

**Alcohol and Digestive  
Cancers Across Europe:  
Time for Change**



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This report has been produced by UEG with support from a number of leading gastroenterology experts from across Europe, together with the European Association for the Study of the Liver (EASL), the Association of European Cancer Leagues (ECL), the European Liver Patients Association (ELPA), Pancreatic Cancer Europe (PCE), Europacolón and Eurocare (The European Alcohol Policy Alliance).

“

Europe is the region with the highest level of alcohol consumption in the world and, as a result, Europe bears the highest burden of ill health and premature death linked directly to alcohol.

To address this endemic matter, tackling the harmful use of alcohol should be a key priority for the European Union. Appropriate response has to be comprehensive, encompassing policies and interventions from alcohol taxation, availability and marketing regulations to good access to counselling and treatment.

We welcome and support involvement and contributions from medical and research communities in the alcohol policy debate. Evidence, brought forward in reports from organisations like United European Gastroenterology help the policy makers to acknowledge the priority of addressing harm related to alcohol and deliver improved health outcomes throughout Europe.

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**Dr Marris Jesse**  
Deputy Secretary General for Health  
Representative of the Estonian European Union (EU) Presidency

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## INTRODUCTION

United European Gastroenterology (UEG) is committed to raising political and public awareness of digestive health conditions. This involves encouragement of research to reduce the incidence and mortality rates of digestive diseases, informing policy makers to help drive digestive health strategies on an EU level and to improve patient outcomes throughout the continent.

It is commonly known that lifestyle factors have a significant impact on digestive diseases. Alcohol consumption, in particular, is a risk factor in over 60 types of diseases, with nearly 30% of deaths from gastrointestinal diseases directly attributed to alcohol.<sup>1</sup> Currently, the European region has the highest proportion of total ill health and premature death linked directly to alcohol consumption in the world.<sup>2</sup>

Alcohol consumption is also a known risk factor in many digestive cancers, including oesophageal, liver, pancreatic, colorectal and gastric cancer.

Canvassing the opinions of leading European digestive cancer specialists, stakeholder organisations and patient groups, this review highlights the scale of alcohol consumption across Europe, its direct and indirect impact on digestive cancers and the alarming lack of awareness of the link between alcohol and digestive cancers among members of the public and many healthcare professionals.

