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The MESAS project team all provide intellectual thinking to the MESAS project and review of this report. In addition, their contribution to this report is as follows:
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All alcohol sales and price data are copyrighted to Nielsen and CGA Strategy
Executive Summary

Background
This 2014 report is the fourth annual report that provides an update on the monitoring and evaluation of Scotland’s alcohol strategy. The report describes the legislation underpinning the alcohol strategy and the evaluation plan with its various studies. It includes the main findings from two studies published in 2014, one to assess the impact of increased investment in alcohol treatment and care services and the other to assess changes in knowledge and attitudes related to alcohol. The report also provides an overview of results from the studies to assess the implementation of Alcohol Brief Interventions and the Licensing Act, and to determine the potential contribution of the external economic context, detailed in previous reports. Furthermore, it updates the findings from the on-going studies on trends in affordability, consumption and alcohol-related harms. It differs from previous years’ reports in that it is presented in a concise format accompanied by a series of appendices which include data, charts and key points linked to these.

Introduction
After a period of rising alcohol-related harm, the Scottish Government published a new alcohol strategy in 2009. This aimed to reduce population alcohol consumption and related harm through interventions such as routine Alcohol Brief Interventions (ABIs), increased investment in treatment and care services, banning multi-buy discounts in the off-trade, and introducing minimum unit pricing (MUP). Changes to alcohol licensing were also implemented in 2009. The ‘Monitoring and Evaluating Scotland’s Alcohol Strategy’ (MESAS) evaluation programme aims to determine the strategy’s impact.

Methods
The report draws together findings from a portfolio of studies evaluating Scotland’s alcohol strategy. The evaluation adopts a theory-based approach. An expected ‘theory of change’ is compared with observed changes assessed through the studies, using England & Wales as comparison where possible. The existing and proposed studies are a mix of cross-sectional and time-series analyses, where possible including a comparison population. External factors which may be contributing to current trends in consumption and related harm are considered.

Results
In Scotland, alcohol-related death rates have fallen by 35% since 2003 but remain 1.4 times higher than in 1981. Similarly, the alcohol-related new patient (hospitalisation) rate fell by 25% since 2007/8, however, the rate was still 1.3 times higher in 2013/14 than in 1991/92. Alcoholic liver disease hospitalisations followed a similar pattern to all alcohol-related hospitalisations; there has been an upward trend in new patients presenting to hospital up to 2005/6, and then a decline until last year. By contrast, the new patient rate for alcohol psychosis, accounting for 17% of alcohol admissions (driven by alcohol ‘withdrawal’), continued to rise until 2007/8, and has plateaued but not declined since then.
The adopted theory suggested that declines in alcohol-related harms would be prompted by a decline in the mean quantity of alcohol consumed in the population. Per adult alcohol sales have continued to fall recently in Scotland, declining by 9% since the peak in 2009. It was also postulated that increases in alcohol service provision would contribute to a reduction in harms. In 2012, an estimated one in four adults with possible alcohol dependence (based on an AUDIT score of 16+) actually accessed alcohol services (the prevalence-service utilisation ratio). It was perceived among providers and users that the increased investment in specialist treatment and care services had improved the quality and accessibility of services. Last, it had been hypothesised that greater population understanding of the problems alcohol causes in Scotland would contribute to a decrease in harms through a variety of mechanisms. However, with the exception of increased awareness of the harm caused by alcohol, there was little notable change in population knowledge and attitudes related to alcohol in the period from 2004 till 2013.

Previous MESAS reports have demonstrated alcohol-related mortality rates in Scotland to be almost twice those in England & Wales but that these rates peaked five years earlier in Scotland and declined more sharply. Previous analysis also suggested that it was unlikely that changes to alcohol licensing were impacting on alcohol outcomes but that the ban on quantity discounts in the off-trade and the increased delivery of ABIs may have made a contribution to the declines in alcohol consumption and harms respectively. In addition, it suggested that the decline in alcohol-related mortality in Scotland from the peak in 2003 may be at least partly explained by the declines in disposable income for the lowest income groups which predated the recession.

**Conclusions**
Alcohol-related mortality and morbidity, and inequalities in these harms, are continuing to decline in Scotland, and on some measures are improving more quickly than in England & Wales. Alcohol sales are falling in both Scotland and England & Wales and it is likely that declining affordability of alcohol due to the economic downturn and associated policy context across Great Britain in recent years is responsible for a substantial proportion of these improvements. However, the ban on quantity discounting of alcohol and the increased number of ABIs delivered are likely to be contributing to the improvements seen in Scotland. Changing knowledge and attitudes around alcohol are unlikely to be responsible for the recent declines. Further work is required to understand the potential contribution of the increased investment in treatment and care services to improving outcomes, and to understand the impact of a range of policy and non-policy factors (both contemporary and historical) on outcome trends, in particular the differences in the scale and timing of impact seen in Scotland and England & Wales.
Introduction

In 2006, the Lancet published a landmark paper showing a dramatic increase in liver cirrhosis mortality (an internationally recognised indicator of alcohol-related harm) in Scotland during the 1990s, a time when trends in most other European countries were downwards.\(^1\) Faced with this major public health challenge, and coinciding with a shift to an outcomes-based approach to formulate policy, the Scottish Government set out a new strategic approach in 2009 to reducing alcohol-related harm in Changing Scotland’s Relationship with Alcohol: A Framework for Action\(^2\) (referred to subsequently as ‘the Framework’). The approach aimed to reduce alcohol-related harm by reducing population alcohol consumption and increasing safer patterns of drinking in individuals through both new interventions and building on policies and activities already in place. It has been implemented alongside changes to alcohol licensing previously set out in the Licensing (Scotland) Act 2005 (referred to subsequently as ‘the Licensing Act’) which came into force in September 2009. The proposals in the Framework that required further legislation were taken forward through the Alcohol etc. (Scotland) Act 2010 (‘Alcohol Act’) and the subsequent Alcohol (Minimum Pricing) (Scotland) Act 2012 (‘Minimum Pricing Act’). Taken together these legislative changes, the Framework, and the initiatives developed in line with the approach set out in the Framework, are referred to as ‘Scotland’s alcohol strategy’. This report will: describe the main components of Scotland’s alcohol strategy and the evaluation to assess the impact of the strategy; present some key findings to date; and offer some interpretations, reflections and learning from the work.

Background

Strategy

Scotland’s alcohol strategy has multiple components with varied implementation dates. The key components are described below and summarised in Box 1.

The Licensing (Scotland) Act 2005

The Licensing Act established five licensing objectives, all of which could be said to broadly relate to health and well-being. These are:

- a) Preventing crime and disorder
- b) Securing public safety
- c) Preventing public nuisance
- d) Protecting and improving public health
- e) Protecting children from harm.

Under the Act, the 40 Local Licensing Boards in Scotland are required to produce policy statements every three years outlining how they will meet these objectives. A range of new processes and regulations (Box 1) have been established to support these objectives. The Licensing Act came into force on 1\(^{st}\) September 2009.
**Changing Scotland's Relationship with Alcohol: A Framework for Action (2009)**

The Framework set out action across four broad outcomes:

1. **Reduced alcohol consumption** through efforts to address affordability and availability, taken forward through subsequent legislation (see below)
2. **Supporting families and communities** through a range of initiatives such as improving substance misuse education and alcohol advice to families; diversionary activities for young people and improving the identification and assessment of those affected by parental substance misuse
3. **Positive public attitudes, positive choices** through working with health and industry partners to promote positive alcohol behaviours, developing workplace alcohol policies, and working with the UK Government to improve alcohol product labelling and consider ways to further regulate alcohol advertising
4. **Improved treatment and support** through a performance management target to encourage delivery of Alcohol Brief Interventions (ABIs) in primary care, accident and emergency (A&E) and antenatal care settings; and a tripling of resources for alcohol treatment and care services with further support to build capacity for both planning and delivery.

There was no single implementation date for the associated interventions. Some were largely continuations of activities already taking place, others supplemented existing activity, notably the performance target for ABIs and increased funding for specialist services from 2008/9, whereas others were new interventions such as a ban on quantity discounts and minimum unit pricing. The way in which these changes happened, and the speed at which they were implemented, varied across Scotland. In the years following publication, new action that built on the principles of the Framework have been introduced, such as a performance target on waiting times for access to treatment and care services.

**Alcohol etc. (Scotland) Act 2010**

The Alcohol Act introduced the legislation required to enforce measures to restrict availability and affordability proposed in the Framework (Box 1). This included a ban on quantity discounts in the off-trade; a minimum of 72 hours before price variation of individual products\(^a\); a restriction on where alcohol promotions can be displayed in off-sales; and a mandatory Challenge 25 age verification scheme for all licensed premises. These regulations came into effect on 1\(^{st}\) October 2011. The Alcohol Bill (that sets out the planned regulations for inclusion in the Act for Parliamentary scrutiny) also included provision for the implementation of minimum unit pricing but this was rejected by the Scottish Parliament at that time and was not included in the final Alcohol Act.

