will expire after between five and six years unless the Minister provides for it to continue. NHS Health Scotland's MESAS team (Monitoring and Evaluation of Scotland's Alcohol Strategy) is tasked with providing evaluation evidence across a range of outcomes to inform the Minister's decision-making.

To contribute to this process, NHS Health Scotland wishes to commission a study to evaluate the impact of MUP on harmful drinkers (defined as drinkers who are dependent or non-dependent on alcohol and who consume more than 35 units of alcohol per week for women and more than 50 units per week for men). The requirements of the legislation mean there is interest in a wide range of outcomes, although not all need to be examined in the same depth. These outcomes are:

- Alcohol consumption including levels, drinking patterns and products consumed;
- Health-related outcomes including mortality, morbidity and service use;
- Crime-related outcomes including crime perpetration or victimisation and participation in antisocial behaviour;
- Unintended consequences including substitution to non-beverage alcohol and/or illicit drugs, diversion of household spending from essential goods and theft of alcohol;
- Impacts on drinkers' family members including their children.

There are a number of constraints on the timing of the project. In particular, the project should commence in April 2017 to allow for research ethics clearance and collection of primary baseline data by September 2017. The project should also conclude by April 2020 (or April 2021 if the research design requires this) to allow for findings to inform ministerial decision-making on the continuation of MUP. Finally, the project should be designed to accommodate potential delays in the implementation of the policy.

2. Proposed research

2.1. Outline of proposed research

2.1.1. Overview of work packages

The proposal below comprises four work packages. These incorporate primary quantitative and qualitative data collection from users and providers of alcohol treatment services and liver clinics (WP1) and from drinkers who are dependent on alcohol and living in either remote or rural areas or urban areas of Scotland (WP2). Secondary quantitative analyses will also be conducted using detailed market research data describing harmful drinkers' consumption patterns (WP3). A further potential work packaged is included, but uncosted at this staged due to uncertainty about data available, and would involve primary care data linked to harmful drinkers' health outcomes (WP4).

2.1.2. Theoretical approach

We are aware that NHS Health Scotland have followed the principles of Contribution Analysis in their work to date on evaluating Scotland's alcohol strategy.[2] We will aim to contribute to this approach by working with NHS Health Scotland to reach mutual agreement on how evidence gained from each of the five work packages can contribute to the iterative development of their contribution story regarding the effects of MUP. Our starting assumption is that key parts of this story are embedded in the research needs outlined in the Invitation To Tender. Therefore, drawing also on our detailed knowledge of evidence and policy debates regarding the effects of MUP, we have incorporated as much as possible of these broad needs into our comprehensive programme of research. In particular, we have:

- Designed the research to provide evidence on changes across a broad range of outcome measures;
- Sought to understand not only what has changed, but also how it has changed. For example, we have proposed qualitative work to investigate drinkers' intended and actual strategies for responding to MUP and will seek to corroborate this with accounts from their families or carers. We also plan to exploit, Alcovision, a unique dataset providing insights into changes in the contexts of drinking over time as well as consumption metrics.
- Sought to engage with a wide range of population groups including those dependent on alcohol and engaged with treatment services, those dependent or non-dependent and living in Scotland's many remote and rural areas who may face particular challenges, and harmful drinkers in the general population. Where feasible, we will also investigate effects within subgroups including those who live with a partner, live with children or are in lower socioeconomic groups.

Within each work package, we will seek to rule out attribution to other factors such as alternative interventions, macroeconomic changes or long-term underlying trends (e.g. increased female drinking, increased abstinence and the declining consumption trend). In quantitative work packages, this will typically be achieved by the use of different kinds of statistical adjustment (e.g. dummy coded control variables). In qualitative work packages, we will proactively seek to investigate participants' perspectives on potential alternative explanations for behaviour change and also seek emerging examples of this when analysing the data.

Finally, when compiling the final project report and when reporting on each individual work package, we will draw on findings from across the project in discussing and interpreting our results. In doing so, we will aim to present a coherent contribution story which highlights available evidence that observed changes are attributable to MUP, explicitly rules out alternative explanations where these have been tested for, acknowledges uncertainties and the degree of confidence that can be placed in attributions and, finally, identifies future research needs in order to further corroborate attribution of observed changes to the effects of MUP.

2.1.3. Delivery of final report

In line with the ITT, the final project report will be delivered in April 2021 rather than 2020 to allow for data collection and analysis in WP1 and WP2 to be completed (expected completion June 2020) and for delivery of data required for WP3 and WP4 will not become available until early 2020.

2.2. Integration of work packages

Although each work package seeks to answer different questions, there are overlaps in these questions (e.g. WP1 and WP2 both address intended and unintended impacts on drinkers who are dependent on alcohol; WP3 and WP4 both address effects on harmful drinking in the general population). Two key responsibilities of the project management group will be: (1) to ensure learning is shared across work packages and the research is adapted appropriately in light of emerging findings and (2) to ensure the final project report integrates findings from across the project to present an integrated and coherent account of the diverse effects of MUP on different population groups.

2.3. WP1: Impacts of MUP on alcohol treatment service providers and users

2.3.1. Aim

To investigate the impact of implementing MUP on people who are alcohol dependent, in terms of consumption, expenditure, treatment seeking and unintended consequences and to identify potential strategies for minimising harms in this population.

2.3.2. Research questions

Following the introduction of MUP:

1. In what ways does self-reported alcohol consumption by people with alcohol dependence entering specialist treatment services or liver clinics change post-MUP, including level, products drunk and prices paid
2. What strategies do these service users employ to deal with the reduced availability of cheap alcohol?
3. How does the level and nature of demand for treatment services change post-MUP?
4. What strategies have or could be put in place to minimise unintended harms arising from increased alcohol prices for people who are alcohol dependent?

2.3.3. Design

A number of factors informed the design of this WP. These included: (i) the financial resources and relatively short time period available for securing ethical permissions and then undertaking recruitment ahead of implementation; (ii) the low prevalence of harmful drinking within the general population which further hinders rapid recruitment; (iii) the likelihood of high attrition through loss of contact and high mortality rates when conducting a panel study of this population and (iv) the potential for other factors, such as successful treatment, to confound estimates of the effect of MUP within a panel design. Designs which were considered included monthly cross-sectional surveys of harmful drinkers in the general population and panel studies of harmful drinkers randomly sampled within the general population or recruited from treatment services. However, these designs were all abandoned after it became apparent that recruitment was infeasible within the constraints of the project and that, even if more resources were provided, potential project partners such as survey agencies and treatment providers could not guarantee that the required samples could be delivered.

Given the above, the selected design is a three wave repeat cross-sectional study of people in Scotland and Northern England with alcohol dependence entering specialist treatment services or liver clinics

(hereafter referred to as service users). Semi-structured interviews will be conducted in both countries at baseline (to be completed before implementation of MUP), 3-6 month post-MUP implementation, and 18-22 month post-MUP implementation. Timelines for post-MUP data collection will be reviewed once an exact implementation date is known to take account of the seasonality of alcohol consumption (e.g. avoiding periods of high alcohol consumption, such as Christmas) and reviewing if it is possible to have at least one period of post-implementation data collection at the same time of year as baseline data collection. A sub-sample of the interviews will include additional in-depth qualitative exploration of the strategies used to deal with reduced availability of cheap alcohol. We will also conduct service provider interviews, repeated at each time point with the same interviewees where possible.

The proposed study size is powered to detect a 20% reduction in consumption from a consumption level of 200 units per week, although represents a relatively large reduction in consumption the sample size required to have statistical power to detect a smaller reduction in consumption could not be achieved within the time and financial constraints discussed above. The project will use its mixed methods design, the comparison between Scotland and Northern England, and the findings of WP2, WP3 and the wider MESAS project to present a rich understanding of the different ways in which individuals dependents on alcohol respond to the removal of cheap, high strength products, including any unintended consequences that may emerge. The collection of quantitative data will contextualise the qualitative findings by providing a sense of scale and these data will also provide a 'sentinel sample' within which early warning signs of unintended consequences of MUP and, in the case of English data, cross-border effects may be detected. This will allow timely, well-targeted investigation and, where necessary, amelioration by stakeholders.

