alcohol
health alliance uk

Alcohol and cancer

March 2013

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Alcohol Health Alliance UK

The Alcohol Health Alliance (AHA) UK brings together thirty organisations whose mission is to reduce the damage caused to health by alcohol misuse. Members include medical bodies, charities and alcohol health campaigners. AHA UK works together to:

- highlight the rising levels of alcohol-related health harm
- propose evidence-based solutions to reduce this harm
- influence decision makers to take positive action to address the damage caused by alcohol misuse.

For more information about the AHA UK, and a full list of its members, see: www.rcp.ac/aha

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Introduction

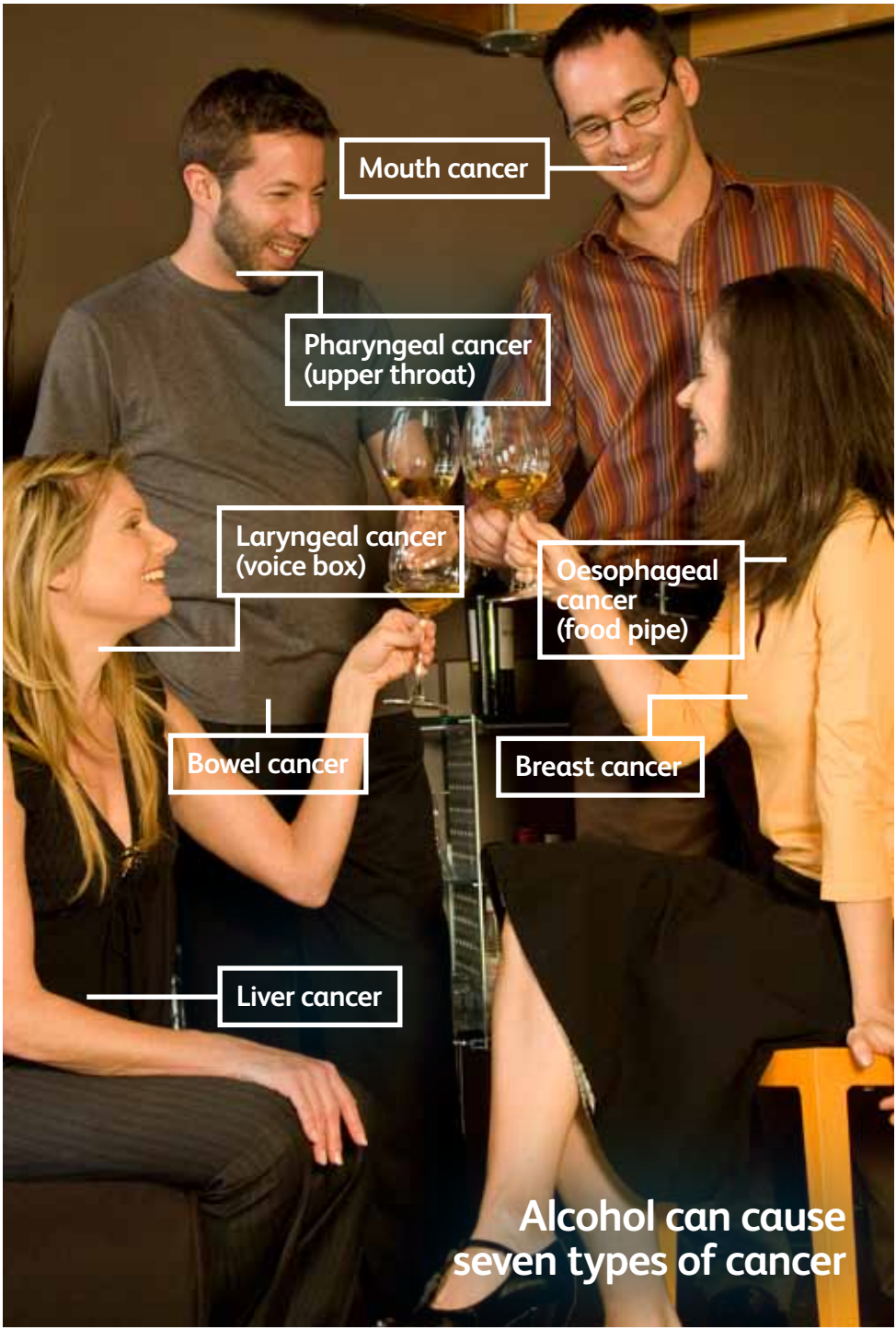
Alcohol is one of the most important preventable causes of cancer in the UK. The more a person drinks overall the higher their risk of developing cancer, yet even drinking within current guidelines can increase the risk for certain cancers. There is no level of drinking that can be considered 'safe' from the risk of cancer.