**Alcohol (Minimum Pricing) (Scotland) Act 2012**

Following an unsuccessful attempt to include minimum unit pricing (MUP) in the previous parliament, the legislation to allow minimum pricing of alcohol was passed in 2012. The Minimum Pricing Act now legislates for MUP to be applied to all alcohol sold through licensed premises in Scotland. The Minimum Pricing Act includes a ‘sunset

\(^a\) This means that in relation to off-sales of alcohol, retailers may vary the price of different products at different times provided that the price of each individual product is maintained for 72 hours and the price variation takes effect at the beginning of a period of licensed hours.
clause’ requiring that the legislation ceases after six years of implementation unless the parliament approves an extension, coinciding with a ‘review clause’ which requires that a report reviewing the impact of MUP be presented to the Scottish Parliament after five years of implementation and before six years. The legislation requires the impact of MUP on the five licensing objectives and on retailers and producers of alcohol to be assessed. Assessment of differential impact by age, gender, socioeconomic status and alcohol consumption is required where possible. The Scottish Government proposed that the initial level of MUP would be 50 pence per unit (ppu), to be reviewed every two years. Implementation was originally envisaged for spring 2013 but was delayed following a legal challenge led by the Scotch Whisky Association. On 30th April 2014 the Court of Session in Edinburgh announced the intention to refer the case to the Court of Justice of the European Union. The date for implementation of MUP therefore remains uncertain.
Box 1: The key features of Scotland’s alcohol strategy until 2013

<table>
<thead>
<tr>
<th>Licensing (Scotland) Act 2005 - Implemented September 2009</th>
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<tbody>
<tr>
<td>• Test purchasing - where supervised “young persons” are sent into licensed premises to check whether the licence holder is complying with the law in relation to under-age sales</td>
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<td>• Requirement to undertake overprovision assessments and licensing boards given the power to refuse new licenses in areas deemed overprovided</td>
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<tr>
<td>• Mandatory training for Licensing Board members, licence holders and staff</td>
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</table>
| • Ban on irresponsible promotions in the on-trade
| • Restriction on the display of alcohol for sale to a single area in the off-trade |
| • Introduction of five licensing objectives, including protecting and improving public health |
| • Licensing Standard Officers to provide guidance |
| • Local Licensing Forums to monitor the Local Licensing Board’s adherence to the objectives |

<table>
<thead>
<tr>
<th>Framework for Action (plus related actions) - 2009 onwards</th>
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<tbody>
<tr>
<td>• Refreshed advice for parents and carers published in January 2011 - provides information and supports parents / carers to talk to young people about the effects of alcohol consumption, and encourages adults to reflect on their own consumption</td>
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<tr>
<td>• Diversionary activities for young people - £44 million invested since 2007 to provide diversionary and participatory activities for over 600,000 young people across Scottish communities, under the CashBack for Communities scheme</td>
</tr>
<tr>
<td>• Improved identification of those affected by parental substance misuse - 2010-12 priority work programme for Children Affected by Parental Substance Misuse (CAPSM) including a focus on: developing the local Child Protection Committee and Alcohol and Drug Partnership relationship; early intervention activity; and developing CAPSM prevalence figures</td>
</tr>
<tr>
<td>• Education and awareness - establishment of a Youth Commission on Alcohol, facilitated by Young Scot, to inform policy and practice in relation to advertising and essential services for those with alcohol problems; and work with industry partners on joint initiatives to promote responsible drinking and an alcohol health behaviour change campaign targeting women</td>
</tr>
<tr>
<td>• Routine screening and Alcohol Brief Interventions (ABIs) in primary care, A&amp;E and antenatal care settings, with funding, resources, training and a target for delivery</td>
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<td>• Limited extension of ABIs to more settings, including non-healthcare (from 2011)</td>
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<tr>
<td>• A target that 90% of clients will wait no longer than 3 weeks from referral received to appropriate specialist alcohol treatment that supports their recovery (from April 2011)</td>
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<tr>
<td>• Improved identification and treatment of offenders with alcohol problems</td>
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<table>
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<tr>
<th>Alcohol etc. (Scotland) Act 2010 - Implemented October 2011</th>
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<tr>
<td>• Ban on quantity discounts in off-sales</td>
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<tr>
<td>• Restricted the display of promotions related to alcohol to a single area in the off-trade</td>
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<tr>
<td>• Mandatory Challenge 25 age verification policy for customers who appear to be 25 years of less in all licensed premises</td>
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<table>
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<tr>
<th>Alcohol (Minimum Pricing) (Scotland) Act 2012 - To be implemented</th>
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</thead>
<tbody>
<tr>
<td>• A minimum unit price for all alcohol sold through licensed premises in Scotland</td>
</tr>
<tr>
<td>• Expiry of MUP after 6 years of implementation unless the Scottish Ministers make provision for it to continue (the sunset clause)</td>
</tr>
<tr>
<td>• A report for Scottish Parliament on the operation and effect of MUP after 5 years of implementation (the review clause)</td>
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`Irresponsible drinks promotions are defined as: drinks likely to appeal largely to under 18s; free or reduced price on purchase of one or more drinks or for extra measures; an unlimited amount of alcohol for a fixed charge; those which encourage a person to consume larger measures than intended; those based on the strength of the alcohol; those which reward or encourage drinking alcohol quickly or offer alcohol as a reward, unless in a sealed container for drinking off the premises. For example ‘3 for 2’ or ‘25% off when you buy 6’. It does not apply to multi-packs of alcohol if an individual unit of the product is not for sale in the same store. It complements the restrictions on irresponsible promotions in the Licensing Act which largely applied to the on-trade.`
Evaluation
The Scottish Government tasked NHS Health Scotland with leading the evaluation of the alcohol strategy, including MUP, through the Monitoring and Evaluating Scotland’s Alcohol Strategy (MESAS) work programme. The key evaluation questions are:

1. How and to what extent has implementing the package of measures (taken together and/or individually) contained in the new alcohol strategy contributed to reducing alcohol-related harms?
2. Are some (people and businesses) affected (positively and negatively) more than others?
3. How might the strategy be implemented differently to improve effectiveness?

Approach to evaluation
The evaluation of Scotland’s alcohol strategy uses a theory-based approach which entails setting out an expected ‘Theory of Change’ and comparing it with observed changes. A process of evidence-informed logical argumentation assesses the likelihood that the intervention or programme contributed to the observed outcomes. It is used to evaluate multi-faceted and complex programmes where: there is no ability to control exposure; potential impacts are numerous; and various external factors may influence both delivery and outcomes. Teasing out cause and effect is difficult in such situations and having a good theoretical understanding of how the intervention is hypothesised to cause change is important if impact is to be assessed. In theory-based evaluation it is considered reasonable to conclude that a policy/programme is contributing to/influencing the desired outcomes if:

- There is a Theory of Change with planned activities/outputs resulting in a series of outcomes
- The planned activities were implemented
- Evidence is gathered that support the theory of change (i.e. the sequence of expected results is being realised)
- Other factors influencing the outcomes have been assessed and accounted for.

A Theory of Change was developed to reflect and inform the policy strategy (the Framework). It was then adapted to inform the evaluation framework and used to design a portfolio of studies to evidence the Theory of Change (Figure 1).

The portfolio was designed to assess implementation of key components, changes in the intermediate and long-term outcomes, such as alcohol consumption and alcohol-related harms, and the extent of any predictable unintended consequences. The portfolio is complemented by a study to hypothesise and assess the impact on the observed outcomes of the wider external factors.
The study portfolio and findings to date
The portfolio consists of a number of studies described below. Findings from studies which have already been reported on in past MESAS annual reports are briefly summarised here. More detailed descriptions are available from the individual studies\(^6\),\(^7\) or previous MESAS annual reports.\(^8\),\(^9\),\(^10\) Findings from more recent or ongoing studies are described in more detail in the Results section.

Implementation of the Licensing Act and the Alcohol Act
This study aimed to assess whether the Licensing Act (and later the Alcohol Act) was implemented as intended (compliance levels) and in a way likely to achieve the licensing objectives and to provide learning for improvement. The ways in which the Licensing Act might contribute to the intermediate outcomes in the overall Theory of Change were specified in the 3\(^{rd}\) MESAS annual report.\(^10\) The study comprised a national overview of implementation through a quantitative survey and analysis of routine licensing statistics with case studies including interviews in a sample of Local Licensing Board areas.

The final report from this commissioned study was published in June 2013.\(^6\) The Licensing Act was, in the main, perceived to have been implemented as intended and was thought to have reduced irresponsible promotions in the on-trade. On the other hand, Licensing Boards found it difficult to address the public health objective and to apply overprovision assessments, and Licensing Forums struggled to function effectively. The implications of the findings were considered in the 3\(^{rd}\) MESAS annual report published in 2013\(^10\) and will be revisited in the final annual report in early 2016.

The Alcohol Act was implemented in Scotland on 1 October 2011. It included a ban on quantity based discounts and restrictions on the display and promotion of alcohol
in Scotland’s off-trade. Using time-series analyses of data for a 52-week period post-implementation, and a comparison with England & Wales, changes in off-trade alcohol sales in Scotland after the introduction of the Alcohol Act was assessed. The Alcohol Act was associated with a 2.6% (95% CI -5.3 to 0.2%; P=0.07) decrease in per adult off-trade alcohol sales in Scotland. A statistically significant reduction was observed in Scotland when the secular trends seen in England & Wales sales were adjusted for in the analysis (−1.7%; 95% CI = −3.1 to −0.3%; P = 0.02). This decline was driven mainly by reduced off-trade sales of wine (-4.0%; 95% CI -5.4 to -2.6; P<0.001) after the Act was introduced.

Implementation of Alcohol Brief Interventions
This study was designed to assess how ABIs have been delivered in the three priority settings, specified in the Scottish Government’s HEAT (Health Improvement, Efficiency, Access and Treatment) H4 target across Scotland. It aimed to determine to what extent the key components were delivered in line with guidance and with sufficient reach to influence outcomes, and to generate learning to improve implementation. The study comprised a national overview of implementation supplemented by detailed case studies in a sample of local Health Boards. Quantitative and qualitative data were collected, including both strategic and operational level data. A quantitative survey, an analysis of delivery data and interviews with a range of stakeholders were conducted.

The ways in which the ABI programme might contribute to the intermediate outcomes in the overall Theory of Change were specified in the 2nd MESAS annual report. Follow-up data from individuals who received ABIs were not available therefore for that report the impact on consumption, morbidity and mortality outcomes was estimated through modelling, using the Health Inequalities Intervention Tool for Scotland (HITS). Due to the differing delivery context in Scotland, compared with the data on which it was modelled, a wider and lower range of sensitivity analyses was undertaken to reflect the uncertainty of the estimates. Results suggested that ABIs have made a small contribution to the current decline in alcohol-related harm in Scotland, even under the most conservative assumptions.

In 2012 the Scottish Government revised the HEAT H4 target into a HEAT Standard which permitted 10% of ABI HEAT delivery to be derived from non-priority (deemed “wider”) settings. As a result a further (process evaluation) study was undertaken to determine the feasibility and acceptability of ABI delivery, and the feasibility of determining impact in two of these wider settings, youth work and social work. Qualitative interviews were conducted with project managers, staff and related stakeholders. Individual, paired and group interviews were also undertaken with young people. The study found that it is feasible and acceptable to deliver ABIs in youth settings. Young people felt the projects were welcoming and safe, and they

\[\text{\textsuperscript{d}}\text{The Health Inequalities Tool for Scotland includes numerical models of the potential impact of three interventions, namely NHS smoking cessation services, Alcohol Brief Interventions and Counterweight (an intervention to reduce BMI), on overall population health and health inequalities. It is the intention to update the tool before the end of 2014. Further information at }\]\[\text{http://www.scotpho.org.uk/comparative-health/health-inequalities-tool/intervention-tools}\\[\text{\textsuperscript{e}}\text{This 10% maximum related specifically to the delivery of the target itself. Delivery partners were actively encouraged to deliver ABIs in wider settings beyond this figure but any additional delivery was not counted for HEAT purposes.}\]
were positive about the timing and location of the projects. Project staff gave similar responses, emphasizing the importance of locating the projects where young people congregate and making them young person friendly. The study concluded that an impact evaluation was unlikely to be feasible at this stage due to a number of barriers including data collection, follow up and sample size.