2.3.4. Recruitment strategy

Service users

Data will be collected from service users in Scotland (N≈200 per wave) via face-to-face semi-structured interviews, with a subsample of extended qualitative interviews (N≈20 per wave). A smaller comparison sample of N≈80 quantitative interviews per wave and a subsample of N≈15-20 qualitative interviews per wave will be collected in Northern England. Participants will be people who are dependent on alcohol and entering specialist alcohol or drug treatment (community or residential) from statutory or third sector treatment providers or liver clinics. Perkins and colleagues at Figure 8 Consultancy have recruited from similar services in multiple previous projects throughout Scotland[3] and are well known to all Alcohol and Drug Partnerships across Scotland. By using these existing links, we do not anticipate any problems in gaining access. In the unlikely event of recruitment problems, we will employ alternative strategies including snowballing for positive contacts, purposeful advertising via Alcohol and Drug Partnerships and treatment service links.

In Scotland, we will target services in 6-7 Health Board Areas, ensuring diversity in terms of geographic location (e.g. West coast vs. East coast) and urbanity (e.g. large urban areas vs. small accessible towns). We will include two particular areas in sampling, namely Dumfries and Galloway and Aberdeen, as the former may provide insights into cross-border trade with England while the latter is a port city with distinct economic characteristics. Final decisions on the Health Board Areas to be sampled will be agreed with NHS Health Scotland after taking into account these criteria.

For the English comparison sample, participant recruitment will also occur in specialist alcohol treatment services and liver clinics in the North of England (defined here as Yorkshire and Humberside,

the North-East and the North-West). We have interest in participating from service contacts in Sheffield. Figure 8 have also worked extensively across England, and will be able to mobilise links to services in northern cities such as Newcastle, Liverpool and Manchester, as well as smaller towns.

Within services, it is unlikely that a one-size-fits-all approach to recruiting participants will be appropriate due to differing local arrangements and service protocols. Instead, the focus of any agreement reached will always be on what works best (and minimises disruption) for both the service we are recruiting in and the study participants recruitment. This will be explored and decided via early conversations with identified service providers focused on agreeing what arrangements will work best. In general, we intend to minimise reliance on service providers to be responsible for either: (a) making decisions on who to refer to the study or (b) the work involved in arrange the interviews.

In practical terms, we envisage employing one or more of the following options for recruitment of study participants with each service provider:

- Via direct referral to the study from the service;
- Via self-referral to the study after receiving or hearing information about it;
- Via direct contact from a member of the research team after the participant has given permission via the service provider.

We have given careful consideration to the likely requirements for staff members, services and service users and we summarise this below.

For staff members:

- Following intake assessment, letting alcohol dependent clients know that there is a research project being run about the cost of alcohol and asking them if want to find out more about it from the researcher.
- Doing one or more of the following depending on the agreement reached with the service: (a) referring interested people to the researcher; (b) encouraging or supporting the individual to make direct contact with the researcher or (c) gaining permission to pass on contact details so that a member from the research team can make direct contact.
- A small number of staff members will also be invited to participate in a service provider interview to seek their perspective on the potential effect of changes in alcohol prices on clients and the service.

For the service as a whole:

- Providing an interview room.
- Nominating a key contact for the researcher to communicate with about suitable days and times to be present in the service.

For service users:

- Participation in a private interview (approx. 30 mins) on service premises. Most of the questions will involve short or multiple choice answers. The interviewer will be sensitive to differing levels of literacy and adapt the questionnaire protocol as required.
- For a small number of participants, participation in an extended interview (approx. 60 mins) on service premises. This interview would involve some longer questions and answers.

- Participants would be offered a voucher of £10 (or £20 for those participating in extended interviews) in recognition of their time and contribution; the type of voucher will be agreed with the service but typically this will be for a shop that does not sell alcohol (e.g. Argos).
- We will also explore gaining permission to link to patient hospitalisation records for future research, although linkage and analysis will not be part of this project.

We anticipate that the Alcohol Use Disorders Identification Test (AUDIT)[4] will be administered in most sites as part of standard intake assessment procedures. Those who are assessed with a score of 16+ (indicating probable dependence)[5] will be eligible to take part. Other indicators of dependence and harmful consumption will also be requested where available (e.g. Severity of Alcohol Dependence Questionnaire [SADQ][6] score, number of units consumed per day) as agreed with recruitment sites and may be used to determine eligibility where AUDIT is not available. People with significant cognitive impairment will be excluded, either at referral stage or if lack of capacity becomes apparent during informed consent procedures. Resource limitations prevent use of translation services and therefore all interviews will be conducted in English.

We will aim for a sample that is broadly representative of the demographic characteristics of the treatment population and, should interview uptake be biased toward a particular age or gender group, efforts will be made to target underrepresented subgroups (relative to the overall treatment population).

Following informed consent procedures, interviews will be conducted in a suitable room on treatment service premises. At each cross-sectional wave, a subsample of participants will be invited to an extended interview. This will include both the questions asked of all participants and additional open-ended questions to allow in-depth exploration of strategies for responding to the removal of cheap alcohol under MUP and any unintended consequences arising from this. Recruitment to this aspect of the study will be by convenience within study sites, whilst aiming for maximum variation across study sites. Responses to the semi-structured interview will be recorded on a paper-based interview form. With the permission of the participant, all interviews will also be audio-recorded for data checking purposes and, in the case of the extended interviews, for verbatim transcription and later analysis.

In recognition of their time and sharing of personal experiences, participants will be offered a voucher for £10 at the conclusion of the interview. Those undertaking the extended interview will receive an additional £10 voucher. The type of voucher (and therefore what it can redeem) will be determined with regard to ethical concerns about funding the purchase of alcohol and in consultation with local research sites and our PPI panel.

Service providers

Data will be collected from treatment service providers (N≈15 per wave in each of Scotland and Northern England) via semi-structured interviews conducted face-to-face or by telephone. Where possible, the same providers will be interviewed at each wave and service-level documentary evidence pertaining to the research questions will also be sought (e.g. evidence regarding changing demand for services, changing profile of clients). Service providers will be recruited from the same sites as service users as well as other bodies who have direct contact with people who are alcohol dependent (e.g. social workers and clinicians). Interview responses will be entered on the interview form and interviews audio-recorded and transcribed for later analysis.

2.3.5. Interview schedules

Interviews with both services users and service providers will be semi-structured and will cover the following topics.

Service users[1]

- Demographics: Age, gender, postcode (first 3 characters only for identification of English or Scottish Index of Multiple Deprivations scores), employment, relationship and housing status.
- Health and social functioning: Simple Likert scale items to assess self-reported psychological health, physical health and quality of life.
- Alcohol consumption: Following an approach previously used with people who drink heavily,[7] time-line follow back methods will be employed to assess alcohol consumption for each day in the most recent 'typical' drinking week, including drink type (including homebrew of non-beverage alcohol), volume, brand, purchase price and purchase location (e.g. local shop) and other sources of alcohol (e.g. given, stolen, traded for other goods or sex). Consumption of homebrew, non-beverage alcohol (e.g. methylated spirits).
- Other drug use.
- Anticipated and actual impacts of reduced availability of cheap alcohol. Potential and actual responses to MUP by participants will be elicited via visual aid indicating likely price increases and prior work on this area from Canada will be drawn on when designing interview schedules.[8]
- Experiences of alcohol-related harm, anticipated or perceived effects of MUP on these experiences and explanations for these effects.
- Drinkers' reflections on the potential and actual impact upon their families and children.
- Drinkers' experience of crime (either as perpetrator or victim)
- Identification of any cross-border trade behaviour/activity;
- Harm minimisation. Participants will be asked what would or has help(ed) them in preparing for and adjusting to price rises and, in Scotland, whether or not they are aware of any services or help being offered in anticipation of, or following, MUP implementation.
- Perceived MUP roll-out: Participants will also be asked about their experience of the removal of cheap alcohol (e.g. was it immediate or gradual, and were there differences between drink brands and outlets).
- Other factors, particularly societal-level factors such as policy interventions or macroeconomic changes, affecting their alcohol usage beyond MUP.

