Estimating Return on Investment for interventions and strategies to prevent and reduce alcohol use

User Guide
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This tool is intended to help users to understand the return on investment of their chosen package of interventions. Where relevant, the comparative figures are based on two different ‘packages’ of interventions, one of which could be ‘baseline’ defined as a hypothetical situation where ‘there are no interventions’ at present. It is left to the users to select which interventions will make up a package and decide which packages of interventions they would like to compare.

Readers are asked to read the accompanying User Guide and Technical Report before they use this tool.

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If one of more custom interventions are included in a package of interventions NICE recommend this be made clear in any communications regarding the results.

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Estimating Return on Investment for interventions and strategies to prevent and reduce alcohol use - User Guide
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1.0 Introduction

On behalf of the National Institute for Health and Care Excellence (NICE), Matrix Knowledge has produced this return on investment tool to help facilitate decision making at local level in alcohol use policy. As part of this programme to support local decision making, two other tools – in the area of tobacco control and physical activity – have been developed.

The tools have been developed with the aim of enabling users to assess the Return on Investment (ROI) of implementing a package of interventions. The tools allow users to estimate gross savings in health care costs and wider societal costs such as those from productivity losses that could be achieved through prevention and treatment programmes in a geographical area (e.g. region, county or local authorities). This required estimating the costs of the interventions as well as their impact. The purpose was to develop a tool to support commissioners and policy makers in their investment decision by enabling them to explore the costs and impact of different interventions packages to meet their target population needs.

1.1 What to expect from the Alcohol Use ROI tool?

- There are 22 interventions in the tool covering both interventions to prevent and reduce alcohol use and interventions for treating patients who are dependent on alcohol. There are:
  - 3 screening and brief interventions for the adult population
  - 1 brief intervention for under 18s
  - 2 school based interventions
  - 6 pricing, licensing and advertising interventions
  - 1 advertising intervention targeted at under 18s
  - 9 interventions, including detoxification, psychological and pharmacological relapse prevention interventions to treat people with high levels of alcohol use.

- A full list and descriptions of these interventions is provided in Appendix 4. In addition, the tool can incorporate custom interventions based on local level or newly published data.

- Most of the interventions and model parameters were drawn from NICE Guidance on alcohol use. In addition, a literature search was undertaken to include additional interventions not included in NICE Guidance and to fill data gaps. Please refer to the Technical Report for further details of the sources and components of the model.

- The tool is pre-populated with local-level population data and prevalence of different levels of physical activity split by Local Authority or Clinical Commissioning Group.¹

- Each intervention has the following variables attached:
  - The allocation of the intervention is defined as the percentage of the population or number of people that receives or would receive the intervention. Depending on the intervention allocated population can be one of three options: the general adult population (over 18), the general child population (between the ages of 10 and 15),

¹ The calculations of the number of people in the model are estimates based on 2011 Census data and are split by region. Regions are defined as the former Government Office Regions, described at: http://www.ons.gov.uk/ons/guide-method/geography/beginner-s-guide/administrative/england/government-office-regions/index.html. The numbers presented in the downloadable word report are rounded to the nearest 1000.
and the alcohol dependent population. By default, all interventions have a 0% allocation assigned. Therefore, allocations need to be defined by the user based on actual or desired level in their local authority or CCG area.

- **The effect** of the intervention is defined as the percentage point change in the prevalence of ‘Increasing and higher risk drinking’ or ‘dependent drinking’ depending on the intervention type, or the change in the number of people reducing their drinking to below the increasing or higher risk drinking threshold after receiving the intervention. All interventions have a pre-populated effectiveness rate attached (Appendix 4). However, these values can be modified by the user if they have appropriate evidence of effectiveness from local data or newly published studies.3

- **The cost** of the intervention, defined either as the cost of delivery per person or the total cost of the intervention. As with effect, the cost per person has been pre-populated for all interventions (Appendix 4), but they can be modified by the user to adjust, for example, for variances in regional or local prices.

- The tool has the ability to group interventions into packages. Packages can include any combination of interventions and can be tailored for specific treatment pathways. This allows the tool to be used flexibly by users to design services with different intervention mixes as needed.

- By default all intervention groups are ‘potentially’ included, with all allocations for the interventions set to 0%. Therefore the starting point (Baseline) represents a scenario of ‘no service provision’. The tool then allows users to build two packages of interventions:

  - **Current package.** This will typically be used to represent what is currently being implemented in the chosen locality. To that end, the user must change the allocation of the interventions (from 0%) to represent the current level of provision in their local population area. The ROI metrics of the current package will then compare the current package against the Baseline – i.e. the ‘value for money’ of the ‘current scenario’ compared with ‘no service provision’.
  
  - **Alternate package.** This will be defined by the user by changing the allocation of the interventions (from the percentages applied in the current package) to reflect desired levels of service provision. The ROI metrics of the alternate package will then compare:
    - The alternate package against the Baseline (i.e. ‘no service provision’).
    - The alternate package against the current package

- A number of cost savings and ROI metrics are included in the tool. These are: cost savings, Incremental Cost Effectiveness Ratio (ICER), net present value (NPV), and benefit cost ratio. A glossary of these terms is included in Appendix 2.

- The cost and ROI metrics are provided for different perspectives or, in other words, sets of benefits; for example: all cost savings and value of health gains included, all cost savings included (but no value of health benefits), health care cost savings and value of health gains, health care cost savings and value of health benefits.

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2 The alcohol dependent population is derived from the General Household Survey 2010 levels of people drinking above 50 units per week for men and 35 units per week for women, and adjusted for each local authority using the higher and increasing drinking population data. More details and an example of how this is calculated can be found in the User Guide on page 25.

3 We do not recommend making changes to effectiveness rates for interventions unless you have local data or newly published evidence that is presented - or can be converted to - the effectiveness measure used in the tool. If effectiveness rates are not expressed in the same measure, estimates produced by the tool will not be accurate and may be invalid.

4 As mentioned previously, users can also change the effect and cost of the interventions.

5 Users can also change the cost and effect of the interventions at this stage. However, note that these changes will only apply to the Alternate package (and the cost and effect for the Current package will remain as previously defined).
only health care cost savings, only productivity gains, only crime cost savings, and only education benefits. Specific definitions of these metrics are included in Appendix 3.

- For each package the tool calculates the health gains. Health gains are measured in terms of Quality Adjusted Life Years (QALY) gained.\(^6\)

- The value of the health gains generated by the package is calculated as the QALYs generated by the package times the ‘value’ of a QALY. The ‘value’ of a QALY is set by default at £20,000/QALY\(^7\). However this can be modified by the user, to reflect their willingness to pay for a QALY.\(^8\)

- Flexible timescales of between one and fifty years (lifetime)\(^9\) are included to allow policy makers ultimate flexibility in seeing the level of return on investment of the packages of interventions and how this changes over time.

- The tool only provides point estimates i.e. the average value often called the ‘base results’ and no uncertainties around the point estimate are provided within the tool. This is because given the breadth of the model outputs (i.e. a large number of metrics that the tool produces), incorporating such ‘sensitivity analysis’\(^10\) in each run would significantly prolong the run time. However, it is critically important to establish the extent to which the model results would be sensitive to input parameters if they were to change. In order to address this important issue, the technical report includes a number of sensitivity analyses carried out by the model developers.

- The Alcohol Use ROI tool was developed in Microsoft Excel 2013 and Visual Basic 6. It is compatible with all versions of Microsoft Excel after version 2003.

- For details about the economic model sitting behind the tool, please refer to the Technical Report.

### 2.0 Downloading and saving the tool

The tool will be hosted on the NICE website.