Implementation of additional investment in specialist treatment and care services
This study aimed to assess the extent to which the additional investment in specialist alcohol services impacted on access to services. This study was completed in 2014 and is reported in the next section of this report.

Knowledge and attitudes
This commissioned study aimed to assess whether there have been any changes in self-reported knowledge about and attitudes to alcohol and how these might influence other outcomes. The final report of this study was published in 2014 and is also reported in the next section.

Alcohol consumption and affordability
This part of the MESAS evaluation aims to assess whether alcohol consumption has changed as well as its relationship with affordability. It analyses administrative, survey and market research data to describe trends in alcohol price, affordability, sales (including low-cost sales) and alcohol consumption in Scotland. The evaluation predominantly entails descriptive analysis of retail sales data on the volume, type, strength and price of alcohol sold through both the on and off-trade sectors in Scotland and England & Wales (1994-1995 and 2000 onwards). The data are obtained from the market research companies Nielsen (off-trade) and CGA Strategy (on-trade). The methodologies used by these companies to gather these data are detailed in a report to assess the validity and reliability of the retail sales data as a measure of population consumption and in previous MESAS annual reports. The evaluation also undertakes descriptive analysis of survey data on alcohol consumption, including differential consumption patterns gathered through the Scottish Health Survey. Where possible results are compared with England & Wales using the Health Survey for England and the General Lifestyle Survey, although the latter was discontinued in 2011. MESAS reports these data annually including full details on the administrative data sources used to monitor affordability. In this report the latest data are presented and additional analysis to adjust price band data to account for discount retailers is included.

Economic impact
The aim of this study was to assess the economic impact of the alcohol strategy (predominantly MUP) on the alcohol industry in Scotland. In order to determine the feasibility of a robust, affordable study, a scoping study using documentary review

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1 ‘Investment’ in this study implies not just funding but all increased resources: skills, delivery reform, performance management targets and other inputs which accompanied the Framework for Action.
and assessment of existing data was conducted.\textsuperscript{18} At the time the study reported, the first attempt to introduce MUP had failed and a decision was made not to undertake a full study at that stage. With the requirement to determine the impact of MUP on alcohol producers and retailers as part of the MUP ‘review clause’, the possibility and value of monitoring routine data available on key economic variables (including for consumers) is now being re-considered.

**Alcohol harms**

This study aims to monitor alcohol-related harms and assess if they are influenced by changes in the level and patterns of alcohol consumption. Descriptive analysis of routine and existing survey data are used to examine changes in health, crime and community safety outcomes. Indicators include alcohol-related mortality (death statistics) and morbidity (hospital discharges) and indicators of alcohol-related social harm (drunkenness and drink driving offences; alcohol as a factor in homicides; whether prisoners are drunk at the time of the offence; crime victims’ perception of whether the perpetrator was under influence of alcohol and adverse consequences for 13-15 year olds from own drinking). Where possible, differential impacts are examined to assess the effect on health inequalities. Furthermore, data from England & Wales are used for comparison if appropriate and possible. Full detail on the data sources used to monitor alcohol-related harms is included in previous annual reports.\textsuperscript{8,9,10} An update on the methods used in this study is presented in the methods section and the most recent findings are reported in the results section. This year’s report will unfortunately not provide any direct comparisons of mortality statistics between Scotland and England & Wales since different methods have been used to calculate these (this will be explained in the Methods section to follow). However, previous MESAS reports\textsuperscript{8,9,10} have shown that alcohol-related mortality rates in Scotland were almost twice those in England & Wales (in 2011: for men 28/100,000 compared to 16/100,000 population; for women 14/100,000 compared to 8/100,000). The gap between Scotland and England & Wales has declined since a peak in the early 2000s, but in relative terms is still the same as that reported in the early 1990s.\textsuperscript{10} In Scotland, in 2011, alcohol-related mortality rates for men fell by 29\% from a peak in 2003 (40/100,000 population) and alcohol-related mortality rates for women fell by 20\% from a peak in 2006 (of 17/100,000). By contrast, in England & Wales, alcohol-related mortality rates in men peaked in 2008 (at 17/100,000) and stabilised since then whilst rates for women have remained at a plateau of around 8/100,000 for the past 7 years.\textsuperscript{10}

Four data sources usually used in this study, the Scottish Crime and Justice Survey\textsuperscript{h}, the Scottish Schools Adolescent Lifestyle and Substance Use Survey (SALSUS)\textsuperscript{i}, the 2013/14 Homicides in Scotland\textsuperscript{j}, and alcohol criminal offence rates (driving under the influence of alcohol and drunkenness), are not included in this years’ report. The latter three were reported in November 2014 and time was therefore insufficient to include them. They will be included in the final MESAS report in early 2016.

\textsuperscript{h} Scottish Government. Scottish Crime and Justice Survey 2012-2013. Available at http://www.scotland.gov.uk/Publications/2014/03/9823
\textsuperscript{i} NHS Information Services Division. Scottish Schools Adolescent Lifestyle and Substance Use Survey. Available at http://www.isdscotland.org/Health-Topics/Public-Health/SALSUS/
\textsuperscript{j} Scottish Government. Homicides in Scotland. Available at http://www.scotland.gov.uk/Publications/2013/10/6416/downloads
External Factors/Alternative explanations

There is a set of related studies which aim to understand the likely impact of external factors which may be independently affecting the outcomes of interest. These include:

- Age, period and cohort analyses to understand more fully the trends in alcohol-related mortality in Scotland compared to England & Wales.
- An exploration of comparative trends in alcohol-related mortality by deprivation decile in Scotland and England to establish whether aggregate trends in mortality are driven by trends in particular social and economic groups who may have been differentially affected by the economic downturn. Initial findings based on trends in alcohol-related mortality by deprivation decile in Scotland suggested that economic factors may explain at least some of the recent trends: the most deprived deciles had seen the largest falls in alcohol-related mortality since the early 2000s and data on trends in incomes by income decile suggested that for the lowest deciles, incomes had started to fall before the economic downturn began, which may have driven a fall in consumption and the associated fall in harms. However, the exposure to declining incomes in the most deprived groups did not result in a similar contemporaneous decline in alcohol-related mortality in England & Wales. These initial findings were reported in the 3rd MESAS annual report.10
- Analysis of differences in beverage-specific consumption by type of drinker and by income quintile to understand better the relationship between consumption and harms.
- Analysis of whether comparative trends in the ethnic composition of the populations of England & Wales and Scotland could explain different trends in population consumption and mortality.

These studies are ongoing and will be reported together with other work to understand the contribution of external factors in the final MESAS report in early 2016.

Additional studies

In addition to the above, MESAS has formed collaborations with academics leading other studies which may be relevant to the evaluation of Scotland’s alcohol strategy. A study, commenced in December 2011 and led by researchers from Queen Margaret University, Edinburgh, sought to determine the impact of MUP on heavy drinkers in contact with the NHS through specialist services or general hospitals. The delay in the implementation of MUP has meant this study became a longitudinal study of drinking in this population. A further study, Alcohol Policy Interventions in Scotland and England (APISE) led by the University of Stirling with researchers from the University of Sheffield, Open University and University of Wollongong, Australia, is a longitudinal survey of drinkers together with analysis of the policy context and exploratory qualitative research to determine change over time and between countries. This study undertook waves in 2012 and 2013. The researchers are exploring options to fund further waves. Finally, a study led by the Medical Research Council Social and Public Health Sciences Unit in Glasgow, aims to evaluate possible intended and unintended consequences of the implementation of MUP by examining potential disproportionate attitudinal, behavioural and health effects. Differential impacts across socioeconomic groups will be compared in terms of alcohol-related attendances and prevalence of hazardous drinking in emergency departments, drinking behaviour in sexual health clinics, and attitudes in public focus groups, in Scotland and the North of England. This study will start once the implementation of MUP is confirmed.
As already mentioned with regard to MUP, on 30 April 2014 the inner house of the Court of Session in Edinburgh referred the legal challenge led by the Scotch Whisky Association, in partnership with some European producers, to the Court of Justice of the European Union. The implementation date therefore remains uncertain. However, work will continue to prepare for the evaluation. In order to fulfil the requirements of the ‘review clause’, gaps identified in the original portfolio will be addressed through additional studies to determine the impact of MUP on crime and disorder, public safety, public nuisance and protecting children from harm and economic impact. These are currently under development.

**Aims and Methods**
This section details the aims and methods for the new studies not yet reported on, and the ongoing studies which have updated methods.

**Implementation of additional investment in specialist treatment and care services**
This study aimed to assess the extent to which the additional resources in specialist alcohol services have impacted on access. Using a mixed methods approach, the study assessed the impact of these additional resources on the availability, demand and utilisation of specialist alcohol treatment services in Scotland. All data collected refer to the year 2012 and to adults aged 16 years or older. To assess availability and use by individuals, a national survey of tier 3 and 4 specialist alcohol treatment\(^k\) providers was undertaken. Demand for treatment was informed by the National Drug and Alcohol Treatment Waiting Times (DATWT) database held by NHS National Services Information Services Division and the survey of providers. Scottish Health Survey (SHeS) data were used to assess the prevalence of alcohol dependence and the need for specialist alcohol treatment. Data were based on unique individuals and not contacts with services. The Prevalence-Service Utilisation Ratio (PSUR) was calculated using data on demand and need with sensitivity analysis undertaken to address concerns regarding the possible underestimation of alcohol dependence resulting from survey data. In addition to the above, case studies were undertaken with consenting staff and service users from three Alcohol Drug Partnership (ADP) areas. Barriers and facilitators to developing service availability were explored using focus groups and interviews in all three participating ADPs and the feasibility of assessing capacity of specialist alcohol services was determined in two of the three ADPs. In the study, an Alcohol Use Disorders Identification Test (AUDIT) score of 16+ was used as an indicator of possible alcohol dependence as this was the level used in the Scottish Alcohol Needs Assessment (SANA)\(^l\) study and a similar study in

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\(^k\) Tier 3 interventions refer to structured, care-planned drug and alcohol treatment, comprising community-based specialised drug/alcohol comprehensive assessment and coordinated care-planned treatment, including community substitute prescribing, care-planned counselling, day programmes and relapse prevention. Tier 4 interventions refer to drug/alcohol specialist inpatient treatment and residential rehabilitation comprising residential specialised drug/alcohol treatment which is care planned and care co-ordinated to ensure continuity of care and aftercare.

