ACCESS TO THE DERBYSHIRE ALCOHOL ADVICE SERVICE: A HEALTH EQUITY ASSESSMENT

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NHS Derbyshire County.

September 2011.

Acknowledgements

I would like to thank the following for their help and support in developing and completing this project:

- Dr Peter Cansfield. Consultant in Public Health Medicine. NHS Nottingham City.
- Dr Lisa Szatkowski. Lecturer in Medical Statistics. University of Nottingham.
- Nicky Richmond. Principle Public Health Analyst. NHS Derbyshire County.
- Alison Pritchard. Consultant in Public Health. NHS Derbyshire County.
- Elaine Handley. Service Manager. Derbyshire Alcohol Advisory Service.
- The General Practitioners who kindly participated in the interview phase of the project.

Contents

List of tables

List of figures

List of abbreviations

DAAS	Derbyshire Alcohol Advice Service
GLF	General Lifestyle Survey
GP	General Practitioner
HEA	Health Equity Audit
IMD	Indices of Multiple Deprivation
IQR	Inter-quartile range
LSOA	Lower Super Output Area
NCHOD	National Centre for Health Outcomes Development
NHS	National Health Service
NI39	National Indicator 39
PCT	Primary Care Trust
RCT	Randomised Controlled Trial
SUS	Secondary Uses Service
WHO	World Health Organization

Abstract

Introduction:

Alcohol consumption represents a considerable public health burden in the UK. Excessive consumption is associated with poor physical and mental health outcomes including increased risk of depression, liver disease and some cancers, and is estimated to cost the NHS £2.4 billion per annum.

Equity of access to treatment is a founding principle of many health care services including the NHS, and there is evidence that inequitable access can have a negative impact on a range of health outcomes.

In Derbyshire a county-wide alcohol service is provided by the Derbyshire Alcohol Advice Service. This project aimed to assess equity of access to the service and to explore variations in referrals from primary care.

Methods:

Both quantitative and qualitative methods were employed to assess equity of access to the DAAS. Need for the service was measured using hospital admissions data and access to the service was assessed using routinely collected service data. Descriptive analysis of this data and the calculation of use:need ratios was undertaken to assess equity of access according to patient level (age, gender,

geographical location, socio-economic status) and service level (general practice) characteristics. Variations in equity of access at general practice level were further explored through semi-structured interviews with GPs from practices with high need for but low referral to the DAAS.

Results:

Variations in equity of access were observed in relation to age, socio-economic status and geographical location. There was also significant variation in equity of access in relation to general practice, with some referring no patients to DAAS, despite patients from these practices experiencing alcohol specific admissions. The findings of the interview phase suggested that this may reflect differences in both referral methods, with some GPs providing information to patients who then self-refer, and also that some refer directly into another alcohol service.

Conclusions:

There does appear to be some groups who have inequitable access to the DAAS, including older patients and patients in the most affluent quintile. There also appears to be some confusion among GPs around who provides the county-wide service and who patients should be referred to in the first instance.

1 Introduction

1.1 Alcohol consumption: definitions and patterns of consumption in the UK and in Derbyshire

1.1.1 Alcohol consumption in the United Kingdom

In the UK, the National Health Service (NHS) provides the following recommendations in relation to alcohol consumption:

- Men should not regularly drink more than 3-4 units of alcohol a day
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With 'regularly' meaning drinking this amount every day or most days of the week (NHS Choices 2011).

Measuring alcohol consumption accurately and reliably is problematic. In the UK for example, several large and long standing surveys include questions relating to alcohol consumption. These include the General Lifestyle Survey (GLF - previously the General Household Survey) and also the Office for National Statistics Opinions (Omnibus) Survey. Consumption is also estimated using data from revenue generated through alcohol sales and taxation.

The ONS opinions survey reported that in 2009 in the UK, on average people were reporting that they drank 12.4 units of alcohol per week. Men reported drinking more at 15.6 units a week (equivalent to approximately 8 pints of average strength beer) and women on average consumed 9.5 units a week (The Information Centre 2010).

Unlike other behaviours such as smoking, patterns of consumption across the social gradient were inversely associated with consumption, with highest consumption reported in the management and professional grouping and the lowest in the routine and manual grouping (13.5 units per week compared to 10.7 per week) (Office for National Statistics 2011).

Consumption though may actually be higher as these surveys and many other studies that aim to measure alcohol consumption rely on self-reported behaviour and tend to ask participants to recall their consumption in the previous seven days. This is then prone to underestimation of consumption due to response bias (i.e. individuals may consciously under report their consumption) recall bias and also misclassification bias. McDonald et al for example in their study of alcohol consumption and risk of hospital admission, acknowledge this and report that someone who regularly drinks 50+ units a week but is then abstinent in the week prior to data collection can be easily misclassified as a non-drinker (McDonald SA et al 2009). The impact this has on interpretation is difficult to quantify though it has been reported that self-reported consumption is only 60% of that estimated through analysis of alcohol taxation data (Bellis MA 2009).

1.1.2 Harmful, hazardous and dependent alcohol consumption

Hazardous drinkers have been defined as those whose drinking patterns increase their risk of physical or psychological harm, whilst

harmful drinkers are those whose behaviour is likely to damage their health (The Information Centre 2009). The 2007 Adult Psychiatric Morbidity Survey reported that in England, overall 24% of adults aged 16 and over were categorised as hazardous drinkers, with men being far more likely than women to be classified as such (33% compared to 16%). In addition this survey also reported that 6% of men and 2% of women were classified as harmful drinkers. (NHS Information Centre 2007).

Alcohol dependence has been defined as a cluster of behaviours and psychological and physiological characteristics that develop after repeated use of alcohol. These include problems in controlling use of the substance, prioritisation of the substance in relation to other activities and may also include physical symptoms of withdrawal (NHS Information Centre 2007).

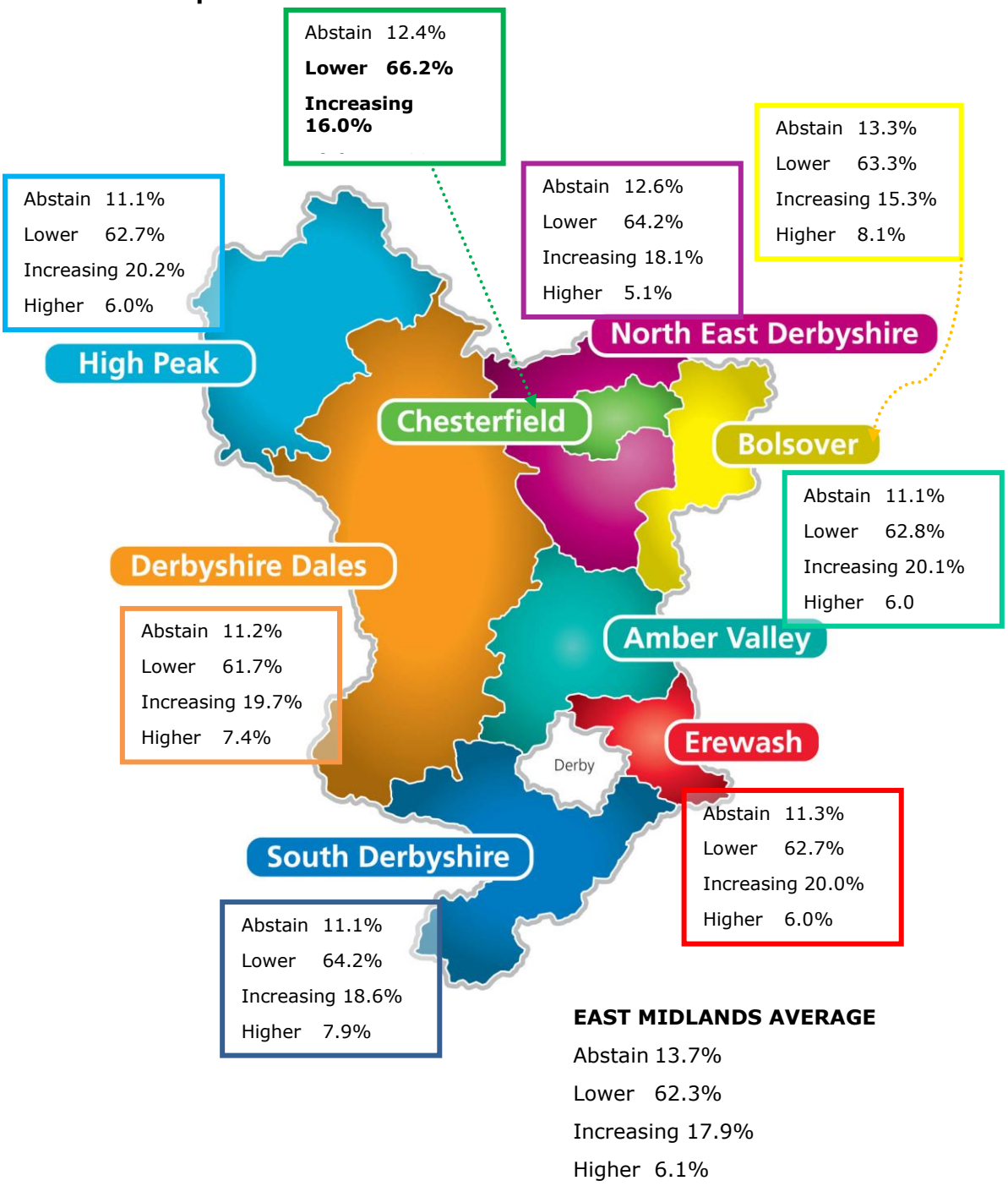
Again, data collected through the Adult Psychiatric Morbidity Survey reported that 6% of adults aged over 16 were found to be dependent drinkers. Men were more likely than women to be classified as a dependent drinker (9% compared to 3%) and the highest levels were observed in men aged 25-34 years of age (17%).

1.1.3 Alcohol consumption in Derbyshire

Derbyshire is a large and diverse county located in the East Midlands area of England. A shown in **Error! Not a valid bookmark self-reference.**, the county is made up of 8 constituent districts. Services

to meet the health needs of the population (excluding Derby City) are currently commissioned by Derbyshire County Primary Care Trust (PCT), which is responsible for a resident population of 726,341.

Figure 1: Map of Derbyshire showing constituent Districts and estimated alcohol consumption[1]



[1] Source of map: Derbyshire Community Health Services. http://www.dchs.nhs.uk
Source of estimated levels of consumption: North West Public Health Observatory. 2011.

Alcohol consumption for Derbyshire residents is difficult to assess accurately. However, recently the North West Public Health Observatory published synthetic estimates (derived from the General Lifestyle Survey) for level of consumption at local authority level (see

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Figure 1). This data is reported according to percentage of the population who are abstinent, and percentage that are at lower, increasing and higher risk (which broadly reflect hazard and harmful consumption). The regional average for abstinence is estimated to be 13.7% and in all of the districts in Derbyshire this figure is lower, with 11.3% of the population in Erewash for example estimated to be abstinent. In terms of higher risk which suggests harmful use, the average for the region is 6.1% and across Derbyshire there is some variation, with 5.1% of residents in North East Derbyshire for example being in the higher risk group (North West Public Health Observatory 2011).

2.1.4 Current models of alcohol service delivery in England and Derbyshire

Currently in England the process of delivering interventions to reduce problematic alcohol consumption is done according to a tier system (see Figure 2)

Figure 2: Configuration of alcohol services

Tier 1: Alcohol related information and advice, screening, simple brief interventions and referral in non-alcohol specific settings such as primary care, A&E, police settings.

Tier 2: Open access facilities and outreach that provide alcohol specific advice, information and support. Extended brief interventions and referral for more serious alcohol related problems.

Tier 3: Community based structured and care –planned alcohol treatment. Including community based detoxification.

Tier 4: Residential specialised alcohol treatment.

Source: Models of care for alcohol misusers (MoCAM). Department of Health.

Service delivery in Derbyshire also follows this model and currently the Derbyshire Alcohol Advice Service (DAAS) provides a hub service where all referrals for Tier 2 and above are received and then allocated to a tier dependent on the needs of the client.

2.2 The public health significance of alcohol consumption

2.2.1 The physical health effects of alcohol consumption

Alcohol poses an unusual public health problem as unlike behaviours such as smoking, whilst excessive alcohol consumption is harmful to health, consuming small or even moderate amounts of alcohol may actually be beneficial. In a recent meta-analysis of 84 prospective cohort studies for example it was reported that compared to non-drinkers, those who drank alcohol were at reduced risk of a range of cardiovascular outcomes. Drinkers for example were 29% less likely

than non-drinkers to die from Coronary Heart Disease (CHD), with the lowest risk seen in those reporting 1-2 drinks a day. However, the relationship between consumption and outcome was J-shaped, with those consuming >60g/day being 30% more likely than non-drinkers to die from CHD (Ronksley 2011).

In terms of mortality associated with alcohol, in the UK in 2009 there were 8,664 (12.8 per 100,000) alcohol related deaths, with deaths in males accounting for two-thirds of this figure (The Information Centre for Health and Social Care 2011). In terms of trends over time, there has been a small rise in the number of alcohol related deaths, with for example 6,804 (11.2 per 100,000) recorded in 2000. In England, the highest rates of deaths are seen in men aged 55-74 years of age (41.8 per 100,000) and there is also some geographical variation with the highest rates seen in the North-West of England (22.5 per 100,000) and the lowest in the South-East (12.9 per 100,000).

In terms of alcohol related morbidity, there is evidence from meta-analyses of prospective cohort studies to suggest that alcohol consumption is associated with increased risk of a range of diseases such as hypertension, liver disease and some cancers. Heavy drinkers whose alcohol intake exceeds 100g/day have for example been reported as being over 26 times more likely than non-drinkers to develop cirrhosis of the liver (Corrao G et al 2004). In terms of cancers, in a meta-analysis of 14 cohort studies alcohol intake was

associated with a small but significant increase in the risk of pancreatic cancer (Genkinger JM et al 2009) and in another meta-analysis of 7 such studies, women drinking more than 2.5 alcoholic drinks per day were at a 25% increased risk of endometrial cancer (Friberg E et al 2010). Similar findings have also been reported in meta-analyses of risk of breast cancer and alcohol intake (Key J et al 2006) and oral and pharyngeal cancers where the risk in heavy drinkers has been reported as being five times that of non-drinkers (Tramacere I et al 2010).

In terms of hypertension, a study of 12 cohort studies concluded that although very low alcohol consumption in women may be protective, in men the relationship is more linear than J-shaped with increasing intake increasing the risk of hypertension. Men consuming 100g of alcohol per day for example were more than twice as likely as non-drinkers to suffer from hypertension (Taylor B et al 2009).

These studies have a particular strength in that their prospective design reduces risk of bias and can also determine temporal relationships between the exposure and outcome of interest. Also by pooling data, more conclusive findings can be drawn than can from individual single studies.

However, even within this design alcohol consumption can be prone to misclassification bias, particularly as many use non-drinkers as their reference group. It has been found that over half of people who

report being a life-time abstainer from alcohol actually change their answer to this question over time (Rehm J 2008). This means that misclassification bias is likely to be a feature of most studies that aim to assess the relationship between alcohol consumption and health outcome.

Publication bias occurs because studies with significant findings are more likely to be published, with one study reporting that studies with significant findings are 2 to 4 times more likely to be published than studies with non-significant findings (Egger M et al 2001). Therefore even with the use of specific tests of publication bias such as that discussed in the paper by Friberg et al, it is likely that some publication bias will occur which is likely to lead to some overestimation of the pooled effect.

However, a study of the impact this has found that although approximately half of meta-analyses studied had some evidence of publication bias, inclusion of missed studies would not have changed the overall conclusions made (Sutton AJ et al 2000).

2.2.2 The mental health effects of alcohol consumption

There is evidence to suggest that alcohol consumption is also associated with some mental health problems including depression and psychosis. Conner et al for example in a meta-analysis of 74 studies reported that depression was associated with concurrent alcohol use and that there was also evidence from prospective studies

that depression was also associated with future alcohol use (Connor K et al 2009). Also in a longitudinal study of admissions for psychosis, 35% of first –episode admissions were associated with alcohol use disorder (Addington J et al 2007).

The direction of the relationship between alcohol use and mental health problems is though open to debate as it could be argued that alcohol use causes mental health problems, that having mental health problems leads to alcohol use as a form of 'self-medication' or having either disorder increases the risk of the other simultaneously. However, in a systematic review of the relationship between alcohol consumption and burden of disease, Rehm et al concluded that there was evidence to suggest that the onset of alcohol disorder precedes the onset of depression. Rehm concluded that people with alcohol dependency have a 2-3 fold increase in the risk of depressive disorders and that the relationship between alcohol and depression is strengthened by evidence of reversibility –i.e. depressive conditions improve when people become abstinent (Rehm et al 2003).