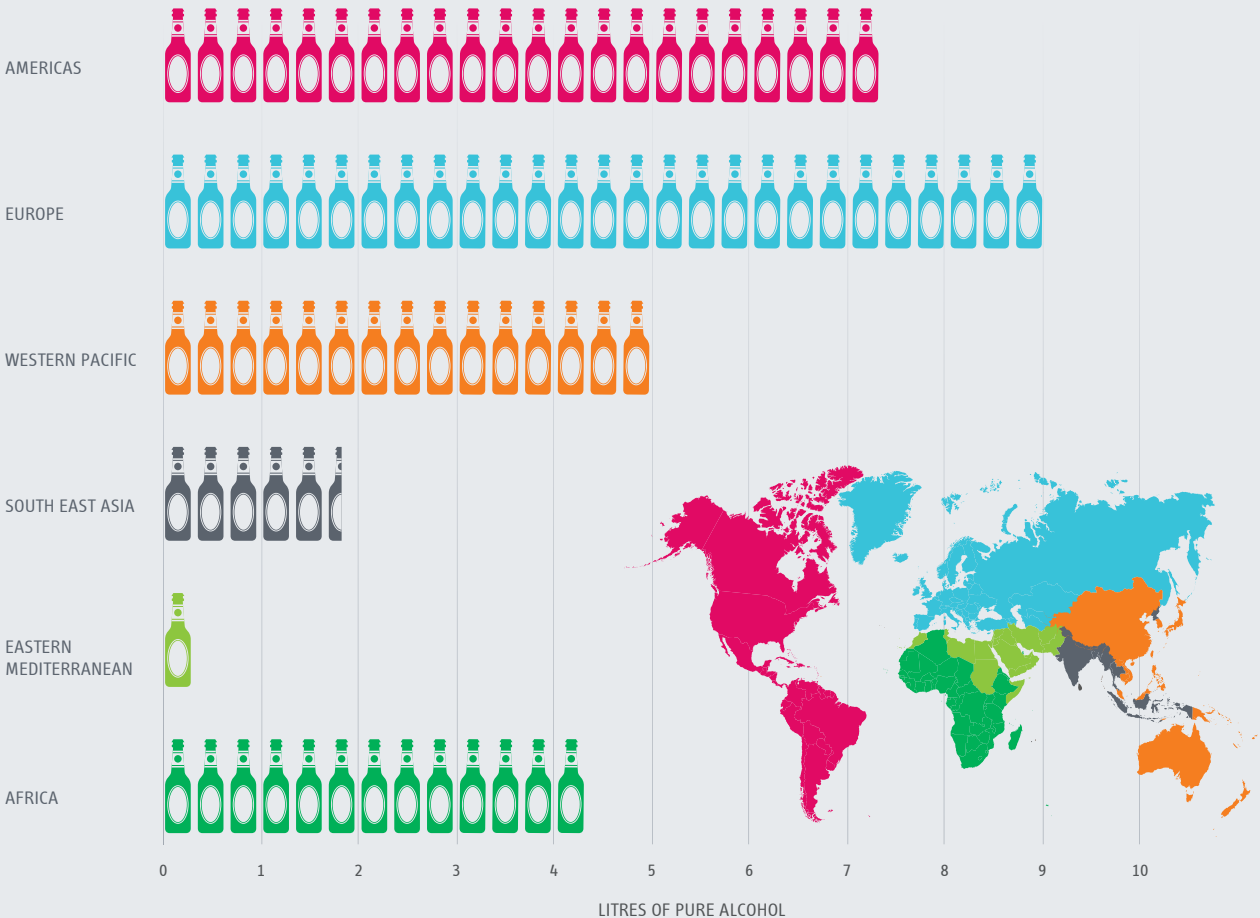
“

Despite attempts in Europe to tackle the impact of alcohol on health, the amount of alcohol consumed by EU countries is higher than the rest of the world and the incidence of many alcohol related digestive cancers is on the increase. It is, therefore, time for a change. We urgently require a focused multi-dimensional approach from policy and decision makers at both European and national levels to dramatically increase public and healthcare professional awareness of the dangers of alcohol, as well as to implement further strategies across the region to reduce alcohol intake and the resulting incidence of digestive cancers.

”

**Professor Michael Manns**  
UEG President 2015-2017

### Recorded alcohol consumption per capita<sup>3</sup>



## ALCOHOL & DIGESTIVE CANCERS

The link between alcohol and cancer has been well documented since the early 20th century. In particular, alcohol has been shown to cause cancer of the mouth, pharynx, larynx, oesophagus, liver and colon.<sup>4</sup>

The European Prospective Investigation into Cancer (EPIC Study), which assessed the impact of the amount, frequency and type of alcohol consumed, found that alcohol was responsible for about 57,600 cases of cancer of the upper digestive tract, colon and liver in men and 21,500 cases in women. For men, 57% of these cases related to those who regularly drank more than two alcoholic drinks a day, while for women, a staggering 80% of cases related to those who regularly drank more than just one alcoholic drink a day.<sup>5</sup>

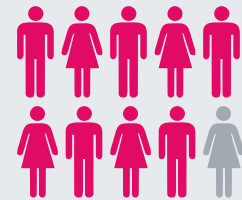
However, according to the European Alcohol Policy Alliance, Eurocare, millions of Europeans remain unaware of the risks of alcohol consumption, with 1 in 5 revealing that they do not believe there is a connection between alcohol and cancer.<sup>6</sup> In addition, a recent Cancer Research UK study showed as many as 9 in 10 people are unaware that alcohol increases the risk of cancer.<sup>7</sup>

“

Over one fifth of the European population aged 15 years and above are drinking heavily at least once a week. This approach to alcohol consumption, the lack of awareness and the complacency regarding the associated increased risk of digestive cancers, needs to be addressed urgently.

”

**Professor Stephan Haas**  
Center for Digestive Diseases, Karolinska  
University Hospital, Sweden



**9 IN 10 PEOPLE ARE  
UNAWARE THAT  
ALCOHOL INCREASES  
THE RISK OF  
CANCER<sup>7</sup>**



**ONE FIFTH OF THE  
EUROPEAN POPULATION  
AGED 15 AND ABOVE  
ARE DRINKING HEAVILY  
AT LEAST ONCE A WEEK<sup>2</sup>**



The science behind the European Code against Cancer leaves us in no doubt that consuming alcohol can cause at least 7 types of cancer. For this reason, the European Code advises people to limit their alcohol intake or, better still for reducing your cancer risk, avoid drinking alcohol altogether. Unfortunately, the link between alcohol consumption and cancer is not widely known and understood. Given the well-established science on this issue, it's imperative that policymakers support actions that will bring into clearer focus for citizens the increased cancer risk from drinking alcohol.



**Dr. Wendy Yared**  
Director, Association of European Cancer Leagues (ECL)



**THE RISK OF DYING FROM AN ALCOHOL-ATTRIBUTABLE CAUSE IS 7 TIMES HIGHER IN THE EASTERN EUROPEAN REGION THAN THE MEDITERRANEAN REGION<sup>2</sup>**