It is recommended that the tool is run from your local hard drive (C: drive). We recommended that before (or during the save process) you save the tool on to your hard-drive, you create a new folder (e.g. Alcohol ROI) and save the tool in this folder. Once you run the tool and ask it to export your results, in Word and Excel format, they will be saved in the folder where the tool is saved. It is therefore very important to know in advance the location of your tool and where you want the results to be saved.

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\(^6\) A QALY is a year lived in full health, i.e. a year lived without any limitation or disability.  
\(^7\) NICE considers interventions costing the NHS less than £20,000 per QALY to be good value for money  
\(^8\) Please note that changing this value will delay the calculation running time.  
\(^9\) Based on a starting age of 35  
\(^10\) Sensitivity analysis is a form of analysis which assesses whether the interpretation of the results of an analysis will change if parameter inputs are varied.
3.0 Running the tool

In this section we provide a step-by-step guide to running the Alcohol Use ROI tool, including a short description of each step and options followed by a screen shot of the tool at the relevant step.

3.1 Opening the tool

Open the alcohol tool from where you saved it on the hard drive. The tool requires a minimum screen resolution of 1024x768 to display correctly. If you have problems with the tool appearing too large please change your resolution. Once it opens, you will be asked whether you want to enable macros. The alcohol tool is built using Visual Basic, the language that macros are written in. Visual Basic content is disabled as default, and so will need to be enabled to allow you to use the tool. Click “Enable Content” on the yellow security warning bar to allow the tool to run (as shown in Image 1).

A message may pop up alerting you that some links in the workbook cannot be updated. If this appears, click continue (see Image 2).

Once done, click the ‘Click to Begin’ button to launch the tool.

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Image 1

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Estimating Return on Investment for interventions and strategies to prevent and reduce alcohol use - User Guide

Image 2

Microsoft Excel

We can't update some of the links in your workbook right now.
You can continue without updating their values, or edit the links you think are wrong.

Continue Edit Links

Was this information helpful?
3.2 The Alcohol Use Tool at a glance

**Intro**
- What is the ROI tool?
- What it can do for you?

**Run analysis**
- Summarise current scenario
- Select analysis

**View results**
- Costs
- Costs savings
- ROI metrics

**Build the 'current scenario'**
- Select local population
- Select interventions

**Build the 'desired scenario'**
- Change or add interventions
3.3 Front screen

You should now see a pop up screen (as shown in Image 3). It contains an overview of the aims and uses of the tool. When you have read through this, click the “Close” button. You will then see the front navigation screen of the tool (as shown in Image 4). It contains a brief introduction describing the structure of the tool.

12 If a toolbox appears in your screen, on top of the front screen, simply close it by clicking on the top right corner of the toolbox.
Along the top bar are the options for selecting and customising interventions. Interventions are grouped into two broad categories:

- General interventions
- Treatment interventions

Clicking on the General Interventions menu shows (see Image 5) the option to either:

- **Display Basic Settings.** This view provides an overview of the interventions included under each category. This view does not allow changing specific parameters (allocation, cost, effect) but allows exclusion of intervention groups from the analysis.
- **Display Advanced Settings.** This view allows you to access all the intervention groups within that category. For each group of intervention, a number of interventions will be available (where relevant, classified as for adults and children separately). A full list of interventions is available in Appendix 4.

The same options are available under the treatment interventions menu (see Image 6).

**Image 5**

**Image 6**
3.4 Selecting and customising general interventions

Click on Display Basic Settings. The Parameter Menu will appear on the right hand side.

The Parameter Menu allows you to select the population to be modelled. You can choose to use pre-populated data by Local Authority (LA)\textsuperscript{13} or Clinical Commissioning Group (CCG), or enter a custom population using your own data. \textsuperscript{14}

At this stage, the user can set the defined location as the default location for future use by clicking the “set as default location” checkbox (Image 7)

Image 7

Once the population of interest is selected, the general population, classified into adults (18+) and under 18s, will be completed with:

- The number of people in the selected area (for custom interventions this is the English average)
- The prevalence of ‘Increasing and high risk drinking’ in the selected area.

An example is provided in Image 8. The prevalence of ‘Increasing and higher risk drinking’ in the adult and child population is defined as follows those who drink over 15 units per week for women and 22 units per week for men.\textsuperscript{15}

The default prevalence rates included in the Parameter Menu box come from Health Profiles of England (2011) published by Public Health England (previously Association of Public Health Observatories) based on data from General Lifestyle Survey 2008. If more accurate local data is available, prevalence rates can be edited by either using the arrows to the left of the box, or by typing in the required number (and pressing Enter in your keyboard).

\textsuperscript{13} Metropolitan Counties are clusters of Local Authorities that act as de facto Unitary Authorities. The six Met. Counties are: Greater Manchester, Merseyside, South Yorkshire, Tyne and Wear, West Midlands, West Yorkshire. They have been added to middle tier location menu for Local Authorities, under the relevant Top Tier region. Demographic data for the Met. Counties were generated by directly aggregating the relevant values for the constituent Local Authorities.

\textsuperscript{14} Please do not try to type to location as this may cause a problem in the tool and you will need to re-start it.

\textsuperscript{15} The thresholds used in the model represent a simple average of thresholds applied to men and women.
Clicking on the Adult Subpop and u18 Subpop buttons (Image 9) provides additional details on adults and under 18s, including:

- Number of people classified as Increasing and higher risk drinking (as per prevalence above).
- Number of children classified as drinking at over 4 units per week.
- Number of people classified as dependent drinking (above 50 units per week for men and over 35 units per week for women).

Finally, the Overview section provides a summary of the indicators described above for both adults and under 18s. Depending on which subpopulation button is clicked, the relevant population data is highlighted in orange.

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16 Hovering your cursor over any on these variables will bring up a text label with the source and year of the data.
17 The proportion of dependent drinkers is taken from the General Lifestyle Survey 2010 and adjusted for each LA/CCG area. These are given as a percentage of the general population.
Creating custom populations

The custom population function allows you to define the name of your area, and then input the size of the population manually. To create a custom population, click the option to select ‘User defined data’, then input the size of the population manually.
You will be required to enter a name for your population. Population figures can be entered for the general Population, under 18 and adult sub-populations by clicking the relevant buttons as highlighted in Image 11. All the parameters within these sections are customisable. Once the figures have been entered for each population, the drinking levels (Image 12) are automatically updated. If more accurate local data is available, prevalence rates can be edited by either using the arrows to the left of the box, or by typing in the required number (and pressing Enter in your keyboard).

Custom populations can be available for future use by saving the tool.
Including and excluding intervention groups

At this stage, you can start building the current package.

By default all intervention groups are ‘potentially’ included (although at a 0% allocation rate). From the Basic Display Settings you can exclude intervention groups from further analysis. Clicking ‘Find out more’ will provide additional details about the intervention groups to facilitate this decision.

To the left of each group there is a red stop button. Pressing this will bring up a dialogue box alerting that these interventions have been excluded. To include them again, press the green ‘play’ button (see Image 13). We recommend not excluding any intervention groups at this stage. If you are not interested in specific intervention groups simply keep the allocation rate at 0%, as this will give you more flexibility if you later decide to include them in the alternate package (or ‘desired scenario’).

Find out more

Most sections of the tool have a ‘Find out more’ section which has detailed descriptions of the intervention and links to the relevant NICE guidance for more detail, plus any additional technical or glossary information that might be useful for users of the tool.
Advanced Settings

To access specific interventions within each group, either press the ‘Advanced’ button at the bottom of the Basic Settings screen, or select ‘Display Advanced Settings’ from the General Interventions menu. Both routes will take you to the same screen, where you will be able to select the allocation, cost and effect for each intervention.