Service providers

- Scope of the treatment service and participant's job role
- Current level and nature of demand for treatment services and perceived changes to this post-MUP
- Service provider and sector responses to assist clients prepare for and adjust to MUP

[1] While some of the topics to be covered may to some extent replicate existing assessment tools e.g. the Treatment Outcomes Profile www.nta.nhs.uk/uploads/topform2013.pdf we will be seeking more detail than would be available from accessing clinical records

- Perceived response of service users to the reduced availability of cheap alcohol, including unintended consequences and whether the participant's perception is informed by service-level data, clinical experience or anecdote.
- Perceived societal-level factors such as policy interventions or macroeconomic changes potentially affect alcohol use by their clients.

Ideally, the same service providers will provide data at each time point to allow points and themes arising in earlier interviews to be revisited. Where this is not possible, replacements will be sought.

Pilot testing of interview materials

All interview materials, including participant information and consent forms, interview forms, topic guides and visual aids will be reviewed by alcohol-specific PPI panels in Sheffield and Stirling to ensure readability, appropriateness and completeness (see Section **Error! Reference source not found.**). Materials will then be pilot-tested prior to commencing field work with contacts from PPI networks and Privileged Access Interviewers (see WP2).

2.3.6. Analysis

WP1's qualitative and quantitative data are mutually supportive and should not be considered in isolation. Each will aid collection, analysis and interpretation of the other. For example, while the qualitative data will likely provide insights into if and how participants change their purchasing strategies post-intervention, the quantitative data will offer a more robust indication of the types of drink and the associated price points which have replaced cheap products for participants. Similarly, descriptive trend analyses may highlight important shifts in Scotland which are not seen in England (e.g. changed arrival profile such as numbers of clients, client demographics or problem severity, any substitution to illicit drug use or increased smoking, changing volumes of consumption, purchasing of illicit alcohol, not purchasing other household essentials, or other self-reported harms to the drinker or others). These observations can then be corroborated and explored with service providers and future interviewees within this study.

As data from the main sample will be primarily numeric with some short open-ended questions, these data will be analysed using SPSS. Natural alcohol volumes (e.g. a bottle of whisky a day), will be converted to units on the basis of brand, volume and ABV where these are available, and estimated thereafter using standard beverage strength assumptions. Univariate trend analyses and bivariate analyses will explore changes over time in alcohol consumption and other unintended consequences following Scottish MUP, including examination of subgroup differences. Differences between the Scotland and England post-intervention samples in these same factors will also be examined to strengthen conclusions regarding the effects of MUP.

Qualitative data from extended interviews with service users and from provider interviews will be imported into NVIVO and coded thematically. Matrix coding of demographic data will be used to characterise the sample and to identify relevant subgroups to enable implementation effects to be explored at sub-national level. Data from WP1 will be informed by and inform analysis of data from WP2 concerning populations living in diverse areas, including remote and rural areas.

2.4. WP2: Impact of MUP on drinkers living in remote, rural or urban areas of Scotland who are dependent on alcohol

2.4.1. Aim

To investigate the impact of implementing MUP on harmful drinkers (both dependent and non-dependent), and their families or carers, in rural and remote areas of Scotland as well as more urban areas. In rural and remote areas, access to treatment services may be poor and harmful drinkers may face different challenges, post-MUP, when compared to urban counterparts.

2.4.2. Research questions

Following the introduction of MUP:

1. How does self-reported alcohol consumption by harmful drinkers' change, including level, products drunk and prices paid?
2. Do harmful drinkers in remote and rural areas face additional challenges post-MUP and employ alternative strategies to those seen in other areas to deal with the reduced availability of cheap alcohol?
3. Do harmful drinkers living in the Scottish Borders engage in cross-border purchasing and is this direct (e.g. purchasing alcohol in England themselves) or indirect (e.g. obtaining alcohol bought in England by others)?
4. How are the lives of family members or carers of harmful drinkers affected by this drinking, how does this change post-MUP and what impact does any observed behaviour change have on the lives of family members or carers?
5. What strategies have been or could be used by policy makers to minimise the unintended harms of MUP for drinkers, their families or their carers in both remote and rural populations and the general population?

2.4.3. Design

We will conduct three waves of one-to-one interviews, in parallel to WP1, with a sample of both dependent and non-dependent harmful drinkers in three diverse areas, two of which will be rural and/or remote while the other will be more urban. Where possible, the same respondents will be followed-up at each wave to provide longitudinal data and participants will include those who have never sought or are not currently in treatment. Family members will also be interviewed to investigate the impact of MUP on those close to harmful drinkers.

2.4.4. Recruitment Strategy

Privileged Access Interviewers

Interviews will be conducted by Privileged Access Interviewers (PAI). Privileged Access Interviewing has been used extensively by, experts in this field, Mike Smith and Stuart Honor (Hidden Populations Research Limited). It is based on the premise that those who are involved in harmful drinking, or have associates that are members of such networks, will have 'privileged access' to harmful drinkers. Not only will they have 'inside knowledge' to be able to locate individuals within the populations of interest, they will also have an established rapport. Thus, instead of a researcher having to gain the

trust of those they are interested in researching, it is expected that a PAI will have already established this. Necessary attributes for being a PAI include:

- Existing contacts within the subculture;
- Personal attributes or experiences which are non-threatening to participants;
- An ability to understand training and undertake an interview;
- A sufficiently stable lifestyle that interviewing harmful drinkers would not be potentially personally damaging (e.g. PAIs may be current or past harmful drinkers but, if they are in recovery, they should not be at a heightened risk of relapse).[9]

This method has been used successfully in the recruitment and collection of data from a variety of populations.[9,10] By including those close to the target population as interviewers, it also offers the additional benefit of allowing this group to engage with and shape the research from the outset. The approach has an inbuilt safety net, in that the PAIs are trained by skilled conversational researchers (Livingston and Perkins), who are experienced in rapidly building rapport with vulnerable adults. The researchers are able to step-in as a back-up if PAIs are unable to translate their training into practice.

Research locations:

Alcohol and Drug Partnerships in Argyll and Bute, Scottish Borders and Glasgow will be approached to support the research by identifying potential PAIs. The inclusion of the Scottish Borders will allow consideration of the impact of MUP in relation to cross-border (Scotland-England) purchasing and consumption patterns. Figure 8 has strong links with each of these ADPs through previous or on-going research. In particular, Figure 8 are currently conducting service user and/or peer research work in both Argyll and Bute and the Scottish Borders, upon which this work package can build. The incentive for local ADPs and services to engage will be the development of a cohort of trained 'peer researchers' for their area.

PAIs

We will recruit six PAIs in each of the three areas. Four of these will be harmful drinkers and two will be family members of, or carers for, harmful drinkers. This will be done through discussion with the ADP, local services and recovery/support groups to identify suitable and willing participants. The approach will be a combination of purposeful targeted appeals (adverts) and snowballing from positive contacts.

Incentives for PAIs will be used in the form of a £20 shopping voucher for participation in the required PAI training and a further £10 shopping voucher for each completed interview. The chosen shopping voucher offered will be one that cannot be exchanged for alcohol. Figure 8 have extensive experience of using incentives in such ways. In rural and remote settings, this can include local shops such as butchers or fishmongers (so long as no alcohol is purchasable with the voucher). Figure 8 have a written protocol available for the use of incentives.

Power[11] notes that PAIs will often feel comfortable with the subject matter and can easily establish rapport, however they do require training and support. Therefore, all PAIs in this study will receive thorough training from Dr Wulf Livingston and Andy Perkins (Figure 8) as well as ongoing supervision. As a final part of their training following successful recruitment and training by the research team, the PAIs will be supported and monitored while interviewing each other. A full debrief and checks on confidence levels of PAIs will be undertaken prior to identifying and agreeing appropriate individuals for interview in the field. At the start of each wave of interviewing, all PAIs will be required to attend

and participate in a training refresher session with the research team. Clear methods for checking data quality will be implemented. To protect participant confidentiality, we will also ensure that PAIs do not collect data from someone they know personally.