England where an AUDIT score of 16+ was referred to as an indicator of ‘moderately and severely dependent drinkers’. In addition, the World Health Organization guidelines state that AUDIT scores of 16 or more are an indicator of high levels of alcohol problems. It should be noted, however, that in MESAS annual reports and Scottish Health Surveys, ‘possible alcohol dependence’ is used for AUDIT scores of 20+.

Knowledge and attitudes
The study aimed to assess whether there have been any changes in self-reported knowledge about and attitudes to alcohol and how these might influence other outcomes. Given changes to routine surveys since portfolio development, the core of this study is now an alcohol module within the 2013 Scottish Social Attitudes Survey which conducts face-to-face interviews in the home. Interviews with a representative sample of the Scottish population were conducted between June and October 2013, with 1,497 interviews being achieved. In the survey drinking behaviour was captured using the Alcohol Use Disorders Identification Test – Consumption questions (AUDIT-C). AUDIT-C comprises three questions covering frequency and amount of alcohol consumed and is a subset of the AUDIT questionnaire, a suite of 10 questions designed to screen for levels of alcohol dependency or high-risk use. Based on a scoring system, answers to the three questions were summed to form a scale of drinking behaviour and participants were classified as either non-, lower risk or higher risk drinker. Earlier non-MESAS commissioned alcohol modules of this survey were conducted in 2003 and 2007 with the same methodology. The planned comparison with England & Wales using routinely collected data is unfortunately not possible. Views on attitudes to minimum unit pricing were obtained and regression modelling was used to control for a range of potentially confounding independent variables. The final report of this commissioned study was published in 2014.

Alcohol consumption and affordability
Adjusting price band data for discount retailers
In previous annual reports, alcohol sales data have been adjusted to account for the exclusion of Aldi and Lidl from the Nielsen sampling frame. However, it has not been previously possible to adjust data on the volume of alcohol sold across the price distribution (i.e. the ‘price band data’). This has been possible in this year’s annual report using the following process:
1. The total volume of alcohol sold through discount retailers was estimated using market share estimates derived from Nielsen’s ‘HomeScan’ consumer panel.
2. Data were obtained on the proportion of alcohol sold at different prices by a discount retailer in Scotland. These data are commercially sensitive and so cannot be published. It was assumed that alcohol sales by all discounters had a similar price distribution.

3. The volume of alcohol sold by discounters in different price bands was estimated by multiplying the proportion sold in each price band for the known sales by the total estimated volume of off-trade sales by discounters.

4. Estimated alcohol sales by discounters across the price distribution were combined with Nielsen sales estimates. This enabled the proportion of alcohol sold at different price bands for the total off-trade market to be estimated.

*Updated on-trade sales estimates*

The most recently provided on-trade alcohol sales data for this report (2008-2013) were based on an updated geographic coding frame used by the data providers. This resulted in estimates for Scotland being approximately 4% lower than previously provided, which had a small but important impact on point estimates of per adult sales (Table 1). On-trade sales in 1994-2007 were therefore adjusted based on the difference between the old and new data in 2008. This approach ensured that the systematic change in methods did not distort the interpretation of the time series (Figure 2) and was agreed with the data providers.

**Table 1: Effect on per adult alcohol sales (L per adult) of change in methods used to estimate on-trade alcohol sales in Scotland, 2008-2012.**

<table>
<thead>
<tr>
<th></th>
<th>2008</th>
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<th>2012</th>
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<td>3.9</td>
<td>3.8</td>
<td>3.4</td>
<td>3.3</td>
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<td>3.7</td>
<td>3.6</td>
<td>3.3</td>
<td>3.2</td>
</tr>
</tbody>
</table>

**Figure 2: Effect of retrospective adjustment of per adult alcohol sales (L per adult) due to change in methods used to estimate on-trade alcohol sales in Scotland, 1994-2012**

Source: Nielsen/CGA
Alcohol harms

There are two updates to the methods described in the Background and outlined in previous annual reports:

1. In line with changes to the health statistical methods used across Europe, from January 2014 statistics providers in the UK started to use the new European Standard Population (ESP2013) to calculate the European Age Standardised Rates (EASR)\(^n\) for hospital and deaths statistics. The ESP2013 is based on an average of states’ population projections for each age group for 2011 to 2030. The average age of the European population has increased substantially since 1976 (when the previous standard was set) and so have the projections for 2011 to 2030. Therefore the weightings for the older age groups have increased in the ESP2013 compared to the ESP1976. The ESP2013 has been applied to the full time series back to 1981/82 because, unlike in England, in Scotland appropriate population figures are available for the whole time period to allow the new standardisation methods to be undertaken. We acknowledge that ESP2013 will be further removed from the true population the more historic the data, however, combining both versions of the ESP on the same time trend is not appropriate. Due to the number of alcohol-related hospital stays being much larger in the older compared to the younger age groups, the EASRs using ESP2013 are higher than those using ESP1976. Rates based on the old method (used in previous MESAS reports) are not comparable with those based on the new method and any conclusions regarding changes should be drawn from figures based on a single standard population only. Note that the actual number of people with an illness or who died does not change due to the ESP revision. The Office for National Statistics, who provide the mortality statistics for England & Wales, have not yet completed the move to ESP2013. This year’s report will therefore not provide any direct comparisons of mortality statistics between Scotland and England & Wales.

2. Previous annual reports have reported continuous inpatient stays (CIS) for alcohol-related conditions, and were often referred to as ‘discharges’. A CIS or ‘stay’, as for clarity it will be called in this report, is an unbroken period of time that a patient spends as an inpatient or day-case, from initial hospital admission through potential change of consultant, speciality and/or hospital, to discharge. The ‘stay’ rate is the most appropriate indicator of the burden on services, and has been the only indicator of alcohol-related disease used by MESAS to date. This annual report now presents alcohol-related hospitalisations by:
   - “stays” - all stays (day cases and in-patients) in acute hospitals, excluding psychiatric hospitals, due to conditions known to be a direct consequence of alcohol consumption;
   - “patients” - the number of individual patients staying in hospital for an alcohol-related condition in a year counted each year they stay in hospital;
   - “new patients” - the number of individual patients staying in hospital for an alcohol-related condition in a year, who have not stayed in hospital for any alcohol-related condition in the last 10 years.

\(^n\) European Age Standardised Rates allow comparisons across geographical areas by controlling for differences in the age structure of local populations. Age Standardised Rates can be compared across areas and time periods, and give the number of events occurring in a standard population (per 100,000) if that population had the age-specific rates of a given area. In this report rates are standardised to the 2013 revision of the European Standard population (ESP), whereas previous publications used ESP1976.
The purpose is to provide additional indicators that give a fuller picture of health service use.

**Results**

This section includes the key results for the new studies that have been reported but not yet been included in MESAS annual reports, and new findings in ongoing studies.

**Implementation of additional investment in specialist treatment and care services**

**Alcohol services**

There were 149 specialist alcohol treatment services delivering tier 3 and 4 interventions in Scotland in 2012. In total, 130 of the 149 services responded to the survey, a response rate of 87%. One hundred and seventeen services provided information on individual service users - a key element of the survey required to estimate the PSUR - representing 79% of all 149 services. Of the 149 services, 53% were provided by NHS and local authority services whilst 45% were delivered by third sector agencies. Half of the services delivered only tier 3, 43% delivered both tier 3 and 4, and 7% delivered only tier 4 interventions. Services reported that 31,796 individuals had accessed alcohol treatment in 2012. Data to disaggregate individual characteristics (e.g. age, gender, and ethnicity) were limited.

**Alcohol dependency and Prevalence-Service Utilisation Ratio (PSUR)**

Using an AUDIT score of 16+ as an indicator of possible alcohol dependence, the SHeS 2012 estimated that 3.1% (137,787 individuals) of the population aged 16 years or over in Scotland displayed symptoms of moderate to severe alcohol dependence. Using the 20+ score, the percentage is 1.2% (52,780 individuals).

With 31,796 individuals in specialist alcohol treatment and 137,787 individuals with an AUDIT score of 16+, the PSUR in Scotland in 2012 was estimated to be 1:4.3, hence approximately one in four adults with possible alcohol dependence (aged 16+ years) accessed treatment in 2012. The PSURs for males and females were broadly similar at 1:4.2 and 1:4.6 respectively although care should be taken interpreting these figures due to the limited provision of data on individuals in treatment by gender. The SHeS is likely to underestimate prevalence of alcohol dependence due to sampling bias, recall bias, measurement bias and sample representativeness. Table 2 therefore uses sensitivity analyses to provide PSUR estimates for scenarios where prevalence of alcohol dependence is higher than estimated by the SHeS.
Table 2: PSURs for other scenarios of alcohol dependence (n and %) Scotland 2012

<table>
<thead>
<tr>
<th>Indicator</th>
<th>SHeS 2012</th>
<th>Sensitivity analyses for higher alcohol dependence percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol dependence (%)</td>
<td>3.1%</td>
<td>4%</td>
</tr>
<tr>
<td>Alcohol dependence (N)</td>
<td>137,787</td>
<td>175,957</td>
</tr>
<tr>
<td>Individuals in alcohol treatment (n)</td>
<td>31,796</td>
<td>31,796</td>
</tr>
<tr>
<td>Percentage of individuals in need accessing treatment (n/N)</td>
<td>23.1%</td>
<td>18.1%</td>
</tr>
<tr>
<td>Prevalence-Service Utilisation Ratio (PSUR) (N/n)</td>
<td>4.3</td>
<td>5.5</td>
</tr>
</tbody>
</table>

Alcohol service capacity
In the qualitative study, in-depth consultation with service commissioners, providers and service users in the three participating ADPs revealed that the additional resources for these specialist services and reform of local delivery arrangements were considered to have had a positive impact on services. A wide range of developments were reported including additional staff, an increased focus on recovery and preventative work, changing referral routes and service pathways, convergence with drug treatment services, growth of the third sector, positive relationships between stakeholders, increasing service user involvement, and peer-led recovery services. The consultation also identified ongoing issues relating to service gaps, service planning, staffing, demand and missed appointments. These issues are important barriers and facilitators to the future development of specialist alcohol service availability. Direct service user contact accounted for approximately one third of the time spent by staff on alcohol-related activities in the services in the two ADPs participating in the feasibility pilot on capacity.