Despite these risks, the UK population continues to drink substantially more than we did 50 years ago. The solution is clear – reducing how much people drink overall will reduce their risk of cancer.

This report draws on the latest research to explain the relationship between alcohol and cancer and why this is a problem that the UK needs to tackle now. It calls for the implementation of key strategies to lower the amount the UK population drinks as a whole and to support those who drink excessively to cut down.

The numbers:

7	types of cancer can be caused by alcohol.
28%	more hospital admissions for alcohol-related cancer in England in 2010/11 than in 2002/03.
91%	more alcohol was consumed per person in 2010 than in 1960.
3,200	people die from alcohol-related cancer in England each year.
12,500	people are diagnosed with alcohol-related cancer each year.


Mouth cancer
Pharyngeal cancer (upper throat)
Laryngeal cancer (voice box)
Oesophageal cancer (food pipe)
Bowel cancer
Breast cancer
Liver cancer
Alcohol can cause seven types of cancer

The relationship between alcohol and cancer

What is the evidence that drinking alcohol can cause cancer?

The evidence for alcohol as a risk factor for cancer has been well established by leading international research bodies for over 20 years.

The World Health Organization's International Agency for Research on Cancer (IARC) completed the first comprehensive review of the scientific evidence about alcohol as a risk factor for cancer in 1988. They concluded that alcoholic drinks are carcinogenic; that is, that they can cause cancer in humans.[1]

Two subsequent updates by the IARC[2,3] and separate comprehensive reviews by the World Cancer Research Fund and the American Institute for Cancer Research[4,5] have confirmed these findings. The evidence is clear that drinking alcohol causes cancers of the mouth, upper throat, voice box, food pipe, bowel, liver and breast.

These international reviews also concluded that that the risk of cancer was similar for all types of alcoholic drinks, because it is actually the alcohol (ethanol) itself that can cause cancer.[3,5]

How does alcohol cause cancer?

There are several ways in which alcohol can cause cancer, which vary for different types of cancer.

Alcohol has a wide range of complex effects on the body, some of which are likely to explain how it can cause cancer. The processes that are supported by good-quality evidence are as follows:

- Ethanol is converted into a chemical called acetaldehyde in the body, which causes cancer by damaging our cells' DNA.[3]
- Alcohol acts as a solvent that helps the body absorb other carcinogens, such as those found in tobacco.[6]
- Alcohol increases oestrogen levels in women, which can in turn increase the risk of breast cancer.[7]

Liver cancer without underlying liver disease is rare, indicating that the way in which alcohol causes cancer in the liver is related to the effects of the build-up of scar tissue in the liver over time.[8]

Is this only a problem for heavy drinkers?

No. The more alcohol a person drinks, the higher their risk of developing cancer, but there is no level of drinking that can be considered 'safe' from the risk of cancer.

Most research has looked at people's alcohol intake averaged out over time. So the reported risk of cancer relates to how much people drink in total, whether they tend to spread it out across the week or drink heavily on a small number of days ('binge' drinking).

A substantial body of research has looked at how the level of risk changes with different levels of drinking. The evidence for the relationship between risk levels and different amounts of alcohol is very strong, although differences in the way studies are conducted can mean they find slightly different values. So rather than singling out particular studies, the most compelling evidence comes from studies that combine results from a wide range of research to find what the balance of evidence shows.

For example, one review of over 200 studies investigated how the level of risk varies for different types of cancer and different levels of drinking (see Fig 1, opposite). It showed that someone who drinks around 44 units of alcohol a week has nearly three times the risk of developing mouth cancer and double the risk of cancer of the voice box, compared to someone who does not drink.[10] 44 units of alcohol equates to around five bottles of wine a week.