To ensure PAI wellbeing, WL and AP will be available to PAIs during and after the data collection period to discuss experiences, any problems encountered and to offer additional support as required, in accordance with Figure 8's Support and Supervision Policy (available upon request). Moreover, in addition to avoiding recruitment of PAIs at risk of relapse, a further preventative system of support will be devised in conjunction with local services and in agreement with the local Alcohol and Drug Partnership at the outset of the research.

Harmful drinker interviewees

PAIs will then take the lead in identifying suitable targets for interview in the field, given their knowledge of the sub-culture and local target populations. Snowballing from their close contacts will be a common strategy. It is likely that this initial targeting will identify heavy drinkers who are dependent on alcohol and the challenge will come in recruiting harmful drinkers with lower AUDIT scores who are non-dependent. Adverts will be placed across a range of organisations including both online and offline magazines and newsletters and services supporting a wide range of people (e.g. liver clinics, cancer clinics, older people support groups). Opportunities for utilising Facebook and Twitter through the local ADP will also help to complement more traditional recruitment approaches and may provide to access different sociodemographic groups. Individuals who are successfully engaged by PAIs will also be offered a £10 shopping voucher.

Sample size

All 18 PAIs will be interviewed by another PAI as part of their training. All responses which meet quality standards will be treated as data as they are from the target population. Each PAI will then conduct a target up to three interviews in the field at each wave of data collection. The total target of interviews in the field at each wave will therefore be 54 (36 harmful drinker interviews and 18 family member or carer interviews) plus an additional maximum of 18 PAI-to-PAI interviews at each wave, as part of a refresher training session. This work package is longitudinal in design and will interview the same individuals at pre-implementation as at the two post-implementation intervals. Where dropout occurs, further cross-sectional recruitment will take place to ensure target numbers per wave are kept at 54.

2.4.5. Interview schedule

In keeping with PAI methods, interviews will be structured loosely around key areas of interest. PAIs will prompt as appropriate and only when necessary. Extensive time (e.g. 90 minutes) will be allocated to each interview to allow the participant to disclose relevant information at their own pace. All interviews will be digitally recorded. Key issues of exploration (with both users and family members or carers) are likely to include:

- Alcohol consumption in a typical drinking week, including drink types, volumes, brands and prices paid;
- Experiences of the removal of cheap alcohol (e.g. was it gradual or immediate, differences between shops or products, some price increases but some products removed altogether);
- Strategies for dealing with price increases imposed by MUP;

- Exploration of any unintended consequences that arise such as substitution for illicit drugs or non-beverage alcohol;
- Exploration of issues particular to harmful drinkers in rural and remote areas;
- Experiences of alcohol-related harm, anticipated or perceived effects of MUP on these experiences and explanations for these effects.
- Identification of any cross-border trade behaviour/activity;
- Support received or required from services or their social networks during the transition period around introduction of the policy;
- Drinkers' reflections on the potential and actual impact upon their families and children.
- Drinkers' experience of crime (either as perpetrator or victim)
- Other factors, particularly societal-level factors such as policy interventions or macroeconomic changes, affecting their alcohol usage beyond MUP.

With families and carers, the following topics are likely to be explored:

- The drinkers' typical drinking behaviour (both pre- and post-MUP) with a particular focus on any perceived changes;
- The impact of this behaviour and any behaviour changes on the family's day-to-day life;
- Perceived positive and negative strategies adopted by the drinker in response to MUP, with a particular focus on any unintended consequences such as substitution behaviour, criminality or reduced spending on household essentials;
- Support received or required by the family from services or social networks at different time periods post-MUP.

As longitudinal data are being collected, later waves of data collection will explore changes from one time period to the next. For example, interviewers will explore whether and how arising problems in the early period post-MUP have been resolved.

2.4.6. Analysis

Due to the anticipated literacy levels and skills of the PAIs, the initial analytic approach will be for the experienced members of the research team to support and work with the PAIs in learning to and then undertaking thematic analysis of the oral data, rather than written data. The written results of this process will then be produced by the research team. However, where appropriate levels of literacy are present in the PAI, analysis will also be achievable via the consideration and coding of transcripts.

The research team will compile the outputs from each PAI's work and then use thematic analysis within NVIVO to look for common themes arising across these data which can be drawn together into collective findings.[12] Data analysis will be integrated with data collection, rather than being in distinct and subsequent phases. This will allow data collection and analysis to operate in tandem and be responsive to each other. This means that feedback will be given and discussed with the PAIs in respect of the arising issues that should be explored with future interviewees and in each subsequent wave of interviews.

2.5. WP3: Impact of MUP on consumption patterns among harmful drinkers in the general population

2.5.1. Aim

To identify the impact of implementing MUP on the level, patterns and characteristics of harmful drinking in the general population.

2.5.2. Research questions

Following the introduction of MUP:

1. Do fewer drinkers consume alcohol at harmful levels?
2. Is this reduction seen in key population groups of interest, namely those living with a partner, living with children or in lower socioeconomic groups?
3. Do the drinking practices of harmful drinkers change, including the alcoholic products that they drink, the location, days and timing of drinking, and the type of occasion?

2.5.3. Design

Difference-in-difference interrupted time series analysis of repeat cross-sectional market research data from a quantitative diary describing the drinking occasions of harmful drinkers in the general population.

2.5.4. Data

Analyses will be conducted using market research data collected as part of Kantar World Panel's Alcovision survey, which we have used successfully in a previously published study.[13] Alcovision is a continuous cross-sectional survey of demographically representative samples of respondents aged 18+ in Great Britain. Residents of Scotland and 18-34 year-olds are oversampled to permit detailed analysis of these groups. Alcovision contains a demographic and behavioural questionnaire and a seven-day retrospective diary of respondents' drinking occasions. We have already purchased data from 2001-2016 and have an agreement in principle to purchase 2017-2019 data which we will activate if funded. The applicants will purchase the data using existing funds but are obliged to charge a data access fee to this project (see costing). Alcovision data are available for analysis approximately three months after data collection is complete.

Since 2009, Alcovision has collected data from approximately 30,000 respondents each year, of whom approximately 20,000 consume alcohol in the diary week. The sample design is consistent over time with monthly quota samples based on age, sex, social class and geographic region drawn from Kantar's managed access panel. Invitations to participate are timed to ensure that every day of the year is included in the data. This means the data are not only representative of drinking within the year but also at quarterly, monthly or weekly level, depending on the sample size required for the analysis.

We will use a subset of these data comprising harmful drinkers who are resident in Scotland, Yorskhire and Humberside, North-East England and North-West England (hereafter Scotland and Northern England). Harmful drinkers will be defined as those consuming 35+ units in the diary week if female and 50+ units if male. Data preparation is on-going and we estimate that there will be 300-500 harmful drinkers each year in Scotland and 400-700 in Northern England prior to intervention. This represents a substantially larger annual sample of harmful drinkers than is available in any other UK-based general population survey.

As Alcovision is market research data collected via novel methods and used in only one scientific study to date, we propose to use additional quality assurance processes. These are discussed in the Data Management section of this proposal (Section **Error! Reference source not found.**).

2.5.5. Measures

The variables available for analysis are summarised in Table1 and the key data can be summarised as:

- Individual-level sociodemographics, household characteristics, geographic location and frequency of consuming different on-trade and off-trade beverage types;
- Occasion-level data including when, where, why, with whom and alongside what other activities drinking took place;
- Drinks-level data summarising the amount consumed (including weekly alcohol consumption for the specific population groups (moderate, hazardous and harmful drinkers, by age, sex and sociodemographic characteristics) and detailed information on the types of beverage drunk.