Knowledge and attitudes
The findings from the 2013 Scottish Social Attitudes Survey suggest that adults in Scotland have a complex and sometimes contradictory relationship with alcohol. Many adults in Scotland recognise the potentially harmful nature of alcohol yet attitudes to getting drunk have not changed greatly since 2004. Alcohol is recognised as being a ‘social lubricant’ but heavy drinking is viewed as being problematic and most recognise its long-term negative consequences. Slightly more people support minimum pricing than are against it, yet knowledge of the unit content of alcohol has not improved over time.

Attitudes to getting drunk have not changed much since 2004, yet there has been a drop in the proportion of young people aged 18-29 years agreeing that getting drunk at weekends is acceptable, from 53% to 40%. Furthermore, 60% of adults thought alcohol was the drug causing the ‘most problems’ in Scotland (up from 46% in 2004), and 84% thought it caused either ‘a great deal’ or ‘quite a lot of harm’ in Scotland.

Alcohol is perceived as being an important part of socialising and views on whether it is possible to enjoy a night out in the pub without alcohol have changed very little over time, with 77% of respondents in 2013 agreeing that it is possible to do so. There has, however, been a small but significant increase in the proportion of people who think ‘it
is easier to enjoy a social event if you’ve had a drink’, from 35% in 2004 to 39% in 2013. There is also evidence of some shift in attitudes to non-drinking over time. The proportion of drinkers reporting that ‘people would think it odd if they didn’t drink at all’ increased from 31% in 2007 to 41% in 2013. These increases were observed across all age groups. Non-drinkers’ views on how others perceive their behaviour have not changed significantly since 2004. In 2013, 44% of non-drinkers perceived that others thought abstinence to be odd. Higher risk drinkers were found to be those who: agreed that ‘it is easier to enjoy a social event if you’ve had a drink’ (69% of those who agreed compared with 26% of those who disagreed); had more permissive attitudes to getting drunk (74% compared with 33% of those who held less liberal attitudes); and agreed that others would think it odd if they didn’t drink (68% compared with 46% of those who disagreed).

The findings highlight that people recognise that heavy drinking\(^o\) is problematic and has serious long-term consequences. There was a strong consensus that harmful drinking\(^p\), irrespective of context, is a ‘very’ or ‘quite serious’ problem (drinking in the company of others: 92%; drinking alone: 96%). A majority of people also thought that hazardous drinking\(^q\) was problematic. In addition, there was widespread recognition of the long-term health consequences of harmful, hazardous and binge drinking. However, a third of respondents thought that binge drinking by ‘a 20 year old male student’ was ‘not very’ or ‘not serious at all’. Hence, whilst context made little difference to views about the seriousness of harmful or hazardous drinking, views on binge drinking were more permissive when undertaken by a young student, compared with ‘a 40 year old married man with a 12 year old son’.

Views on alcohol minimum unit pricing were divided, with a slightly higher percentage in support of the policy (41%) than opposing it (35%). Support for the policy also varied across different groups in society. Women, those with higher educational attainment, lower risk drinkers and non-drinkers were all more likely to be in favour of MUP than other groups. Support for the policy was also higher among those who thought alcohol caused ‘a great deal’ of harm in Scotland and those who thought the amount people drink in Scotland is ‘something we should all be concerned about’. Commonly mentioned reasons for supporting the policy were: tackling health problems; stopping young people from drinking too much; and tackling problematic behaviour resulting from drinking. Reasons for opposing the policy included: concerns about the ability of the policy to genuinely influence drinking behaviour and particularly that of heavy drinkers; some thought it ‘punishes everyone for what some drinkers do’; and that ‘it should be up to individuals how they spend their money’. Sixty five per cent of recipients, however, felt that current prices did not restrict the amount of alcohol they wanted to buy and around half agreed that ‘supermarkets sell too much alcohol at very cheap prices’. Most people also thought that the proposed minimum prices which

\(^o\) In the 2013 Scottish Social Attitudes Survey, drinking behaviour was captured using AUDIT-C (see Methods for more detail) which comprises three questions covering frequency and amount of alcohol consumed. Based on a scoring system, answers to the three questions were summed to form a scale of drinking behaviour and participants were classified as either non-, lower risk or higher risk drinker.

\(^p\) Harmful drinking is usually taken to mean consumption at above 50 units per week for men and over 35 units for women.

\(^q\) Hazardous drinking is taken to mean between 21 and 50 units a week for men and 14 and 35 units for women.
would be applied to beer, wine and vodka were acceptable (55-66% depending on the
drink type).

Public awareness of the unit content of different alcoholic drinks is low and has
changed little over time. In 2013, around half of adults (estimates of between 49 and
53% depending on drink types) did not know the correct number of units in measures
of alcoholic drinks. Only 18% knew the correct number of units in a bottle of wine, 17%
underestimated the units by half or more, and 41% responded ‘don’t know’. However,
the underestimation of the number of units in a glass of wine was just 11% and in a
pint of beer was 4%.

A similar proportion of men and women (42% and 43% respectively) correctly
identified the recommended daily alcohol limits for their gender (3 to 4 units for men
and 2 to 3 units for women). When all adults were asked what the daily limit was for
men, 39% answered correctly (an improvement on the 34% in 2007), 11%
derestimated, 12% overestimated and 37% said they did not know. Only one in five
people in 2013 correctly identified the recommended minimum number of alcohol-free
days per week as two. Half of respondents guessed it was more than two days.

Alcohol consumption and affordability

Consumption based on retail sales
The volume of pure alcohol sold in Scotland per adult (aged ≥16 years) over the time
period from 1994 to 2013 has increased overall by 5% (Figure 3). In 2013 10.5L of
pure alcohol were sold per adult (20.3 units per adult per week) compared with 10.1L
in 1994. Most of this increase occurred between 1994 and 2005. There was then a
broadly stable trend to 2009 followed by a 9% decline between 2009 and 2013. In
England & Wales, per adult alcohol sales were lower throughout the time series, rising
from 1994 to 2005 before starting to decline from 2005. Per adult sales in Scotland
have been 17-19% higher than England & Wales over the past five years, with the
difference largely due to higher off-trade sales in Scotland (Figure 4). In 2013, 25%
more alcohol was sold off-trade per adult in Scotland than in England & Wales. This is
despite a recent 5% decline in off-trade sales in Scotland, from a peak of 7.9L in 2010
to 7.5L per adult in 2013. On-trade alcohol sales in Scotland and England & Wales
were similar in 2013 and have followed a broadly similar downward trend over time.
Approximately 72% of all pure alcohol sold in Scotland and England & Wales in 2013
was sold through the off-trade, compared with 67% in England & Wales.
Figure 3: Litres of pure alcohol sold per adult (aged ≥16 years) in Scotland, 1994-2013

Sources: Nielsen/CGA (Off-trade sales adjusted to account for the loss of discount retailers)

Figure 4: Litres of pure alcohol sold per adult (aged ≥16 years) in Scotland and England & Wales, by market sector, 1994-2013.

Sources: Nielsen/CGA (Off-trade sales adjusted to account for the loss of discount retailers)
Figure 5 shows trends in per adult sales of pure alcohol sold as different drink categories in Scotland and England & Wales. In Scotland, the volume of pure alcohol sold as beer per adult decreased steadily from 4.4L in 1994 to 3.2L in 2013, a decline of 28%. The volume of wine sold per adult more than doubled over the time series, from 1.4L in 1994 to 3.1L in 2013. However, wine sales decreased slightly between 2010 and 2013. Per adult sales of spirits remained broadly stable in Scotland between 1994 and 2011, mostly fluctuating between 3.3L and 3.5L per adult. This was followed by a decline to 3.1L per adult in 2013, the lowest volume of spirits sold per adult in Scotland over the time period analysed. Although the volume of cider sold per adult is relatively low compared with other drink categories, the volume sold in 2013 (0.8L per adult) was double that sold in 1994 (0.4L per adult). In terms of market share, in 2013, beer accounted for 30%, spirits for 29%, wine for 30% and cider for 7%.

For beer and cider, similar trends were observed in England & Wales. However, for wine, the overall increase in per adult sales was less marked than in Scotland due to the upward trend in per adult wine sales from 1994 stabilising (and subsequently reversing) earlier in England & Wales. For spirits, there was an overall increase in per adult sales between 1994 and 2013 in England & Wales, with no evidence of a recent decline as observed in Scotland. Consistently higher per adult alcohol sales in Scotland than in England & Wales are largely attributable to spirits sales which were 66% higher in Scotland in 2013 accounting for 79% of the total difference (Figure 5).

**Figure 5: Litres of pure alcohol sold per adult (aged ≥16 years) in Scotland and England & Wales, by drink category, 1994-2013.**

Sources: Nielsen/CGA (Off-trade sales adjusted to account for the loss of discount retailers)

*Consumption based on surveys*

Estimates from the Scottish Health Survey (SHeS) show that mean self-reported weekly alcohol consumption among adults in Scotland declined from 14.1 units in
2003 to 11.3 units in 2012. Among men, average weekly alcohol consumption fell from 19.8 to 15.2 units per week whilst for women it fell from 9.0 to 7.6 units per week (Figure 6). Similar declines occurred in England & Wales. A number of trends could account for these declines including increases in the proportion of non-drinkers and moderate drinkers in Scotland, with concomitant decreases in the proportion of adults categorised as drinking at hazardous and harmful levels. In addition, the mean number of units consumed per week by harmful drinkers has decreased over time, whilst the trend for moderate and hazardous drinkers has been stable. Since 2008 there has also been a sharp decrease in the mean weekly units consumed by 16-24 year olds, a pattern which remains when non-drinkers are excluded from the analysis.

Figure 6: Estimated mean weekly alcohol consumption (units per week) of men and women (aged ≥16 years) in Scotland (2003-2012), England (2011-2012) and England & Wales (2006-2012)

Sources: Scottish Health Survey; Health Survey for England; General Lifestyle Survey. Note: Denominator includes non-drinkers. The General Lifestyle Survey was discontinued in 2011. Estimates for different countries are produced from separate sources of data with differences in survey design and content.