Although it is clear that the risks increase the more a person drinks, another recent review of more than 200 studies highlighted the increased risks associated with relatively low levels of drinking. It found that people who consumed up to an average of about 1.5 units (or one small drink) a day had increased risks of mouth and upper throat, food pipe and breast cancers.[11]

Researchers also agree that there is no level of drinking that can be considered 'safe' from the risk of cancer.[5]

What is a unit of alcohol?

In the UK, one unit = 10 ml or 8 g of pure alcohol. Typically:

Bottle of wine (12% ABV*) **9 units**

250 ml glass of wine **3 units**

175 ml glass of wine **2 units**

Pint of premium strength beer or cider (5%) **3 units**

Pint of regular strength beer or cider (3-4%) **2 units**

330 ml bottle of alcopop (5%) **1.5 units**

Single measure (25 ml) of spirits (40% ABV) **1 unit**

*The strength of alcoholic drink is always given as % ABV (alcohol by volume) on the label. This tells you the number of units /litre.

Graphics reproduced with permission from Cancer Research UK © 2010.[9]

Someone who drinks around 44 units of alcohol a week has nearly three times the risk of developing mouth cancer and double the risk of cancer of the voice box, compared to someone who does not drink at all.

Figure 1

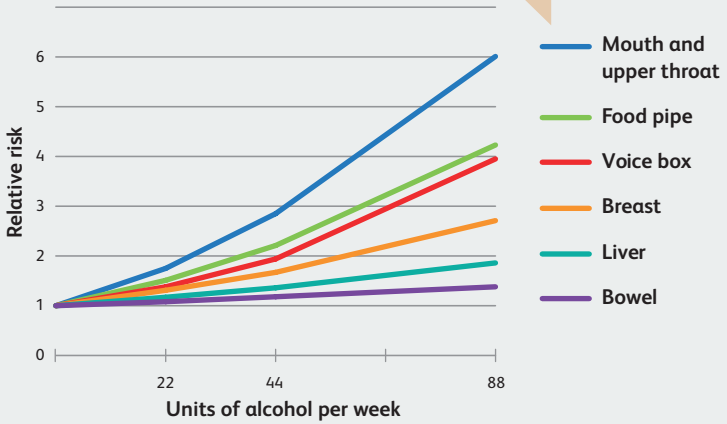


Fig 1. The risk of cancer increases with higher levels of drinking (adapted to units per week)[10]

What happens if you smoke as well as drink?

If you smoke as well as drink alcohol then you substantially increase your risk of cancer.

Drinking alcohol is a risk factor in itself, but when a person smokes as well as drinks, the two work in combination to greatly increase the risks of cancer, beyond simply adding the two risks together. Head and neck cancers (including throat, voice box and food pipe) are particularly affected by the combination of drinking and smoking.[12]

For example, a 2009 analysis of 18 studies estimated that people who both drink and smoke have almost six times the risk of developing head and neck cancers, compared to those who have never done either. It found that 72% of head and neck cancers were attributable to alcohol and tobacco. Alcohol use alone contributed to 4% of all cases, tobacco alone 33% and the combination of both habits 35%. The study also considered different levels of smoking and drinking and found that smokers who were also heavy drinkers had the highest risk of developing head and neck cancers.[13]

What if someone cuts down the amount of alcohol they drink?

People can significantly cut the risk of cancer by reducing the amount of alcohol they drink.

We know that people who drink less have lower levels of cancer risk, and, coupled with the evidence from those who have stopped drinking, it is clear that if someone reduces their current drinking levels they can reduce their risk of cancer.

Existing research has mainly focused on how the risk of cancer decreases when people stop drinking alcohol altogether. There is evidence that stopping drinking reduces the risk of cancer, particularly food pipe and other head and neck cancers. A person's risk of developing head and neck cancers has been found to reduce to around the same level as for someone who has never drunk alcohol after about 15–20 years.[14,15]

There remain limitations associated with research in this area. In particular, some of the cases in these studies may be patients who have stopped drinking for medical reasons and therefore are not representative of the general population.[15]

What about the health benefits of drinking alcohol?

Health benefits need to be considered in relation to the overall potential for harm. The capacity for alcohol to reduce deaths from cardiovascular disease does not outweigh the increased deaths from other causes at current UK drinking levels.