2.2.3 The economic and social burden associated with alcohol consumption

Excessive alcohol consumption is associated with a range of social and economic consequences. A report by the World Health Organization (WHO) reported that in Europe in 2003, the tangible costs associated with alcohol consumption were estimated to be €125 billion, with €66 billion being spent directly on addressing alcohol

related problems and €59 billion from employment related losses and premature mortality (World Health Organization 2010). Also in a report published in 2008, it was estimated that alcohol misuse in the United Kingdom costs the economy £25.2 billion, with £2.7 billion of this cost falling to the National Health Service (NHS) (National Audit Office 2008).

Alcohol consumption is also closely associated with crime, and it has been estimated that in the UK 16% of violent crimes are associated with alcohol consumption. It has been for example reported that approximately half of incidents that lead to an injury are associated with hazardous drinking behaviours (Coid J et al 2006). A meta-analysis of 12 studies also reported that risk of violence and injury increases in line with increasing alcohol intake. Drinking 25g/day for example increased risk by 12% whereas drinking 100g/day increased risk by 58% (Corrao G et al 2004).

2.3 Identification of alcohol disorders and interventions aimed at reducing harm from alcohol

2.3.1 Identification of alcohol disorders

In England the Department of Health has not introduced population wide screening for alcohol disorders but has encouraged opportunistic screening through the introduction in 2008 of a Directly Enhanced Service. This provides incentives to primary care for the provision of alcohol disorder screening and brief advice to newly registered patients (Lavoie D 2010).

Identification of excessive alcohol consumption can be aided by a variety of screening tools. The World Health Organization for example have developed the AUDIT (Alcohol Use Disorders Test). This test consists of ten questions such as '*How often in during the last year have you had feelings of guilt or remorse after drinking'* and has been developed and evaluated over a twenty year period (Babor T et al 2001). The shorter CAGE tool can also used to identify alcohol disorders and this consists of four questions simple questions, including '*Have people annoyed you by criticising your drinking?'* (Ewing J 1984).

2.3.2 Macro-level interventions: pricing and taxation

Alcohol pricing has been a contentious issue in the UK with calls made by health professionals to introduce minimum pricing in an attempt to reduce consumption and so the health and social harm associated with alcohol.

This call comes in response to substantial evidence around the relationship between alcohol price and consumption. In 2009 Wagenaar and colleagues published a meta-analysis of 112 studies that had examined the association between cost and consumption. This study concluded that there was overwhelming evidence that price of alcohol was associated with consumption across type of drinkers (i.e. light, moderate and heavy) and type of alcoholic

beverage, with increasing price associated with reduced consumption (Wagenaar et al 2009).

2.3.3 Individual level interventions to reduce consumption

In the UK brief interventions are recommended for use in a variety of settings to reduce consumption and reduce the risk of people with alcohol disorders becoming alcohol dependent (NICE 2010). Brief interventions can be provided in variety of settings and include giving patients feedback on their alcohol consumption, setting goals for reduction and following up on progress made (Babor and Higgins-Biddle 2001).

The impact of providing brief interventions in the primary care setting was the subject of a Cochrane review published in 2009 (Kaner EF et al 2009). This review included data from 22 RCTs and concluded that brief interventions were associated with a significant reduction in alcohol consumption of 4-5 units at follow up of one year or longer. In sub-analysis however this finding was only observed in men, though non-significant differences in women may have been due to insufficient power to detect a difference in this group.

As with all meta-analyses the authors reported some methodological flaws in the included studies. These included flaws in fundamental features of the RCT design including randomisation and concealment. However the authors report the findings of sensitivity analysis done on 10 'class A' studies that had adequate concealment and found very

similar findings to those reported in the overall pooled analysis. This suggests that these flaws had a limited impact on the overall conclusions of the meta-analysis.

Brief interventions are also used in non-primary care settings, though the evidence as to their effectiveness appears mixed. In a RCT in the inpatient hospital setting in the US for example, Saitz and colleagues found that provision of a 30 minute brief intervention by a trained counsellor had no impact on outcomes in patients identified as having an alcohol problem. Participants randomised to receiving the intervention were not more likely to be in receipt of assistance for their alcohol problem at follow, and had not significantly reduced their consumption (Saitz et al 2007). However, there are some methodological issues to take into account when considering these findings. There were for example significant imbalances seen at baseline between the intervention and control arms of the study and there was also no blinding of researcher or clinician recorded, both of which suggest that bias could have been introduced which may have affected the overall conclusion.

In contrast another RCT in a hospital trauma setting found that dependent drinkers significantly benefited from the receipt of a brief intervention. At 12 months follow up these participants were more likely to have reduced their alcohol consumption and were less likely than at baseline to be classified as alcohol dependent. Uptake of

support from Alcoholics Anonymous was also significantly higher in this group. However, self-reported consumption was not validated by biological samples in this study and so it is possible that reported consumption in those receiving the intervention could be more likely to be under-reported in comparison to the control group, therefore overestimating the effect of the intervention (Field CA 2010).

A 2011 Cochrane review of 14 RCTs examining the impact of brief interventions for heavy alcohol users admitted to general hospital wards, concluded that receipt of a brief intervention was associated with a reduction in consumption at 6 and 9 months follow up but not at one year. Also fewer deaths were observed in the intervention group at both 6 months and 1 year post intervention. Again the authors reported methodological flaws in several studies, but concluded that there was sufficient evidence to suggest that brief intervention in this setting was associated with a significant reduction in drinking and also suggested that simply screening patients may have a positive impact on drinking behaviour (McQueen J et al 2011).

In addition to brief interventions, hospital based alcohol liaison services have also been introduced to reduce alcohol related admissions and improve access to alcohol specific services. A study of the impact of such a service provided in Nottingham was published in 2010. This study presents an analysis of outcomes such as hospital admissions in the period before and after the service was initiated. It

found that following its introduction, there was a reduction in alcohol related hospital admissions and a reduction in the number of violent attacks against staff (Ryder S et al 2010). However the design of this study means that a causal relationship between the service and the outcomes cannot be assumed and also it is possible that at least some of the success of the service was associated with the fact that Nottingham has an established day-hospital based alcohol service which may mean that the findings may not be replicable elsewhere.

2.4 Equity of access to health services

2.4.1 The concept of equity of access in health care provision

Equity of access to health care is a founding principle of many health care systems. Most strive for horizontal equity which can be broadly seen as equal access for equal need. Goddard et al suggest that variation in equity of access may arise from four possible sources, these being:

1) *Availability* – i.e. health care services may be offered inequitably with some patient groups being less likely than others to be offered a treatment.
2) *Quality* – i.e. the quality of services may vary between populations.
3) *Costs* – i.e. services may have financial and non-financial costs that may also vary between populations.
4) *Information* – i.e. there may be inequity in the clarity of information provided about services to certain groups within a population.

Goddard goes on to review the published evidence in relation to equity of access to UK health services and concludes that many studies that aim to assess equity of access actually address equity of treatment, which they term as *realised access*. They conclude that despite a significant amount of research done in this field, firm conclusions around the extent of inequitable access in NHS services cannot be made due to methodological limitations. The most significant being that service utilisation is widely used as a proxy measure for access, which the authors argue may not be a valid measure (Goddard M et al 2001).

2.4.2 The impact of inequity of access on health outcomes

The impact of inequitable access on patient outcome has been studied in many areas of health care. Sekhri et al for example assessed equity of access to coronary angiography. They concluded that there was inequitable access to this procedure for older patients, for female patients and for patients from ethnic minority groups. These patients also then went on to have higher rates of subsequent coronary events (Sekhri M et al 2008).

There is also some evidence that socio-economic status and geographical location are associated with access to health services. The Organisation for Economic Co-operation and Development (OECD) has published data that suggests that in the UK, access to dental services is associated with socio-economic status, with the

least affluent having the poorest access to dentistry (De Looper M & Lafortune G 2009). Also, although Goddard et al argue that firm conclusions cannot be drawn regarding the extent of inequitable access in the UK, they do conclude that in terms of deprivation, there is evidence in hospital and preventative services that the amount of provision accessed by the most deprived group does not match their need for services (Goddard M et al 2001).

Geographical location may also be associated with variability in access to services and poor outcomes. Campbell for example reported in a study of stage of disease for colorectal and lung cancers at diagnosis that patients from rural areas that were geographically distant from services were more likely to have disseminated disease at diagnosis (Campbell SE et al2001).

2.5 Aims and objectives of the project

The aim of this health equity assessment is to determine equity of access to the county-wide alcohol service provided in Derbyshire. The objectives are:

1) To describe need and variations in need for the county-wide service through an analysis of hospital admissions data for alcohol specific admissions and re-admissions in Derbyshire for the period 2007 to 2011 and to describe hospital specific admissions and re-admissions in relation to geographical

location, socio-economic status, age, sex, ethnicity, and General Practice.

2) To describe equity of access to the service through an analysis of the characteristics of clients accessing the service in the period 2010 to 2011, to include: geographical location, age, sex, socio-economic status, ethnicity and referral route (self-referral, GP referral, or referral from other services such as probation services).
3) To explore possible reasons for variation in referrals from primary care through semi-structured telephone interviews with GPs from practices in areas with high need but where number of referrals is low.

3 Methods

3.1 Design

The aims and objectives of the project were addressed using a methodology similar to a traditional Health Equity Audit (HEA). The difference being that the final stages of the HEA process that are concerned with implementation of recommendations and monitoring of the impact of these recommendations, were not possible within the scope of this piece of work.

The model used was an adapted form of that developed by the Health Development Agency (Health Development Agency 2003). This approach aims to systematically identify inequities in populations in

relation to in this case, access to services. The process involves the following stages:

***1. Agree priorities and partners*.** The initial stage of agreeing priorities and partners was done through discussions with the Derbyshire Joint Commissioning Group for Alcohol who were asked to consider priorities that they would like to be explored. Potential projects were then considered in line with constraints and requirements of the dissertation module of the Master of Public Health degree course.

***2. Undertake an equity profile and identify any inequity between need and access*.** Addressing these stages involved utilising both quantitative and qualitative methods. Both the development of the equity profile and then identifying any inequity relied on the collection and analysis of patient level hospital admissions data and also patient level service data provided by the Derbyshire Alcohol Advice Service. Finally, understanding variations in referral from primary care involved semi-structured telephone interviews with GPs. Data collection and analysis for each component are described in detail below in sections 3.3 to 3.7.

3. Make recommendations to partners. The final phase of the process is to synthesise and interpret the information collected and to use this to make appropriate recommendations.

3.2 Defining need for and use of the service

A need is broadly defined as something from which an individual has the capacity to benefit (Buchan H 1990). In this case an individual who has a need for referral to the DAAS service is someone who has the capacity to benefit from that service as their alcohol consumption has become problematic and has resulted in a hospital admission.

Identifying data sets that can be used to measure and quantify need is challenging as someone may display problematic drinking behaviours but this may go undetected as not all will utilise health services. For the purposes of this project, need was measured using hospital admissions data (Secondary Uses Service data, known as SUS) for alcohol specific admissions. This includes admissions for conditions such as alcoholic liver disease and acute alcohol poisoning (see appendix 1 for a complete list of alcohol specific condition codes).

The rationale for using this data set to describe need for the service is that individuals whose alcohol consumption has resulted in an alcohol specific admission to hospital do have the capacity to benefit from the services provided by DAAS. This can then be considered as an *identified* need for the service. The limitations and strengths of this approach are discussed in detail in section 5.3.1.

3.3 Quantitative data collection and management processes

3.3.1 Hospital admissions data– data collection

Secondary Uses Service (SUS) data are routinely collected in the secondary care setting to monitor activity and for performance management and payment purposes. This data includes detailed information on all hospital admissions including patient details such as postal code, date of birth, NHS number and gender and also clinical information such as the ICD 10 codes associated with the admission.

Due to limitations placed on accessing this dataset, the data were requested in an anonymised format through a Public Health Analyst employed by NHS Derbyshire County, after agreement for use of the data was granted from the organisation's Information Governance team. The data analyst was asked to extract the following data:

- Unique identifier
- Alcohol specific ICD 10 code associated with the admission
- Date of admission
- Age
- Sex
- Geographical location (District, electoral ward and lower super-output area)
- Practice code
- Ethnicity

The following inclusion criteria were also applied by the Analyst during the extraction process:

- Admissions for patients aged 18 years or over at admission
- Admissions for alcohol **specific** causes (see appendix 1 for diagnosis codes)
- Admissions for patients resident in Derbyshire County at the point of admission
- Admissions between 01/04/2007 and 31/03/2011 (to allow identification of any changes over time).

To allow for comparison with national data sets, the methodology for identifying alcohol specific admissions was the same as that used for generating NI39 (National Indicator 39) data. Using this method, all admissions where an ICD 10 alcohol specific code is recorded within the first 14 codes are identified as being alcohol specific admissions.

3.3.2 Hospital admissions data - data management and manipulation

The SUS data were provided in Excel format and prior to manipulation and analysis, the data were examined by the researcher to ensure that only eligible admissions were included. Specifically, the ICD 10 codes were tabulated to ensure that only specific admissions were included and both age and location were examined to exclude any cases aged under 18 years or any cases that whose location of

residence was given as outside of Derbyshire county. The data were then exported into SPSS version 17 for analysis.

Some data manipulation was required by the researcher prior to analysis (see Table 1 for a summary). This included assigning individual patients a unique identifier so that primary admissions and re-admissions for individual patients could be identified during the period of interest. This was done to both facilitate the process of exploring variations in admissions and re-admissions, and also to ensure that the use:need ratios calculated to identify any inequity between use and need were not biased by an over-estimation of need. For example, it is quite feasible that a single patient may have as many as 20 alcohol specific admissions in a single year. By including all admissions for such a patient and not just the primary admission, then need for the service would be over-estimated within the use:need ratio calculation.

Table 1: Summary of SUS data manipulation

Data	Manipulation	Variable
Age at admission	Continuous variable cut into quintiles	1=18-29 2=30-44 3=45-59 4=60-74 5=75+
Admission	Admissions coded to identify primary and readmissions in each year period.	1= primary admission in that year 2=re-admission within 28 days of the primary admission 3=other admission/s within the same year
Ethnicity	Census derived categories collapsed due to small numbers	1=White British 2= White Irish or other white background 3=Non-white background
Reason for admission	Sub groups of ICD-10 classifications collapsed due to small numbers.	1= Mental and behavioural disorders due to alcohol. 2= Ethanol poisoning 3=Alcoholic cirrhosis of the liver 4=Alcoholic liver disease 5=Alcoholic induced chronic pancreatitis 6=Alcoholic hepatic failure 7=Other

3.3.3 Hospital admissions data – missing data

The data provided for hospital admissions were relatively complete and data for a total of 12623 admissions were eligible for inclusion in the analysis. However, as shown in Table 2, there were some missing data for variables including patient identifier, ethnicity, and general practice code. Where a patient identifier (N=92) was missing, cases were deleted from the file as primary or re-admission could not be determined. This meant that a total of 12531 cases were included in the descriptive analysis.

Table 2: Missing data: SUS data file

Variable	**No (%) missing**
Patient identifier (derived from NHS number)	92 (0.7)
Ethnicity	741 (5.9)
General Practice code	69 (0.6)

3.3.4 DAAS service data – data collection

The service data were requested from the Service Manager by a Consultant in Public Health employed by NHS Derbyshire County. Data were requested for the period 2010/11. The data requested for each individual client referred in the period of interest included:

- Date of referral
- Age at referral
- Sex

- Post code (to identify district and electoral ward)
- Ethnicity
- Source of referral (i.e. GP, self-referral or referral through other agencies).

The following inclusion criteria were also applied:

- Cases aged 18 or over at time of referral
- Cases resident in Derbyshire at time of referral.

3.3.5 DAAS service data – data management

The service data were provided by the senior Service Manager in Excel format. Data were provided for a total of 2000 individual clients that had been referred to the service in the period 1st April 2010 to 31st March 2011. The data were examined by the researcher to determine completeness and to ensure that the inclusion criteria had been met. Post code was managed and examined in a separate excel file for information governance reasons. Where postcode was missing, cases were excluded from the analysis.

3.3.6 DAAS service data- missing data and ineligible cases

As shown in Table 3, examination of the data identified a total of 183 cases that were excluded from the analysis. Missing or incorrect postcode was the most common reason for exclusion. These were excluded as they could not be assigned a geographical location for descriptive analysis, calculation of the use:need ratio or mapping.

Table 3: Missing data and ineligible cases: Service data file

Reason for exclusion	No (%) excluded
Postcode missing or incorrect postcode recorded	136 (6.8)
Data provided outside of period of interest	40 (2.0)
Data provided for clients resident outside of Derbyshire County	7 (0.4)
Total	183 (9.2%)

3.4 Quantitative data analysis

3.4.1 Descriptive data analysis and calculation of age-standardised rates

The SUS admissions data and the DAAS service data were analysed descriptively to indicate variation according to geographical location, age, gender, socio-economic status, ethnicity, and also general practice.

Where possible age standardised rates per 10,000 were calculated and utilised in both the descriptive analysis and the analysis of the use:need ratios. The benefit of this approach over either crude rates or actual numbers is that age-standardised rates take into account the age structure of the underlying population and as such allow for more accurate comparison.