2.5.6. Analysis

Analyses will use a difference-in-difference design which compares changes in outcome measures in Scotland to changes in Northern England. The data will be treated as either a monthly or a quarterly time series, depending on the number of harmful drinkers found in the sample. Intervention effects will be estimated using segmented regression models as there are insufficient data points for ARIMA models.[14,15] As some aspects of the policy response by producers, retailers and consumers may either precede or not follow immediately after intervention, we will experiment with including monthly 'lag' terms for up to 6 months pre- and post-intervention in the model and draw on data from participants in WP1 and WP2 detailing their experiences of the implementation of MUP to corroborate these effects. Analyses will test for autocorrelation, stationarity and seasonality and adjust where necessary.[15] Dummy coded temporal variables will be used to control for confounders such as other major interventions affecting alcohol use and the affordability of alcohol.

The primary outcome measure will be the proportion of respondents who are harmful drinkers[2]. Analyses will test for a significantly larger change in the level and slope of the temporal trend in this measure in Scotland relative to Northern England. There is particular concern regarding impacts of harmful drinking on the families and children of drinkers; therefore, secondary analyses will also undertake similar tests within: (i) respondents who are married or cohabiting and (ii) respondents living with children. Further analyses will also explore the drinking patterns of hazardous and moderate drinking to understand whether there is a gradient in effect across the consumption distribution. In both primary and secondary analyses, we will also test for a moderating effect of household income as the effects of MUP on harmful drinkers are estimated to be largest in low income groups. These secondary analyses will use lower frequency data (e.g. quarterly or annual time series) if the reduced sample size means there are insufficient harmful drinkers within each data point to permit robust estimation of intervention effects.

[2] Harmful drinkers will be defined with reference to consumption in their diary week as no typical weekly consumption measure is available. As in other work packages, the thresholds of 35 units and 50 units will be used for women and men respectively.

Table 1: Variables available within Alcovision

INDIVIDUAL-LEVEL DATA
Sociodemographics
Age in years
Sex
Marital status
Employment status
Social class (e.g. AB,C1, C2, DE)
Geographic information
Country
Region
Full postcode
Index of Multiple Deprivation score
Household information
Household income
Number of adults in household
Number of children in household
Living arrangements (18-34 year-olds and post-2014 only). Examples: Single parent, live alone
OCCASION-LEVEL DATA (RC=number of response categories)
When?
Calendar date
Day of week
Start time of occasion
Duration of occasion
Where?
Venue type (off-trade): RC = 6. Examples: other's home, outdoors.
Venue type (on-trade): RC = 17. Examples: Gastro pub, working men's club, fast-food restaurant.
Venue location (on-trade): RC = 12. Examples: Rural, university/college, high street.
Who with?
Companions: RC = 6. Examples: Family, friends, work colleagues.
Group type: RC = 9. Examples: Male alone, mixed sex pair, female group.
Why?
Reason for venue choice (on-trade): RC = 29. Examples: It's my local, it is open late, it is clean.
Purpose of occasion (off-trade): RC = 14. Examples: Special celebration, quiet night in, drink after work.
Purpose of occasion (on-trade): RC = 16. Examples: Big night out, quiet drink, on a date.
Occasion mood: RC = 11. Examples: To wind down or chill-out, to have a laugh, to feel part of a group.
Reason for soft drinks: RC = 20. Examples: To feel healthy, I was driving, to try something new.
What else was happening?
Activities (off-trade): RC = 18. Examples: Shop online, get ready to go out, watch TV/film/DVD.
Activities (on-trade): RC = 20. Examples: Games machine, watch TV, dance.
Food (off-trade): RC = 5. Examples: Formal meal, light snack, dinner party.
Food (on-trade): RC = 5. Examples: Restaurant meal, crisps/nuts/bagged snacks.
DRINKS-LEVEL DATA (for each alcoholic drink consumed)
Brand. Examples: Carlsberg, Guinness, Smirnoff, Hardy's. Beverage type. Examples: Lager, bitter, rum, gin, red wine.
Packaging/container (off-trade). Examples: Small can (330ml), large glass (250ml), plastic bottle (1L or 2L)
Packaging/container (on-trade). Examples: Glass bottle, as a shot (down in one), full bottle (of wine).
Quantity consumed.

Further analyses will use both descriptive analyses and segmented regression models (depending on power considerations and resource constraints) to investigate changes in Scotland and Northern England in the proportion of harmful drinkers' consumption accounted for by: (i) key beverage

categories, such as strong beer, strong cider or vodka; (ii) drinking in different locations such as the home, different types of pub/bar or restaurants; (iii) different days of the week; (iv) different times of day and (v) different self-reported purposes of drinking occasions. Emerging findings from WP1 and WP2 will aid selection of the trends to investigate although we will retain an awareness that behaviour changes detected in the studied populations may not reflect those in the wider population of harmful drinkers captured in Alcovision.

2.6. Uncosted Work package: WP4: Impact of MUP on health outcomes among harmful drinkers identified through primary care records

2.6.1. Aim

To prospectively evaluate the impact of implementing MUP on the frequency and likelihood of hospitalisation and mortality among harmful drinkers identified through primary care records.

2.6.2. Research questions

Following the introduction of MUP:

1. Do hospitalisation and mortality among harmful drinkers reduce in either the short or medium term?
2. Does this vary by condition type and by patient characteristics, including age, sex and deprivation?

2.6.3. Design

A population-based cohort of harmful drinkers identified via primary care records will be followed pre- and post-intervention to identify changes in the frequency and likelihood of hospitalisation and mortality. Two sets of comparison data will be provided by a control sample of harmful drinkers from Northern England and control samples of moderate drinkers from both Scotland and England.

2.6.4. Data

Primary care records

Electronic primary care records are used by healthcare practitioners to record patient characteristics, existing or new diagnoses and the treatments or actions taken or recommended in the course of the patient contact. Alcohol consumption among primary care patients is routinely recorded by practitioners, both through formal screening programmes (e.g. at registration) and in the course of broader discussions about patient health and risk factors which may influence this (e.g. in the management of hypertension). Each patient's data may then be linked to Hospital Episode Statistics and mortality data, allowing researchers to study relationships between alcohol consumption and health outcomes.[16] Owing to the non-systematic nature of both screening and recording, data on patients' alcohol consumption within primary care records is far from complete, with around 12% of patients in 2012 having a record of their drinking level from that year,[17] rising to more than 60% having a record in the past three years.[18] Despite this incomplete coverage, the large volume of patients registered in primary care and the difficulty of sampling harmful drinkers in the general population mean that these primary care records provide the most efficient means of accessing a general population sample of harmful drinkers and analysing their health outcomes. Further, given the Scottish Government's focus on Alcohol Brief Interventions and the associated HEAT targets for

intervention delivery, including primary care as a priority setting,[19,20] we anticipate a higher proportion of primary care records in Scotland to include alcohol consumption than other parts of the UK.

Scottish primary care records data will be obtained through the Scottish Primary Care Information Resource (SPIRE) while control data will come from Northern England (defined as the Yorkshire and Humberside, North-West and North-East Government Office Regions) and will be obtained through the Clinical Practice Records Datalink (CPRD). SPIRE is not yet fully operational; however, they anticipate to begin accepting research proposals in May 2017. As such, SPIRE's coverage of the Scottish population is not yet known. It has access to the records of all 1000+ primary care practices in Scotland but practices may opt out, either from all data sharing or from individual data requests, and individual patients may also opt out. An indication of coverage may be gained by comparison with CPRD, which is well-established and covers approximately 8% of the UK population, including 1.9m patients in Northern England.[18]

Data will be obtained from SPIRE and CPRD for any patient aged 18+ whose record indicates that they are drinking at a harmful level at any point in the five years preceding the introduction of MUP. Harmful drinking will be assessed using various combinations of 'read codes' recorded by practitioners on the patients' records, in line with previous analyses of similar data.[17] A randomised age- and sex-matched sample will also be sought comprising individuals whose records indicate that they are moderate drinkers (i.e. consuming less than 14 units per week).

Estimating the size of harmful drinker sample accessible through these data is challenging. A conservative estimate based on practice compliance and recording of alcohol consumption in the English data CPRD point to a sample size exceeding 1,000 harmful drinkers in Scotland. However, the Scottish ABI programme and HEAT target mentioned above suggest this is likely to be an underestimate. We have confirmed that data will be available for this five years prior to intervention and are investigating data availability for additional years to further increase the sample size.