## ALCOHOL AND EUROPEAN CULTURE

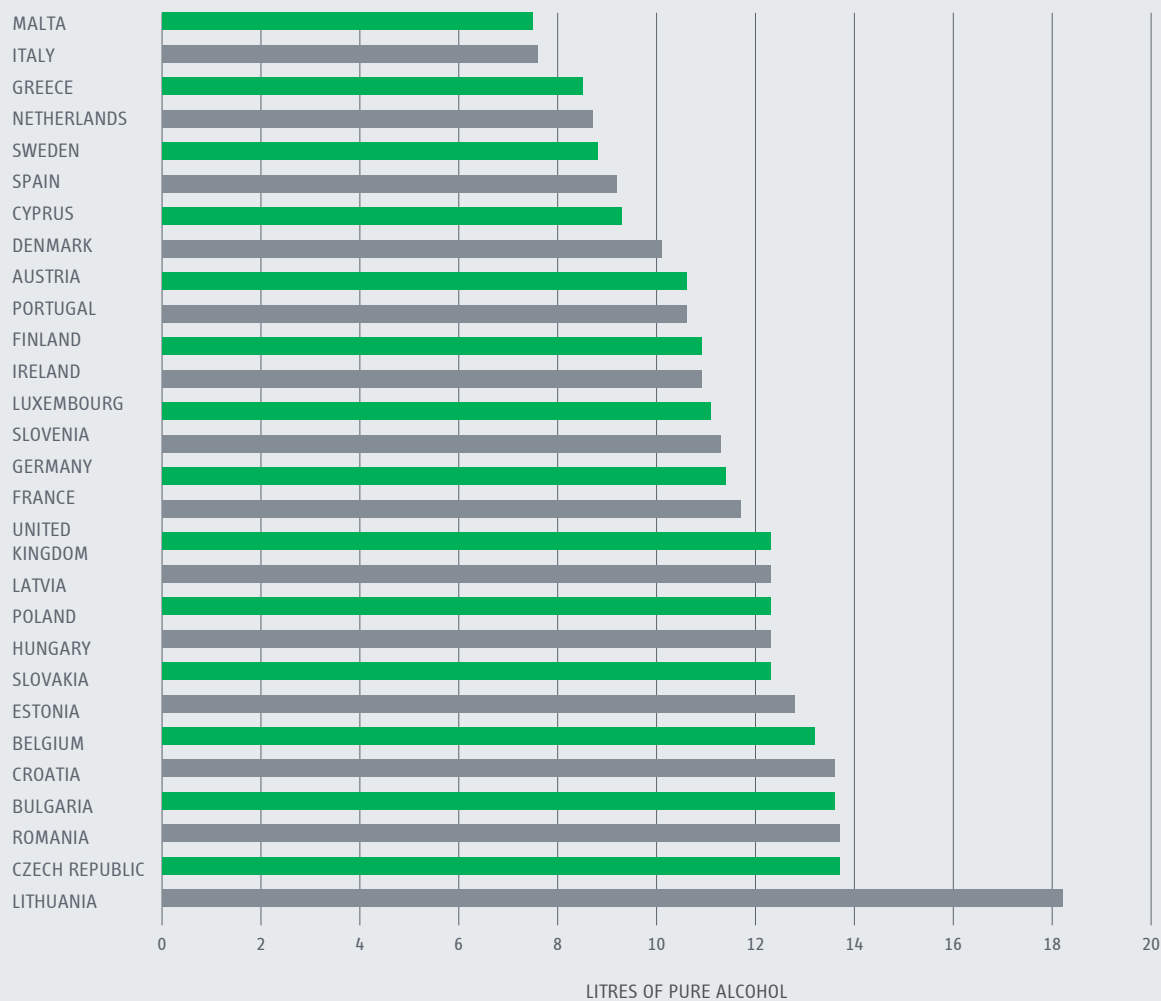
From the earliest recorded consumption of alcohol, drinking has been regarded as a social and celebratory activity. Therefore, the main challenge preventing successful actions aimed at addressing drinking levels across Europe is how deeply embedded alcohol consumption is within European society, both socially and culturally.

Alcohol consumption in Europe decreased in the 1990's, but has increased again in the last decade to stabilise at more than an average of 9 litres of pure alcohol per year per capita.<sup>8</sup> There is, however, considerable cross-cultural variation among European countries regarding alcohol consumption and this has an impact on cancer incidence rates. Professor Haas explains; "Unfortunately, the drinking pattern in some eastern EU countries favours high alcohol intake, such as vodka and schnapps and, due to the unsophisticated distillation processes in many of these countries,

these spirits may have a high methanol content which can be very toxic."

Evidence shows a direct correlation between drinking culture and higher cancer risk, with heavy episodic drinking being associated with a higher incidence of digestive cancers.<sup>9</sup> For example, the higher incidence of colorectal cancer in eastern Europe, compared to France and Italy, is thought to be as a result of heavy spirit drinking after work as opposed to the Mediterranean habit of consuming a moderate amount of wine as an accompaniment to a meal.

## Total alcohol per capita ( $\geq 15$ years of age) consumption, projected estimates, 2016<sup>10</sup>





“

The risk of cancer incidence rises exponentially with the amount of alcohol consumed. Drinking 3 times the recommended amount increases the risk of oesophageal cancer by 8 times. There is currently no known or established level of safe alcohol consumption when relating to cancer risk.

”

**Professor Stephan Haas**  
Digestive Cancer Expert, Karolinska  
University Hospital, Sweden

## ALCOHOL TYPE

Research into which type of alcoholic beverage has the most significant role in cancer risk remains inconclusive.

Although most studies do not report any variation in the risk of digestive cancers being increased by a particular type of alcohol,<sup>11</sup> it appears that the greatest risk derives from wine and to a lesser degree from beer and spirits.<sup>12</sup> This is likely to be as a result of consuming large quantities of cheap wine which can also contain other harmful ingredients. This has been evident with the recent dramatic reductions in liver disease and deaths as a result of a reduction in cheap table wine consumption in Mediterranean wine-drinking countries.<sup>13</sup>

However, this evidence is often contradicted by messaging that suggest that drinking red wine has positive health benefits, when in fact any level of alcohol consumption increases the risk of cancer. Professor Matthias Löhr

explains; “One challenge is the school of thought that moderate alcohol consumption, particularly red wine, is often considered to be healthy. According to animal experiments, there is some truth to this. However, many regular drinkers have a certain level of addiction and there is then a very different and more serious risk profile.”