The proportion of adults who reported exceeding the recommended weekly drinking guidelines decreased over time, from 28% in 2003 to 21% in 2012 (Appendix 1; Figure 1.5). Among men, the proportion fell from 33% in 2003 to 25% in 2011 and 2012, and in women it fell from 23% in 2003 to 18% in 2012, although there has been little change since 2009. Similar declines were reported for England & Wales. By contrast, the proportion of adult non-drinkers (respondents who reported that they ‘never drink alcohol nowadays’) continue to show a gradual increase and are similar across Great

Drinking levels are categorised as follows: non-drinker (never drinks alcohol nowadays); moderate (>0 units and up to 21 units per week for men; >0 units and up to 14 units for women); hazardous (>21 units and up to 50 units per week for men; >14 units and up to 35 units per week for women); harmful (men over 50 units per week; women over 35 unit per week).
Britain. In 2012, 17% of adults in England reported that they were non-drinkers, compared with 15% of adults in Scotland.

The proportion of men in Scotland exceeding the recommended daily drinking guideline (>4 units) on their heaviest drinking day in the past week decreased from 45% in 2003 to 42% in 2012 (Figure 7). There has also been a small decline in the prevalence of men drinking more than twice the recommended daily units (>8 units), from 29% in 2003 to 25% in 2012. Figures for women indicate that the proportion exceeding both the daily drinking guideline (>3 units: 37% in 2003, 30% in 2012) and twice the daily drinking guideline (>6 units: 19% in 2003, 15% in 2012) have also decreased over time.

In England, there has been a slight decline in the proportion of adults exceeding daily drinking guidelines since 2006 for both men and women (Figure 7).

**Figure 7: Proportion of adults (aged ≥16 years) exceeding the recommended daily drinking guidelines* in Scotland (2003-2012) and England (2006-2012), by sex**

![Graph showing the proportion of adults exceeding daily drinking guidelines in Scotland and England from 2003 to 2012, by sex.]

Sources: Scottish Health Survey; Health Survey for England. *Men >4 units on heaviest drinking day in the past week; Women >3 units on heaviest drinking day in the past week. Note: Denominators includes non-drinkers. Estimates for different countries are produced from separate sources of data with differences in survey design and content.
Affordability

The UK affordability of alcohol index (AAI), a means of assessing changes in the affordability of alcohol, has increased by 60% since 1980 driven mainly by increasing disposable incomes. Between 2007 and 2011, falling incomes and an increase in the alcohol price index (alcohol prices relative to retail prices) caused a slight decline in the AAI although it remains high compared to the 1990s and 2000s. Affordability has increased most in the off-trade, and for beer compared to wine and spirits. Trends in affordability and sales were broadly similar; both rising from the start of the period up to around the mid-2000s, although sales peaked earlier in England & Wales and before affordability reached its peak in 2007. Since then sales have fallen steadily whereas affordability, after falling in 2008/9, has since stabilised albeit at lower levels than before the economic downturn began (Figure 8).

Figure 8: Trends in affordability (UK) and per adult pure alcohol retail sales (Scotland and England & Wales), 1994-2013

Sources: Statistics on Alcohol, England, 2013; Nielsen/CGA sales dataset (off-trade sales in 2011 and 2012 adjusted to account for loss of discount retailers). Note: The y-axis here shows indices. Index numbers are calculated by dividing each year’s value by the value of the base year (1994 in this case).

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1 It is not possible to calculate the AAI for Scotland separately from the rest of the UK because Scotland-specific retail and alcohol price indices required to calculate it are not available.

2 The Affordability Index cannot be calculated for wine and spirits separately because RPI data are not available disaggregated for wine and spirits. Consumer Price Index data are available for wine and spirits separately and they also suggest affordability has increased faster for beer than for both wine and spirits.
Price distribution of alcohol sold through the off-trade

Of the total volume of pure alcohol sold through the off-trade (excluding discount retailers) in Scotland in 2013, 19% was sold below 40ppu, 53% below 50ppu, 78% below 60ppu and 88% below 70ppu (Figure 9), whereas in 2009, 50% of off-trade alcohol was sold at less than 40ppu, 77% at less than 50ppu, 89% at less than 60ppu and 95% less than 70ppu.

Figure 9: Price distribution (%) of pure alcohol sold in the off-trade in Scotland, 2013

Source: Nielsen
There has thus been a rightward shift in the price distribution of the volume of alcohol sold off-trade in Scotland between 2009 and 2013, with the most notable changes at the lower price bands (Figure 10). There has been a notable increase in the proportion of alcohol sold at between 50-54.9ppu, which has been driven by a higher volume of wine being sold in this price band (from 12% in 2009 to 28% in 2013; see Appendix 2; Figure 2.5).

**Figure 10: Price distribution (%) of pure alcohol sold off-trade in Scotland 2009-2013**

Source: Nielsen. Note: Price distribution data have not been adjusted for inflation.
In 2013, cider (58%) accounted for the majority of alcohol sold off-trade at below 30ppu, although the total volume of pure alcohol sold at below 30ppu was small (0.2L per adult) (Figure 11). Most off-trade alcohol was sold at between 35-54.9ppu (4.3L per adult; 63% of total), of which spirits accounted for 39%, wine for 32%, beer for 23%, cider for 4% and other drink categories for the remaining 2%.

Figure 11: Litres of pure alcohol sold per adult (aged ≥16 yrs) in Scotland, by price band 2013

Source: Nielsen
Adjusting alcohol sales to account for sales by discount retailers (Aldi and Lidl)\(^{12}\) increases the proportion of alcohol sold below 50ppu from 53% to 57%, due to more alcohol being sold at below 40ppu (Figure 12).

**Figure 12: Price distribution (%) of pure alcohol sold off-trade in Scotland with and without adjustment for sales by discount retailers, 2013**

Source: Nielsen, adjusted using confidential discount retailer data

\(^{12}\)See 'Alcohol consumption and affordability' under Aims and Methods for how this adjustment was performed
Price distribution of off-trade alcohol sales in Scotland and England & Wales

The percentage price distribution of off-trade alcohol sales in England & Wales in 2013 was broadly similar to Scotland; however, the additional volume of off-trade alcohol sold in Scotland (see Figure 4) was not spread evenly across the price bands, the difference being driven by the sale of lower cost alcohol. Half of the total disparity between the regions was due to alcohol sold between 40-49.9ppu, while 83% of the difference was accounted for by alcohol sold between 35-54.9ppu (Figure 13).

Figure 13: Price distribution (L per adult) of pure alcohol sold off-trade in Scotland and England & Wales 2013.

Source: Nielsen
Alcohol-related harms

Alcohol-related deaths
Alcohol-related mortality rates (European Age Standardised Rate (EASR)) in Scotland increased by 44% (46% for men and 39% for women) when comparing 1981 to 2013 (Figure 14). This figure masks a very large increase from the 1990s until mid-2000s, followed by a downward trend since 2003. Alcohol-related mortality has now fallen by 35% (37% for males and 34% for females) from the peak rate in 2003 (Figure 14).

Alcohol-related death rates have consistently been at least twice as high in males compared to females. Rates have generally been highest in 55-64 year olds, followed by 45-54 year olds and 65+ years, and age-specific trends are similar for males and females (Appendix 3; Figure 3.1 – 3.4).

Figure 14: Alcohol-related deaths (underlying cause), EASR, overall and by gender in Scotland 1981-2013

![Graph showing alcohol-related deaths (EASR) by gender in Scotland 1981-2013](image)

Source: ISD Scotland (NRS). Data use the 2013 European Standard Population

Alcohol-related death rates were far higher, and decreased most, in the most deprived deciles. Since 2002, the difference in alcohol-related death rates decreased from more than 12 times higher in the most deprived decile to six times higher in recent years (Figure 15). The difference in deprivation groups was starkest in men, where in 2013 alcohol-related death rates were more than seven times higher in the most deprived versus the least deprived group (Appendix 3; Fig 3.6).

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*All rates for Scotland in this section are standardised to the new European Standard Population (ESP2013). Mortality data for England and Wales use the 1976 European Standard Population – see Aims & Methods for more detail.*
Figure 15: Alcohol-related mortality in Scotland by deprivation group, 2001-2013 (1=most deprived; 10=least deprived)

Source: ISD Scotland (NRS).

Due to the different European Standard Populations being used in national statistics produced by Scotland and England & Wales in their 2014 publications (as explained in the Methods section), it is not appropriate to compare the mortality rates. However, it is worth noting that in England & Wales, alcohol-related mortality rates peaked much later, in 2008 (at 17/100,000 for men and at 8/100,000 for women), and decreased to a much lesser extent since then than the decrease seen in Scotland (see comparison figures published by ONS).

Alcohol-related hospitalisations

Figure 16 shows the rates (EASRs) for new patients, patients presenting each year and stays. The rate of new patients being hospitalised for alcohol-related conditions increased from 180 per 100,000 in 1991/92 to a peak of 308 per 100,000 in 2007/8, followed by a 25% decrease to 229 per 100,000 in 2013/14. However, the rate is still 1.3 times higher than in 1991/92. These are individuals who are presenting to hospital for the first time with an alcohol-related condition. The rates of patients presenting in each year shows a large increase between 1981/82 to 2007/08 but rates have since declined by 20%. However, in 2013/14 the rate remains 3.4 times higher than in 1981/82. The stay rate has followed a similar and even more pronounced pattern to the patient rate and is 4.5 times higher in 2013/14 than in 1981/82.

**Remarks:**
- “Stays” = all stays (day cases and in-patients) in acute hospitals, excluding psychiatric hospitals, due to conditions known to be a direct consequence of alcohol consumption;
- “patients” = the number of unique patients staying in hospital for an alcohol-related condition in a year counted each year they stay in hospital;
- “new patients” = the number of individual patients staying in hospital for an alcohol-related condition in a year, who have not stayed in hospital for any alcohol-related condition in the last 10 years.
The rates of patients presenting each year and stays are much higher than the new patient rates, and have increased (and decreased) at a far greater rate. Currently (2013/14) the overall burden of alcohol-related hospitalisations is made up of around a third completely new hospital patients, a third patients from previous years being re-admitted and a third repeat stays within the year. By contrast, in 1991/92 around half of hospitalisations were completely new patients and the rest were repeat stays within the year or in patients who had been hospitalised in previous years. This indicates that the increase in hospital stays seen up to 2007 has been driven to a large extent by repeat visits in previous patients rather than new patients presenting to hospital.