Age-standardised rates were calculated in Microsoft Excel using a template developed by the Association of Public Health Observatories (APHO http://www.apho.org.uk/). Estimated resident population data

for Derbyshire for 2009 was accessed through the National Centre for Health Outcomes Development (NCHOD - http://www.nchod.nhs.uk).

The following age-standardised rates were calculated:

Overall age-standardised admission rates –

all admissions in the time period specified, including re-admissions. This provides a broad picture of hospital admissions and the overall public health burden associated with alcohol specific admissions in Derbyshire.

Age-standardised primary admission rates –

the first admission only in the time period of interest. This rate as described in section 3.3.2, does not include re-admissions as this may lead to an over-estimation of need. This rate was calculated for use in the use:need ratios for geographical location, gender and deprivation.

Age-standardised re-admission rates (28 days) –

re-admissions that occurred within 28 days of the primary admission.

Overall re-admission rates –

all re-admissions (i.e. those within 28 days and others within that year period). This was calculated to show any variation in relation to all re-admissions in the specified time period.

3.4.2 Use:need ratio

Use:need ratios were used specifically to indicate equity of access to the DAAS service. These were calculated to assess equity at both patient level (age, gender, socio-economic status and geographical location) and service level (general practice). The use:need ratio is interpreted like any other ratio and so a ratio that is close to one indicates good access to the service in relation to need whilst a ratio close to zero indicates poor access in relation to need.

Both the admissions data and service data used to calculate the ratios utilised data from the period 2010/11.

3.5 Mapping of the quantitative data

Both the DAAS service data and the SUS admissions data were mapped using GIS mapping software accessed through NHS Derbyshire County. The maps were developed to visually represent use:need variation at both general practice and lower super output level.

3.6 Qualitative data collection and management processes

The qualitative data were collected through semi-structured telephone interviews. Potential participants were identified through the analysis of the SUS and DAAS service data. General Practices with a low practice level use:need ratio (defined as a ratio of 0-0.06) were identified for participation and individual GPs from these practices were then randomly selected and invited to take part.

A total of 71 potential participants were sent a letter inviting them to participate and an information sheet describing the purpose of the project (see appendices 2 and 3). Those interested in participating were asked to return a signed consent form with their expression of interest (see appendix 4).

The interviews were done at a time that was convenient for the participant and all were audio-taped to aid analysis. Written field notes were also recorded to supplement and aid interpretation of the audio data.

3.7 Qualitative data analysis

The data collated through the interviews were analysed using Framework Analysis (Pope C et al 2000). This is a thematic approach to qualitative data analysis and involves the use of both a-priori themes (themes that are identified in-line with specific research questions or objectives) and also allows for the identification of themes that arise from the participant's responses.

The analysis process involves five stages, which begin with familiarisation with the data. This included listening to audio-tapes of the interviews and making detailed notes on key issues, and areas where responses were similar to or conflicted with other interview responses. The second stage of the process is to develop a thematic framework which in this case included both a-priori themes relating to the objectives of the interviews and also themes that developed

through the analysis process. This framework was then applied to the data and a charting exercise was completed (see appendix 6). This included summarising the data in-line with the thematic framework and then finally this was used to aid reporting and interpretation.

3.8 Ethical approval

Advice was taken from the Head of Research and Development from NHS Nottinghamshire County and also from the Director of Public Health at NHS Derbyshire County as to the nature of the project and whether or not ethical or organisational (R&D) approval was required. It was agreed that the project was a piece of service development work and not research and as such did not require NHS ethical or organisational approval (see appendix 6).

However, the principles of good research and information governance were adhered to and all data collated for the study were stored securely and anonymously on NHS premises. In addition, participants to the interview phase of the project were given an information sheet prior to making the decision to participate, and were asked to give written consent to both participate in an interview and to have the interview audio-taped (see appendices 3 and 4).

4 Results

4.1 Descriptive analysis of the SUS data

4.1.1 Number of admissions and reason for admission

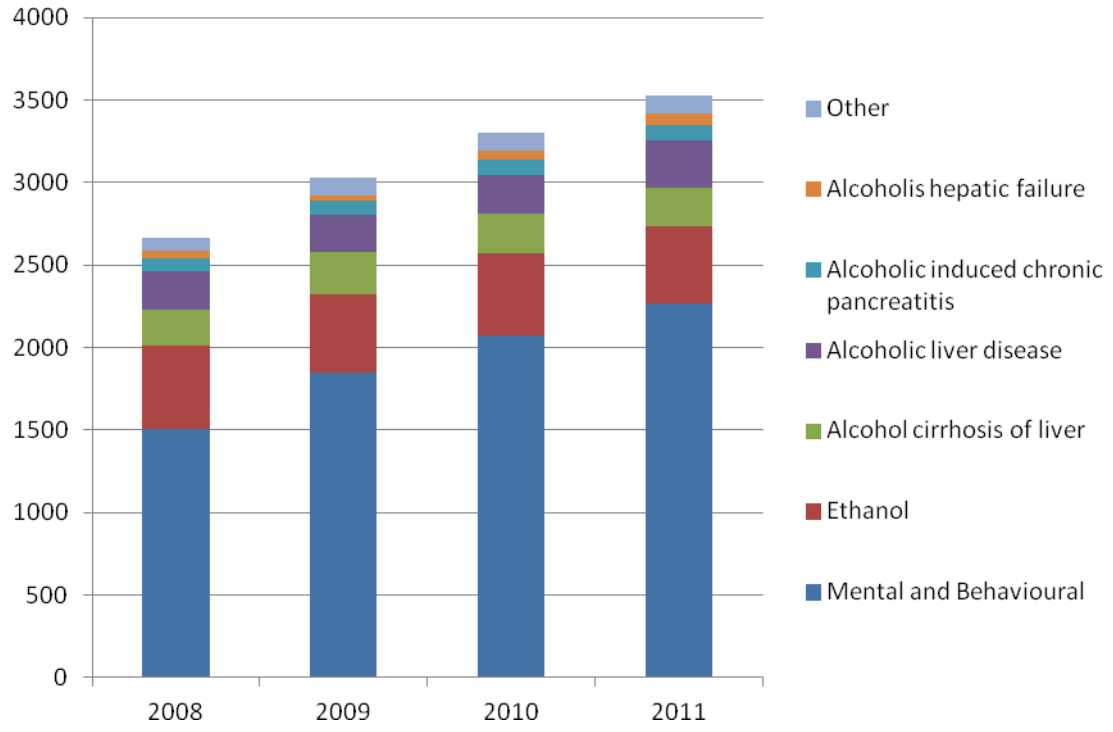
As shown in Table 4, across the county in the period of interest (01/04/2007-31/03/2011) a total of 6432 individual patients were responsible for 12531 admissions. The median number of admissions per patient overall for the county was 1 (IQR 3-7), although some patients did have very high numbers of admissions with one patient resident in the High Peak area having 72 alcohol specific admissions in the four year period.

Table 4: Total admissions in the period 2008-2011 by District

Area	Total no. admissions 2008-2011	No. of individual patients	Median (IQR) number per patient	Minimum number per patient	Maximum number per patient
Amber Valley	1993	959	1(1-2)	1	32
Bolsover	1291	756	1(1-2)	1	12
Chesterfield	2760	1388	1(1-2)	1	50
Derbyshire Dales	841	475	1(1-2)	1	34
Erewash	1998	902	1(1-2)	1	54
High Peak	1111	538	1(1-2)	1	72
NE Derbyshire	1505	856	1(1-2)	1	24
South Derbyshire	1032	558	1(1-2)	1	28
Derbyshire	***12531***	***6432***	***1 (3-7)***	***1***	***72***

In terms of the reason for admission, as shown in Figure 3, in all years the most common reason for admission was mental and behavioural disorders due to alcohol, followed by admissions for ethanol poisoning. This figure also shows that although the overall number of admissions have increased over the time period of interest, the proportion of admissions for each cause have remained stable over time.

Figure 3: Reason for admission by year



As shown Table 5, the overall number of admissions increased between 2007/08 and 2010/11 by 32.3% The most notable increases were seen in older age groups, with a rise of 63.3% seen in patients aged 60-74 years and a rise of 223.9% in those aged 75 years and over. A large increase was also seen in patients from a non-white

background. However this increase should be viewed with caution as the actual number of admissions in this group is very low.

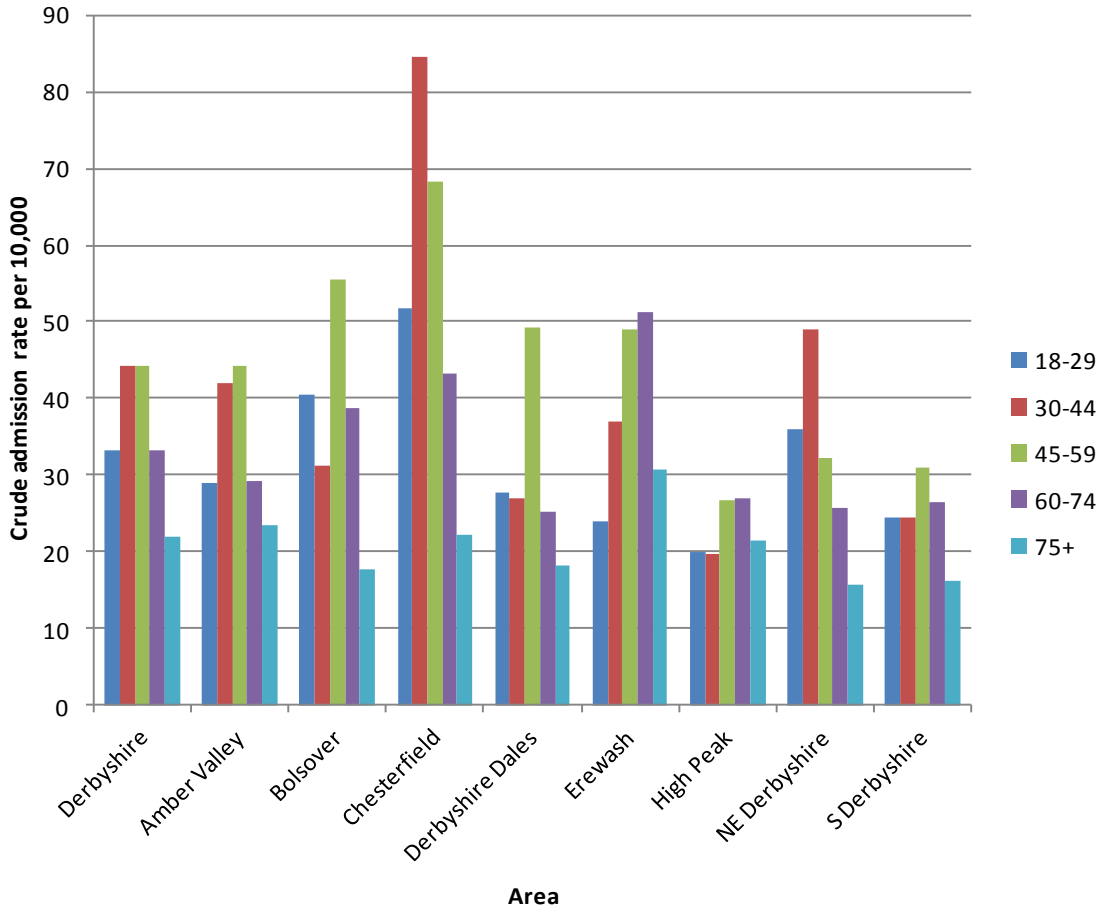
	Overall for the period	2007/08	2008/09	2009/10	2010/2011	% Change (2007/8 to 2010/11)
No. of admissions	12531	2668	3030	3303	3530	+32.3%
No. of admissions in men	7987	1719	1935	2052	2281	+32.7%
No. of admissions in women	4544	949	1095	1251	1249	+31.6%
Age at admission: 18-29	1856	429	444	490	493	+14.9%
30-44	4027	906	987	1104	1030	+13.7%
45-59	3988	865	904	1037	1182	+36.6%
60-74	2081	376	556	530	619	+63.3%
75+	579	92	139	142	206	+123.9%
Ethnicity: White British	11505	2417	2779	3045	3264	+35.0%
White Irish or other white background	138	33	30	34	41	+24.2%
Non-white background	147	23	35	46	43	+86.9%
Missing	741	195	186	178	182	-7.1%

Table 5: Number of admissions by year, gender, age and ethnicity

4.1.2 Variation in admissions by age and ethnicity

As shown in Table 6, the overall median age at admission was 46.0 (IQR 35-59 years). This was similar across geographical area though in the High Peak area the median age at admission was higher at 51.0 years (IQR 40-64 years). Crude admissions rates for age quintile were calculated using estimated resident population for 2009 published by NCHOD (http://www.nchod.nhs.uk/). As shown in **Error! Not a valid bookmark self-reference.**, the highest admission rates were seen in patients aged 30-44 years resident in the Chesterfield area of the county (84.5 per 10,000) and the lowest were seen in those aged 75 and over resident in the North East Derbyshire district (15.6 per 10,000).

Figure 4: Crude admission rates per10,000 by age quintile



	Derbyshire	Amber Valley	Bolsover	Chesterfield	Derbyshire Dales	Erewash	High Peak	North East Derbyshire	South Derbyshire
Total no. primary admissions 2010/11	2273	358	271	498	145	343	187	276	195
Median age at admission (IQR)	46.0 (35.0-59.0)	47.0 (36.0-58.25)	46.0 (33.0-57.0)	43.0 (33.75-55.25)	50.0 (35.8-62.5)	49.0 (37.0-61.0)	51.0 (40.0-64.0)	44.0 (32.25-58.0)	47.0 (32.0-58.0)
Crude admission rate per 10,000: **18-29**	33.3	29.0	40.6	51.8	27.6	24.0	20.0	35.9	24.5
30-44	44.3	41.9	31.1	84.5	27.0	36.9	19.6	49.0	24.5
44-59	44.3	44.2	55.6	68.4	49.2	49.1	26.7	32.1	31.0
60-74	33.2	29.2	38.7	43.2	25.2	51.2	26.9	25.7	26.4
75+	21.9	23.4	17.8	22.1	18.1	30.8	21.4	15.6	16.2

Table 6: Admissions by age and area

In terms of ethnicity, overall in the period 2010/11, 91.9% (n=2090) of admissions were to patients identifying as white British, and 1.0% (n=23) were to patients who were not from a white British or other white background ethnicity grouping. Age-standardised rates were not calculated for ethnicity as directly standardised rates are unstable when numbers are small. Crude rates were calculated using 2009 experimental population estimates for ethnic group published by the Office for National Statistics (http://www.statistics.gov.uk/statbase/product.asp?vlnk=14238) as denominator data. Both the experimental nature of this dataset and the number of missing data means that these rates should be viewed with caution.

	Derbyshire	Amber Valley	Bolsover	Chesterfield	Derbyshire Dales	Erewash	High Peak	North East Derbyshire	South Derbyshire
Ethnicity:									
White British population	713200	114100	70900	94900	65800	102700	86800	92900	85300
Admissions	2090	335	243	479	136	303	156	264	174
Crude rate per 10,000	29.30	29.4	34.3	50.5	20.7	29.5	18.0	28.4	20.4
White Irish or other white background population	16200	2600	1200	2100	1800	2900	2100	1800	1800
Admissions	23	1	5	4	1	5	4	2	1
Crude rate per 10,000	14.2	3.8	41.7	19.0	5.6	17.2	19.0	11.1	5.6
Non-white population	30800	4300	2200	3800	2600	5300	3500	3400	5700
Admissions	23	4	2	2	0	5	2	1	7
Crude rate per 10,000	7.5	9.3	9.1	5.3	0.0	9.4	5.7	2.9	12.3
Missing	137 (6.0)	18 (5.0)	21 (7.7)	13 (2.6)	8 (5.5)	30 (8.7)	25 (13.4)	9 (3.3)	13 (6.6)

Table 7: Admissions by ethnicity and area

4.1.3 Age standardised rates of admission: changes over time and variation between geographical location

The use of age-standardised rates as opposed to crude numbers or crude rates allows for more accurate comparisons as they take into account the age structure of the underlying population. As shown in Table 8, the overall admission rate per 10,000 has increased steadily over the period of interest from 36.3 per 10,000 in 2007/8 to 46.5 per 10,000 in 2010/11.