There is considerable debate about whether alcohol with higher concentrated forms of ethanol, such as spirits, has a greater impact on the risk of digestive cancer. This is exacerbated by the fact that ethanol content can differ according to the type of drink and may vary by country, with ethanol content in beer ranging from 2.3% to over 10%, wine from 8% to 15%, spirits from 20% to over 40% and as high as 80% for some kinds of absinthe.<sup>14</sup>

## How much is too much?

The most recent meta-analysis study assessing dose-response alcohol consumption and site specific cancer risk reveals, regardless of the type of beverage, even light drinking of up to 1 alcoholic drink a day carries an increased risk of oesophageal cancer, consuming between 1-4 alcoholic drinks a day increases the risk of colorectal cancer and 4 or more alcoholic drinks a day is linked to an increased risk of liver, gastric and pancreatic cancer.<sup>15</sup>

As Professor Bohumil Seifert explains; "Three quarters of oesophageal cancer is linked to alcohol misuse and mouth, throat, oesophageal, pancreatic and small bowel cancers are all increasing in incidence. It's fair to say that this is, in part, due to alcohol consumption."

Members of the public are provided with mixed messages about recommended units, volumes and glasses of alcohol and this does not help in the public or healthcare professional assessment of health risk.

Recent meta-analyses do not suggest a significant impact of drinking patterns on risk of total cancer in light to moderate drinkers.<sup>16</sup> Four or more drinks a day, however, has been linked to a significantly increased risk of digestive cancers and the risk of colorectal cancer is also increased by 21% when having between 1-4 alcoholic drinks per day.<sup>15</sup>

### NUMBER OF DRINKS PER DAY

#### LIGHT

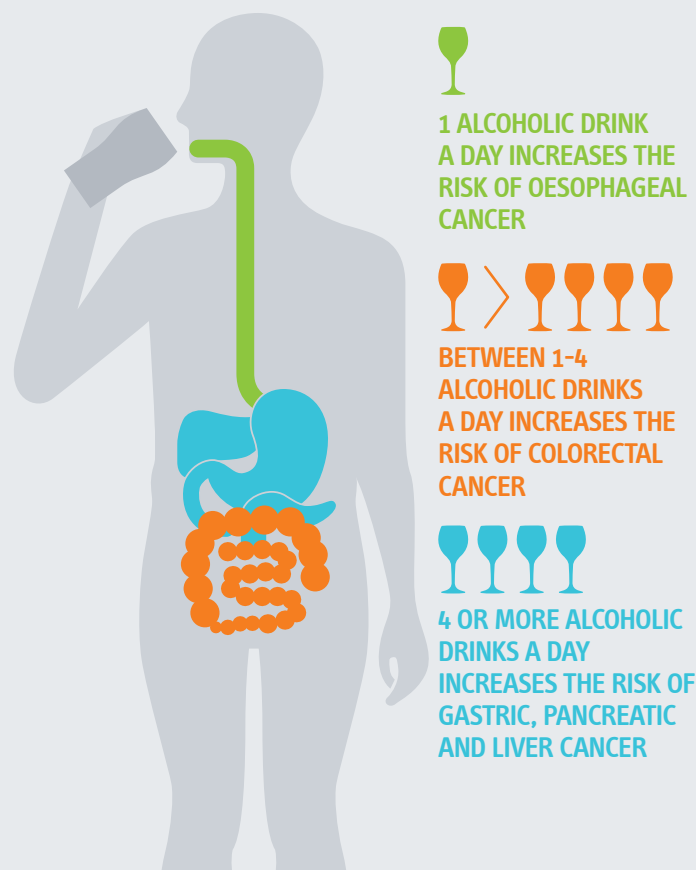
UP TO OR 1 DRINK PER DAY ( $\leq 1$ )

#### MODERATE

MORE THAN 1 AND UP TO 4 DRINKS PER DAY ( $>1$  AND  $<4$ )

#### HEAVY

4 OR MORE DRINKS PER DAY ( $\geq 4$ )





The combination of cheap alcohol with a higher concentration of ethanol in drinks like beer, schnapps or vodka, coupled with smoking, is the fundamental reason for the high incidence of digestive cancers particularly in eastern Europe.



**Professor Matthias Löhner**  
UEG and Pancreatic Cancer  
Europe cancer expert

## How does alcohol cause digestive cancer?

Extensive research has identified multiple ways that alcohol may increase the risk of digestive cancers both by damaging cells, as well as a result of the metabolising of ethanol, the intoxicating ingredient in alcoholic beverages.

Ethanol is widely recognised as the agent predominantly accounting for carcinogenesis<sup>17</sup> and recently the International Agency for Cancer Research (IARC) concluded that acetaldehyde, the by-product created when metabolising alcohol, is carcinogenic to humans.<sup>12</sup> Specifically, according to a review of current evidence demonstrating the causal effect of alcohol on digestive cancers, functional genetic variants of alcohol-metabolising enzymes proved to be associated with increased risk for oesophageal and gastric cancer. The highest risk increase for malignancy was observed in the upper aerodigestive tract (oral cavity, pharynx, larynx) and oesophagus, with weaker correlations established for gastric, pancreatic and colorectal malignancies.<sup>18</sup>

The mechanisms by which alcohol causes cancer are also thought to depend upon the particular organ. Most ethanol will be metabolised to acetaldehyde in the liver but salivary acetaldehyde has also been found to reach high levels while drinking. There is considerable evidence that DNA damage and resulting cancer in the oesophagus (as well as of the mouth, larynx and pharynx) is due to acetaldehyde.<sup>19</sup>

There is also a significant body of research and it is commonly accepted that there is a genetic predisposition for people to drink, and epigenetics, changes in gene expression and activity, can be inherited and can affect the risk of disease.