Figure 16: Age-standardised rates for Alcohol-related hospitalisations (stays, patients and new patients); Scotland 1981/82-2013/14

The demographic profile of new patients presenting to hospital with alcohol-related conditions is of interest for both policy and practice. New patient rates increased in all age groups (15+) up to 2007/8, and decreased in all age groups thereafter (Figures 17 and 18). For both males and females, the largest increase in rates for new patients was seen in the 15-24 year olds, and this was particularly marked for females albeit the female rates are much lower than the male rates (Figure 18). In both males and females, the rates declined over the whole period in the youngest (<15) age group. By contrast, the 55-64 and 45-54 year age groups have had the largest increases in stay rates over time (Appendix 3; Table 7, Figures 3.21 – 3.24). So, although the increasing rates of new hospitalised patients had been more accounted for by the younger ages (particularly for women), the older age groups have had increasing numbers of stays and present the largest burden on the hospital system.
Figure 17: Rates of new patients hospitalised for alcohol-related conditions, by age group in Scotland 1981/82-2013/14, Males

Source: ISD Scotland, SMR01.

Figure 18: Rates of new patients hospitalised for alcohol-related conditions, by age group in Scotland 1981/82-2013/14, Females

Source: ISD Scotland, SMR01
The rate of new patients presenting to hospital with alcohol-related conditions has remained largely unchanged in the least deprived (SIMD) deciles, and has declined in all other deciles between 2000/1 and 2013/14. The largest decline has been seen in the most deprived decile (Appendix 3; Table 8, Figure 3.25 – 3.27). In 2001/2 the rate of new patients was six times higher for the most deprived decile compared to the least deprived whilst in 2013/14 the difference had reduced to less than five times. Inequalities in new patients hospitalised for alcohol-related conditions were wider for men than for women.

Specific diagnoses of long term damage from alcohol include alcoholic liver disease and alcoholic psychoses. For alcoholic liver disease, there has been an upward trend in new patients presenting to hospital up to 2005/6, and then a decline until last year. Similar trends are seen for patients within the year and stays, and particularly for stays there has been a marked increase in the number of stays for each individual hospitalised (Figure 19). Unlike alcohol-related conditions overall, the majority of the increase in new patients with alcoholic liver disease presenting to hospital is driven by older age groups (55-64 and 45-54 years), and this is also reflected in the stay rates (Appendix 3; Table 3.14, Figure 3.43 – 3.46).

Figure 19: Age-standardised rates for Alcoholic liver disease hospitalisations (stays, patients and new patients) in Scotland 1981/82-2013/14

Source: ISD Scotland, SMR01

Alcohol psychosis includes: withdrawal state, withdrawal state with delirium, psychotic disorder, amnesic syndrome and residual-late-onset psychotic disorder.
Unlike the rates for alcohol-related conditions overall, the rates of new patients hospitalised with alcohol psychosis have not declined in recent years. After an increase up to 2006/7, the rates appear to have stabilised. Patients appear to be hospitalised regularly for this condition over a number of years (patient rate), and many have multiple stays within the year (stay rate) (Figure 20). When breaking down the alcohol psychosis hospitalisations into clinical categories, much of the rise was driven by the alcohol "withdrawal state" diagnosis, (data not shown).

**Figure 20: Age-standardised rates for Alcohol-related psychosis hospitalisations (stays, patients and new patients) in Scotland 1981/82-2013/14**

Source: ISD Scotland, SMR01

**Alcohol-related social harm**

In 2013, the Scottish Prisoner Survey\(^\text{y}\) reported that 45% of prisoners claimed they were drunk at the time of their offence, a slight fall in the proportion since 2009 and 2011 (50%). This has risen steadily from 40% in 2005 when reporting began (Appendix 3; Table 3.24).

\(^{y}\) The SPS provides self-reported data on the proportion of prisoners who were drunk at the time of their offence. Source: Scottish Prison Service. Scottish Prisoner Survey – Substance Misuse. Available at [http://www.sps.gov.uk/Publications/Publication-5335.aspx](http://www.sps.gov.uk/Publications/Publication-5335.aspx)

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Discussion
The Theory of Change set out how the actions in Scotland’s alcohol strategy, if implemented fully and as intended, are expected to reduce alcohol-related harm. It was hypothesised that if the alcohol strategy led to changes in the social, physical, service and economic environments around alcohol, there would be safer patterns of drinking by individuals, a reduction in population consumption and, in turn, alcohol-related harm would decline. Evaluation of the strategy requires assessment of implementation, as well as short, intermediate and long-term outcomes.

Findings from previous MESAS studies
To date, MESAS has established that Scotland is experiencing a decline across most indicators of alcohol-related harm. The first of these indicators (mortality) began to decline around 2003, which predates the implementation of the current alcohol strategy and the decline in mean alcohol affordability associated with the economic downturn which started in 2008. However, previous MESAS analysis suggests that the decline in alcohol-related mortality in Scotland since 2003 may be at least partly explained by the declines in disposable income for the lowest income groups which predated the recession \(^{10}\), particularly given that the declines in harms experienced by this group have declined more quickly than the population mean. Previous MESAS reports have demonstrated alcohol-related mortality rates in Scotland to be almost twice those in England & Wales but that these rates peaked five years earlier in Scotland and declined more sharply.

Mean population alcohol consumption only began to decline more recently, from 2009. Previous analysis suggests that it is unlikely that changes to alcohol licensing from mid-2009 are impacting on alcohol outcomes \(^{10}\), but that two other elements of the current alcohol strategy may be contributing to the current downward trends. First, it is plausible that the increased delivery of ABIs in primary care, A&E and antenatal settings (which began in 2008/9 and became established by 2011/12) may be impacting on alcohol-related harms even though their contribution to the decline in population alcohol consumption may be small. However, it should be noted that evidence of success is based on a reasonably high level of ABI coverage and modelling of impacts, and not a direct impact evaluation. Second, the ban on quantity discounts in the off-trade that came into effect in 2011 was associated with a fall in off-trade alcohol sales. This was driven by a 4% reduction in wine sales in the 12 months following the ban, and may have made a contribution to the steepening decline in alcohol sales in 2012.

Principal findings from this report
The main questions being addressed by MESAS this year were: (a) whether additional investments in specialist alcohol services impacted on access; (b) whether there have been any changes in self-reported knowledge about and attitudes to alcohol and how these might influence other outcomes; and (c) whether the current trends in alcohol consumption and alcohol-related harms are continuing.

Additional resources for specialist alcohol treatment and care services were considered by service providers to have had a positive impact on services. A wide range of developments were reported including additional staff, an increased focus on recovery and preventative work, changing referral routes and service pathways,
convergence with drug treatment services, growth of the third sector, increasing service user involvement, and peer-led recovery services. Ongoing issues relating to service gaps, service planning, staffing, demand and missed appointments were also identified. Estimating the availability, need and demand for tier 3 and 4 alcohol specialist services in Scotland suggests a prevalence-service utilisation ratio (PSUR) for these services of approximately 1:4. In other words, the estimates suggest that one in four adults with possible alcohol dependence (based on an AUDIT score of 16+) accessed treatment in 2012. Sensitivity analysis undertaken to address potential underestimation of dependency showed that if the number of alcohol dependent individuals was double that estimated through SHeS (6% rather than 3.1%) then the PSUR would be approximately 1:8. Further work is planned to consider the extent to which the PSUR has changed over time.

The alcohol module of the 2013 Scottish Social Attitudes Survey showed that whilst there was widespread and increasing recognition of the long-term health consequences of harmful and hazardous drinking, attitudes to getting drunk and the role of alcohol in socialising have not changed greatly since 2004. Views on binge drinking were more permissive towards young students, compared with middle-aged people with family responsibilities. Public awareness of the unit content of different alcoholic drinks is low and has changed little over time. Only around half of adults knew the correct number of units in measures of alcoholic drinks and just under half of men and women correctly identified the recommended daily alcohol limits for their gender. However, the proportion of the population who substantially overestimated the safe drinking limits was very low. As regards potential future implementation of legislation, opinions on alcohol minimum unit pricing were divided, with a slightly higher percentage in support of the policy (41%) than opposing it (35%). However, 65% of interviewees felt that current prices did not restrict the amount of alcohol they wanted to buy and around half agreed that ‘supermarkets sell too much alcohol at very cheap prices’.

Population alcohol consumption in Scotland, as measured by alcohol sales, has fallen by 9% since the peak in 2009. However, sales remain 17% higher in Scotland compared to England & Wales, with most of the difference attributable to sales through the off-trade, particularly lower priced spirits. In 2013, 53% of the total volume of pure alcohol sold through the off-trade (excluding discount retailers) in Scotland was sold at below 50ppu, a decrease from 77% in 2009. Since 2003, there has been a decline in self-reported estimates of usual weekly alcohol consumption and the amount drank on the heaviest drinking day in the previous week. The self-report survey data show that older people (aged ≥75 years) consume less in an average week than their younger counterparts and with the ageing UK population, it is plausible that some of the decline in population consumption levels can be attributed to an increasingly older population. However, the increase in the proportion of those aged ≥75 years over the past five years in Scotland and England & Wales (5-6%) is unlikely to make a meaningful notable impact on population consumption levels. Indeed, age-standardising survey estimates over time had a negligible impact on mean weekly alcohol consumption estimates in Scotland.10

Scotland still has very high rates of alcohol-related mortality and morbidity, although both have declined in recent years. Alcohol-related mortality rates have fallen by 35%, from a peak in 2003 in males and 2006 in females. The downward trend has been
most evident in the most deprived areas, with the ratio of alcohol-related mortality rates between the most and least deprived deciles reducing from 12:1 in 2002 to 6:1 in 2013. However, overall alcohol-related death rates remain 44% higher than in 1981 and rates are at least twice as high in males compared to females.

The rate (EASR) of new patients being hospitalised for alcohol-related conditions increased between 1991/92 and 1997/98, then stabilised but since 2007/8 has declined. In 2013/14 the rate was 1.3 times higher than in 1991/92. The patient rate (unique patients treated within a year) increased sharply between 1981/82 to 2007/8 and then declined; in 2013/14 the patient rate remained 3.4 times higher than in 1981/82. The stay rate (previously called hospital discharges) has a similar pattern of increase and decline, and remains 4.5 times higher than in 1981/82. Of the current burden of alcohol-related conditions on acute hospitals, around a third are completely new hospital patients, a third are patients from previous years being re-admitted and a third are repeat stays within the year. Like mortality, the downward trend has been most evident in the most deprived areas.

Alcoholic liver disease hospitalisations follow a similar pattern to all alcohol-related hospitalisations, with the majority of the increase driven by older patients. Alcohol psychosis rates, driven by the condition of alcohol 'withdrawal', showed a similar rise up to 2007/8 but have not declined in recent years.

**Strengths and weaknesses**

The main strength of this evaluation of the impact of Scotland’s alcohol strategy is its use of a theory-based approach which draws on evidence from a range of sources to assess the contribution of the strategy to defined outcomes within the context of external factors that may also be affecting these outcomes. This evaluation is limited by the weaknesses in each of the component studies and the gaps within the study portfolio.