The relationship between alcohol and cardiovascular disease is complex. Recent evidence suggested that drinking up to 13 units of alcohol a week can reduce the risk of developing or dying from cardiovascular diseases such as heart disease.[16]

Effective ways to reduce the risk of heart disease

A person's risk of developing heart disease is determined by a range of genetic and lifestyle factors. However, there are a number of ways to effectively reduce a person's level of risk other than through drinking alcohol. These include:

- not smoking
- maintaining a healthy weight
- maintaining a healthy diet
- regular physical exercise.

These measures have the further benefit of decreasing the risk for other serious diseases including cancer.[17,18]

Figure 2

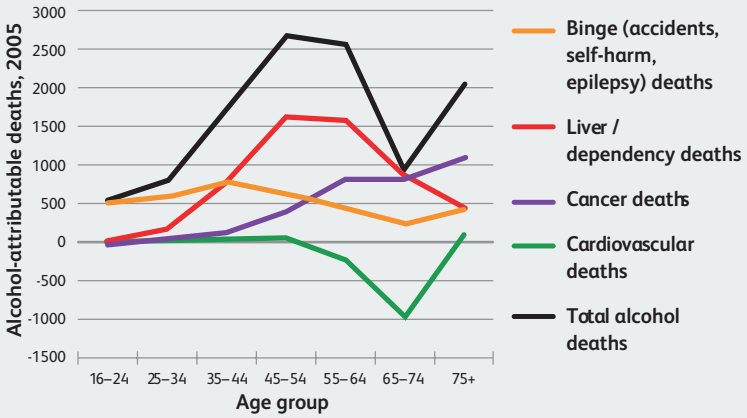


Fig 2. The overall deaths caused by alcohol far outweigh the number of deaths prevented. Data taken from the North West Public Health Observatory[19] and Office for National Statistics;[20] analysis by Dr Nick Sheron, Head of Clinical Hepatology, University of Southampton.

However, drinking more than that was linked to a higher risk of having or dying from a stroke.[16] The potential health benefits of alcohol also differ by age and sex due to the changes in the underlying rates of these diseases, and the positive effects are largely limited to those aged between 35 and 69.[21]

These potential benefits need to be assessed alongside the fact that drinking alcohol increases the risk of dying from conditions such as cancer or liver disease, as well as more immediate accidents and self-harm (Fig 2). A 2012 modeling study weighed up these potential benefits and risks and calculated that around 4,600 deaths could be avoided or delayed if the median alcohol consumption in England was reduced to around half a unit a day – which is well below current UK drinking levels.[22]

Alcohol-related cancer in the UK

How many people in the UK are affected?

Estimates suggest that each year 12,500 people are diagnosed with alcohol-related cancers in the UK, and that around 3,200 people die from these diseases.

A World Health Organization project estimated that 3.6% of all cancers diagnosed globally in 2002 were attributable to drinking alcohol. This equates to a total of 389,000 cases of cancer and 233,000 deaths worldwide.[23]

Locally, analysis estimated that 3,200 people in England died from alcohol-related cancer in 2005 – 21% of alcohol-attributable deaths in that year. While the number of cancer deaths attributable to alcohol generally increases with age, around four in ten alcohol-related cancer deaths occurred in people under the age of 65.[24]

A recent study estimated the number of cancer cases in the UK that could be attributed to alcohol. It found that around 4% of cancer cases in the UK can be attributed to drinking alcohol, making it one of the most important preventable causes of cancer in the UK after smoking. 4% equates to around 12,500 cases of cancer in the UK each year.[24] Findings from another recent study indicated that the number of alcohol-related cancer cases per year in the UK could be even higher.[25]

Because the level of risk from drinking varies by the type of cancer, a large proportion of cases of some cancers – particularly in the head and neck – can be attributed to alcohol consumption (Fig 3a).