The Advanced Settings screen (Image 14) provides an overview of the intervention groups available within the tool:

- Screening & Brief Advice
- Prevention
- Affordability & Accessibility
- Advertising Restrictions
- Customised Interventions
At the bottom of the screen there is a button for each of these intervention groups. Click the buttons to see specific interventions within each group. Where relevant, groups contain interventions specific to adults or children.

### Image 14

<table>
<thead>
<tr>
<th>Intervention Details - General Population</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overview:</strong> A variety of interventions are available to help reduce the incidence of alcohol use in your population. Interventions are mixed, including individual-level initiatives and wider population-level programmes. You can amend the details of these interventions below.</td>
</tr>
<tr>
<td><strong>Select an Intervention Group relating to the general population from the options at the bottom of the screen to view the individual interventions in that group.</strong></td>
</tr>
<tr>
<td>The available Intervention Groups are:</td>
</tr>
<tr>
<td>&gt; Screening &amp; Brief Interventions</td>
</tr>
<tr>
<td>&gt; School-based Interventions</td>
</tr>
<tr>
<td>&gt; Accessibility &amp; Pricing Interventions</td>
</tr>
<tr>
<td>&gt; Advertising Interventions</td>
</tr>
<tr>
<td>&gt; Custom-defined Interventions</td>
</tr>
</tbody>
</table>

### Editing individual interventions

The allocation, effectiveness and cost per person of each intervention can be edited in this screen. Any changes made may not be saved for future sessions therefore you may wish to note any tailoring you undertake. Alternatively when you have run analysis, follow instructions in Section 5.0 of this user guide to produce a data dashboard. Remember that at this stage, you are building the current package. Therefore, adjust the allocation rates based on data or your knowledge of the current level of provision in your area. You can do this by using the arrows to the right of the box, or by typing in the number (and pressing Enter in your keyboard). Image 15 provides an example where 10% of the adult population is assumed to receive Screening and brief intervention at their next GP appointment. The number of individuals reached by the interventions will be updated automatically. Updating the number of individuals will automatically update the percentage value. Note that the two fields that have changed are highlighted in a different colour.

You may also wish to change the effect and/or cost of the intervention if you have more up to date or local data to make the outputs more relevant.
Repeat the process of clicking intervention groups and specific interventions to map the current scenario. If you want to include treatment interventions in your package, please read Section 3.5. If not, move to Section 4.

Image 15

For individual level interventions the target population should be estimated from local level data. For interventions involving screening and brief advice, the allocation should be the total number or percentage of population screened, not the number receiving brief advice. For example, this may be calculated as the number of individuals who would be expected to attend in the space of a year. This allows the costs and benefits to be estimated accurately. In school interventions it would be the proportion of children receiving the intervention in the schools running the intervention, for example if it runs for the whole school, this would be 100% of the children, but if only implemented for children turning 15 that year, it would be the proportion of the total population who were in year 11.
For population level interventions, you are able to adjust the allocation rates to any value up to 100%. This flexibility has been provided to allow users to define the population who would most likely be exposed to or impacted by the intervention and therefore provide a more accurate estimate of the benefits associated with the intervention. For example if legislation was introduced to restrict the building of new off-licence outlets on the high street in an area, the user may want to assume that 50% of the population would be impacted by this based on the population of the surrounding streets.

For example, if you allocate 100% of people to receive multiple interventions they will all receive all interventions selected and incur the cost of receiving those interventions. The effects of the group of interventions then determine how many of those people reduce their drinking below the threshold as a result of that intervention. For example if a single intervention in this group is given to all 6.4m people in London with a cost of £10 per person and results in 10% of people stop drinking. The intervention population is 6.4m and the total costs £64m, benefits will only accrue for the 640,000 people that reduced their drinking. The costs accrue using simple addition, so if there are 3 interventions that have the same cost as the example, the total costs will be £192 million.

If we then assume the three interventions have effectiveness of 10%, 9% and 8%. What happens with the effectiveness is dependent on the impact setting of the model, either cumulative, average or conservative. Under conservative, only 640,000 people will reduce their drinking as it assumes that only one intervention, the one with the highest effectiveness, will be counted.

Under average, an average of the conservative and cumulative effects is assumed, and so the average effect size is 18.5%. Therefore, the number reducing their drinking under average effect would be 1,202,500 people.

Under cumulative, the total of all three is added together and so the number reducing their drinking would be 1,728,000

**Custom interventions**

The custom interventions option allows users to create interventions that they may be implementing in their area but which are not part of the default interventions. Three key pieces of data are required for a user to create a custom intervention and they are as follows:

- **Allocation**: the percentage or absolute number of people the user expects will receive or participate in the intervention. For population based interventions, estimates of this could reflect the reach of the intervention.

- **Effect size**: the user will need to know the percentage decrease in people who move from higher or increasing levels of drinking to lower levels after partaking in the intervention. Instructions on how to convert effect sizes to the measure used in this tool can be found in Appendix 4: Converting effect sizes for custom interventions.

- **Cost**: the user will need to know the cost per person (or an estimate) of providing the intervention.

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18 The allocation fields are interdependent, so an increase in the percentage or number of individuals will adjust the value in the other field.
19 A general reduction in the number of units consumed is not capable of being evaluated by this tool, it needs to be converted to the number of people reducing their alcohol use below the threshold of higher and increasing drinking.
Access to the custom interventions option is through the individual or treatment interventions menu via the “Advanced” button from the basic settings screen or by going directly to the advanced settings screen.

After clicking the custom interventions button, an information screen will appear (Image 17), click “yes” to access the custom intervention overview screen (Image 16).
Image 18). Here you can name the intervention, select the target population; choose the population allocation and input the effect and cost of the intervention which will be used to generate the ROI metrics.

Once the form has been filled, click “Submit” and the intervention will be saved and used for the current package and can be changed for when creating the alternate package. If you save the tool at this point (by going to File ->Save), the custom intervention will be available for use every time you open the tool.
Advanced Intervention Details - General Population

Overview: Custom Interventions
A variety of interventions are available to help reduce the incidence of alcohol use in your population. Interventions are mixed, including individual-level initiatives and wider population-level programmes.
You can amend the details of these interventions below.

- **Name:** Alcohol Intervention
- **Population:** Adults (18+)
- **Uptake:** 0.00% Adults (18yrs+)
- **Effectiveness:** 1.23% proportion of those receiving this custom intervention who will reduce their alcohol use
- **Cost:** £4.56 pppl

[Submit] [Clear]
3.5 Selecting and customising treatment interventions

Treatment interventions are presented as individual interventions, rather than as part of a sequential package of care. All treatment interventions are assumed to be targeted to the dependent drinking population.

Treatment interventions are assigned to the dependent alcohol population. The dependent alcohol population is calculated by taking the national average alcohol dependency rate (4.5% of the general population) and applying an adjustment factor to vary it by the local level of alcohol use. This adjustment factor is based on the variation of the local higher and increasing drinking population from the national mean higher and increasing drinking population.

**Example**

Hackney has a baseline alcohol use over the threshold of 19.4%. The England average is 22.29%.

To calculate the multiplier for the dependent population to adjust it to the local level, calculate 19.4%/22.29%=0.87.

The national average dependent population is 4.5%, and so calculating 4.5%*0.87=3.9%

So the dependent population in Hackney is 3.9% of the general population.

If a more accurate measure of alcohol dependency is available at local level, it can be updated in the parameter menu under Adult Subpop.

For treatment interventions you can:

- Include and exclude intervention groups from the Display Basic Settings option
- Access them from the Advanced button on the Basic Settings menu or Display Advanced Settings option
- Edit interventions

The intervention groups available within the tool are:

- Inpatient detoxification interventions
- Structured day programme
- Structured psychosocial interventions
- Community prescribing interventions
- Custom interventions

To edit population interventions from the advanced button or advanced menu, please follow the same process outlined in Section 3.4.