The study to assess the impact of increased investment in treatment and care services achieved a high response rate (87%) from specialist alcohol treatment services with information on individual services users available from 79% of those responding. The assessment of need is based on responses to the 10-item AUDIT questionnaire (the gold standard for measuring alcohol use disorders) within the Scottish Health Survey (SHeS). Unfortunately, due to the well-established problems of sampling, recall, and measurement bias and poor population representativeness experienced with the SHeS, need (i.e. the prevalence of possible alcohol dependence) is likely to be underestimated. Given these uncertainties, sensitivity analysis on need was undertaken. Methodological differences meant that it was not possible to undertake the planned comparison of the PSUR generated in this study with one undertaken in 2009. However, the study now provides a baseline for any future assessment of service access among possibly dependent drinkers.

The Scottish Social Attitudes Survey uses stratified, cluster sampling designed to yield a representative sample of people aged 18+ years living in Scotland. This is a methodologically robust approach used in most national population surveys. However, the sampling frame only includes private households and as such the survey is subject to selection bias in addition to responder bias and social desirability.
bias common in self-report surveys. Using an existing annual survey which included a module on alcohol attitudes twice in the past allows comparisons over time (since before the start of MESAS) although the necessity to future proof, and thus change, some questions limits this strength to only a few questions.

This evaluation uses measures of affordability that are well established and widely used. The Alcohol Price index used in the Alcohol Affordability Index calculation is only available at UK level so it is not possible to calculate affordability in Scotland separately. Similarly, when considering affordability by market sector the alcohol price index (and therefore affordability) of wine and spirits are only available as a combined category. Finally affordability is calculated using an aggregate measure of change in disposable income. This may mask disposable income changes which may differ in magnitude and/or in timing for different income groups.

The use of alcohol sales data is advocated as the most robust means for monitoring population levels of alcohol consumption. A previous MESAS study concluded that the alcohol retail sales data used to describe trends in this report offer a robust proxy for monitoring per adult alcohol consumption in Scotland and for comparing with England & Wales. Nonetheless, by quantifying various sources of bias, it was also shown that per adult consumption estimates derived from these data are likely to be an underestimate. The adjustment of both the sales data and the price band data to account for the exclusion of discount retailers improves these estimates. Our analysis found that when adjusting for discount retailers, the proportion of the total volume of pure alcohol sold for under 50ppu through the off-trade in Scotland in 2013 increased from 53% to 57%.

As described above, underestimation of alcohol consumption levels is a particular limitation of using self-report survey data. In 2012, per adult alcohol consumption estimates from the Scottish Health Survey accounted for only 54% of those based on retail sales data. Gorman et al reported lower alcohol-related and all-cause mortality rates among respondents to the 2003 Scottish Health Survey compared with the general population. This suggests that SHeS respondents are likely to report lower alcohol consumption levels than would be expected if a truly representative sample had been obtained, thereby contributing to an underestimation of population consumption levels. However, despite these caveats, surveys still represent an important data source since, unlike aggregated sales data, they enable the social patterning of alcohol consumption to be described.

Likewise, using hospitalisation statistics to derive outcome measures for alcohol-related morbidity may be problematic since they are sensitive to changes in clinical practice. It is likely that any move towards community based treatment services from hospital based ones will impact on these results.

**Interpretations**

The potential contribution of increased investment in treatment and care services is not yet fully understood. A previous study estimated a PSUR in Scotland of 1:12. However, methodological differences mean it is not possible to directly compare that PSUR with the PSUR of 1:4 generated in the MESAS study. Similarly, there is nothing directly comparable from England from the same time period. The English
Adult Psychiatric Morbidity Survey in 2007 found that 3.8% of adults had an AUDIT score of 16 or more; a figure slightly higher than the SHeS 2012 figure of 3.1%. Given the consumption and harm profiles of the two countries, however, it is unlikely that prevalence of alcohol dependence is higher in England than in Scotland. Nevertheless, NICE have applied this dependency figure from 2007 for England, to estimates of individuals receiving specialist alcohol treatment from the 2009/10 National Drug Treatment Monitoring System, and report a PSUR of 1:14. Although the alcohol dependence data for the English and Scottish PSURs relate to different years, the indicators can be compared subject to the caveats around the survey data limitations. The PSURs show that it is plausible that a greater proportion of alcohol dependent adults in Scotland (23.1%) were accessing treatment than in England (7.2%), a finding which holds even when changing the assumptions and estimate of alcohol dependence as part of the sensitivity analyses.

The Scottish Government has not set a target for the proportion of unique alcohol dependent individuals accessing treatment every year. The UK Department of Health previously identified a target of 15% which was informed by work in North America.\textsuperscript{25} There, a model was developed in the 1990s with the authors regarding access of 1 in 10 (10%) as low, 1 in 7.5 (15%) as medium and 1 in 5 (20%) as high.\textsuperscript{26} Using the SHeS estimates of alcohol dependence, the access level in Scotland in 2012 (1 in 4) would be regarded as high according to this model. Qualitative data suggest that additional funding and resources, as well as reform of local delivery arrangements, have had a positive role in improving access. It is therefore plausible that these changes have had a potentially positive impact on outcomes. Further work exploring this hypothesis will be undertaken before the next annual report.

While there is an increasing recognition among the population of the harm that alcohol causes in Scotland, the lack of change over time in knowledge of alcohol units, attitudes to drunkenness, and the perception of the social role of drinking suggests that changes in attitudes and social norms are unlikely to have contributed to changing outcomes since 2004. Given the small proportion of individuals that vastly overestimated the safe amount of alcohol to drink, lack of education is unlikely to be the main barrier to future improvement.

The proportion of the off-trade alcohol sales below 50ppu is declining. This is to be expected partly due to inflation but it may also reflect a market response due to consumer preferences or industry adaptation in anticipation of MUP policy implementation. The declining proportion of off-trade alcohol sales in Scotland below 50ppu highlights the importance of the Scottish Government’s proposed two year review process of the level at which MUP is set. Alcohol affordability appears to have played a role in declining consumption. Affordability at an aggregate level peaked in 2007 and fell subsequently with the onset of the economic downturn and as disposable incomes started to fall. It has not yet recovered to pre-downturn levels, reflecting the slow growth in disposable incomes during the downturn. This has continued even as aggregate measures of economic activity suggest the downturn has ended. Affordability therefore mirrors consumption to a degree but, measured at aggregate level, provides at best a partial explanation. As noted in the 3\textsuperscript{rd} MESAS Annual Report, differential trends in income between income deciles suggest there are likely to be differences in affordability trends between social groups which may go some way to explain the partial uncoupling of affordability trends and consumption
trends. However, it is not clear whether or how these can explain the different trends in consumption (and harms) between Scotland and England & Wales. This is being explored further in the ‘External Factors/Alternative Explanation’ analyses described earlier.

Population alcohol consumption has fallen in Scotland in recent years. Since 2009, this downward trend has been apparent in both sales and survey data. Survey data suggest that lower levels of weekly consumption among young people and hazardous and harmful drinkers as well as a higher proportion of non-drinkers underpin this trend. However, sales-based consumption remains substantially higher in Scotland than in England & Wales, driven mainly by sales through the off-trade, and a large proportion of adults in Scotland exceed the recommended drinking guidelines.

Like consumption, alcohol-related harm as measured by most indicators continues on a downward trend. The decline in alcohol-related morbidity appears to have started later than the decline in mortality, with all three morbidity measures (stays, patients and new patients) starting to decline from 2007/8 compared with 2003 for mortality. Until this decline, the rate of new patients presenting to hospital with alcohol-related conditions had remained broadly stable since 1997/98, masking a continuing increase in some age groups against a decline in others. Looking specifically at alcohol liver disease, similar patterns are seen, however, there has been no recent decline in rates for alcohol psychosis. Again, it should be noted that these morbidity data only capture patients with alcohol problems being hospitalised at acute hospitals (not including psychiatric hospitals). If there had been, for example, an increase in the rate of patients being cared for in the community or primary care, it would not be captured here. The divergence between the trends in new patients and stays/patients from the late 1990s is likely to indicate that the increasing service burden until around 2007 was driven to a large extent by a cohort of people who were increasingly using services rather than individuals who were newly experiencing negative alcohol-related health outcomes. This is particularly pronounced in the chronic conditions of alcoholic liver disease and alcohol-related psychosis.

**Implications**

This report has the following implications for MESAS research in the coming year:

1. There will be a second phase of the treatment and care study to supplement the existing study by using routine data to provide additional prevalence estimates of alcohol dependence. These additional estimates will be developed in a way that allows evaluation of how PSURs have changed over time, both locally and nationally.

2. As the economy returns to pre-recession levels and disposable income levels recover, it is important to continue to monitor the impact on trends in consumption and alcohol-related harm. The contribution of such external factors and also demographic factors are therefore currently being explored further and will be reported in the final annual report.

3. There is a need for further work to understand the different patterns of alcohol-related harm in Scotland compared to England & Wales.

4. In addition, in order to update the reporting of alcohol-related harms, analysis will be done using the slope index of inequality (SII) and the relative index of inequality (RII) as measures of health inequality.
5. MESAS will undertake work to explore the feasibility of obtaining patient and new patient hospital discharge data for England & Wales to allow for comparison with Scotland.
6. Additional analysis to assess the impact of the quantity discount ban on alcohol harms will be done.
7. Analysis to update the potential contribution of ABIs to a reduction in alcohol harms following further implementation and the establishment of programme delivery is necessary.
8. Methods to obtain improved data on alcohol availability will be explored.
9. Finally, should MUP be implemented, work to assess the impact of this policy will continue.

Conclusions

Alcohol-related mortality and morbidity, and inequalities in these harms, are continuing to decline in Scotland, and on some measures are improving more quickly than in England & Wales. Alcohol sales are falling in both Scotland and England & Wales and it is likely that declining affordability of alcohol due to the economic downturn and associated policy context across Great Britain in recent years is responsible for a substantial proportion of these improvements. However, the ban on quantity discounting of alcohol and the increased delivery of ABIs are likely to be contributing to the improvements seen in Scotland. Changing knowledge and attitudes around alcohol are unlikely to be responsible for the recent declines.

Further work is required to understand the potential contribution of the increased investment in treatment and care services to improving outcomes, and to understand the impact of a range of policy and non-policy factors (both contemporary and historical) on outcome trends, in particular the differences in the scale and timing of impact seen in Scotland and England & Wales.
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