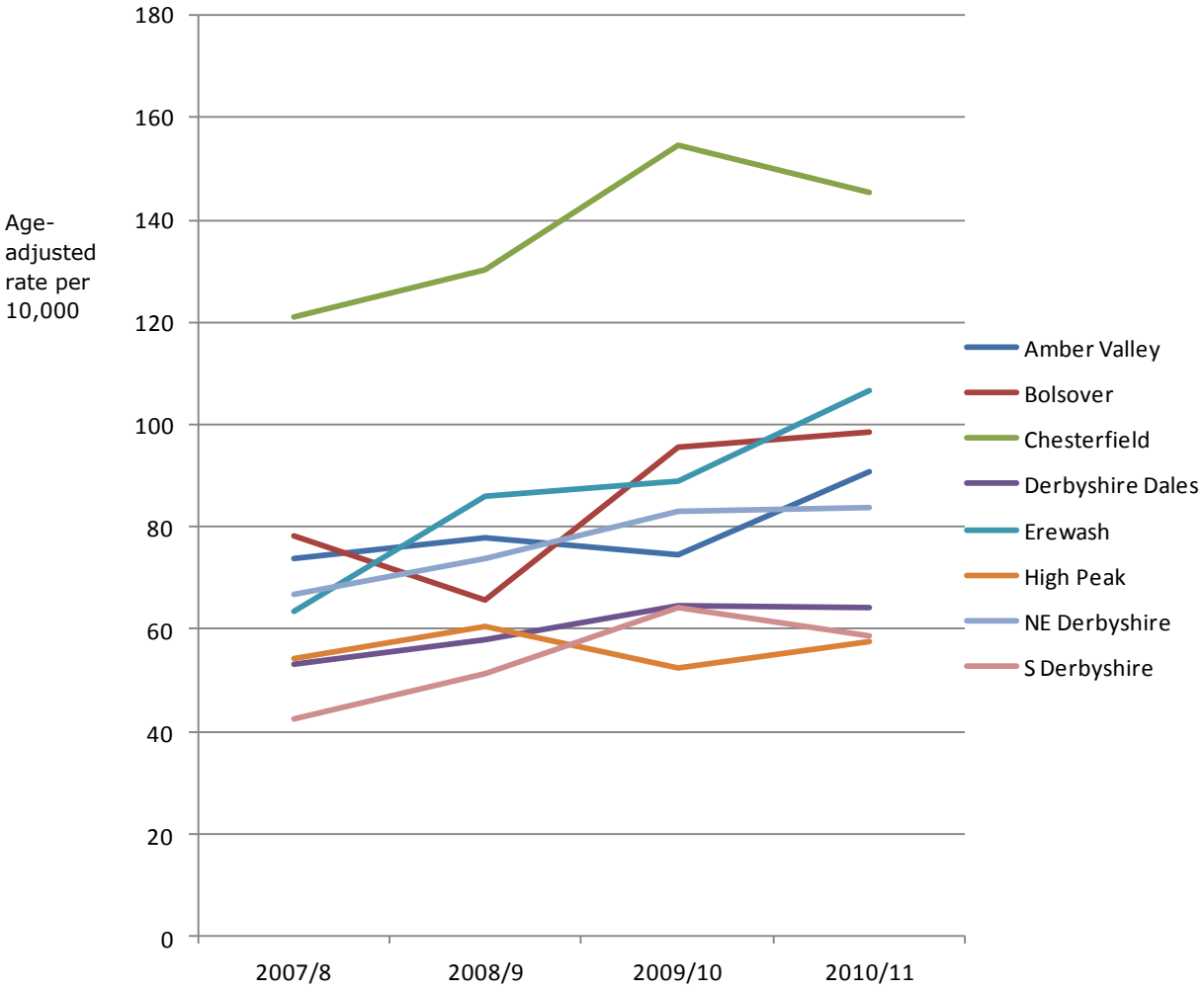
Table 8: Age adjusted admission rates by year

Year	Overall admission rate per 10,000 (95%CI)	Primary admission rate per 10,000 (95%CI)	Re-admission (within 28 days) rate per 10,000 (95%CI)	Overall re-admission rate per 10,000 (95%CI)
2007/8	36.3 (34.9-37.7)	24.1 (23.0-25.3)	2.1 (1.8-2.5)	12.2 (11.4-13.0)
2008/9	40.3 (38.8-41.8)	26.1 (24.9-27.3)	2.7 (2.3-3.1)	14.2 (13.3-15.1)
2009/10	44.2 (42.7-45.8)	28.5 (27.3-29.8)	2.6 (2.2-3.0)	15.7 (14.8-16.6)
2010/11	46.5 (44.9-48.1)	30.3 (29.0-31.6)	2.8 (2.4-3.2)	16.1 (15.2-17.1)

In terms of variation at district level, as shown in Table 9 and graphically in Figure 5, in the period 2010/11 there was some variation in terms of age standardised rates, with the highest rates

seen in Chesterfield and Erewash and the lowest in the High Peak and Derbyshire Dales areas of the county.

Figure 5: Age adjusted admission rates by area 2007/08 to 2010/11



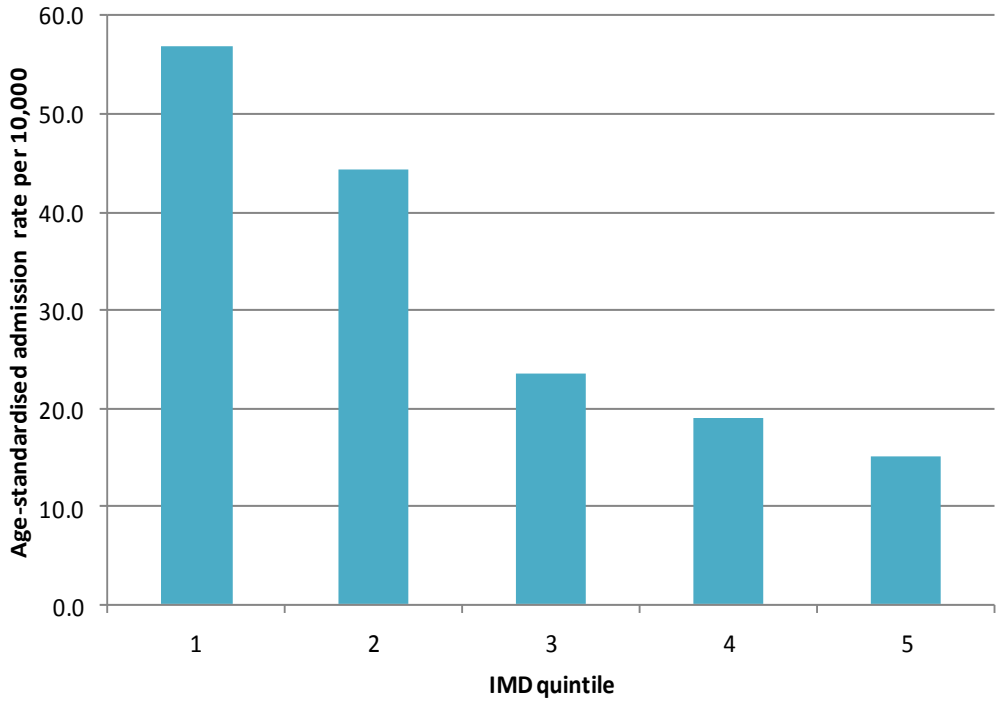
Age standardised admissions 2010/2011	Amber Valley	Bolsover	Chesterfield	Derbyshire Dales	Erewash	High Peak	NE Derbyshire	S Derbyshire
Overall admission rate per 10,000	90.9 (83.4-99.0)	98.5 (88.5-109.2)	145.4 (134.9-156.4)	64.2 (55.7-73.6)	106.8 (98.5-115.7)	57.7 (51.0-64.9)	83.8 (75.7-92.6)	58.8 (52.0-66.3)
Overall admission rate for males per 10,000	52.3 (46.7-58.3)	63.9 (55.9-72.7)	95.4 (87.0-104.5)	44.6 (37.5-52.5)	68.1 (61.5-75.2)	35.2 (30.1-41.0)	58.2 (51.4-65.5)	37.8 (32.3-43.9)
Overall admission rate for females per 10,000	37.5 (32.6-42.9)	33.8 (28.1-40.2)	48.7 (42.7-55.2)	20.6 (15.6-26.7)	37.4 (32.5-42.8)	22.6 (18.5-27.4)	25.6 (21.2-30.7)	20.5 (16.6-25.1)
28 day re-admission rate per 10,000	8.0 (5.8-10.6)	5.5 (3.4-8.4)	8.5 (6.1-11.5)	3.5 (1.8-6.2)	6.0 (4.1-8.4)	2.2 (1.1-3.9)	4.8 (3.0-7.3)	3.6 (2.0-5.8)
28 day re-admission rate for males per 10,000	4.9 (3.3-7.0)	3.6 (2.0-6.0)	5.7 (3.8-8.2)	2.4 (1.0-4.6)	3.4 (2.1-5.2)	1.7 (0.7-3.2)	3.3 (1.8-5.4)	2.7 (1.4-4.7)
28 day re-admission rate for females per 10,000	3.0 (1.7-4.8)	1.8 (0.7-3.7)	2.7 (1.4-4.7)	1.3 (0.2-3.7)	2.5 (1.4-4.2)	0.6 (0.1-1.8)	1.6 (0.6-3.2)	0.9 (0.2-2.2)

Table 9: Age adjusted admission rates by area 2010/11

4.1.4 Variation in age-standardised rates in relation to socio-economic status

Variations in admissions according to socio-economic status were explored using the Indices of Multiple Deprivation (IMD) score associated with the patient's postal code. As shown in Figure 6, the age-standardised admission rate was associated with increasing deprivation, with patients in the most deprived quintile having an admission rate of over four times that seen in the least deprived quintile.

Figure 6: Age-standardised admission rate by IMD quintile



4.1.5 Variation in age-standardised rates by general practice

Age-standardised admission rates were also explored in relation to the patient's general practice. A shown in **Error! Not a valid**

bookmark self-reference., there was considerable variation, with one practice in the Chesterfield area having a rate of 64 (95% CI 46-85) per 10,000 whilst another in the Derbyshire Dales area had a rate of just 7 (95% CI 3-15) per 10,000.

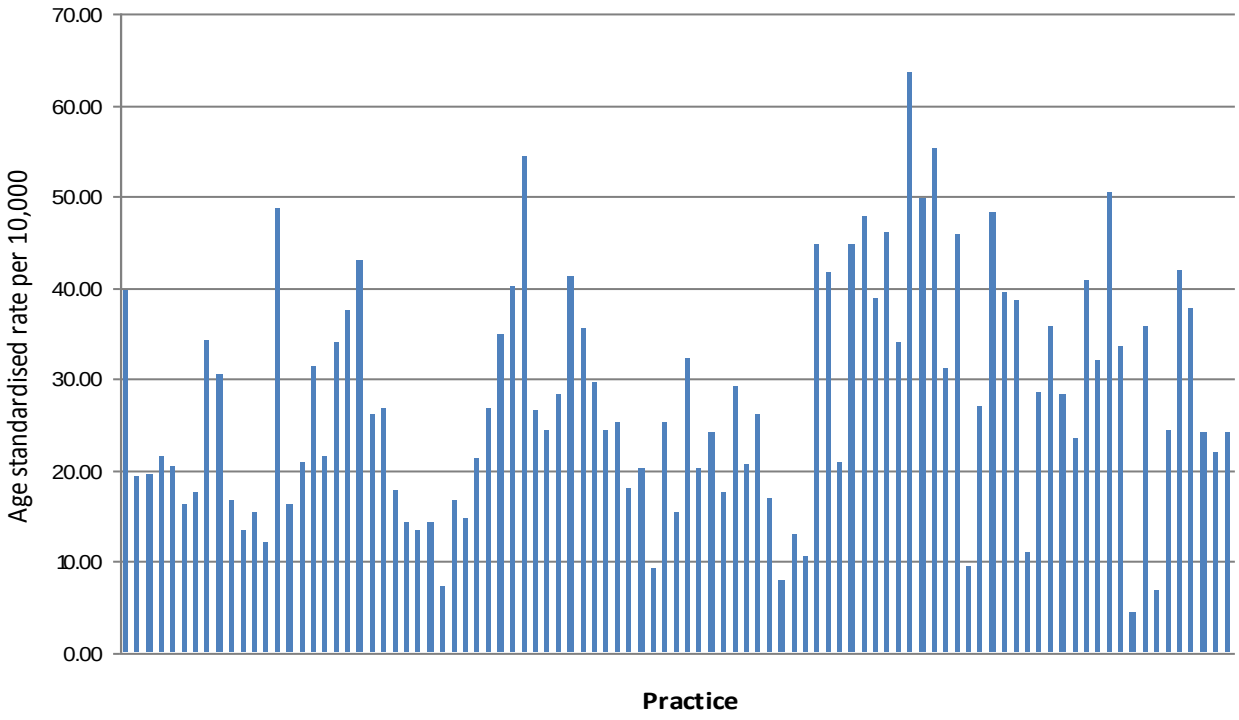


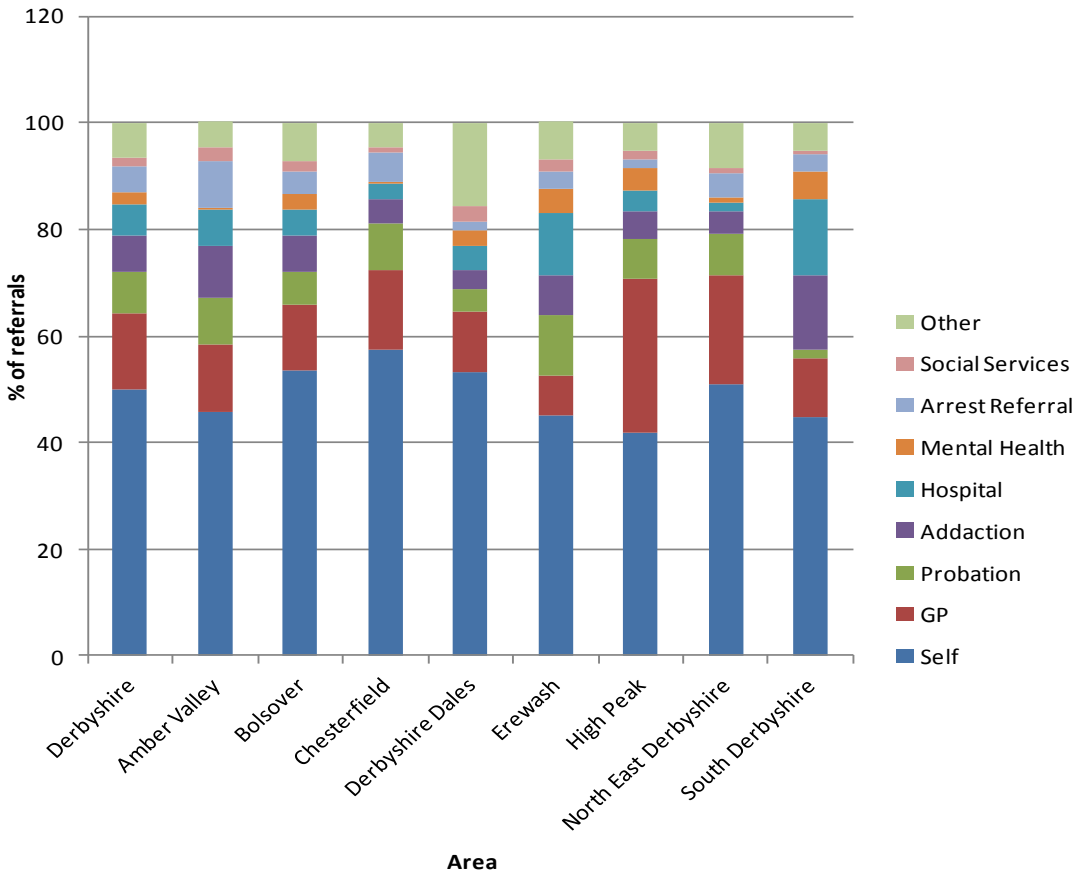
Figure 7: Age-standardised admission rate by general practice

4.2 Descriptive analysis of the DAAS service

4.2.1 Source of referral and variation in source of referral

A total of 1817 individual referrals were eligible for inclusion in the analysis. Overall for the county the most common form of referral, was self-referral (49.8%), with referral by a GP being the second most frequent source of referral (14.5%). As shown in **Error! Not a valid bookmark self-reference.**, there was some variation across the county with 28.7% of referrals in the High Peak area being made

by a GP compared to only 7.5% of referrals in the Erewash area of the county. In Erewash a greater proportion of referrals were made through the probation service, with 11.4% of referrals in this area being made via this route compared with 7.5% for the county overall



and only 1.7% for South Derbyshire.

Figure 8: Source of referral by area

4.2.2 Variation in age-standardised referral rates by gender and area

The overall age-standardised referral rate for Derbyshire was 26.2 per 10,000 with the highest rates seen in Chesterfield (42.4 per 10,000) and the lowest in South Derbyshire (18.5 per 10,000). Age standardised rates were also calculated separately for males and females and as shown in Table 10, overall women had lower referral rates than men. In terms of variation be area, a similar pattern to overall rates was observed with highest rates seen in Chesterfield (29.6) and lowest in South Derbyshire (11.5).