**Costs**

Costs for inpatient detoxification interventions and structured day programme interventions are based on the unit cost per day per person. The defaults for these are 10 and 30 days respectively. If you require the cost to vary, multiply the unit cost per day (available in the find out more for each intervention) by the number of days the intervention lasts on average.

The structured day programme is based on interventions identified by NICE Clinical Guidance 115. This intervention may not represent a typical day programme. Users are encouraged to use the ‘find out more’ button for this intervention, which provides additional information to help you decide if the costs need to be adjusted to allow for a different ratio of days spent in detoxification or psychotherapy/rehab.
4.0 Return on investment outcomes

Once you have ‘built’ the current package press the blue “Calculate the current package” button on the lower right hand side of the screen (Image 19). After the analysis has run, a pop up screen will appear which gives the user an overview of the results section of the tool. Once read, click the “Close” button (Image 20) to access the Intervention overview and results screens.

![Image 19](image_url)
4.1 Interventions overview

The left hand of the tool is now the Interventions Overview pane (Image 21). You can select three views:

- General interventions for adults
- General interventions for under 18s
- Interventions for the dependent alcohol use subpopulation (also referred to as treatment interventions)
Under each view, a summary of the interventions is presented. All the parameters (allocation, effectiveness, and cost) represent the selections you made when building the Current package. The screen also indicates:

- Total cost of ALL interventions
- Number of persons that reduce their alcohol use as a result of ALL interventions

You can now look at the results for the current package on the right hand side of the screen, or build the alternate package by changing the allocation, effect and cost of any intervention (even if not included in the current package). Any changes you make at this point will only apply to the alternate package.
Before you run the results, you have the following options:

- **Select the time horizon** for the analysis. By default this is set to 50 years, which means that the lifetime benefits associated with the package will be considered in the calculation of the ROI metrics. However, if you are interested in a shorter timeframe, the time horizon drop-down menu allows you to select the number of years over which benefits should be included in the analysis.

- **Change the value of a QALY.** By default this is set to £20,000 per QALY. The default value corresponds to NICE’s willingness to pay for a QALY. However this can be changed either by typing a new value between £0 and £100,000 (and pressing Enter in your keyboard) or using the slide bar.\(^\text{20}\)

- **Select your impact assumption.** Three options are available:
  - **Conservative** impact: this assumes that the effect of the package is only as good as its most effective intervention. The idea behind this assumption is to capture a situation in which different interventions are included in the package, but the

\(^{20}\) Please note that using the slide bar can delay the calculation running time. So we recommend using the keyboard instead.
beneficiaries (those for which the interventions have an effect) are the same individuals. For example, in a population of 100 people:

- Intervention A: allocation 30%; effect 10%. Therefore, as a result of the intervention, 3 individuals reduce their alcohol consumption below the threshold.
- Intervention B: allocation 20%; effect 20%. Therefore, as a result of the intervention, 4 individuals reduce their alcohol consumption below the threshold.

The conservative impact scenario assumes that, to some extent, these populations overlap and, as a result of the overall package (i.e. intervention A and B combined), 4 individuals reduce their alcohol consumption below the threshold.

- **Cumulative** impact: this assumes that every intervention has its individual effect, and that these effects can be added. In contrast to the conservative scenario, the maximum scenario thus assumes that the populations benefiting from the interventions are distinctive. Following the example above, under the maximum impact scenario, 7 individuals (3 individuals from the current package plus 4 individuals from the alternate package) reduce their alcohol consumption below the threshold as a result of the overall package. The cumulative impact is capped at 100% of the population reducing their alcohol consumption. More than 100% of the population can be allocated to an intervention (to allow people receiving multiple interventions), but the effect cannot be higher than 100%.

- **Average** impact: we acknowledge that the two scenarios described above present extreme cases and that it may be difficult for certain packages of interventions to decide which is more appropriate. The average impact is therefore a simple average of the conservative and maximum impact scenarios. It assumes that the effect of the overall package lies in between the single most effective intervention and the cumulative effective of the whole package.

It should be noted that the impact scenarios are calculated separately for adults and children, as it would be inappropriate to think that there is any overlap between these populations. However, if you select the conservative assumption this will apply to both adults and children – i.e. you cannot choose conservative for adults and maximum for children. A separate analysis will need to be run in order to see this. These can be compared against each other using the data dashboard append function.

Below we provide an example:

**Image 23** illustrates a situation in which the current package (adults) includes 15% allocation of Screening & Brief Intervention at the next GP appointment and 5% allocation of eCBT (note that in the tool these interventions will appear in different screens rather than as shown in Image 23. Left hand of the image shows the General Interventions for Adults overview, and the right hand of the image shows Interventions for Alcohol Misuse subpopulation). The total cost of delivering the current package (adults) in the selected local area is just over £1.04m and it is estimated that under the Maximum impact scenario 557 individuals will reduce their alcohol consumption levels below the threshold.

Let’s assume that the local decision maker wants to assess the costs and benefits of expanding the current levels of provision by increasing the reach of Screening & Advice at the next GP appointment to 20% and providing Screening & Advice at the next GP registration also to 20% of the population.

---

21 While we would not expect the effect of interventions to come near to 100% in reality, we also do not have evidence of what the ceiling value the cumulative effect of multiple interventions would have. Therefore this is the reason the effect has been capped at the maximum theoretical possible level of 100%.
Image 24 now shows the alternate package, which would costs over £1.9m and, under the Maximum impact scenario, it is estimated to benefit 1,408 individuals.
Estimating Return on Investment for interventions and strategies to prevent and reduce alcohol use - User Guide

Image 24

Interventions Overview
General Interventions for Adults

Cost of Interventions to your original values

<table>
<thead>
<tr>
<th>Interventions for Adults</th>
<th>Current Package</th>
<th>Alt. Package</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total cost of ADULT interventions</td>
<td>£1,040,730</td>
<td>£1,950,406</td>
</tr>
<tr>
<td>Number of ADULTS reducing alcohol use as a result of ALL interventions</td>
<td>657</td>
<td>1,489</td>
</tr>
<tr>
<td>Select your time horizon: Total (50) years</td>
<td>Find out more</td>
<td>Find out more</td>
</tr>
<tr>
<td>Assumption of effect: Average Impact</td>
<td>Find out more</td>
<td>Find out more</td>
</tr>
<tr>
<td>Value of a QALY</td>
<td>£20,000.00</td>
<td>Find out more</td>
</tr>
</tbody>
</table>

Total overview of the package cost and savings
Location: Hackney
Time Horizon: Total (50 years)

Total cost savings

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The right hand of the tool will present the results of the analysis. The results compare:

- The current package against the Baseline
- The alternate package against the Baseline
- The alternate package against the current package

You can access two sets of results (Image 25):

- Results Overview
- ROI Metrics

Under Results Overview, the following indicators are currently available:

- Breakdown of Costs and Counts
  - Health care cost savings
  - Productivity gains (only for adults)
  - Crime cost savings
  - Education benefits (only for children)
- Total Cost and Counts
  - Cost of the package
  - Total cost savings

Under ROI Metrics, the following indicators are currently available (see Appendix 3 for definitions):

- Benefit-Cost Ratio
- Net Present Value (NPV)
- Avoidable Burden of Disease (number of QALYs)
- ICER (including all benefits and cost savings). Some of the results for the ICER calculation, cannot be presented in graphical terms so we recommend using the Chart View.