Figure 3a

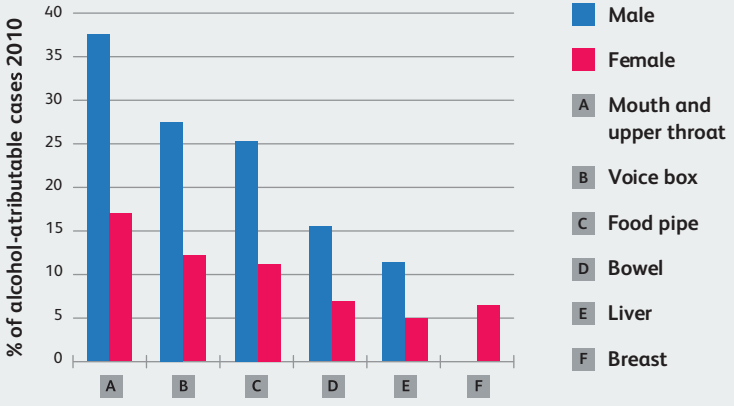
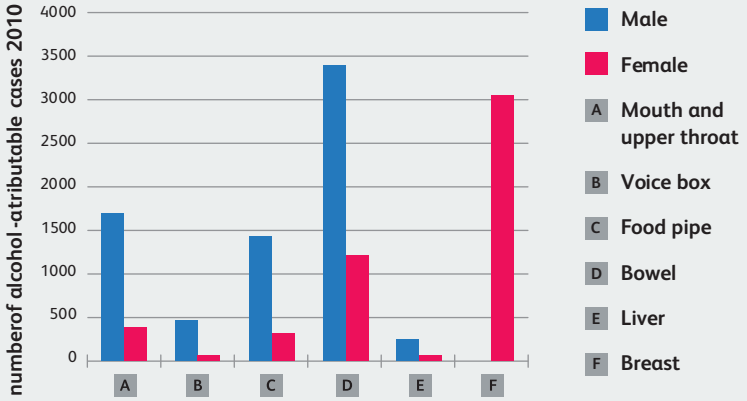


Figure 3b



Figs 3a (opposite) and 3b (above). (a) A high percentage of some cancers can be attributed to drinking alcohol[24] but (b) the number of cases in the UK is much higher for more common cancers.[24]

In comparison, the proportions of breast cancer and bowel cancer cases attributable to alcohol are relatively lower, but because these cancers are much more common the total number of people who are affected is much higher. Around 7,700 cases of breast and bowel cancers in the UK in 2010 were linked to drinking alcohol (Fig 3b).[24]

The impact of the growth in consumption on alcohol-related cancer can be seen in hospital admissions. Data for England show that the number of admissions to hospital for alcohol-related cancer increased by 28%, from 29,400 in 2002/03 to 37,600 in 2010/11. This is more admissions than those attributed to alcohol-related violence and transport accidents *combined* for that year.[26]

... the number of admissions to hospital for alcohol-related cancer increased by 28%, from 29,400 in 2002/03 to 37,600 in 2010/11.

Do UK drinkers know about the risks?

Surveys show large proportions of people in the UK do not know that alcohol can cause cancer.

A 2010 survey in the UK found that while nine in ten people surveyed agreed that drinking alcohol can increase the risk of liver disease, only six in ten agreed that it is a risk factor for cancer (Fig 4).

Figure 4

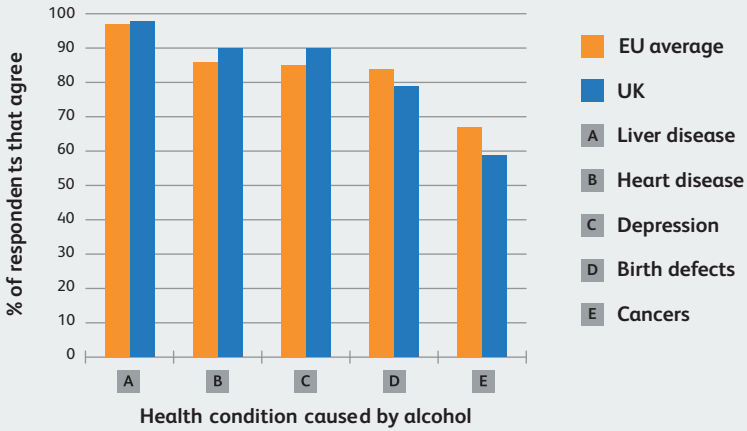


Fig 4. Proportion of people who agree that alcohol can cause various health conditions.[27]

Separate surveys indicate that alcohol ranks lower than other lifestyle factors, such as smoking and getting sunburnt.[28,29] In a survey of 4,000 people in Great Britain, 33% of respondents identified drinking alcohol frequently as a risk factor, compared to smoking (90%) and getting sunburnt (73%). Respondents were just as likely to identify stress as a factor as they were alcohol, despite there being only limited evidence to support stress as a cancer risk factor.[29]

Given the cancer risks, are people in the UK drinking less?