	Derbyshire	Amber Valley	Bolsover	Chesterfield	Derbyshire Dales	Erewash	High Peak	North East Derbyshire	South Derbyshire
Total number of referrals 2010/11	1817	290	179	412	135	255	174	200	172
Age standardised rate (per 10,000)	26.2 (25.0-27.5)	25.6 (22.7-28.9)	25.0 (21.4-29.0)	42.4 (38.4-46.8)	22.2 (18.4-26.7)	23.3 (20.5-26.4)	19.7 (16.8-22.9)	21.5 (18.6-24.9)	18.5 (15.8-21.5)
Age standardised referral rate - men (per 10,000)	33.2 (31.2-35.2)	32.4 (27.7-37.6)	27.8 (22.5-34.0)	54.8 (48.2-61.9)	28.3 (22.3-35.3)	29.3 (24.8-34.4)	25.8 (21.1-31.2)	27.1 (22.5-32.4)	25.0 (20.5-30.1)
Age standardised rate- women (per 10,000)	18.5 (17.1-20.0)	17.9 (14.5-21.7)	21.9 (17.3-27.4)	29.6 (25.0-34.9)	15.2 (10.7-20.8)	17.0 (13.7-20.8)	12.7 (9.5-16.5)	15.1 (11.7-19.3)	11.5 (8.6-15.0)
Median age at referral (IQR)	41 (31-49)	40 (30-47)	41 (29-49)	39 (30-47)	41 (30-50)	41 (30-49)	43.5 (32-51)	41 (33-49)	40 (33-51)
Crude rate for age quintiles: 18-29	33.7	36.0	37.4	53.0	33.2	29.5	22.0	25.0	18.7
30-44	48.2	47.2	41.9	90.4	34.2	37.8	30.2	45.8	34.7
44-59	35.5	30.9	34.4	51.3	28.9	36.9	33.6	26.9	26.8
60-74	14.1	8.7	10.7	13.6	7.2	13.1	9.6	8.6	12.2
75+	2.25	0.9	3.2	2.2	2.8	1.1	1.3	3.4	3.2

Table 10: Referrals by age and area

4.2.3 Variation in crude referral rate by age and ethnicity

As shown in Table 10, the median age at referral for the county as a whole was 41 years (IQR=31-49) and as with the admissions data, a slightly higher median age was observed for referrals in the High Peak area. The highest crude referral rates were seen in clients aged 30-44 years, but again there was significant variation with Chesterfield having a rate in this age group of 90.4 per 10,000 compared with 30.2 per 10,000 in the High Peak area. The lowest referral rates were seen in the 60-74 and 75 year and over age groups, with Amber Valley for example having a referral rate of only 0.9 per 10,000 in the 75 years and over age-grouping.

In terms of ethnicity, very few referrals were to clients who did not identify as white British (0.4%). This meant that age-standardised rates could not be calculated because of small numbers and also meant that as with the admissions data, categories had to be collapsed into white British, white Irish and other white background and non-white background. As shown in Table 11, the highest rates for non-white and other white groupings were seen in Chesterfield (4.8 per 10,000 and 7.9 per 10,000) but again this should be treated with caution due to the very small numbers of referrals recorded.

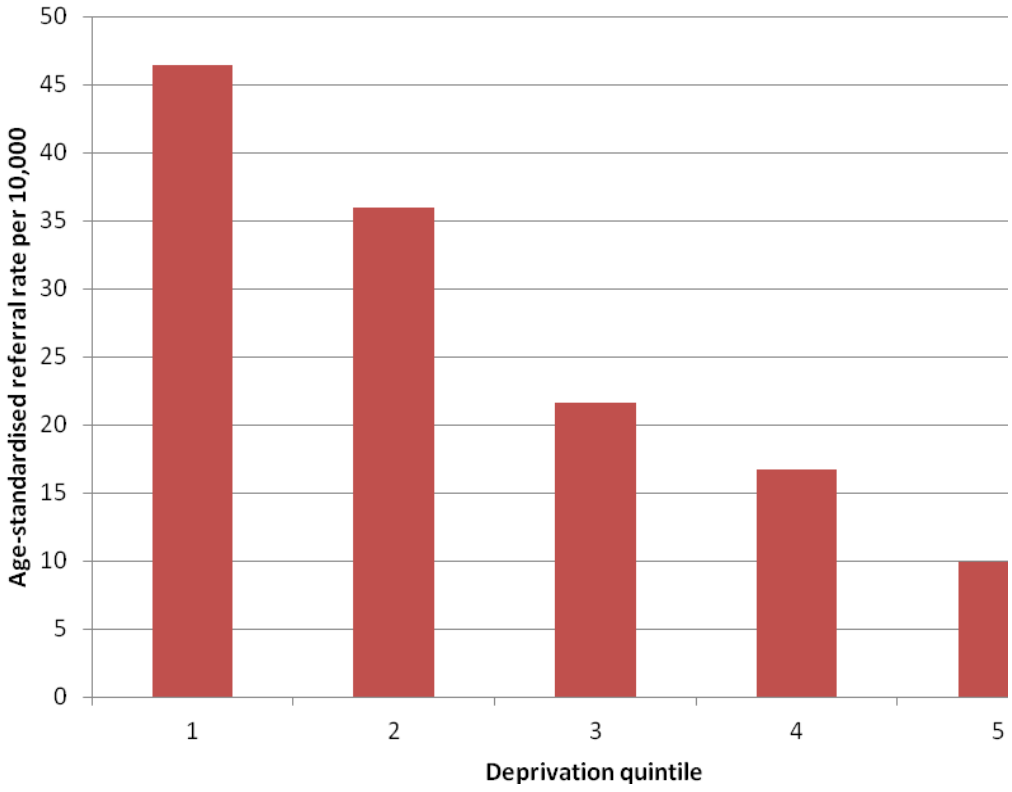
	Derbyshire	*Amber Valley*	*Bolsover*	*Chesterfield*	*Derbyshire Dales*	*Erewash*	*High Peak*	*North East Derbyshire*	*South Derbyshire*
Ethnicity:									
White British population	713200	114100	70900	94900	65800	102700	86800	92900	85300
Referrals	1803	228	178	407	135	254	173	199	169
Crude rate per 10,000	25.2	20.0	25.1	42.9	20.5	24.7	19.9	21.4	19.8
White Irish or other white background population	16200	2600	1200	2100	1800	2900	2100	1800	1800
Referrals	2	0	0	1	0	0	1	0	0
Crude rate per 10,000	1.2	0.0	0.0	4.8	0.0	0.0	4.8	0.0	0.0
Non-white population	30800	4300	2200	3800	2600	5300	3500	3400	570
Referrals	5	0	0	3	0	1	0	1	0
Crude rate per 10,000	1.6	0.0	0.0	7.9	0.0	1.9	0.0	2.9	0.0
Missing (%)	7 (0.4)	2 (0.9)	1 (0.6)	1(0.2)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	3(1.7)

Table 11: Referrals by ethnicity and area

4.2.4 Variation in age-standardised referral rates in relation to socio-economic status

As with the admissions data, socio-economic status was determined using the IMD score associated with the clients postal code. As shown in Figure 9, and similarly to the admissions data, the referral rate in associated with increasing deprivation, with an age-standardised referral rate in the most deprived quintile of 46.4 per 10,000 compared with 9.9 per 10,000 in the most affluent.

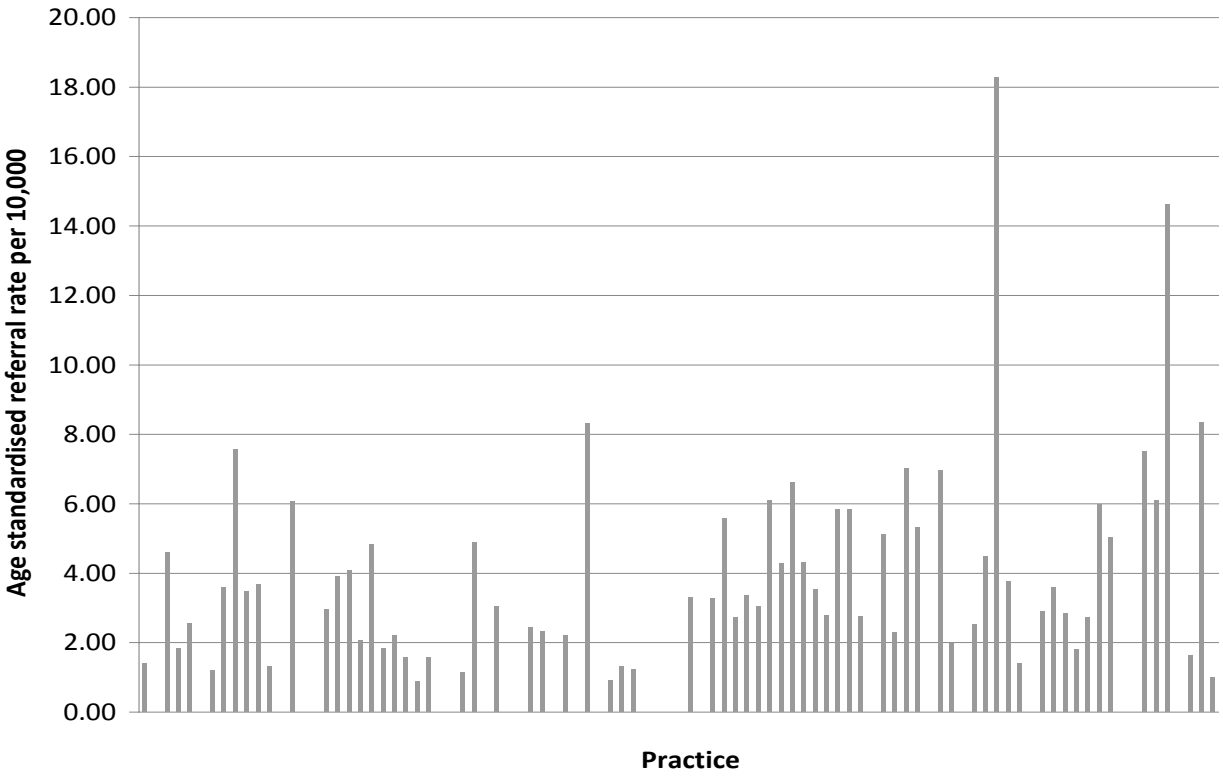
Figure 9: Age-standardised referral rate by deprivation quintile



4.2.5 Variation in age-standardised referrals rates by general practice

As shown in Figure 10 variation according to general practice was considerable. The median age-standardised referral rate was 2.43 per 10,000 (IQR 0-4.3). A total of 25 practices referred no patients to the service in the 2010/11 period and the maximum referral rate observed was for a practice in the Chesterfield area of the county which had a rate of 18.3 per 10,000.

Figure 10: Age standardised referral rate by general practice



4.3 Use:Need ratios

4.3.1 Age, sex, deprivation and ethnicity

Use:need ratios were calculated for age, sex, deprivation, ethnicity and geographical area. The use:need ratio is interpreted like any ratio, with a ratio close to one indicating good equity of access in relation to need and a ratio close to zero indicating poorer equity of access in relation to need.

As shown in Table 12, the overall use:need ratio for the county was 0.85, indicating that overall access in relation to need is good. More variation was though seen in relation to deprivation where the lowest ratio was observed for patients in the most affluent quintile (0.65). This indicates that this socio-economic group have the poorest access to the service in relation to their need for it.

Additionally in terms of age, the use:need ratio for younger patients exceeded one, suggesting that rates of referrals in these age groupings are higher than rates of admission. However, access for older patients in relation to need is much lower, suggesting poorer access in relation to need. In the 60-74 age group for example the ratio is 0.33 and for those aged 75+ is only 0.10. The ethnicity use:need ratio indicated that the poorest access in relation to need was observed in the white Irish and other white background and non-white background ethnicity groupings (0.08 and 0.21 respectively). However, the very small number of admissions and referrals to these groups means that these ratios should be viewed with caution.

Table 12: Use:need ratios for age, sex, deprivation and ethnicity.

Variable	Age standardised rate of primary admissions 2010/11 (per 10,000)	Age standardised referral rate 2010/2011 (per 10,000)	Use:need ratio
Overall for county	30.7	26.2	***0.85***
Gender:			
Males	38.9	33.2	***0.85***
Females	22.0	18.5	***0.84***
Deprivation			
Quintile 1	56.8	46.4	***0.82***
Quintile 2	44.3	36.0	***0.81***
Quintile 3	23.6	21.6	***0.91***
Quintile 4	19.1	16.7	***0.87***
Quintile 5	15.2	9.9	***0.65***
	Crude rate of primary admissions 2010/11 (per 10,000)	**Crude referral rate 2010/2011 (per 10,000)**	**Use:need ratio**
Age:			
18-29	33.2	33.7	***1.01***
30-44	44.3	48.2	***1.09***
45-59	44.3	35.5	***0.80***
60-74	43.2	14.1	***0.33***
75+	21.9	2.25	***0.10***
Ethnicity			
White British	29.3	25.2	***0.86***
White other	14.2	1.2	***0.08***
Non-white	7.5	1.6	***0.21***

4.3.2 Geographical location

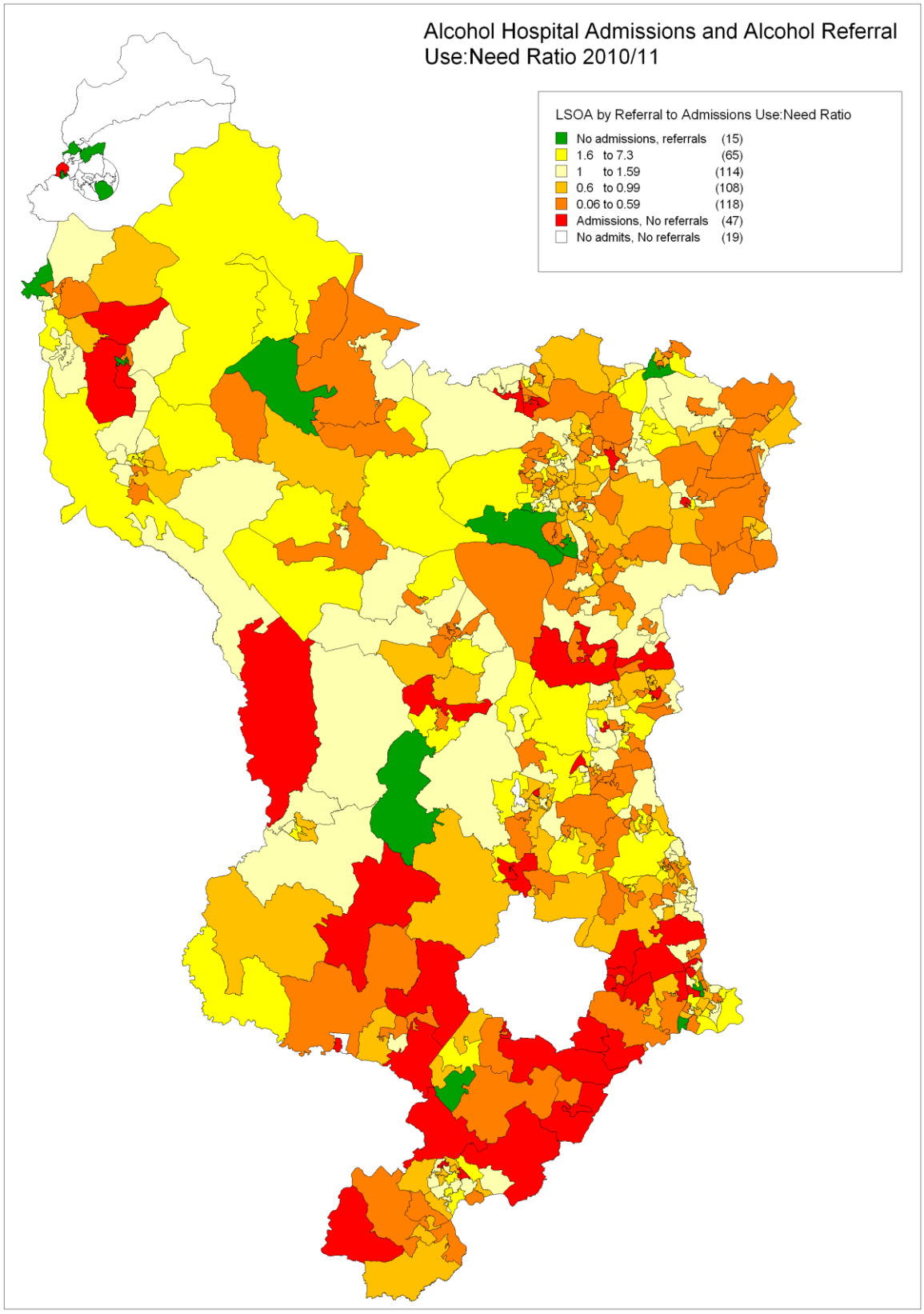
Variation in the use:need ratio for geographical area was explored at both district and Lower Super Output Area (LSOA). In terms of district level variation, as shown in Table 13, the highest use:need ratios were seen in the Derbyshire Dales and High Peak area (0.55 and 0.52 respectively) and the lowest were observed in the Bolsover and North East Derbyshire areas of the county (0.34 and 0.38 respectively).