---

22 In the results overview, there is a find out more button for total cost savings and breakdown on cost savings, which provides definitions of the metrics displayed.
Clicking on the button for the indicator shows you the different perspectives available (Image 26). For example:

- Quasi-societal perspective: All cost savings, productivity and value of health gains included
- Quasi-societal perspective: All cost savings and productivity gains included
- NHS perspective: Only health care costs and value of health gains included
- NHS perspective: Only health care cost savings included
- Other sector: Only crime cost savings included
- Other sector: Only productivity cost savings included

The results can be seen in numerical (Image 27) or graphical (Image 28) terms.
Estimating Return on Investment for interventions and strategies to prevent and reduce alcohol use - User Guide

Image 27

Interventions Overview

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Allocation</th>
<th>Effectiveness</th>
<th>Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEO next GP appt</td>
<td>20.00%</td>
<td>1.79%</td>
<td>£25.49</td>
<td>£257.948</td>
</tr>
<tr>
<td>SEO next GP reg</td>
<td>20.00%</td>
<td>1.79%</td>
<td>£35.12</td>
<td>£714.242</td>
</tr>
<tr>
<td>SEO next MH ref</td>
<td>20.00%</td>
<td>1.79%</td>
<td>£15.95</td>
<td>£319.932</td>
</tr>
<tr>
<td>Gp minimum pricing</td>
<td>0.00%</td>
<td>0.00%</td>
<td>£0.00</td>
<td>£0.00</td>
</tr>
<tr>
<td>Promotions ban</td>
<td>0.00%</td>
<td>0.00%</td>
<td>£0.00</td>
<td>£0.00</td>
</tr>
<tr>
<td>Outlet density</td>
<td>0.00%</td>
<td>0.00%</td>
<td>£0.00</td>
<td>£0.00</td>
</tr>
<tr>
<td>Licensing</td>
<td>0.00%</td>
<td>0.00%</td>
<td>£0.00</td>
<td>£0.00</td>
</tr>
<tr>
<td>Health-messaging</td>
<td>0.00%</td>
<td>0.00%</td>
<td>£0.00</td>
<td>£0.00</td>
</tr>
<tr>
<td>Total all ban</td>
<td>0.00%</td>
<td>0.00%</td>
<td>£0.00</td>
<td>£0.00</td>
</tr>
</tbody>
</table>

General Interventions for Adults

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Allocation</th>
<th>Effectiveness</th>
<th>Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEO next GP appt</td>
<td>20.00%</td>
<td>1.79%</td>
<td>£25.49</td>
<td>£257.948</td>
</tr>
<tr>
<td>SEO next GP reg</td>
<td>20.00%</td>
<td>1.79%</td>
<td>£35.12</td>
<td>£714.242</td>
</tr>
<tr>
<td>SEO next MH ref</td>
<td>20.00%</td>
<td>1.79%</td>
<td>£15.95</td>
<td>£319.932</td>
</tr>
<tr>
<td>Gp minimum pricing</td>
<td>0.00%</td>
<td>0.00%</td>
<td>£0.00</td>
<td>£0.00</td>
</tr>
<tr>
<td>Promotions ban</td>
<td>0.00%</td>
<td>0.00%</td>
<td>£0.00</td>
<td>£0.00</td>
</tr>
<tr>
<td>Outlet density</td>
<td>0.00%</td>
<td>0.00%</td>
<td>£0.00</td>
<td>£0.00</td>
</tr>
<tr>
<td>Licensing</td>
<td>0.00%</td>
<td>0.00%</td>
<td>£0.00</td>
<td>£0.00</td>
</tr>
<tr>
<td>Health-messaging</td>
<td>0.00%</td>
<td>0.00%</td>
<td>£0.00</td>
<td>£0.00</td>
</tr>
<tr>
<td>Total all ban</td>
<td>0.00%</td>
<td>0.00%</td>
<td>£0.00</td>
<td>£0.00</td>
</tr>
</tbody>
</table>

Benefit-Cost Analyses (Adults)

Location: Hackney
Time Horizon: Total (50 years)

Benefit-Cost Ratio
All cost savings and value of health gains included

| Baseline vs Current Package | 580.21 |
| Baseline vs Alternative Package | 592.33 |
| Alternative Package vs Current Package | 626.89 |

The sum of all cost savings and value of health gains, divided by the cost of the intervention. A value greater than 1 (in green) indicates that the benefits of the intervention exceed its costs.

View Chart
Image 28

Interventions Overview

<table>
<thead>
<tr>
<th>Interventions for Adults</th>
<th>Allocation</th>
<th>Effectiveness</th>
<th>Cost</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>GP referral</td>
<td>30.0%</td>
<td>1.74%</td>
<td>£33.45</td>
<td>£1,000.29</td>
</tr>
<tr>
<td>Alcohol education</td>
<td>0.0%</td>
<td>2.0%</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>GP referral</td>
<td>30.0%</td>
<td>1.74%</td>
<td>£33.45</td>
<td>£1,000.29</td>
</tr>
<tr>
<td>Alcohol education</td>
<td>0.0%</td>
<td>2.0%</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>GP referral</td>
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</tr>
<tr>
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<td>0.0%</td>
<td>2.0%</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>GP referral</td>
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<td>£33.45</td>
<td>£1,000.29</td>
</tr>
<tr>
<td>Alcohol education</td>
<td>0.0%</td>
<td>2.0%</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Total Alcohol education</td>
<td>0.0%</td>
<td>2.0%</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Benefit-Cost Analyses (Adults)

Location: Holby
Time Horizon: Total (50 years)

All costs savings and value of health gains included

Benefit-Cost Ratios

- Baseline/Curr Package: 580.21
- Baseline/Alt Package: 582.23
- Alt Package: 605.89

Select your time horizon: Total (50) years

Assumption of effect: Average

Value of a QALY: £20,000.00
Following the previous example, we present a selection of results. As shown in Image 29, both Packages A and B generate cost savings relative to the Baseline. Also the alternate package is more cost-saving than the current package. However cost savings need to be compared with the cost of the packages to decide whether they are value for money. Image 30 shows the benefit-cost ratios:

- Every £1 invested in the Current package generates £583.92 in return.
- Every £1 invested in the Alternate package generates £592.23 in return.
- Every £1 invested in the Alternate package generates £640.20 more than the Current package.

**Image 29**
Resetting the tool

There are two reset buttons in the tool. The reset in the results pane only resets the tool back to the Current package options. If you return to the inputs stage and use the reset button here it resets Current package back to zero.
5.0 Outputs of the tool

The results of the analysis can be downloaded to a report (MS Word) and a detailed data dashboard (MS Excel) for the user to retain for their records.

Word report

The report is generated for the selected local area, and is split for Adults and Children. The report provides a high level overview of the:

- Context of the population, in terms of size and levels of drinking and employment
- Current investment in alcohol use interventions (Current package)
- Change in investment in alcohol use interventions (Alternate package)
- ROI for the current package of interventions versus baseline
- ROI for the alternate package of interventions versus baseline
- ROI for the alternate package of interventions versus the current package
- Interpretation of the ROI metrics for the two packages of interventions

To generate the report after running the analysis in the tool, click the “Get Top Level Report (MS Word)” button at the bottom of the Results overview screen (Image 31). A message will appear informing the user that report has been saved and is ready for viewing (Image 32). Click “Yes” to open the report in MS Word. The tool will automatically create a folder called “Headline reports”, which will be saved in the same location as the tool itself. Reports that are generated will be saved in this folder. Image 33 provides an extract of the report from the example scenario previously described in Section 4.1.
Estimating Return on Investment for interventions and strategies to prevent and reduce alcohol use - User Guide
Estimating Return on Investment for interventions and strategies to prevent and reduce alcohol use - User Guide

### Return on Investment tool for alcohol use v1.0

**Headline Figures**

**Hackney**

Model run on 26-Nov-2013 at 14:52

**About this report**

This report is based on your recent run of the NICE Alcohol Use ROI tool v1.0. You selected a population for which you wanted to analyse the return on investment (ROI) of your chosen package of Alcohol Use interventions. Using the figures included in this report, you will be able to answer the following questions:

1. The extent of alcohol use in your local area.
2. How much is currently spent on interventions to reduce alcohol use?
3. How much would need to be spent for a ‘desired’ package of interventions?
4. What are the benefits of different packages of interventions?
5. What is the ROI of your desired package of interventions compared with no provision and current provision?
6. What are the ROI to different sectors of the economy? For example, to what extent can the productivity gains made pay for the investment?