Linkage to health outcomes

Primary care records from SPIRE in Scotland will be linked to hospital inpatient admissions data held by Information Services Division (ISD) and mortality records held by National Records Scotland (NRS), through the eDRIS data linkage service. CPRD records in England will be linked to Hospital Episode Statistics (HES) data and Office for National Statistics (ONS) mortality data through CPRD's own data linkage systems.

In both Scottish and English data there is a lag-time before data are available to researchers. For Scotland this is around three months and, therefore, separate requests will be made for three months and 24 months post-intervention data to allow analysis of short-term effects early in the project. For England the lag-time before linked data become available is likely to be longer at approximately 12 months. Therefore, given the time constraints of the project, only one data extract will be requested for England. This will be made at the same time as the request for the second Scottish extract and will likely provide between 12 and 18 months of post-intervention data depending on the exact time of MUP implementation. This means that although we will be able to analyse outcomes up to 24 months post-intervention in Scotland, comparative analyses of England and Scotland will cover only the shorter time period of 12-18 months.

Hospitalisation and mortality data will be requested for all conditions, not just those related to alcohol. Subject to resource constraints, we will also seek to include Healthcare Resource Group indicators in the hospitalisation data to understand the treatment and thus cost associated with each hospital admission. This additional information will serve two purposes:

1. To use the cost of an admission as a measure of burden of the admission on health services; thus allowing a weighting of the statistical analyses to establish whether the impact of MUP is to reduce the cost burden of alcohol, even if the number of admissions among harmful drinkers does not change.
2. To perform a health economic analysis of the impact of MUP on NHS budgets through the effect on harmful drinkers.

2.6.5. Measures

Using analyses and categorisations developed during our previous analyses of Scottish hospital admissions data,[21] all admissions will be characterised as either:

- 100% alcohol-attributable
- Partially alcohol-attributable

And further:

- Acute (i.e. related to intoxication)
- Chronic (i.e. related to long-term alcohol consumption)

Analyses will be conducted at both the aggregate and individual level. For aggregate analyses, partially-attributable admissions will be apportioned to alcohol as a cause using Alcohol-Attributable Fractions (AAFs) estimated from alcohol consumption data from the Scottish Health Survey and updated annually.[21] As apportioning of admissions and mortality from partially-attributable conditions to alcohol at the individual level is not possible, individual-level analyses will use the data before AAFs are applied and sensitivity analyses will exclude conditions with low AAFs or where there are *a priori* reasons to anticipate a confounding trend (e.g. in smoking-related conditions if there is a major intervention in this area). Quarterly age-standardised hospital admission and mortality rates will be calculated for the following condition groupings:

- 100% alcohol-attributable acute conditions
- 100% alcohol-attributable chronic conditions
- All 100% alcohol-attributable conditions
- All acute conditions (alcohol-attributable admissions/deaths only)
- All chronic conditions (alcohol-attributable admissions/deaths only)
- All conditions (alcohol-attributable admissions/deaths only)

2.6.5. Analysis

Following data cleaning and validation, we will first undertake descriptive analysis of time trends in hospital admissions and mortality for harmful drinkers in Scotland across the six harm categories described above. Pre-intervention data will be tested for seasonality using regression models with season dummies and for underlying longer-term trends using Dickey-Fuller tests. We will then compare these trends to those seen in Northern England and among moderate drinkers to make an

initial assessment of any potential effects of MUP that are particular to harmful drinkers. We will also examine descriptive trends within population subgroups defined by age, sex and Scottish Index of Multiple Deprivation (SIMD) quintile. The latter may not be possible if the sample size is smaller than anticipated or there is high missingness of SIMD in the data. Comparison of deprivation indices between Scotland and English will not be undertaken as the SIMD and its English equivalent are not compatible.

Following these descriptive analyses, the primary statistical analysis will be undertaken. This will comprise a series of individual-level logistic and count regression models modelling each outcome's likelihood (for both admissions and mortality) and frequency (for admissions only) as a function of the individual's age, sex, SIMD quintile (if feasible) and the intervention effect. Intervention effects will be modelled as either a binary pre/post-intervention indicator, or using quarter and/or season dummy variables according to the underlying trends identified in the descriptive analyses. Where confounding from other interventions of changes in the intervention context are anticipated, dummy-coded temporal variables will be used to control for these effects. Where cost data are available we will explore the impact of weighted the outcomes by admission cost has on model results. Scotland only models will be fitted early in the project using the three months short-term effects data and later in the project using the 24 months of post-intervention data. If SIMD analyses are feasible, interpretation of the IMD coefficients in these models will show the extent, if any, to which there is a socioeconomic gradient in the effects of MUP on health among harmful drinkers. Comparative models including both English and Scottish data will be fitted using the 12-18 month data in both England and Scotland. These models will use pooled Scottish and English data with country dummies to identify any significant differences in harm trends.

If these primary analyses suggest a significant effect of MUP on alcohol-related conditions, we will also explore temporal trends in non-alcohol-related hospitalisation and mortality to establish whether all-cause hospitalisations and mortality have also reduced post-intervention or whether the alcohol harm burden has shifted to alternative conditions. Further, if the descriptive analyses above identify substantial underlying trends in harm outcomes, we will undertake a difference-in-difference analysis to explore the extent to which harm rates in harmful drinkers have changed relative to moderate drinkers, and compare this between Scotland and England. This will provide a robust test of whether any observed change is particular to harmful drinkers in Scotland.

As secondary analyses, we will explore the feasibility of fitting interrupted time series models to the data to determine the significance of any intervention effect, however until the level of data availability, the date of MUP implementation and thus the exact timescales of the project are established is established, it is not clear that we will have sufficient power given the relatively short post-intervention period. Finally, if available, we will analyse cost data associated with hospital admissions to estimate the impact of MUP on healthcare services costs attributable to changes in admission patterns among harmful drinkers. This requires an estimate of what proportion of the harmful drinkers in Scotland are captured in the SPIRE data. This will obtained by triangulating the sociodemographic characteristics and geographic distribution of the SPIRE sample with multiple alternative data sources from WP3.

3. Required input from NHS Health Scotland

We do not anticipate requiring substantial input from NHS Health Scotland beyond that required to ensure clear communication between the research team and the commissioners. We would welcome any support in obtaining ethical approval in a timely manner and in obtaining early access to datasets. If recruitment in WP1 and WP2 is more difficult than anticipated, we may also require support in accessing participants via NHS facilities. However, we do not believe this is a likely scenario given Figure 8's extensive contacts in the field and long-term experience of recruiting samples for similar projects.

4. Deliverables and dissemination plan

The project will produce the following deliverables:

- Briefing meeting with NHS Health Scotland on commissioning;
- Application for ethical approval covering WP1 and WP2;
- Research tools relating to primary research in WP1 and WP2 (e.g. information and consent sheets, questionnaires and topic guides);
- Presentation of findings at a verbal debrief meeting with NHS Health Scotland;
- Annual interim reports for internal use by NHS Health Scotland and the Evaluation Advisory Group;
- Final project report to NHS Health Scotland including an executive summary and a 250 word stand-alone summary.
- The following deliverables will also be made available if requested by NHS Health Scotland:
    - Interview transcripts from WP1 and interviewer reports from WP2 for secure storage;
    - NVIVO file summarising qualitative data analysis for WP1 and WP2;
    - Analytical code for WP3 and WP4 permitting full replication of the analyses.

A formal dissemination plan will be agreed between the research team and NHS Health Scotland on commissioning. We anticipate this will include standard academic dissemination activities including submission of articles to peer-reviewed journals authored by the research team, presentations at scientific and practitioner conferences, engagement with news media and providing research users with accessible summaries of research findings. We also anticipate and are happy to accommodate requests by NHS Health Scotland to disseminate the research to their wider organisation, the Scottish Government, the Scottish Parliament or their external stakeholders.