Many heavy drinkers are also smokers which further increases their risk of digestive cancer. It is thought that alcohol facilitates access for tobacco carcinogens to also penetrate the mucosa in the upper digestive tract,<sup>19</sup> making the risks associated with using both alcohol and tobacco greater than would be expected from adding together the individual risks associated with alcohol and tobacco.<sup>20</sup> Research shows that smoking not only changes the oral bacterial flora but also increases the level of salivary acetaldehyde.<sup>21</sup>

Alcohol may increase the risk of cancer by generating chemically reactive molecules that contain oxygen which can damage DNA, proteins and lipids. It is generally regarded that too much alcohol can impair the body's ability to break down and absorb cancer protecting nutrients such as vitamins, folate and carotenoids.<sup>22</sup> Dietary deficiencies such as a lack of folate, riboflavin, and zinc may also contribute to the increased cancer risk in an alcoholic patient.<sup>21</sup>

## ALCOHOL AND OESOPHAGEAL CANCER

### Incidence

Oesophageal cancer is one of the most common digestive cancers linked to alcohol consumption. When examining the burden of cancer attributable to former and current alcohol consumption, the EPIC study found that incidence was 44% of cancers of the upper aerodigestive tract in men and 25% for women.<sup>23</sup> In fact, oesophageal cancer contributes to nearly a third (27%) of alcohol-attributable cancer deaths in men.<sup>17</sup>

Oesophageal cancer is one of the deadliest cancers worldwide because of its extremely aggressive nature and poor survival rate. The annual incidence of oesophageal cancer in the UK, for example, is 9.6 out of 100 000 population. With a five-year survival rate of under 10%, the annual mortality rate of oesophageal cancer is almost as high as the incidence rate, at 8.7 out of 100 000 people.<sup>24</sup>



**OESOPHAGEAL CANCER IS THE  
SIXTH LARGEST CANCER KILLER  
WORLDWIDE<sup>25</sup>**

### Evidence

Alcohol misuse is only known to be a clear risk factor for one type of oesophageal cancer, oesophageal squamous-cell carcinoma (ESCC), which occurs at the upper end of the oesophagus. As Professor Rebecca Fitzgerald explains: “Alcohol is associated with a number of cancers in the upper digestive tract, typically oral, pharynx, larynx and squamous cell cancer of the oesophagus but, at the moment, we don’t have sufficient evidence to determine if certain types of alcohol or particular drinking patterns increase the risk of ESCC more than others.”

The highest incidence of ESCC in Europe is in north eastern European countries and the lowest in Scandinavia and it typically affects people aged between 60 and 80 years old.<sup>26</sup> Typically, ESCC is more common in women and in some parts of France ESCC is particularly high and this has been linked to drinking hot Calvados.

In spite of the relatively high incidence of ESCC in France and the UK, rates have been declining recently and this is thought to be due to stricter alcohol advertising

and drinking at work regulations in France, helping to reduce alcohol consumption, particularly in younger men. Smoking has also declined in both countries due to banning smoking in public places, which has also had a positive impact on reducing ESCC incidence.

The genotype of the consumer also increases the risk of oesophageal cancer, with those carrying the ALDH2 gene experiencing a higher risk of oesophageal cancer for the same amount of alcohol consumed.<sup>17</sup>

“

People are used to smoke-free zones now, so it isn't inconceivable that the same could happen with alcohol, thereby reducing accessibility, consumption levels and digestive cancer incidence, as a result.

”

**Professor Rebecca Fitzgerald**  
Oesophageal cancer expert,  
Addenbrooke's Hospital, Cambridge,  
London

## What needs to change?

A change in attitude towards alcohol is key to reducing consumption, as Professor Fitzgerald emphasises; “Further educational public awareness campaigns would be helpful to reduce ESCC as a result of alcohol consumption, but there needs to be cultural changes too. In eastern Europe, drinking excessively, particularly amongst men, is an intrinsic part of their culture and this needs to change. As the French have shown, reducing their alcohol consumption has helped reduce the incidence of oesophageal cancer.”

As well as improving public awareness of the link between alcohol and ESCC, it is vital, due to its poor prognosis, to diagnose oesophageal cancer at an early stage before the development of symptoms, when treatment can dramatically improve prognosis.

Improved primary care identification of high risk patients and understanding of the pathogenesis of ESCC is key to diagnosing these cancers early in order to improve outcomes. “Essentially, primary care interventions need to be improved and delays for endoscopies reduced. The referral pathway for cancer shows that not all patients are seeking help and being referred in a timely manner. Data from the UK has shown that GPs with low referral rates for endoscopy correlates with patients diagnosed with oesophageal cancer at a later stage,” warns Professor Fitzgerald.

Future hopes to facilitate earlier diagnosis may rest on a current primary care trial with 9,000 patients currently underway in the UK, allowing doctor's surgeries to test for Barrett's oesophagus, a condition that can increase the risk of developing oesophageal cancer.<sup>27</sup> Professor Fitzgerald, who leads the study explains: “It's a safe and relatively straightforward test. We hope that this will make it easier for healthcare professionals working in primary care to identify patients who have an increased risk of developing oesophageal cancer without having to refer them to hospital. Within 3-5 years we will have the evidence required to see whether it is possible to introduce this test into primary care as a triage to see which patients should be referred for endoscopy.”