Section 1 focuses on the adult population (18+ years) and Section 2 relates to the child population (10-17 years). The interventions available to be included in the package are:

- **General Interventions for Adults**
  - Screening and brief intervention at next GP app.
  - Screening and brief intervention at next GP reg.
  - Screening and brief intervention at next A&E visit.
  - 50p minimum price per unit of alcohol.
  - £10 increase in licensing hours.
  - £10 increase in outlet density.
  - 10% reduction in outlet density.
  - 10% reduction in licensing hours.
  - Total ban of advertising.

- **Alcohol Treatment Interventions for Adults**
  - Acute alcohol withdrawal: direct access.
  - Acute alcohol withdrawal: hybrid.
  - Inpatient/Outpatient.
  - Inpatient/Outpatient.
  - Alcohol treatment family therapy.
  - Cognitive skills training.
  - Behavioural self-control therapy.
  - eCBT (electronic cognitive behavioural therapy).
  - Acamprosate to support relapse prevention.
  - Naltrexone to support relapse prevention.

- **General Interventions for Children**
  - Targeted Brief Intervention with school nurse.
  - Alcohol Education School curriculum.

To change the Alternate package and generate a new report with the updated figures, reset all the interventions to the default values (Current package values) by clicking the reset button in the Interventions Overview screen, highlighted in Image 34. When the values have been reset, create your new package and then follow the steps to generate the report, as outlined previously.

Image 34
Data dashboard

The data dashboard output allows users to export the package of interventions (A and B) that they have created in the tool and save them for future use. The dashboard removes the need for the user to run scenarios again if they close the tool as well as having a functionality to append new packages to the output for comparison against other packages already contained in the output.

The dashboard allows users to:

- Choose a set of packages to compare from a list of packages appended to the output
- Set the time horizon and assumption of effect for dashboard analysis
- Choose the perspective of the analysis for the following metrics:
  - Avoidable burden of disease
  - Incremental cost-effectiveness ratio (ICER)
  - Net present value (NPV)
  - Benefit cost ratio

Contained within the output are tabs for each appended package, which gives an overview of the details of the package. The following parameters are detailed in the overview:

- Population breakdown of the chosen local area
- Higher and increasing drinking rates
- Allocation, effect and cost of each intervention included in the package.

To generate the detailed data dashboard after running the analysis in the tool, at the bottom of the Results overview screen, click the “Get Detailed Data Dashboard (MS Excel)” button (Image 35), which will bring up the dashboard (Image 36).

To append a new package to the dashboard, go back to the tool and change the details of the Alternate package in the Interventions Overview screen and click the “Get Detailed Data Dashboard (MS Excel)” button (Image 35). A warning message will appear (Image 37) asking if the user wants to append the new package to the existing data dashboard. Click the “Yes” button to add the intervention to the current dashboard.
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In the first tab of the data dashboard (Metric dashboard), cells highlighted in yellow contain drop down menus which allow the user to customise the dashboard and perform their own analysis on the packages contained in the dashboard. Users can choose which packages to compare by using the drop down menus indicated in Image 38.

An overview of the packages contained in the dashboard can be found in the tabs next to the metric dashboard tab (Image 39 and Image 40).
The naming convention for packages in the data dashboard uses numbers rather than letters (as in the tool). For example Current package in the tool will refer to Package 1 in the data dashboard. The reason for the change in convention is to allow more than 26 packages to be added to the tool.
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Image 39

NICE ROI Tool for Alcohol Use
Metric Dashboard (Adult data only)

Avoidable Burden of Disease
- GALYs gained
  - Package 1 vs Baseline: 9.691
  - Package 2 vs Baseline: 21.249
  - Package 1 vs Package 2: 11.677

Incremental Cost-Effectiveness Ratio (ICER)
- All cost savings included
  - Package 1 vs Baseline
  - Package 2 vs Baseline
  - Package 1 vs Package 2

Net Present Value (NPV)
- Only crime cost savings included
  - Package 1 vs Baseline: £1,020,110
  - Package 2 vs Baseline: £3,543,024
  - Package 1 vs Package 2: £2,523,114

Benefit-Cost Analysis (BCA)
- All cost savings and value of health gains included
  - Package 1 vs Baseline
  - Package 2 vs Baseline
  - Package 1 vs Package 2

Time horizon: 50 years
Assumption of effect: Average

Benchmark: Package 1
Comparator: Package 2

Package 1 dominates Baseline
Package 2 dominates Baseline
Package 2 dominates Package 1

Matrix
Image 40 provides an example of a comparison of Package 1 against Package 2, for:

- A time horizon of 10 years
- An average assumption of effect
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- An quasi-societal perspective (all costs and benefits)

![Image of NICE ROI Tool for Alcohol Use](image-url)
6.0 Appendices

6.1 Appendix 1: References


NICE (2011) Alcohol dependence and harmful alcohol use. Clinical Guidance 115


6.2 Appendix 2: Glossary of terms

**Higher risk Alcohol Use** – defined as increasing and high risk levels of drinking (over 22 units per week for men and 15 units per week for women).

**Dependent population** – The alcohol dependent population is derived from the General Household Survey 2010 levels of people drinking above 50 units per week for men and 35 units per week for women, and adjusted for each local authority using the higher and increasing drinking population data.

**Benefit-Cost Ratio** – an indicator used in the formal discipline of cost-benefit analysis which attempts to summarise the overall value for money of a project.
**Burden of Disease** – the impact of a health problem in an area measured by financial cost, mortality, morbidity, or other indicators. It is often quantified in terms of QALYs, which combine the burden due to both death and morbidity into one index.

**Discount Rate** – The rate, per year, at which future values are diminished to make them comparable to values in the present.

**Health Inequalities** – inequalities in respect of life expectancy or general state of health which are wholly or partly a result of differences in respect of general health determinants.

**Incremental Cost-Effectiveness Ratio (ICER)** – difference in the expected cost of two interventions, divided by the difference in the expected effect produced by the two interventions.

**Net Present Value (NPV)** – The present value of an investment's future net benefits minus the initial investment.

**Productivity Gains** – The impact of an intervention on the productivity / income of those receiving the intervention.

**Quality Adjusted Life Year (QALY)** – a measure of disease burden, including both the quality and the quantity of life lived. It is used in assessing the value for money of health interventions.