People in the UK are drinking much more than they were fifty years ago, and many people continue to regularly drink above guideline levels.

Alcohol consumption per head in the UK increased by 91% between 1960 and 2010.[30] This is in contrast to the recent trend for Organization for Economic Cooperation and Development (OECD) countries on average (Fig 5).[31,32]

The past 20 years have also seen a consistent rise in the level of abstainers from alcohol, from 10% in 1998 to 15% in 2009.[33] As a result, the current data showing consumption per adult over this period underestimate the growth in consumption per drinker.[30]

Figure 5

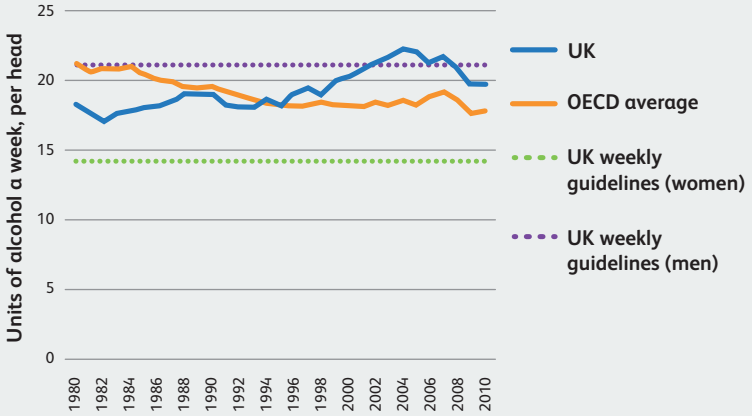


Fig 5. UK and worldwide alcohol consumption has changed since 1980.[31,32] Data based on litres of alcohol sold, per capita (aged 15+). NB: Data not available for all OECD countries for 2010.

In 2010, 26% of men and 17% of women reported drinking above the amounts recommended in UK guidelines in an average week. The survey also showed that excessive drinking is not just an issue for young people, with men and women aged between 45 and 64 reported higher levels of drinking on average in a week than any other age group.[34] It is well-acknowledged that self-reported data from surveys tend to underestimate true consumption levels, so the actual number of people drinking to excess is likely to be higher.[30]

What can be done?

Population-wide and individual interventions are needed to reduce the number of alcohol-related cancer cases and deaths in the UK.

It is clear that the long-term increase in drinking levels is putting a large proportion of the UK population at increased risk of cancer. This is resulting in a substantial number of people being diagnosed with, and dying from, avoidable cancers – despite the fact that the link between alcohol and cancer has been established for decades. Decisive action is required to reduce the UK population's overall level of drinking and ensure that individuals who are drinking excessively are supported to cut down.

Reduce population-level consumption

Strategies that focus on reducing alcohol consumption across the population are essential for reducing the risk of alcohol-related cancer at a population level. This creates an environment that supports lower-risk drinking and reduces the number of people who start drinking harmful or hazardous amounts in the first place.

Substantially reducing current drinking levels requires a comprehensive, evidence-based government strategy that implements three major policy recommendations from the National Institute for Health and Clinical Excellence (NICE):

- increase the real price of alcohol
- make alcohol less readily available for purchase
- restrict the marketing of alcohol products to children.[35]

Support individuals to reduce their drinking

The government must also ensure that NICE's recommendations on screening individuals to identify those who may require additional support, brief interventions, and referrals are fully implemented to support individual-level interventions.[35]

In addition, individuals who drink should be supported to:

- understand how their current level of drinking affects their risk of cancer
- drink within current weekly guidelines: this may include reducing both the amount they drink regularly and the number of days a week that they drink
- address other lifestyle factors that may be working with alcohol to increase their risk of cancer, such as smoking.

Current weekly drinking guidelines*

Women: no more than 14 units of alcohol per week.
Men: no more than 21 units of alcohol per week.

***The guidelines are to be reviewed by the government in 2013.**

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Alcohol Health Alliance UK

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