## ALCOHOL AND LIVER CANCER

### Incidence

In the European Region, more than 2,370,000 healthy life years are lost from liver disease before the age of 50; more than lung, trachea, bronchus, oesophageal, gastric, colorectal and pancreatic cancer combined.<sup>29</sup>

Any health condition that causes cirrhosis (scarring) of the liver can lead to liver cancer but certain causes of cirrhosis have a particularly strong link with liver cancer, which is the fifth most common cause of cancer in Europe, responsible for around 47,000 deaths per year.<sup>8</sup>



With viral hepatitis in sharp decline in Europe, alcohol will take the number 1 position as cause of liver cancer with increasing incidence in Eastern Europe and Great Britain. Political action is needed to stop these trends.



**Professor Markus Peck**  
Liver cancer expert and Chair-elect of UEG  
Public Affairs Committee

### Evidence

Alcohol consumption is an independent risk for, and primary cause of, liver cancer<sup>29</sup> with more than half of all primary liver cancer cases caused by cirrhosis brought on by harmful consumption of alcohol.

Alcohol abuse accounts for 40-50% of all liver cancer cases in Europe<sup>30</sup> and a recent meta-analysis of 19 studies showed that consumption of three or more drinks per day resulted in a 16% increased risk of liver cancer, while consumption of six or more drinks per day resulted in a 22% increased risk.<sup>31</sup>

The occurrence of liver cancer is also more prevalent in men than women and according to the recent EPIC Study, the incidence of liver cancer found to be attributable to alcohol consumption was 33% for men and 18% for women.<sup>23</sup>

Trends in alcohol consumption correlate closely with trends in overall mortality caused by liver disease. There is considerable disparity across the EU regarding liver deaths, with France and Italy having a three-to fourfold reduction in liver mortality, whereas the UK and Finland have seen liver deaths rise by more than fivefold over the same period of time.<sup>30</sup>

In 2010, the largest contributor to the burden of alcohol-attributable cancer deaths was liver cancer, responsible for

nearly 24% of all such deaths and also the largest contributor to disability-adjusted life years lost.<sup>17</sup> However, it is also possible that alcohol consumption is systematically under-reported in several studies, resulting in an under-estimation of the real extent of the impact of alcohol on liver cancer.<sup>32</sup>



The increasing levels of liver related deaths that we've seen in the UK and Finland are very likely to be due to changes in drinking patterns.



**Professor Helena Cortez-Pinto**  
EU Policy Councillor for the European  
Association for the Study of the Liver (EASL)



**ALCOHOL ABUSE ACCOUNTS FOR UP TO HALF OF ALL LIVER CANCER CASES IN EUROPE**<sup>30</sup>

It is thought that the link between alcohol and liver cancer is as a result of the carcinogenicity of acetaldehyde as well as several other biologic mechanisms. These include chronic inflammation, which leads to increased oxidative stress, DNA damage and decreased hepatic retinoic acid, as well as impairment of the immune system, which can lead to further complications and infections.<sup>32</sup>

“There is no evidence that the type of alcohol makes a difference, since it depends on how alcohol is metabolised and this is not affected by the type of alcoholic beverage. It is also the total amount consumed in a week that is important. It doesn’t matter whether it is all consumed in a day or gradually across the week but overall high levels of consumption do have an impact on increasing the risk of liver cancer,” Professor Cortez-Pinto explains. “Once liver cancer has been diagnosed, stopping alcohol has been demonstrated to have a favourable effect on the progression of cirrhosis.”

Liver cancer caused by harmful alcohol consumption can take many years to develop and it is likely that the liver cancer rates linked to alcohol have not yet peaked and are forecast to continue to rise.<sup>33</sup>

“

Alcohol has many health risks and excessive drinking causes damage to many areas of the body, especially the liver. The more people cut down their levels of alcohol consumption, the more they cut their risk of cancer. It is therefore vital that the European population are fully aware of the dangers of drinking alcohol to help reduce overall consumption which, in turn, could decrease the incidence of liver cirrhosis and liver cancer.

”

**Tatjana Reic**  
President, European Liver Patients’  
Association

## What needs to change?

Another important strategy is raising awareness of the risk of alcohol via labelling of alcoholic beverages. Informative labelling should be provided for members of the public to ensure that they are able to make truly informed, as well as healthy, decisions. Ireland has implemented stricter labelling requirements on certain alcoholic beverages and it is hoped more European countries will follow suit.

As Professor Cortez-Pinto emphasises, “There is strong evidence of many public health policies that have reduced the levels of alcohol consumption which has had a direct link to a reduction in deaths. In general, all policies that increase the price of alcohol, reduce availability, improve the publicity on the risks and increase the minimum age to buy alcohol have led to an immediate reduction in the incidence of alcohol-related liver disease and deaths. Continuing to implement these policies across Europe to tackle high and rising levels of drinking is essential if we’re going to reduce the number of people with liver cancer in the future.”