**Return on Investment (ROI)** – A general term encompassing the techniques for comparing the costs and benefits generated by an investment.
### 6.3 Appendix 3: Definition of the ROI metrics in the tool

<table>
<thead>
<tr>
<th>Metric</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoidable burden of disease (QALYs)</td>
<td>The product of the number of QALYs gained per person and the population benefited from the package. This provides an indication of the scale of the health problem that can be resolved by the package.</td>
</tr>
<tr>
<td>Benefit-Cost Ratio (including all cost savings and value of health gains)</td>
<td>The sum of all cost savings and value of health gains (monetary value of QALY multiplied by the number of QALYs gained) divided by the cost of the package. A value greater than 1 indicates that the benefits of the package exceed its costs.</td>
</tr>
<tr>
<td>Benefit-Cost Ratio (including all cost savings)</td>
<td>The sum of all cost savings divided by the cost of the package. A value greater than 1 indicates that the benefits of the package exceed its costs.</td>
</tr>
<tr>
<td>Benefit-Cost Ratio (including only health care cost savings and value of health gains)</td>
<td>The health care cost savings and value of health gains (monetary value of QALY multiplied by the number of QALYs gained) divided by the cost of the package. A value greater than 1 indicates that the benefits of the package exceed its costs.</td>
</tr>
<tr>
<td>Benefit-Cost Ratio (including only health care cost savings)</td>
<td>The health care cost savings divided by the cost of the package. A value greater than 1 indicates that the benefits of the package exceed its costs.</td>
</tr>
<tr>
<td>Benefit-Cost Ratio (including only crime cost savings)</td>
<td>The crime cost savings divided by the cost of the package. A value greater than 1 indicates that the benefits of the package exceed its costs.</td>
</tr>
<tr>
<td>Benefit-Cost Ratio (including only productivity cost savings)</td>
<td>The productivity cost savings divided by the cost of the package. A value greater than 1 indicates that the benefits of the package exceed its costs.</td>
</tr>
<tr>
<td>Benefit-Cost Ratio (including only education benefits)</td>
<td>The education benefits divided by the cost of the package. A value greater than 1 indicates that the benefits of the package exceed its costs.</td>
</tr>
</tbody>
</table>
| ICER (including all cost savings savings) | The incremental cost of the package minus the sum of all cost savings divided by the number of QALYs gained. The ICER can be either:  
- A positive number.  
- Dominant: if cost of the package minus the sum of all cost savings<0 and QALYs gained>0.  
- Dominated: if cost of the package minus the sum of all cost savings>0 and QALYs gained<0.  
- Dominated if cost of the package minus the sum of all cost savings<0, QALYs gained<0, and value of QALYs<cost of the package minus the sum of all cost saving. |
<table>
<thead>
<tr>
<th>Metric</th>
<th>Description</th>
</tr>
</thead>
</table>
| ICER (including only health care cost savings) | The incremental cost of the package minus the health care cost savings divided by the number of QALYs gained. The ICER can be either:  
- A positive number.  
- Dominant: if cost of the package minus health care cost savings < 0 and QALYs gained > 0.  
- Dominated: if cost of the package minus health care cost savings > 0 and QALYs gained < 0.  
- Dominated if cost of the package minus the health care cost savings < 0, QALYs gained < 0, and value of QALYs < cost of the package minus the sum of all cost saving. |
| NPV (including all cost savings and value of health gains) | The sum of all cost savings and value of health gains (monetary value of QALY multiplied by the number of QALYs gained) minus the cost of the package. A positive value indicates that the value of the benefits of the package exceed its costs. |
| NPV (including all cost savings) | The sum of all cost savings minus the cost of the package. A positive value indicates that the value of the benefits of the package exceed its costs. |
| NPV (including only health care cost savings and value of health gains) | The health care cost savings and value of health gains (monetary value of QALY multiplied by the number of QALYs gained) minus the cost of the package. A positive value indicates that the value of the benefits of the package exceed its costs. |
| NPV (including only health care cost savings) | The health care cost savings minus the cost of the package. A positive value indicates that the value of the benefits of the package exceed its costs. |
| NPV (including only crime cost savings) | The crime cost savings minus the cost of the package. A positive value indicates that the value of the benefits of the package exceed its costs. |
| NPV (including only productivity cost savings) | The productivity cost savings minus the cost of the package. A positive value indicates that the value of the benefits of the package exceed its costs. |
| NPV (including only education benefits) | The education benefits minus the cost of the package. A positive value indicates that the value of the benefits of the package exceed its costs. |
6.4 Appendix 4: Interventions included in the tool

<table>
<thead>
<tr>
<th>Intervention type</th>
<th>Intervention</th>
<th>Description</th>
<th>% decrease in number of people who use alcohol</th>
<th>Unit cost (£2013)</th>
<th>Population associated with intervention</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advertising</td>
<td>Increase in health message advertising</td>
<td>An intervention to increase the number of positive message health adverts (i.e. advertising that encourages healthy behaviour or highlights the negative sides of drinking to 1/6(^{th}) of all advertising.</td>
<td>0.13%</td>
<td>£0.45</td>
<td>General Pop 18+</td>
<td>NICE (2010) Alcohol-use disorders: preventing harmful drinking. Public health guidance 24.</td>
</tr>
<tr>
<td>Advertising</td>
<td>Ban of alcohol television advertising to under 18 years olds</td>
<td>An intervention banning alcohol advertising on television during the hours children may be watching</td>
<td>0.02%</td>
<td>£0.27</td>
<td>General Population 10-17yrs</td>
<td>NICE (2010) Alcohol-use disorders: preventing harmful drinking. Public health guidance 24.</td>
</tr>
<tr>
<td>Intervention type</td>
<td>Intervention</td>
<td>Description</td>
<td>% decrease in number of people who use alcohol</td>
<td>Unit cost (£2013)</td>
<td>Population associated with intervention</td>
<td>Source</td>
</tr>
<tr>
<td>-------------------------------------------</td>
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</tr>
<tr>
<td>Alcohol Specific - Inpatient detoxification</td>
<td>Acute alcohol withdrawal – direct access/inpatient detoxification</td>
<td>A 10 day direct access detoxification service that can be accessed by people without a referral. Staffed by mental health nurses with GP support.</td>
<td>3%</td>
<td>£1,500</td>
<td>Needing treatment pop (Adult)</td>
<td>NICE (2011) Alcohol dependence and harmful alcohol use. Clinical Guidance 115 / Parrott et al (2005)</td>
</tr>
<tr>
<td>Alcohol Specific - Structured Day Programme</td>
<td>Acute alcohol withdrawal – hybrid inpatient/outpatient</td>
<td>3-day inpatient detoxification, if required, then an outpatient day programme for 30 days.</td>
<td>4%</td>
<td>£2,820</td>
<td>Needing treatment pop (Adult)</td>
<td>NICE (2011) Alcohol dependence and harmful alcohol use. Clinical Guidance 115 / Parrott et al (2005)</td>
</tr>
<tr>
<td>Availability</td>
<td>10% reduction in licenced hours</td>
<td>An intervention reducing the number of hours per day licenced premises (i.e. pubs, bars and restaurants) can sell alcohol legally</td>
<td>0.20%</td>
<td>£0.27</td>
<td>General Pop 18+</td>
<td>NICE (2010) Alcohol-use disorders: preventing harmful drinking. Public health guidance 24.</td>
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</tr>
<tr>
<td>Availability</td>
<td>10% reduction in outlet density</td>
<td>An intervention reducing the number of retail outlets that sell alcohol off-licence (i.e. not pubs, bars or restaurants) in an area by 10%.</td>
<td>0.21%</td>
<td>£0.32</td>
<td>General Pop 18+</td>
<td>NICE (2010) Alcohol-use disorders: preventing harmful drinking. Public health guidance 24.</td>
</tr>
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</tr>
<tr>
<td>Pricing</td>
<td>50p minimum price per unit of alcohol</td>
<td>An intervention enforcing a 50p minimum price per unit of alcohol in off-licence outlets selling alcohol.</td>
<td>0.4%</td>
<td>£0.00</td>
<td>General Pop 18+</td>
<td>NICE (2010) Alcohol-use disorders: preventing harmful drinking. Public health guidance 24.</td>
</tr>
<tr>
<td>Pricing</td>
<td>Ban promotions of more than &gt;20% price discount</td>
<td>An intervention banning promotions that offer a discount of over 20% of the price per unit of alcohol in retail outlets (i.e. supermarkets, off-licences and corner shops).</td>
<td>0.05%</td>
<td>£0.00</td>
<td>General Pop 18+</td>
<td>NICE (2010) Alcohol-use disorders: preventing harmful drinking. Public health guidance 24.</td>
</tr>
</tbody>
</table>
## Estimating Return on Investment for interventions and strategies to prevent and reduce alcohol use - User Guide