5. Project timetable

Project Month	**0**	**1-3**	**4-6**	**7-9**	**10-12**	**13-15**	**16-18**	**19-21**	**22-24**	**25-27**	**28-30**	**31-33**	**34-36**	**37-39**	**40-42**	**43-45**	**46-48**
Date	**Q1 2017**	**Q2 2017**	**Q3 2017**	**Q4 2017**	**Q1 2018**	**Q2 2018**	**Q3 2018**	**Q4 2018**	**Q1 2019**	**Q2 2019**	**Q3 2019**	**Q4 2019**	**Q1 2020**	**Q2 2020**	**Q3 2020**	**Q4 2020**	**Q1 2021**
Introduction of MUP (assumed)																	
Project management																	
General project management																	
Ethics submission																	
Recruitment of RA																	
Compile interim report																	
Submit interim report																	
Present key findings to HS and SG																	
Meet with NHS Health Scotland																	
PPI meeting																	
Compile final report																	
WP1: Drinkers in treatment																	
Fieldwork preparation																	
Baseline data collection (Scotland)																	
Baseline data collection (England)																	
Wave 2 data collection (Scotland)																	
Wave 2 data collection (England)																	
Wave 3 data collection (Scotland)																	
Wave 3 data collection (England)																	
Data analysis																	
Report writing																	

*See Section **Error! Reference source not found.** for Milestones*

Project Month	**0**	**1-3**	**4-6**	**7-9**	**10-12**	**13-15**	**16-18**	**19-21**	**22-24**	**25-27**	**28-30**	**31-33**	**34-36**	**37-39**	**40-42**	**43-45**	**46-48**
Date	**Q1 2017**	**Q2 2017**	**Q3 2017**	**Q4 2017**	**Q1 2018**	**Q2 2018**	**Q3 2018**	**Q4 2018**	**Q1 2019**	**Q2 2019**	**Q3 2019**	**Q4 2019**	**Q1 2020**	**Q2 2020**	**Q3 2020**	**Q4 2020**	**Q1 2021**
Introduction of MUP (assumed)																	
WP2: Remote, rural and urban drinkers																	
PAI recruitment and training																	
Baseline data collection																	
Wave 2 data collection																	
Wave 3 data collection																	
Data analysis																	
Report writing																	
WP3: Alcovision																	
Purchase Alcovision data																	
Data cleaning and preparation																	
Evaluation analyses																	
Report writing																	

6. Research team

The research team comprises researchers from the University of Sheffield and Figure 8 Consultancy Services Ltd.

6.1. Institutional profiles

6.1.1. Sheffield Alcohol Research Group, ScHARR, University of Sheffield

The University of Sheffield's School of Health and Related Research (ScHARR) is a vibrant multidisciplinary department of over 300 staff and over 100 PhD students which secured 271 grants worth over £67 million in applied public health research funding from 2009-2014. ScHARR delivers major research programmes for the NIHR, UK Department of Health, Public Health England, NICE and many other funders. REF2014 ranks ScHARR 4th for research power and 2nd for impact. The Sheffield Alcohol Research Group (SARG) within ScHARR is led by Petra Meier and has an active programme of cutting edge applied alcohol research which encompasses a broad range of public health and social science topics, evaluation studies and methodological work and is funded by the MRC, ESRC, NIH, EU FP7, Scottish Government, UK Department of Health, NICE, international governments and health research charities.

6.1.2. Figure 8 Consultancy Services Ltd

Figure 8 Consultancy has entered its tenth year of operation, during which time it has developed a first-class reputation for delivering high quality research, evaluation, consultancy and training services to the health and social care sector across the UK. Based in Dundee, Figure 8 has established itself as one of the leading independent consultancies for alcohol and drug research and evaluation, currently operating in Scotland; with an unparalleled network of contacts across both Alcohol and Drug Partnerships and treatment services.

6.2. Technical capacity

Our team has the full technical capacity required for the proposed project, including project leads and experienced in working with people dependent on alcohol (Buykx, Perkins, Livingston Meier), qualitative research (Buykx, Holmes, Perkins), secondary data analysis (Angus, Holmes, Meier), primary care, hospital and mortality records (Angus) and evaluation research (Perkins, Meier, Buykx).

SARG is internationally-recognised as a leader in alcohol policy research and particularly alcohol pricing research. See especially the Interdisciplinary Alcohol Research Programme (IARP, http://www.sheffield.ac.uk/scharr/sections/ph/research/alpol/research/completed/iarp). As an interdisciplinary research group, SARG's other research in alcohol epidemiology and policy analysis includes studies employing quantitative and qualitative methods to inform and evaluate the new UK lower risk drinking guidelines, evaluation of a health behaviour change intervention for university students, qualitative investigation of local authority's alcohol policy processes, modelling to appraise the effectiveness of IBAs, and health economic analyses of demand for alcohol treatment services (see http://www.shef.ac.uk/scharr/sections/ph/research/alpol/research). SARG's research on MUP has been critical to policy debate, legislation and the on-going legal challenge around MUP in Scotland. This work has also been highly influential across the UK and in other countries including Ireland, Australia, New Zealand and Canada. It is recognised to be of the highest scientific standard and is published in the Lancet, BMJ, Plos Medicine and Addiction.

Figure 8 has a well-constructed, experienced team which has been carefully selected for this project to provide the requisite knowledge and skillset. The team members have the capacity to deliver, including administrative support to deal with the logistics of setting up all necessary fieldwork appointments.

Collectively, the Figure 8 team has extensive knowledge and experience of alcohol research, policy and practice across the whole of the UK and have a demonstrably strong track record of successfully linking with and recruiting from relevant services across a majority of Health Board areas in Scotland and are also well connected to Alcohol and Drug Partnerships. Figure 8 are just completing (2017) a two-year research and consultancy project for Glasgow Addiction Service, during which time they have worked with (and trained) all treatment staff as well as a cross-section of service users. Previously (2011-2015), Figure 8 led a four year (£250k) 'supporting recovery pathways' programme across NHS Tayside on behalf of the three Tayside ADPs and co-authored the Scottish Alcohol Needs Assessment (2009) project.[3] Figure 8 have also worked extensively across England, with a particular relevant study being a 2012 'Assessing the Job-Readiness of Recovering Substance Misusers' study in Stockton.

6.3. Team members

Details of team members and their role in the project are provided below. CVs of each team members follow the profiles.

6.3.1. University of Sheffield

Dr John Holmes, PhD, MA, BA (Hons) (York).

Overall project lead, WP3 lead, contributions to all other WPs.

Dr Holmes is a Senior Research Fellow in the Sheffield Alcohol Research Group at ScHARR. He completed a BA in Applied Social Science and an MA and PhD in Social Policy at the University of York. He joined SARG in 2010 and his research focuses on the analysis and evaluation of alcohol policy options and examination of alcohol consumption patterns and trends using epidemiological, decision modelling and qualitative techniques. He has worked extensively on the development of the Sheffield Alcohol Policy Model and its use to appraise the impacts of policies, including MUP, on different population subgroups. This work has been highly influential in informing the alcohol policies of the UK Governments and those in other countries including Ireland, New Zealand and Australia. More recently he has led research projects which played a central role in the development of the new lower risk drinking guidelines, including the epidemiological modelling on which the guideline consumption levels were based. He is Deputy Commissioning Editor and Senior Editor for *Addiction*, the leading disciplinary journal, and has been an Assistant Editor for *Journal of Studies on Alcohol and Drugs*, an expert witness to Select Committees of the UK, Scottish and Irish Parliaments and a peer reviewer for the ESRC, Scottish Chief Scientist's Office, Alcohol Research UK and a range of scientific journals. He has authored 33 peer-reviewed journal articleS including lead-authored papers in the Lancet and BMJ. He has been awarded over £5.5m in research funding as lead or co-investigator including evaluations of the new lower risk drinking guidelines (£605k) and recent English tobacco control policies (£490k).

Dr Penny Buykx, PhD, CertAddictionStd (Curtin), GradDipAppPsych (Swinburne), BBSc (La Trobe)

Co-lead of WP1, contributions to WP2.