Table 13: Use:need ratio by geographical area

Location	Age standardised rate of primary admissions 2010/2011 (per 10,000)	Age standardised referral rate 2010/2011 (per 10,000)	Use:Need ratio
Amber Valley	58.4	25.6	0.44
Bolsover	73.5	25.0	0.34
Chesterfield	98.5	42.4	0.43
Derbyshire Dales	40.3	22.2	0.55
Erewash	59.6	23.3	0.39
High Peak	37.8	19.7	0.52
North East Derbyshire	56.6	21.5	0.38
South Derbyshire	44.4	18.5	0.42

However, as shown in Figure 11, District level use:need ratios to disguise considerable variation at a lower geographical level. Figure 11 gives a visual representation of this variation at LSOA level. It shows that there are several areas that have patients referred to the DAAS service but no alcohol specific hospital admissions and also areas with patients who have been admitted to hospital for this reason but where no patients have been referred into the DAAS service.

Figure 11: Use:need ratio at Lower Super Output Area



4.3.3 General practice

Age standardised admission and referral rates for individual general practices were also calculated to determine any variation at practice level. As shown in

Figure 12, there were practices where no referrals to the DAAS service were recorded but also one practice where the age-standardised rate of referrals to the service exceeded the practice age-standardised admission rate, which meant that the use:need ratio for this practice exceeded one. The use:need ratio at practice level was also cut into quintiles and then mapped to illustrate variation across the county (see

Figure 13).

Figure 12: Use:need ratio by general practice

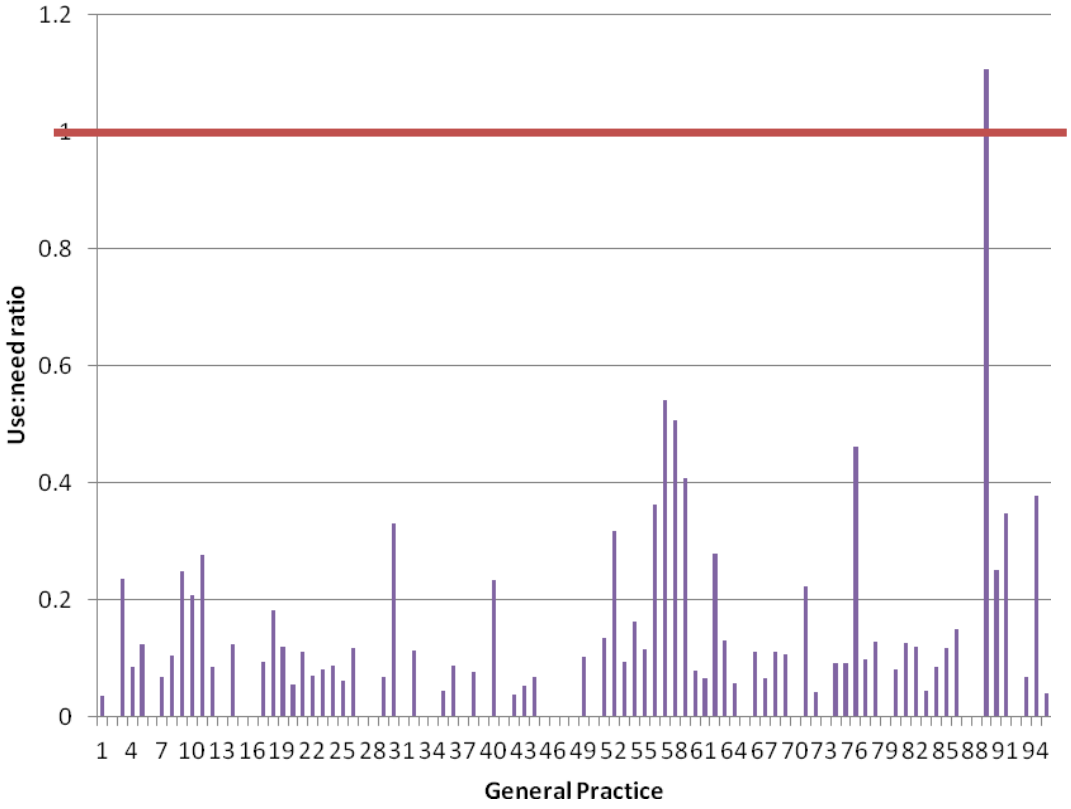
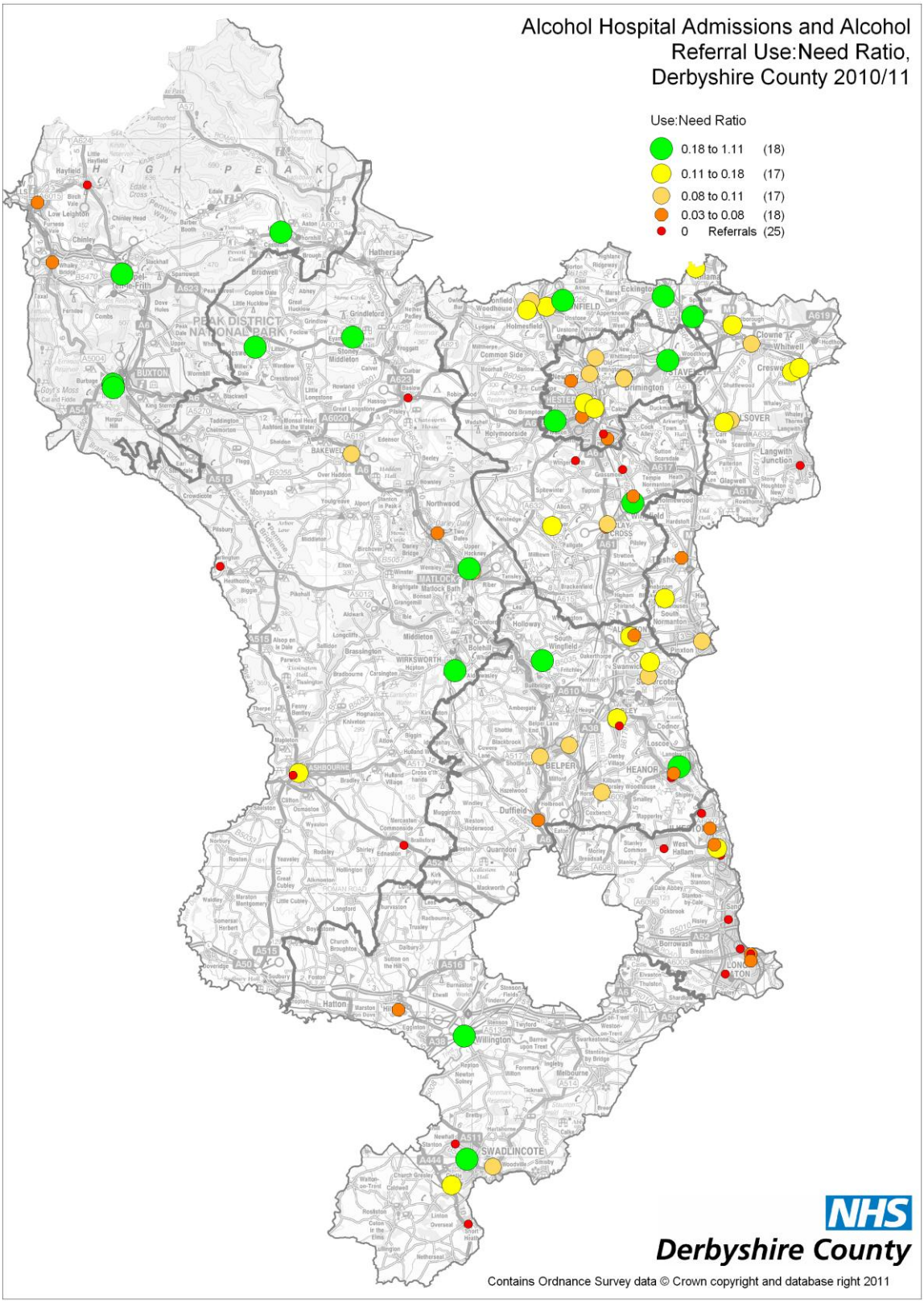


Figure 13: Map of general practice level use:need ratio


Alcohol Hospital Admissions and Alcohol Referral Use:Need Ratio, Derbyshire County 2010/11
Use:Need Ratio
0.18 to 1.11 (18)
0.11 to 0.18 (17)
0.08 to 0.11 (17)
0.03 to 0.08 (18)
0 Referrals (25)
NHS
Derbyshire County
Contains Ordnance Survey data © Crown copyright and database right 2011

4.4 Findings of the qualitative interviews

4.4.1 Summary of the process and characteristics of the participants

Of 71 GPs contacted for participation in this element of the project, 9 responded and returned a signed consent form. Of these, 1 was unable to be interviewed within the time scales of the project and so a total of interviews were conducted and analysed using the Framework approach (Pope C 2000). Of the 8 GPs interviewed 6 were male and 2 were female. In terms of geographical location, 2 respondents were from the South Derbyshire area of the county, 1 was from the Erewash area, 2 from the High Peak, 1 from Amber Valley and 1 was from North East Derbyshire.

All of the interviews were done over the telephone and all but two were with the written consent of the participant, audio-taped to aid the analysis process. Two were not audio-taped due to failure of the recording equipment and instead detailed notes were taken during the interview. The coding framework developed through the analysis process is given in Figure 14 and the charting exercise is given in appendix 6.

Figure 14: Coding framework

1. Alcohol as a primary care issue
    - 1.1 Perceived extent of the problem and changes over time
    - 1.2 Patients with alcohol problems: awareness of the problem and consultation patterns

2 Identification and treatment of patients with an alcohol problem
    - 2.1 Identification using formal screening methods
    - 2.2 Opportunistic identification of problems
    - 2.3 New patient registration

3 Initial action
    - 3.1 Explicit and implicit use of brief interventions
    - 3.2 Referral to a specialised service
        - 3.2.1 Self-referral v GP referral
        - 3.2.2 Addaction
        - 3.2.3 DAAS

4 Knowledge and experience of alcohol specific services
    - 4.1 Knowledge of who provides the county-side service
    - 4.2 Confusion between Addaction and DAAS
    - 4.3 Experience of DAAS training

5 Specific issues
    - 5.1 Amount of information provided
    - 5.2 Detoxifaction
    - 5.3 Feedback for patients who self-refer
    - 5.4 Other

4.4.2 Alcohol as a primary care issue: experiences of alcohol problems in the primary care setting.

All of the GPs interviewed reported that alcohol problems were relatively common in their patients and that they saw people with alcohol problems regularly. One participant for example estimated that he saw at least one patient on a daily basis with whom he discussed alcohol consumption:

"I think it is [a problem] ..I see you know, its a Caucasian population out here that revolves around social activity around drink as a whole...people drink a lot more socially and culturally here I think..." GP2

However, none of the participants felt that this was an issue that had worsened over time but had instead remained quite stable.

In terms of consultation patterns it was reported that patients with an identified alcohol problem were generally less likely to consult, possibly due to the fact that they did not want to be challenged about their drinking. However once patients had developed mental or physical health problems that were related to their alcohol use, they then became more frequent attenders:

"No, it's almost the other way round they are the ones we want to see more frequently to try and sort them out and classically they are the ones you don't hear from that miss most of their appointments." GP1

And:

"Because of their general problems in health and because of their social or mental problems that arise from it [their drinking] then yes [we do see them more often]" GP 3.

It was also reported that some but not all patients were aware of the fact their drinking had become problematic. For some this became apparent when the GP quantified the amount they were drinking:

"They don't think of themselves as being heavy drinkers and it's not until you tot up the units and say you know this is 50 units..they know that 50 units is too much but they didn't appreciate that what they were drinking equated to 50 units.." GP 4

It was felt though that some patients were aware of their drinking problem, but that these patients were not always willing or able to address this. This for some was a considerable source of frustration:

"Classically the ones I've been seeing a lot recently is that you get them in touch with alcohol services and 6 weeks later you get the letter back saying they didn't want to take part. That's even the ones that turn up begging you for help and then you get them hooked into services and all of a sudden they've started drinking not interested don't want to turn up to their alcohol service appointments, you do find yourself banging your head against a brick wall a bit." GP 1.

And:

"I mean I've seen two alcoholics in the past two days who were considerably ill as a result of it, and had been multiple times detoxed but despite both mental and physical reasons to change their behaviour, and as much support is available just aren't going to anything about it." GP 3.

Two respondents also discussed this problem specifically in more affluent patients, and felt that this group were sometimes very difficult to help as they were unlikely to take up offers of help:

"We've got a few middle class alcoholics here...they've had all sorts of you know, treatments, residential offered in nice leafy places in Shropshire and also by the voluntary sector, but they haven't availed themselves of that, and I don't think any of us can do anything about that." GP 2

Alcohol use in the in the elderly was also raised, specifically that this might be missed in this group as they may keep their problem hidden from both family members and health professionals:

"The elderly are a worry because they don't admit to us actually, they hide from their families and that sort of thing..either it has become such a part of their lives ..that they are – they are so used to, you know I've done it all my life and it never did me any harm;...and I think that sometimes they are a bit ashamed of it" GP 6.

4.4.3 Identification and treatment of patients with alcohol problems in primary care

All of the GPs interviewed reported that alcohol consumption was recorded at registration with the practice, with one reporting use of the FAST questionnaire within the new patient registration form. Although it was stated that some patients would either attend alone or with a family member to seek help specifically for their alcohol use, much of the identification of this problem was done opportunistically. For example patients attending with problems with their diabetes or with injuries would be asked about their level of alcohol consumption:

"I'll just be on the lookout for other sort of associated illnesses so I might have Diabetics who we are just doing routine LFTs on and that will pick something up, or people with sort of multiple injuries or depression or if it come to light, domestic abuse..then I'll ask from their clinical history a bit more you know- do you drink much alcohol." GP1

Depression was mentioned specifically by some participants as a problem that was associated with alcohol disorder. One respondent talked about how it was sometimes a challenge to convey to patients consulting with depression but who drank excessively, that their consumption may be causing them to be depressed:

"Usually however, more often they present with depression when really what they are saying that they are depressed because of alcohol, its hard initially to get people to understand that is really the other way round" GP 3

Few of the participants used formal screening tools to identify problematic alcohol consumption. One did though report using CAGE if alcohol disorder was suspected, whilst another felt that the time needed to complete the tool meant less time was available with the patient to address the issue.

4.4.4 Initial action and referral to specialised alcohol services

Brief interventions are recommended for use in the primary care setting with patients whose alcohol consumption is problematic. Although not all GPs had heard of brief interventions and few referred to them directly, they did describe initial action that reflected the core features of this approach. For example, they discussed giving feedback on consumption, identifying goals for reduction and providing follow up to monitor progress. A GP who did specifically refer to this approach as first course of action stated that the brief intervention also helped to gauge motivation to make a change in drinking behaviour.

In terms of referral to alcohol specific services, in contrast to the findings of the quantitative element of this project that these GPs had made no or few referrals to an alcohol specific service, all had in fact made referrals. However, those who were aware of DAAS tended to

provide patients with information about the service and patients then self-referred:

"I'll offer them referral to the community alcohol services [DAAS]...I'll offer them referral and I'll give them the phone number and get them to do it themselves." GP2

Participants that discussed their rationale for using this approach over the GP referral route reported that this was more in line with engagement and encouraging patients to take responsibility for their care and not simply being a passive recipient, which was felt to be associated with greater motivation to seek help:

"well they are all self-referral – we – in general as with drugs and with smoking, self referral is better, because what happens when you do the referral for someone who doesn't really want one but only says yes to keep you happy – they just don't go. I tend to point them in the direction of Derbyshire Alcohol Services- and a bit like drugs, let them make their own appointment" GP6

One of these respondents did though also state that this approach had disadvantages as by self-referring, the practice would not receive any information on whether or not the patient had attended or whether they had made progress:

"The trouble about not referring and not getting letters is you don't know, and this is the same problem we have with er GU, or other services that operate on a very confidential independent basis, they don't give us information and so the problem is you never really know. And being a relapsing condition, you never really know what happens to your patients" GP6

There was some confusion around who was commissioned to provide the county-wide service, with half of participants reporting that they referred directly to Addaction, a service that had previously been

commissioned to provide alcohol services, and that still does treat some patients once they have been assessed through the DAAS hub service.

Convenience of a locally run clinic was given as a reason for referral to this service and one participant was under the impression that DAAS were no longer providing the service and that they should now be referring directly to Addaction:

"We got something more recently that said that Addaction were now doing alcohol services and I was sort of under the impression that the lower level services were no longer being commissioned, basically and if it was really bad then it was Addaction and I assume other people are under the same impression" GP 4

4.4.5 Experience of the DAAS service

Of the 8 participants, 4 had some experience of the DAAS and had referred patients to the service, largely by providing patients with the DAAS contact number. A participant who had some knowledge of DAAS felt that the service '*ran seamlessly in the background'* (GP 7) and that because it worked well, he'd had little reason to have contact with DAAS.