## ALCOHOL AND PANCREATIC CANCER

### Incidence

Pancreatic cancer survival rates have remained alarmingly low at just 3-6% for more than 40 years.<sup>34</sup> Deaths are predicted to surpass those of breast cancer in the EU in 2017, making it the third biggest cancer killer in Europe.<sup>35</sup>

**3<sup>RD</sup>**  
**THIRD BIGGEST**  
**CANCER KILLER**  
**IN EUROPE<sup>35</sup>**

**4.6** MONTHS   
**MEDIAN SURVIVAL**

THE MEDIAN SURVIVAL TIME FOLLOWING A PANCREATIC CANCER DIAGNOSIS IS 4.6 MONTHS<sup>36</sup>

### Evidence

Whilst further research is required, there is accumulating evidence that drinking alcohol is associated with pancreatic cancer in heavy drinkers (four or more drinks a day), with binge drinkers (over 5 drinks a day) reported to have a significantly higher risk.<sup>37</sup> The increased risk for heavy drinking is similar in women and men.<sup>38</sup>

According to Professor Stephan Haas; “There is a direct link between alcohol misuse and the increased incidence of pancreatic cancer. However, this link has proved to be inconsistent as epidemiological studies face some significant methodological problems. For example, it is difficult for patients to recall the precise amount when asked about their consumption during their life and people also tend to under-estimate. Research in this field is even more difficult, as different researchers use different definitions of an alcoholic drink. It is therefore challenging to obtain correct information when recording drinking patterns.”

What is not in doubt is the inextricable link between alcohol and other lifestyle factors in the increased risk of pancreatic cancer. “There is a small incremental increase in the risk of developing pancreatic cancer if you only drink alcohol but a huge increased risk if you smoke as well” explains Professor Matthias Löhr. “Heavy drinkers are often smoke too and both risk factors go hand

in hand to exacerbate damage to cancer-associated pancreas cells, triggering carcinogens which may then proliferate abnormally to form cancer. There is also a very strong link between certain bacteria and pancreatic cancer and this, combined with alcohol, smoking and poor diet, has a synergistic effect, further increasing the risk of pancreatic cancer.”

Studies have shown that in those patients with a genetic predisposition to pancreatic cancer, use of tobacco and alcohol has been associated with an earlier age of diagnosis for the disease.<sup>39</sup> Furthermore, researchers found that smokers and drinkers, especially heavy drinkers, experience onset of the disease at an earlier age than non-smokers and non-drinkers. However, patients who had stopped smoking or consuming alcohol for more than 10 years had the same age at onset of their cancer as lifetime non-smokers and non-drinkers. Although beer drinkers develop pancreatic cancer at an earlier age than non-drinkers, alcohol type did not have a significant effect.<sup>39</sup>



The biological mechanisms accounting for how alcohol intake may cause pancreatic cancer are unclear and require further research. However, potential mechanisms include pancreatitis and the accumulation of fatty acids in the pancreas, which may induce inflammatory responses and fibrosis.<sup>17</sup> Acute pancreatitis also provides patients with a higher risk of pancreatic cancer and alcohol is the most common cause of pancreatitis identified in eastern, northern and western Europe.<sup>40</sup> “However, it is clear also that pancreatitis is not necessarily a precursor for pancreatic cancer and according to our current knowledge, alcohol can induce pancreatic cancer even when the patient has not developed a chronic pancreatitis”, adds Professor Stephan Haas.

“

The combination of alcohol and smoking is the fundamental reason for eastern Europe’s high incidence of digestive cancers.

”

**Professor Matthias Löhner**  
UEG and Pancreatic Cancer Europe cancer expert

## What needs to change?

As pancreatic cancer survival is consistently low, with an average survival rate of less than 18 months, it is vital that risk profiling, diagnosis and treatments are improved, as well as a greater understanding of the causes of the disease to facilitate prevention.

“

UEG and Pancreatic Cancer Europe undertake important work in raising awareness of the causes, risk factors and symptoms of pancreatic cancer but the public and medical profession still need to be more aware and simply ‘think’ about pancreatic cancer when faced with certain symptoms to ensure the earliest possible diagnosis.

”

**Professor Matthias Löhner**  
UEG and Pancreatic Cancer Europe cancer expert

Currently, there are no generally accepted screening tests for pancreatic cancer and screening is not recommended for the general population. Screening for patients with a family history of pancreatic cancer using endoscopic ultrasound has had limited success but the optimum age at which to initiate screening is unclear.<sup>39</sup> As a result, there remains an urgent need amongst the pancreatic cancer healthcare community to clarify screening requirements as well as for international collaborations to drive new research and increase public awareness of the disease to improve survival rates.

## ALCOHOL AND COLORECTAL CANCER

### Incidence

Colorectal cancer (CRC) is the second most common cancer in Europe, accounting for 13% of all cancers and is the most common digestive cancer, accounting for about half of all digestive cancers in Europe.<sup>41</sup> The incidence of CRC is higher in men than women. Mortality is on the increase in many eastern European countries as well as some parts of southern Europe<sup>26</sup> and the global burden of CRC is expected to increase by 60% to more than 2.2 million new cases and 1.1 million deaths by 2030.<sup>42</sup>

**2<sup>ND</sup>**  
**SECOND MOST**  
**COMMON CANCER**  
**IN EUROPE**<sup>41</sup>

### Evidence

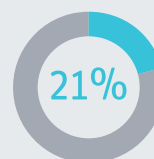
In 2007, International Agency for Research on Cancer (IARC) added CRC to the list of cancers causally related to alcohol.<sup>43</sup> Unlike most other digestive cancers associated with alcohol, meta-analysis examining the association between alcohol consumption and CRC risk shows there is an increased risk of 21% in those who consume between 1-4 alcoholic drinks per day and as much as a 52% increased risk in those who consume more than 4 drinks per day.<sup>44</sup>