Dr Buykx is an experienced researcher with interests in health disparities, mental health, rural health, preventative health, healthcare systems and the health workforce. Dr Buykx has been an investigator on over £2m of grant funds and has published over 50 peer-reviewed publications and numerous reports and conference presentations. Of particular relevance to the current tender, Dr Buykx has extensive experience in undertaking research with people with alcohol and/or drug dependence, in a variety of settings, including substance use treatment services, emergency departments and prisons. This work has been conducted using a broad range of qualitative and mixed methods. She is experienced in communicating participant information to potentially vulnerable people and is sensitive to the ethical issues which may arise when

seeking consent to participate. Dr Buykx also has a strong interest in understanding the impact of health policies for rural and remote populations through her previous work in Rural and Remote Primary Health Care in Australia. Her understanding of the relevance of isolation for treatment access, health workforce, patient confidentiality and potential experiences of stigma will be relevant to the Scottish context. Major relevant recent projects include a Department of Health funded project which synthesised routinely available data and published evidence to estimate current need for and provision of alcohol treatment in each Local Authority in England and a Commonwealth of Australia funded study involving interviews with over 800 people entering treatment and including 12 month follow up, including a rural subsample.

Colin Angus, MSc (Sheffield), BSc (Hons) (Warwick)

Lead on WP4, contributions to WP3.

Colin Angus is a Research Fellow and senior analytic modeller within the Sheffield Alcohol Research Group. He completed his first degree in Mathematics at the University of Warwick and subsequently gained an MSc in Health Economics and Decision Modelling within ScHARR. He joined SARG in 2011 and his research focuses on appraising and evaluating the impact of alcohol policies on population health, analysis of trends in alcohol consumption, spending, availability and harm, quantifying alcohol-related inequalities in health and evaluating the potential for alternative policy approaches to affect these. Much of his work involves the development and adaptation of the Sheffield Alcohol Policy Model and he has been lead investigator on a range of contracts for the UK Government, the devolved Governments, the Irish Government and Public Health England to appraise the potential impact of a of alcohol policies, including MUP. He also designed the methodological approach used in the epidemiological modelling which informed the development of the recent UK lower risk drinking guidelines. Mr Angus has been named as an investigator on grants totalling £750k and has published 23 articles in peer-reviewed journals including the Lancet, BMJ, PLoS Medicine and Addiction as well as several influential policy reports. His extensive experience analysing and working with both Scottish and English data and modelling the potential impacts of MUP in Scotland, including a specific focus on harmful drinkers, make him uniquely well placed to lead WP4 and contribute to the wider project.

Prof Petra Meier, PhD (Manchester), MSc (Hertfordshire), Vordiplom (Heidelberg).

Professorial support in project management, linkage to research networks and guidance on research methods.

Petra Meier is Professor of Public Health, Director of the Sheffield Alcohol Research Group, Postgraduate Research and the Wellcome Trust Doctoral Training Centre in Public Health Economics Research at the School of Health and Related Research. She is also an honorary member of staff at Public Health England. She studied Psychology at the University of Heidelberg in Germany, before completing an MSc by Research in Child Health (University of Hertfordshire) and a PhD in Epidemiology and Health Sciences (University of Manchester). She was a Lecturer in Psychology for two years after her doctorate, before joining the University of Sheffield in 2006. Research interests include alcohol policies and their effectiveness, particularly pricing and availability policies; co-occurrence of detrimental health behaviours, health inequalities, determinants of substance use, misuse and addiction and substance misuse treatment evaluation. Professional roles include: Member of the Public Health England Alcohol Leadership Board, Member of the Chief Medical Officer's Alcohol Guidelines Review Group, scientific advisor to the Institute of Alcohol Studies, Senior Editor of the discipline's top-ranking journal, Addiction, as well as regularly peer reviewing for grant-awarding bodies including the NIHR, MRC and ESRC. She has authored over 60 peer reviewed journal papers, including in The Lancet, the BMJ and Plos Medicine. She has been a co-investigator on over £25 million in grant funding, including £1.8 million as Principal Investigator. Her team's work has been instrumental in informing alcohol pricing policy

developments nationally and internationally. She has excellent links into the senior levels of governments in the UK, EU and elsewhere to maximise translation of research evidence into practice.

Prof Alan Brennan, PhD (Sheffield), MSc (LSE), BSc (Hons) (Imperial)

Professorial support in project management, linkage to research networks and guidance on statistical methods.

Alan Brennan is Professor of Health Economics and Decision Modelling at ScHARR. He studied for a BSc in Mathematics at Imperial College London and an MSc in Operational Research at the London School of Economics before joining the NHS to work in and then lead the Trent Operational Research Unit. Since 1994 he has led the modelling team at ScHARR, co-founding SARG in 2008 and leading its modelling team. He leads programmes of research on mathematical modelling in health and healthcare focused on health economics and decision modelling. He is currently principal investigator or co-investigator on 25 research programmes and projects. Recent government or national policy research includes research on pricing, tax, availability and harms due to alcohol, estimating prevalence of alcohol dependence and need for specialist treatment, new NIHR programme grants and studies including a multinational trial of e-cigarettes to prevent relapse to smoking after an initially successful quit attempt and the NIHR School for Public Health Research. Grants have included modelling alcohol policies in Scotland, Canada, the European Union, Ireland and Northern Ireland and to extend into the areas of joint health-related behaviours with tobacco via the UK Centre for Tobacco and Alcohol Studies. He has published 131 peer reviewed journal papers including in leading journals such as the Lancet and the BMJ. His research, both within and beyond the alcohol field has been instrumental in influencing national and international policies and approaches to public health and health technology appraisal.

6.3.2. Figure 8 Consultancy Services Ltd.

Andy Perkins

Lead for Figure 8, Co-lead of WP1 and WP2.

Andy Perkins has over 20 years' experience in the alcohol and drug field and is an expert in the evaluation and review of a wide range of policies, services and systems. As the Director of Figure 8 Consultancy, Andy has project managed over 90 contracts in the last nine years for a range of clients including health, social care and criminal justice providers (ranging in value from £3k to £237k with timescales from one month to four years, including a number of national contracts). Andy is currently leading a review of the Welsh Government's national alcohol and drug strategy in partnership with Glyndwr University in Wrexham. He has been responsible for a diverse range of research and evaluation projects including needs assessments, scoping exercises, process evaluations, and feasibility studies. Andy is a co-author of the Scottish Government 'Research for Recovery: A Review of the Drugs Evidence Base' study (2010). He is an experienced qualitative interviewer and is used to seeking the views of a broad range of stakeholders from civil servants, to senior managers within Local Authorities and Health Boards, to service providers, to service users and their families or carers. As a practitioner, Andy spent 10 years managing residential and in-prison alcohol and drug treatment programmes, including registered residential services for men, women and children, and in-prison services for young offenders. He was Programme Manager for a 72-bed unit in HMYOI Portland, which was run as a dedicated alcohol and drug Therapeutic Community programme – the only one of its kind for Young Offenders in Europe. As a former Director of Quality, he also has extensive experience of rigorous evaluation and quality assurance procedures.

Dr Wulf Livingston, Phd, MA, DIpSw, BA (hons)

Co-lead of WP1, Lead of WP2.

Dr Wulf Livingston is a Senior Lecturer in Social Work at Glyndŵr University, Wrexham and is a registered social worker. Wulf has spent the last 20 years working in a range of community social work settings, working predominantly in the field of alcohol and drugs. His last post was as an Area Manager with Wales Probation. He is the current Chair of the New Directions in the Study of Alcohol Group (NDSAG), and is a Committee Member of the British Association of Social Worker's Special Interest Group (Alcohol and other Drugs). His latest research involvement was as the Research Lead for an 'Exploratory Study into Sight Loss/Visual Impairment caused by Alcohol and Other Drugs' in collaboration with The University of Bedfordshire and The University of Lancaster. His recent research involvement has also included investigation into 'Integration in North Wales: Localised responses to national agendas' (2015) funded by Flintshire Local Authority on behalf of the six North Wales Local Authorities and Betsi Caldwalader University Health Board, Glyndwr University, Wrexham. Wulf is experienced in dealing with ethical sensitives relating to research; as a registered social worker is bound by the relevant Code of Practice for Social Care Workers; and is proficient in applying for, and receiving approval for research projects from university research ethics committees.