Of those who did have some experience of DAAS, all but one could recall receiving training on the services provided and how to refer to the service. Although it was reported that the training was informative and useful, one participant reported that this training had been a negative experience, with the presenter taking issue with how the new system was delivered:

" We had a presentation from, I have no traditional loyalties,...from one of the counsellors from the old regime and he just spent his entire time dissing the current regime..he really annoyed me..he kept going on about how he could no longer do 12 sessions blah blah and it was so pointless and so silly. He should have been telling us how the new system worked and not be dissing it, and that is a management problem." GP 2.

The pace of change in who is providing services was seen as a problem and some felt that difficulties in keeping pace with service change and re-configuration had impacted on their ability to refer appropriately:

"The difficulty in keeping track of what changes are taking place and who we should be referring to because certainly with regard to Addaction we got the impression that Addaction were the service doing the level 4 detoxification. The implication was that we should be referring directly here instead of this central hub. Maybe this is why we thought that the central hub had such of just, no longer existed." GP 4

4.4.6 Specific issues raised: information and detoxification services

Other issues raised by the participants included the degree of information available around the services provided by DAAS and also issues relating to detoxification. In terms of information, of those who had experience of DAAS, two felt they would like to have more information about the services provided and what happened to patients once referred in to the service. Also one participant asked whether, as with smoking services, information cards could be provided that could be given to patients outlining how to recognise alcohol disorder and how to access services.

Detoxification was also raised by some respondents. One felt that the current system was inflexible for patients in crisis and that a detoxification unit that could be referred into immediately would be useful:

"The point at which a possible change can be made is when there is this crisis. If its more than a few days the Carer has understandably buggered off or the patient is not as contrite because it s really hard to stop drinking...I would just love to be able to have some sort of urgent thing I can offer to people and their relatives when they come here in extremis rather than having the desperately negative consultations...to be quickly responsive and achieve that first thing. " GP 2

Another raised an issue relating to support for those going through detoxification. This participant reported that he felt people not going through detoxification were provided with a lot counselling, but that those requiring detoxification received less support. He also felt that when the service requested that he prescribe detoxification, this patient's care became his responsibility even though the service had made the request.

5 Discussion

5.1 Summary of the main findings

The findings of this health equity assessment suggest that alcohol problems represent a significant public health burden in Derbyshire, with some patients experiencing multiple hospital admissions associated with their alcohol consumption, and GPs seeing a considerable amount of alcohol disorder in their patient populations.

There is also evidence to suggest that there are variations in equity of access to the DAAS service in relation to age, socio-economic status, geographical location and general practice. Specifically, older patients aged 60 and over have poorer access to the service in relation to need, as do people in the most affluent socio-economic group. Patients living in some parts of the county including Bolsover also have poorer access in relation to need, though within several districts there are areas where access is low in relation to need.

Findings of the interview phase of the project suggest that at least some of the variation observed in general practice referrals is due to GPs either providing information to patients who then self-refer into the service, or due to GPs making referrals directly to another alcohol service.

5.2 Discussion of the main findings

5.2.1 Equity of access and older patients

Increased risk of an alcohol problem in the elderly has been reported as being associated with being male, single, and socially isolated (O'Connell H et al 2003). The findings of this health equity assessment suggest that older patients aged 60 years and over have poorer equity of access to the DAAS. This finding may have significant implications as there is evidence to suggest that alcohol disorder in older people is less likely to be recognised and that older people are more susceptible to the health effects of alcohol consumption (Garver DL 1984).

There is evidence that excessive alcohol consumption in older people is not unusual. A large scale study of 5065 patients reported for example that 12% of women and 15% of men aged over 60 years reported that they regularly exceeded recommended levels of alcohol consumption (Adams W et al 1996). Consumption levels in elderly people with an alcohol disorder has been studied and median consumption in men with an identified drinking problem was reported as being as high as 78.5 units per week and 47 per week in women (Mehta M et al 2006).

In terms of identification of alcohol problems in older people, a study in the secondary care setting reported that medical staff only identified alcohol disorder in one third of elderly patients who had an alcohol problem. Also only 10% of those with an alcohol problem

were considered for referral to alcohol specific services (McInnes E et al 1994).

5.2.2 Variations in access and referrals: socio-economic status

Poorer access in relation to expressed need in the most affluent quintile may reflect poorer uptake of services of this nature by more affluent individuals. This seems to be in contrast to much of the published literature that suggests that it is the most deprived groups who tend to have poorer access to health services (De Looper & Lafortune 2009, Goddard et al 2001). For example a study of knee replacement found that people from lower socio-economic groups were twice as likely as more affluent people to need a knee replacement but were less likely to be in receipt of services for this problem (Yong P 2004).

Perceived stigma associated with accessing alcohol services may explain some of this variation in that more affluent may be more sensitive to feelings of stigma. The degree to which this explains variation in this project is difficult to assess, though there is some evidence that stigma associated with alcohol disorders does have an impact on service utilisation. A study done in the US for example, that aimed to assess the impact of stigma on uptake of alcohol services found that people who perceived stigma associated with alcoholism to be higher were significantly less likely to have utilised alcohol services. In sub-analyses of levels of perceived stigma, the

study also found that people in more deprived groups were more likely to report high stigma associated with alcohol, as were people from ethnic groups. However, although this study was large with over 34,000 people interviewed, only a small number (246) had utilised alcohol services and so this study may be underpowered to detect differences in utilisation in sub groups. Also the authors report that a degree of misclassification may be present as those who felt high stigma may have been more likely to under report alcohol disorder (Keyes KM et al 2010).

5.2.3 Variations in referrals by GPs and geographical area

The geographical variations observed in this project may be associated with referral to other services, specifically Addaction in these areas. In terms of variation at GP level, again this is likely to be associated with referral to other alcohol services but may also reflect that GPs may not directly refer patients to the service but may instead provide patients with the information necessary for them to self-refer. However there is also evidence in relation to other conditions that GP referrals do vary according to some key patient characteristics. In a UK cohort study for example, McBride et al found significant variation in referral for dyspepsia, hip pain and post-menopausal bleeding. In analysis adjusted for co-morbidity, older patients were less likely to be referred for treatment for all three conditions, and patients from more deprived areas were less likely to be referred for two. The authors suggest that in terms of older

patients, this variation may be related to perceptions of the likely benefit of the treatment for older patients (McBride et al D).

Although research specifically around equity of access to alcohol services is sparse, there are studies that have found variation of equity to services by geographical area. Judge et al in a study of equity of access to knee and hip replacements at district level for example, found that there were areas in England that had high need but low provision and also areas where there was low need but high service provision.

5.3 Strengths and limitations

5.3.1 The use of SUS data as in indicator of need

According to Buchan et al, individuals who have a need for a health service are '*those for whom an intervention produces a benefit at reasonable risk and acceptable cost*" (Buchan H et al 1990). In this project need was determined using SUS data. This approach was based on the rationale that anyone with an alcohol specific admission would have the capacity to benefit from being referred to the DAAS service and so had an identified need for the service.

This approach though does have limitations and may underestimate actual need and so the overall associated public health burden as not all those with the capacity to benefit from the service will have experienced an alcohol specific admission. In addition it is likely that there are patients who do not perceive their drinking behaviour as

problematic and so do not approach any health care provider to discuss treatment. The extent to which this underestimates actual need is difficult to determine, though a large scale study in the US reported that only one in nine people with an alcohol disorder felt that they needed any treatment (Edlund MJ et al 2009).

There is also evidence from the analysis presented that this measure of need is imperfect. For example one general practice had a use:need ratio greater than one, indicating more referrals made in comparison to need. This is unlikely to mean that this GP is referring patients who do not have a need for an alcohol specific service and is more likely to indicate that the admissions data is an imperfect representation of actual need in the population.

Finally this data was not directly linked to the service data – i.e. patients who had experienced an alcohol specific admission could not be directly linked to the service data to determine if they had been referred into the service following their admission. Linking the data would raise significant information governance issues as patients would need to have been matched by name and date of birth. If this had of been possible within the scope of this project, it would have been interesting to determine the characteristics of those who had and had not been referred to the service and to determine any inequity in patient or service level characteristics.

5.3.2 Completeness and accuracy of the SUS and service data

The completeness of the SUS data was determined by comparing the rates calculated with those published on the Local Alcohol Profiles for England that are published by the North West Public Health Observatory (NWPHO 2011). Although these profiles utilise Hospital Episodes (HES) data and not SUS to calculate the age-standardised rate, the rates for each district were very similar. The only exception being the High Peak area where the rate calculated for this purpose of this project was lower than published by NWPHO (37.8 compared to 64.0). This likely to be due to boundary issues in that Derbyshire PCT only receive partial SUS data for the High peak area as Thameside and Glossop PCT commission services for part of the High Peak population.

Although completeness can be assessed through comparison with published data, it is more difficult to determine the accuracy of the SUS data. A systematic review of studies that aimed to assess the accuracy of hospital coding in the UK found that overall coding was accurate in approximately 90% of cases. The authors did though report that the studies included were variable in terms of size and quality and that the more recent and higher quality studies reported slightly lower rates of accuracy (Campbell SE 2001).

Accuracy and completeness of the service data is very difficult to determine. Completeness is challenging as the data utilised in this

project cannot be compared with other data for the same area. Also, assessing the accuracy would require auditing the data provided against specific patient records which is out of the scope of this piece of work.

5.3.3 The use of use:need ratios to determine equity

Equity was assessed in this study using a simple use to need ratio. This has some limitations as it does not allow for adjustment for potential confounding factors. More sophisticated multivariate analysis using a poisson regression model has recently been used in a study of equity of access to hip and knee replacements (Judge A et al 2010). This approach produced equity rate ratios that were adjusted for key variables including place of treatment, distance to services and socio-economic status. This innovative approach could be used with the data presented, but may require the use of specific simulation software. If the current health equity assessment were repeated however, this approach should be considered as an alternative method of identifying equity at both patient and service level.

5.3.4 Limitations in relation to the interview phase of the project

Initially it was hoped that at least 10 interviews with GPs would be conducted and analysed. However although 71 were identified and provided with information about the project, only 9 responded and gave their consent to participate. This could be considered a

weakness of the project as this number of interviews is unlikely to reach theoretical saturation. This is a concept within qualitative research that is used to determine the point at which no more participants need to be recruited i.e. a researcher would continue to undertake interviews until a point at which no new insights or themes are identified (Strauss and Corbin 1990).

Although some themes did arise in the analysis process and some interesting and at times diverse opinions were given, interviewing a greater number of participants would have been likely to generate further themes and insights. However, efforts were made to recruit many more GPs than were interviewed and the low response could have simply reflected the fact that recruitment was done during the summer when many may have been on holiday or could also reflect the methodology in that GPs may be less likely to participate in interview based projects. A questionnaire could well have yielded a greater response but would have also yielded less rich responses than those gained through the interviews.

The interviews were also done over the telephone and it could be argued that this approach could potentially provide less rich data than that collected in a face to face setting, as it does not allow for the identification of non-verbal cues. However, this approach was taken as GPs due to constraints on their time may be more likely to agree to participate in a telephone interview. Also there is evidence that the

data collected through telephone interviews does not differ greatly from that collected face to face in terms of both quality and depth (Sturges JE & Hanrahan KJ 2004).

Finally, the analysis undertaken was not verified by another researcher. This is often done in qualitative studies in an attempt to display robustness and trustworthiness in the analysis and subsequent interpretation. However, this in itself has been questioned as it does assume that there is within qualitative data a single 'truth' that can be found and agreed upon, an assumption that may not be valid (Green J & Thorogood N 2004).

6 Conclusions and recommendations

The findings of this health equity assessment do suggest a degree of inequity to the DAAS service in relation to socio-economic status, age, general practice and geographical location. Some inequity was also seen in relation to ethnicity but the very small numbers of admissions and referrals to people who identified as non-white means that this should be viewed cautiously. Findings from the interview phase suggest that variations in GP-referrals may reflect how patients are referred and the service referred to, rather than generally low referral of patients with a need for the service.

Recommendations therefore include:

- The needs of the elderly population in Derbyshire in relation to alcohol should be further investigated as they may not be accessing alcohol services in line with their need. Addressing this may be particularly important as evidence from the literature suggests these patients are more susceptible to the health effects of alcohol.

- Although research suggests that overall people in more deprived groups are less likely to have equitable access to health services, this health equity assessment found that the most affluent group had the lowest access to the DAAS in relation to need. This was further supported by comments made in the interview phase that this group are less likely to take up offers of help for their alcohol problem. It is then recommended that reasons for low utilisation of alcohol specific services in this group be further explored.

- Variation at GP level is likely to reflect variation in method of referral, i.e. self-referral, and also referral to a service that historically provided the county-wide alcohol service. The GPs that referred directly to this service were either unaware of the DAAS providing this function or thought that the previous service had resumed its role in accepting referrals directly. It is recommended that the message that DAAS is the county-wide

hub organisation dealing with all referrals be reaffirmed with GPs.

- GPs may consider self-referral to DAAS as more appropriate as it encourages patients to take control of their care rather than be a passive recipient of health care which may help motivate participation. However in utilising this approach the GP does not routinely receive information in relation to uptake of the service and progress made. Providing this may help GPs to monitor their patient's progress and also in providing support in the patient's attempt to address their alcohol problem.

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8 Appendices

8.1 Appendix 1: Alcohol Specific Conditions

F100	Specific	Mental & behav dis due to use of alcohol: acute intoxication
F101	Specific	Mental and behav dis due to use of alcohol: harmful use
F102	Specific	Mental and behav dis due to use of alcohol: dependence synd
F103	Specific	Mental and behav dis due to use of alcohol: withdrawal state
F104	Specific	Men & behav dis due alcohol: withdrawl state with delirium
F105	Specific	Mental & behav dis due to use of alcohol: psychotic disorder
F106	Specific	Mental and behav dis due to use of alcohol: amnesic syndrome
F107	Specific	Men & behav dis due use alc: resid & late-onset psychot dis
F109	Specific	Ment & behav dis due use alcohol: unsp ment & behav dis
G312	Specific	Degeneration of nervous system due to alcohol
G621	Specific	Alcoholic polyneuropathy
I426	Specific	Alcoholic cardiomyopathy
K292	Specific	Alcoholic gastritis
K700	Specific	Alcoholic fatty liver
K701	Specific	Alcoholic hepatitis
K702	Specific	Alcoholic fibrosis and sclerosis of liver
K703	Specific	Alcoholic cirrhosis of liver
K704	Specific	Alcoholic hepatic failure
K709	Specific	Alcoholic liver disease, unspecified
K860	Specific	Alcohol-induced chronic pancreatitis
T510	Specific	Ethanol
T511	Specific	Methanol
T519	Specific	Alcohol, unspecified
X450	Specific	Occurrence at home
X455	Specific	Occurrence at trade/service area
X458	Specific	Occurrence at other specified place
X459	Specific	Occurrence at unspecified place

8.2 Appendix 2: Letter of invitation

NHS
Derbyshire County

Newholme Hospital

Baslow Road

Bakewell

Derbyshire

DE45 1AD

Tel: 01629 817931

Fax 01629 817895

Email: jane.bethea@derbyshirecountypct.nhs.uk

2nd August 2011.

Dear Dr

We are contacting you to ask if you would be willing to spare a few minutes of your time to help us with a project we are currently undertaking around alcohol and alcohol services. As part of the project we are hoping to speak to General Practitioners about alcohol misuse in their patients and also the services that are available for patients who have alcohol related problems. The findings of the project will be used to inform service development and will also be used by a Specialty Registrar in Public Health as part of the requirements of her Master of Public Health degree course.

If you feel able to help us with this project, your involvement would mean participating in a ten minute telephone interview. All of the information provided will be treated as confidential and although we may use quotes in any subsequent reports, we will ensure that no individual can be identified from the quotes used.

More information about the project and a consent form are enclosed. We would be very grateful if you would take a few minutes to read this information, and if you are interested in taking part in an interview, return the signed consent form to us using the FREEPOST envelope provided by **14th August 2011**. If you have any questions then please either contact Jane Bethea on the number given above, or by email: jane.bethea@derbyshirecountypct.nhs.uk.

Yours truly

Alison Pritchard — Consultant in Public Health

Jane Bethea — Specialty Registrar in Public Health

8.3 Appendix 3: Information for participants

Access to alcohol services in Derbyshire: A health equity assessment.

Information for interview participants.

1) What is the purpose of the project?

This project will be used to inform the delivery of alcohol services in Derbyshire. Specifically routine hospital and service data will be analysed to gain a better understanding of how both need for and use of alcohol services vary across the county. We are also hoping to undertake short telephone interviews with General Practitioners to explore variation in referrals from primary care.

2)What am I being asked to do?

We would like you to consider participating in a short telephone interview (approximately 10 minutes) with Jane Bethea, a member of the NHS Derbyshire County Public Health team based at Newholme hospital in Bakewell.

During the interview you will be asked questions about your experiences of both working with patients whose drinking puts them at increased risk of harm, and the services that are available for these patients.

3)What will happen to the information I provide?