<table>
<thead>
<tr>
<th>Intervention type</th>
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<th>Unit cost (£2013)</th>
<th>Population associated with intervention</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol Specific - Structured Psychosocial</td>
<td>Coping/social skills training</td>
<td>4-10 sessions over 4 weeks of coping/skills training to prevent relapse.</td>
<td>7%</td>
<td>£477.47</td>
<td>Needing treatment pop (Adult)</td>
<td>NICE (2011) Alcohol dependence and harmful alcohol use. Clinical Guidance 115 / Slattery et al (2003)</td>
</tr>
<tr>
<td>Alcohol Specific - Structured Psychosocial</td>
<td>eCBT</td>
<td>An e-therapy programme based on eCBT with active therapeutic involvement</td>
<td>12%</td>
<td>£75</td>
<td>Needing treatment pop (Adult)</td>
<td>Postel et al (2010)/ Breaking Free Online (2012)</td>
</tr>
<tr>
<td>Alcohol Specific - Structured Psychosocial</td>
<td>Marital/Family therapy</td>
<td>Psychosocial treatment of alcohol abuse where BCT treatment is given to the patient and their spouse or family member to prevent relapse.</td>
<td>8%</td>
<td>£477.47</td>
<td>Needing treatment pop (Adult)</td>
<td>NICE (2011) Alcohol dependence and harmful alcohol use. Clinical Guidance 115 / Slattery et al (2003)</td>
</tr>
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</tr>
<tr>
<td>Alcohol Specific - Structured Psychosocial</td>
<td>Motivational interviewing</td>
<td>3-10 sessions over 3 weeks of motivational interviewing to prevent relapse. Evidence found it was best used as an enhancement to a more intensive substance abuse treatment.</td>
<td>7%</td>
<td>£477.47</td>
<td>Needing treatment pop (Adult)</td>
<td>NICE (2011) Alcohol dependence and harmful alcohol use. Clinical Guidance 115 / Slattery et al (2003)</td>
</tr>
<tr>
<td>Screening and Brief interventions</td>
<td>Brief intervention with family support</td>
<td>Referral for targeted brief intervention with a school nurse and intervention with families to reduce alcohol consumption in children aged 10-15.</td>
<td>4.00%</td>
<td>£22.58</td>
<td>General Pop 18+</td>
<td>NICE (2007) School-based interventions on alcohol. Public health guidance 7.</td>
</tr>
</tbody>
</table>
## Estimating Return on Investment for interventions and strategies to prevent and reduce alcohol use

### User Guide

<table>
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<tr>
<td>interventions</td>
<td></td>
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</tr>
<tr>
<td>Screening and Brief</td>
<td>Screening and Brief intervention at next GP registration</td>
<td>5 minute brief advice with GP as part of the registration process when next moving.</td>
<td>2%</td>
<td>£15.13</td>
<td>General Pop 18+</td>
<td>NICE (2010) Alcohol-use disorders: preventing harmful drinking. Public health guidance 24 / Foxcroft et al (2007)</td>
</tr>
<tr>
<td>interventions</td>
<td></td>
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</tbody>
</table>

²³ The effect sizes for screening and brief interventions are given in NICE Guidance PH24 as 12.3% reduction in number of units drunk, rather the number of people reducing their drinking. This has been converted into the number of people moving below the higher and increasing drinking threshold.
6.5 Appendix 4: Converting effect sizes for custom interventions

We are aware that the tool uses a measure of alcohol reduction that is not necessarily the measurement that is used in the datasets available to local commissioners. Below is an outline of how to calculate effect sizes which can be used when building custom interventions.

The tool uses a measure of the number of people reducing their alcohol consumption below a threshold level of drinking, which in the model is 19 units per week (an average of the male and female thresholds).

The first step is to convert the measure into units per week if necessary. The following conversion table shows the relationship between units, grams and drinks.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Equivalent to 1 unit</th>
<th>Low threshold</th>
<th>Dependent threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit</td>
<td>1</td>
<td>19</td>
<td>43</td>
</tr>
<tr>
<td>Grams of ethanol</td>
<td>7.9</td>
<td>146</td>
<td>336</td>
</tr>
<tr>
<td>Volume of ethanol</td>
<td>10</td>
<td>185</td>
<td>425</td>
</tr>
<tr>
<td>Drink (average drink assumed to be pint of strong beer, large glass of wine or double spirit)</td>
<td>0.33</td>
<td>6.33</td>
<td>14.33</td>
</tr>
</tbody>
</table>

The second step involves using the accompanying effect size calculator. The calculator requires both mean and standard deviation data in order to calculate an effect size. The calculation estimates the number of people in the population that will move their alcohol use below the threshold using the normal distribution function to extrapolate what the impact across the whole population would be.

Example

If an intervention on a sample of people reports that the mean reduction in units was 20 units per week, from a mean baseline of 50 units. The people in the control arm reduced their drinking by only 3 units from a baseline of 48 units.

However, there was significant variation in both these results. While the mean reduction in the intervention group was 20 units, the standard deviation was 25 units at baseline and 50 units after in the intervention and 30 units before and 20 units after in the control.

Using this information we can then estimate the impact of the effect of the intervention on the whole population using the normal distribution function. The normal distribution plots the values of the mean and the standard deviation on a curve, taking into an account a threshold. In this case it would be 19 units per week. So the effect size of this intervention would be a 2.45 percentage point reduction in the level of drinking.

This effect size is then ready to use in the tool, and represents the absolute percentage point reduction in the number of people drinking above the higher and increasing drinking threshold.
Therefore, if the effect size is 2.45%, as in example calculation above and your percentage of drinkers was 25%, after the intervention the percentage of drinkers would be 22.55%.

6.6 Appendix 6: Additional information

Accessing the tool

The tool shall be freely available on the NICE website.

Version control

Note that some of the tool inputs are time limited (e.g. population statistics) and may be updated when new data becomes available. As such, it is the user’s responsibility to ensure that they are using the latest version of the tool. All versions made available for download will be clearly marked with a version number.

Referencing the tool

Any analysis based on this tool needs to be acknowledge the use of this tool as follows: “This analysis is based on NICE Return on Investment Tool for Alcohol Use, version 1” and include the citation as:


Project team


Lelan Ltd. – Adam Lester-George

Spiby Health – Jackie Spiby

NICE Steering Group – Lesley Owen, Rachel Kettle, Suzi Peden, Victoria Axe, Simon Ellis, Antony Morgan.

Disclaimer information

NICE has provided this tool to aid decision-making. NICE cannot be held liable for any investment or other decisions that are made using information and results obtained from this tool. Implementation of NICE guidance is the responsibility of local commissioners and/or providers. Commissioners and providers are reminded that it is their responsibility to implement NICE guidance, in their local context, in light of their duties to avoid unlawful discrimination and to have regard for promoting equality of opportunity. Nothing in this tool should be interpreted in a way that would be inconsistent with compliance with those duties.

Acknowledgements

Matrix would like to thank all the individuals who contributed comments during the development of the tool.

Request to users

This tool may be subject to continuous improvement. If any problem is encountered or inconsistency is found, please report it to NICE by emailing nice@nice.org.uk