The information will be analysed by a member of the Public Health Team (Jane Bethea) and used alongside findings from the analysis of routine data to inform the development of alcohol services in the county. The findings of the project will also form part of Jane Bethea's dissertation project that will be submitted to the University of Nottingham to meet the requirements of her Master of Public Health degree.

To ensure we do not miss any important information, we would like to audiotape the interviews. These recordings will be stored anonymously and securely on NHS premises and all audio-recordings will be deleted after the project has been completed. Although we might use quotes from the interviews in the final report, we will ensure that it will not be possible to identify any of the participants from the quotes given.

4)What should I do if I would like to take part?

If you feel able to spare the time to participate in an interview then we would be very grateful if you would complete the attached consent form and return it to us by **14th AUGUST 2011** in the FREEPOST envelope that has been provided**.** We will then contact to you to arrange the interview at a time that is convenient for you.

5)Further information

If you would like more information before deciding whether or not to participate, then please contact Jane Bethea on 01629 817931, or by email: Jane.bethea@derbyshirecountypct.nhs.uk.

Many thanks for taking the time to read this information.

Jane Bethea

Specialty Registrar in Public Health

Derbyshire County PCT

Newholme Hospital

Baslow Road

Bakewell

DE45 1AD

Tel: 01629 817931

8.4 Appendix 4: consent form

NHS
Derbyshire County

If you would like to participate in an interview, please complete this form and return it to us in the FREEPOST envelope provided by **14th August 2011.**

I *(please write your name here)*.....confirm that *(please tick):*

☐ **I have read the information leaflet provided and would like to participate in a telephone interview.**

☐ **I understand that my participation is voluntary and I can withdraw at any time.**

☐ **I give consent for the interview will be audio-taped.**

Many thanks for taking the time to help us with this project. We will contact you in the near future to arrange the interview for a time that is convenient for you.

Jane Bethea

Specialty Registrar in Public Health

Derbyshire County PCT

Newholme Hospital

Baslow Road

Bakewell

DE45 1AD

Tel: 01629 817931

8.5 Appendix 5: Interview schedule

Hello and thank you very much for taking the time to participate in this project. My name is Jane Bethea and I am a Specialty Registrar in Public Health, based at Newholme Hospital in Bakewell. Before we start – can I just ask if you have any questions about the project?

1) Can I just start with asking you about your patients – how do you assess whether or not your patients are drinking to an extent that puts their health at risk?

    - *Opportunistic as part of routine care? If so is this done with all adults or with specific groups you feel is more likely to drink excessively?*

    - *Use of information collated at new patient registrations?*

    - *Do you use any specific tool to assess their consumption such as the alcohol unit wheel?*

2) Do you feel that you have many patients whose drinking is putting their health at risk?

Prompts

- *Do you see these patients more or less frequently compared to your patients who do not have an identified drinking problem? (Note – evidence suggests problematic drinkers consult 6x more frequently)*

- *Is this a problem you see in any particular group of patients?*

- *Do these patients tend to be aware of the fact their drinking could be harming their health?*

- *Would you say you are now seeing more or less patients with problematic drinking than you were say five years ago?*

- **If no** – do you think that patients who do have a problem with alcohol are those you don't tend to see at the surgery or do you feel that excessive consumption is simply not a problem in your population?

3) If you see a patient who you feel has a problem with alcohol, what action do you usually take?

Prompts

- *Brief interventions – which are used and is this approach taken with all patients?*

- *At what point would you refer a patient to an alcohol specific service?*

- *Can you tell me about the service/services you tend to refer patients to (e.g. DAAS or Addaction)?*

4) Thinking specifically about the County wide alcohol service provided by the Derbyshire Alcohol Advice Service (DAAS), do you feel you have received enough information about the process of referring patients to this service?

Prompts

- *Are there any barriers to referring patients to this service?*

  And what about the services that are offered to patients once they are referred – do you feel you have had enough information about those services?

5) Have you or has your practice team ever received any training from the Derbyshire Alcohol Advice Service or from any other alcohol specific service?

Prompts

- *If no, has the practice to your knowledge been offered this training? If so was there any reason you didn't attend/the practice chose not to take up the offer of the training?*

- *If yes – has this had any impact on your referrals to this or another service?*

Many thanks for your help and do you have anything you would like to add about alcohol services in the County?

End.

8.6 Appendix 6: Qualitative analysis charting exercise.

MAIN THEME	**1. Alcohol as a primary care issue**		
Sub themes	**1.1.Perceived extent and changes over time**	**1.2 Awareness of the problem in patients**	**1.3 Consultation patterns**
Summary	All of the GPs felt that alcohol use disorder was a problem they saw quite regularly in their practice and all had reported concerns around how this impacts on their patients lives. One estimated that he discussed this with at least one patient on a daily basis. None of the participants reported that though that they felt this was a greater problem than it had been in previous years.	The respondents felt that patients did tend to know when their drinking was problematic, but that they were not always motivated to attend services even if referred. This led to some feeling frustrated that despite efforts to direct them to appropriate services, some participants failed to take up opportunities. It was also reported that for some patients, it was not until they looked specifically at their unit intake that they became aware of the extent of their drinking. Two respondent also mentioned having middle class patients who had been offered detox but had not taken these offers of help up. This GP felt that for this group there was possibly little that could be done to help them. Consumption in the elderly was also raised as an issue as this group may not seek help for	Most felt that their patients with an identified alcohol problem did not tend to consult more unless their consumption had already led to the development of significant health problems. However, for patients whose health had deteriorated to the point where they needed treatment for alcohol related conditions, their consultation rate was considered to be higher. This included where alcohol use was linked in with depression and mental health problems.

		their problem.	
Example from text	*"I think it is [a problem] ..I see you know, its a Caucasian population out here that revolves around social activity around drink as a whole...people drink a lot more socially and culturally here I think..."* GP2 *"I'm sure it is [a problem]. I mean I've seen two alcoholics in the past two days who were considerably ill as a result of it, and had been multiple times detoxed but despite both mental and physical reasons to change their behaviour, and as much support is available just aren't going to anything about it."* GP 3.	*"Classically the ones I've been seeing a lot recently is that you get them in touch with alcohol services and 6 weeks later you get the letter back saying they didn't want to take part. That's even the ones that turn up begging you for help and then you get them hooked into services and all of a sudden they've started drinking not interested don't want to turn up to their alcohol service appointments, you do find yourself banging your head against a brick wall a bit."* *GP 1.* *"They don't think of themselves as being heavy drinkers and it's not until you tot up the units and say you know this is 50 units..they know that 50 units is too much but they didn't appreciate that what they were drinking equated to 50 units.." GP 4* *"We've got a few middle class alcoholics here...they've had all sorts of you know, treatments, residential offered in nice leafy places in Shropshire and also by*	*"No, it's almost the other way round they are the ones we want to see more frequently to try and sort them out and classically they are the ones you don't hear from that miss most of their appointments." GP1* *"Because of their general problems in health and because of their social or mental problems that arise from it [their drinking] then yes" GP 3.*

		the voluntary sector, but they haven't availed themselves of that, and I don't think any of us can do anything about that." GP 2 *"The elderly are a worry because they don't admit to us actually, they hide from their families and that sort of thing..either it has become such a part of their lives ..that they are – they are so used to, you know I've done it all my life and it never did me any harm;...and I think that sometimes they are a bit ashamed of it" GP 6.*	
MAIN THEME	**2. Identification and treatment of patients with an alcohol problem**		
Sub themes	**2.1 Use of formal screening tools**	**2.2 Opportunistic identification**	**2.3 New patient registration**
Summary	Few of the respondents used formal screening tools in identifying patients with alcohol problems. One respondents had used them in the past but felt that the time it took to complete these with patients meant that he had less time with the patient to discuss other issues Screening tools tended to be used as part of a wider approach to	All of the participants opportunistically discussed alcohol with their patients, for example this was discussed with over-weight patients or patients with depression. It was reported that patients did sometimes themselves come into the surgery and ask for help, or were sometimes bought in by family members.	All of the GPs reported that information on alcohol consumption was recorded for new registrations. One reported that he FAST questionnaire was used in this context but felt that this was probably inaccurate and that patients tended to underreport their consumption.

	identifying patients whose drinking had become problematic. For example, one respondent reported a range of opportunistic approaches through which consumption was discussed and reported that if through opportunistic questioning alcohol problems were identified, then the CAGE questionnaire was used. Although screening tools were not always formally used, how patients were identified did seem to reflect the questions posed by such tools, for example the patients would be asked about their consumption, any symptoms of withdrawal and whether they drank every day. Blood tests to detect physiological signs of excessive alcohol use were also mentioned.	It was also reported that patients did at times come in with issues such as depression, but that their depression was caused by their alcohol consumption. Looking for signs of alcohol use in people with specific health problems was also given as way of opportunistically identifying alcohol problems.	
Example from text	"*Most of the time we've got our patients that we know of, that are drinkers anyway quite clearly but generally it tends to be quite opportunistic, just asking at health screening, at blood pressure checks. New patient medicals, [they] all get asked about their alcohol consumption. And following on from that if its clear*	*"I'll just be on the lookout for other sort of associated illnesses so I might have Diabetics who we are just doing routine LFTs on and that will pick something up, or people with sort of multiple injuries or depression or if it come to light, domestic abuse..then I'll ask from their clinical history a bit more you know- do you drink*	

	that they are drinking more than they should be erm it tends to be a bit hit and miss what is used but some people in the practice including myself use the CAGE questionnaire.. " GP 1. *"I used to use various screening tools but unfortunately the main problems was pressure of time, so if I did that it would take away from other things"* *GP 3*	*much alcohol." GP1* *"Usually however, more often they present with depression when really what they are saying that they are depressed because of alcohol, its hard initially to get people to understand that is really the other way round" GP 3*		
MAIN THEME	**3. Initial action and referral to specialised services**			
Sub-theme	**3.1 Explicit use of brief interventions**	**3.2 Implicit use of brief interventions**	**3.3 Self-referral and GP referral**	**3.2 Addaction and DAAS**
Summary	Not all GPs had heard of brief interventions but 3 GPs talked explicitly about using brief interventions with patients who had been identified as having an alcohol problem. One also talked about how using the brief intervention approach	Not all respondents explicitly discussed use of brief interventions but most when describing their initial actions did describe the core features of a brief intervention – i.e. they gave feedback on quantity consumed, suggested goals for	Initial action was generally reported as differing according to the severity of the problem – i.e people with a problem needing detox lead to immediate referral. Interestingly, although the service data	Few respondents knew that the county wide service was provided by DAAS and x of 7 still thought that Addaction were providing this and still referred directly into this service. Some referred to their historical

	had helped gauge motivation to tackle the problem.	reduction and the provided follow up.	suggested the practices selected had no or very few referrals to the DAAS all of the GPs had in fact referred to an alcohol service. Those who had referred to DAAS though reported that they tended to ask provide patients with information about the service and the patients then self-referred. This was seen by some to be part of the process – i.e. patients were taking responsibility for their condition and engaging with services which would motivate them to succeed. The point at which referral was made to an alcohol specific service varied, with some referring immediately a problem was identified	relationship with the Addaction though one also reported that Addaction ran a clinic to the surgery which was more convenient for the patients. One participant reported that they were under the impression that DAAS was no longer providing a county-wide service and that this had been taken over by Addaction. This participant had said they had received information recently that stated that Addaction were now providing this service. One participant had received a presentation from DAAS about the changes from the old to the new system and felt that this was negative, with the presenter having issues with how the

			and others reporting that they initially tried to set goals for reduction and then if this failed referred to a service.	changes were implemented by the new DAAS service. He felt that this had impacted upon his decision to refer directly to the service.
Example from text			*"I'll offer them referral to the community alcohol services [DAAS]...I'll offer them referral and I'll give them the phone number and get them to do it themselves."* GP2 *"well they are all self-referral – we – in general as with drugs and with smoking, self referral is better, because what happens when you do the referral for someone who doesn't really want one but only says yes to keep you happy – they just don't go. I tend t point them in the direction of Derbyshire Alcohol Services- and a bit like drugs, let them make their own appointment" GP6*	*"We got something more recently that said that Addaction were now doing alcohol services and I was sort of under the impression that the lower level services were no longer being commissioned, basically and if it was really bad then it was Addaction and I assume other people are under the same impression" GP 4*

MAIN THEME	4. Knowledge of DAAS and experience of the service		
Sub-theme	**4.1 Knowledge of who is the county wide service is provided by**	**4.2 Confusion between Addaction and DAAS**	**4.3 Experience of training**
Summary	Half of the participants when asked about referral to an alcohol service talked about Addaction and not DAAS. DAAT was also discussed by some. Generally knowledge of DAAS was quite limited, and although some did have the hub telephone number to give patients, they didn't necessarily feel they knew a great deal about the service and who they were referring patients to. One participant though thought that this may be indicative of a seamless service that went on in the background without him needing to address any problems. One participant had not heard of the DAAS and instead referred to Addaction and had not received any training from the service. Geographical location of the practice may also be an issue as one GP working on the border of two counties felt that they didn't always know what changes were	There was some confusion around who was commissioned to provide the county-wide service, with one reporting that some in the practice thought that Addaction and DAAS were one and the same organisation. Frequent changes to service commissioning was seen as a problem as it was seen as difficult to keep track of who they should be referring to.	Three respondents reported that they could remember been offered or received any training from DAAs (although it was also stated by some that the practice may have been offered it but they themselves were not aware that this approach had been made). One respondent reported quite a negative experience where a member of the DAAS team had visited the practice in 2010 to talk about the move from the previous system of service delivery to the one currently in place. The member of staff who delivered the session was quite negative about how the new system was being delivered.

	being made around service commissioning and provision.		
Example from text	*" We don't get to know about everything that is going on, for those of us in practices like we are that are between two different conurbations. So it might be interesting from your point of view when you find my sheer ignorance"* GP 3	*"the difficulty in keeping track of what changes are taking place and who we should be referring to because certainly with regard to Addaction we got the impression that Addaction were the service doing the level 4 detoxificatio. The implication was that we should be referring directly here instead of this central hub. Maybe this is why we thought that the central hub had such of just, no longer existed." GP 4*	*" We had a presentation from, I have no traditional loyalties,...from one of the counsellors from the old regime and he just spent his entire time dissing the current regime..he really annoyed me..he kept going on about he could no longer do 12 sessions blah blah and it was so pointless and so silly. He should have been telling us how the new system worked and not be dissing it, and that is a management problem." GP 2.* *"we had an excellent talk from one of them, about early intervention and the service they provide" GP 6.*

MAIN THEME	5. Specific issues with the service			
Sub-theme	**5.1 Degree of information received about the service.**	**5.2 Detoxification**	**5.3 Feedback for patients who self-refer**	**5.4 Other**
Summary	Of those who had used DAAS two reported that they felt that they did receive enough information about what happened to patients who were referred in.	Some issues with the service were raised by respondents. One was a perceived inflexibility in the service, specifically in relation to the timing of access to services in relation to crises. This respondent had experience of community nurse led detox in another region of England which patients could be referred to immediately. This participant also felt there was a sometimes unhelpful culture around how the patients should attend	It was raised that although it might be beneficial for patients to self-refer, it was also reported that a problem associated with this approach was that the GP did not receive any information from the service about that patient. This also was a problem in terms of dual diagnosis and working with mental health services.	One participant thought that a card similar to that provided by smoking services, that they could give to patients would useful. This should include information relating to recognising an alcohol problem and where to go for help.

		the service – specifically that he felt there is an attitude that patients should be sober when they attend, which he felt was just not possible for all individuals with an alcohol problem. Detoxification was also raised by another participant who felt that pharmalogical detox were not always well supported in that GPs were being asked to prescribe for patients needing detox which then became their responsibility, even though the service had requested it. He also felt that the service provided a lot of support through counselling for those not receiving detox but that the support for those going through		

		detox was less.		
Example from text		*"The point at which a possible change can be made is when there is this crisis. If its more than a few days the Carer has understandably buggered off or the patient is not as contrite because it s really hard to stop drinking." GP2* *"I would just love to be able to have some sort of urgent thing I can offer to people and*	*"The trouble about not referring and not getting letters is you you don't know, and this is the same problem we have with er GU, or other services that operate on a very confidential independent basis, they don't give us information and so the problem is you never really know. And being a relapsing condition, you never really know what happens to your*	

		their relatives when they come here in extremis rather than having the desperately negative consultations...to be quickly responsive and achieve that first thing. " GP 2.	*patients" GP6*	

8.7 Appendix 7: Letter re ethical approval

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17th August 2011.

Dear Dr Roberts

Re: Access to alcohol services in Derbyshire: A health equity assessment.

I can confirm that the project Jane Bethea is doing to meet the requirements of her Master of Public Health dissertation project is service development and not research, and as such does not require ethical or organisational approval. The project is looking specifically at equity of access to the local county-wide alcohol service and does not seek to generate generalisable findings beyond the local setting. Jane has though ensured that the project has been managed, conducted and reported in line with research and information governance principles and good practice guidance.

Yours truly,

Dr Bruce Laurence

Acting Director of Public Health.
NHS Derbyshire County