It is still uncertain whether the effect of alcohol varies across the colon and rectum. Some studies have reported a stronger alcohol-cancer risk association in the colon than in the rectum, whereas others have found a stronger, or similar, association for the rectum. The dose-response relationship is also less apparent in women, possibly as they tend to consume less alcohol than men, but findings have shown a small increased risk for rectal, but not colon cancer, in women.<sup>44</sup> The EPIC Study found that the incidence of CRC amongst former and current alcohol consumers was 17% for men and 4% for women.<sup>23</sup>

“Exactly how alcohol increases the risk of CRC is not well understood and needs more research,” highlights Professor Evelien Dekker, UEG CRC expert. “There is certainly the suggestion that colorectal cancer risk

is increased in patients who drink, but it is often difficult to estimate the direct risk factors clearly as most people are likely to have other potential causative factors, such as a poor diet, with low dietary folate or tobacco use. As the incidence of colorectal cancer is increasing in younger people, and this does not seem to be explained by clear genetic cancer syndromes, it follows that lifestyle factors, including alcohol misuse, might add to the risk of colorectal cancer in these young patients,” she adds.

As with other digestive cancers, studies show there is no clear difference in relative risk for different types of alcohol on CRC. As Professor Dekker points out; “the type of alcohol and direct effect of ethanol is more likely to influence upper GI cancer risk and have more of an indirect effect on lower gastrointestinal cancers, via the metabolising of alcohol in the liver and production of the carcinogenic enzyme acetaldehyde.”



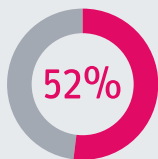
**INCREASED RISK OF CRC WITH JUST  
1 ALCOHOLIC DRINK PER DAY<sup>44</sup>**



We know a lot about the risks that can cause colorectal cancer but changing behaviour is always challenging. The first step for breaking a bad habit is recognising and taking personal responsibility for our health. Alcohol can be very addictive but knowing alcohol safety levels is imperative. EuropaColon campaigns for education for better public health awareness.



**Jolanta Gore Booth**  
CEO and Founder, EuropaColon



**INCREASED RISK OF CRC  
WITH MORE THAN 4 DRINKS  
PER DAY<sup>44</sup>**

## What needs to change?

Awareness programmes recommending limiting alcohol intake, even by up to 2 drinks a day, are vital to dramatically reduce the risk. According to Professor Dekker; “The most vital requirements to reduce alcohol induced colorectal cancer and reduce mortality rates are to urge people not to be a moderate or heavy drinker. More risk-based screening programmes are needed, not just a one size fits all approach, but to accommodate younger ages as well as those at higher risk, including heavy drinkers and smokers. For those with an increased risk, a lower faecal test result might also justify being called in for a colonoscopy.”

Currently, the UK is setting the standard for best practice referral pathway with a unique 2-week referral programme, ensuring the earliest possible diagnosis. “There is better availability of special services for patients with alarm symptoms in many countries but this can still be improved. Not all European countries implement colorectal cancer screening programmes at a national level and recruitment is always difficult,” Professor Bohumil Seifert explains.

Professor Dekker highlights; “there are still many barriers to the early detection of colorectal cancer that urgently need to be overcome, such as compliance, the type of test, age of screening and invitation methods and there is still a long way to go for all countries to improve uptake rates.”

The question that remains for policy makers is whether screening programmes should be provided for those with an increased risk due to lifestyle factors including, heavy drinking, poor diet and smoking.

## ALCOHOL AND GASTRIC CANCER

### Incidence

Gastric, or stomach cancer, is the fifth most common cancer in the world.<sup>45</sup> Europe and Asia have the highest incidence<sup>45</sup> of gastric cancer with more than 139,000 new cases estimated to have been diagnosed in Europe in 2012.<sup>46</sup>

### Evidence

Gastric cancer is more common in older adults and is about twice as common in men than women.<sup>45</sup> Chronic heavy drinking, particularly when accompanied by the abuse of tobacco, is associated with an increased risk of gastric cancers.<sup>15</sup> In fact, according to the meta-analysis examining the effect on alcohol and digestive cancers, heavy drinking causes the same increased risk of gastric cancer as colorectal cancer.<sup>15</sup>

A study of more than 500,000 adults, also suggests that heavy-drinking men, averaging four or more drinks per day, were twice as likely to develop gastric cancer over the next decade as those of light drinkers who had the equivalent of about half a drink per day or less.<sup>47</sup>

According to a recent report by the American Institute for Cancer Research and the World Cancer

Research Fund,<sup>48</sup> approximately one in seven gastric cancer cases could be prevented if people did not drink more than three alcoholic drinks a day, did not eat processed meat and maintained a healthy weight.

Unlike most other digestive cancers, researchers found that beer increases the risk of gastric cancer.<sup>47</sup>

### What needs to change?

It is clear that European public awareness campaigns to highlight the conclusive evidence of the link between heavy drinking, smoking and obesity and an increase in gastric cancer are essential to dramatically reduce the incidence of gastric cancer across Europe.



Alcohol has a large part to play in causing gastric cancer, not just as a result of the carcinogenic effect of acetaldehyde but also because as it is metabolised, the body does not metabolise other fats and sugars efficiently, slowing down the metabolism and ultimately leading to weight gain and a further increased risk of developing cancer.



**Professor Stephan Haas**  
Digestive Cancer Expert, Karolinska  
University Hospital, Sweden



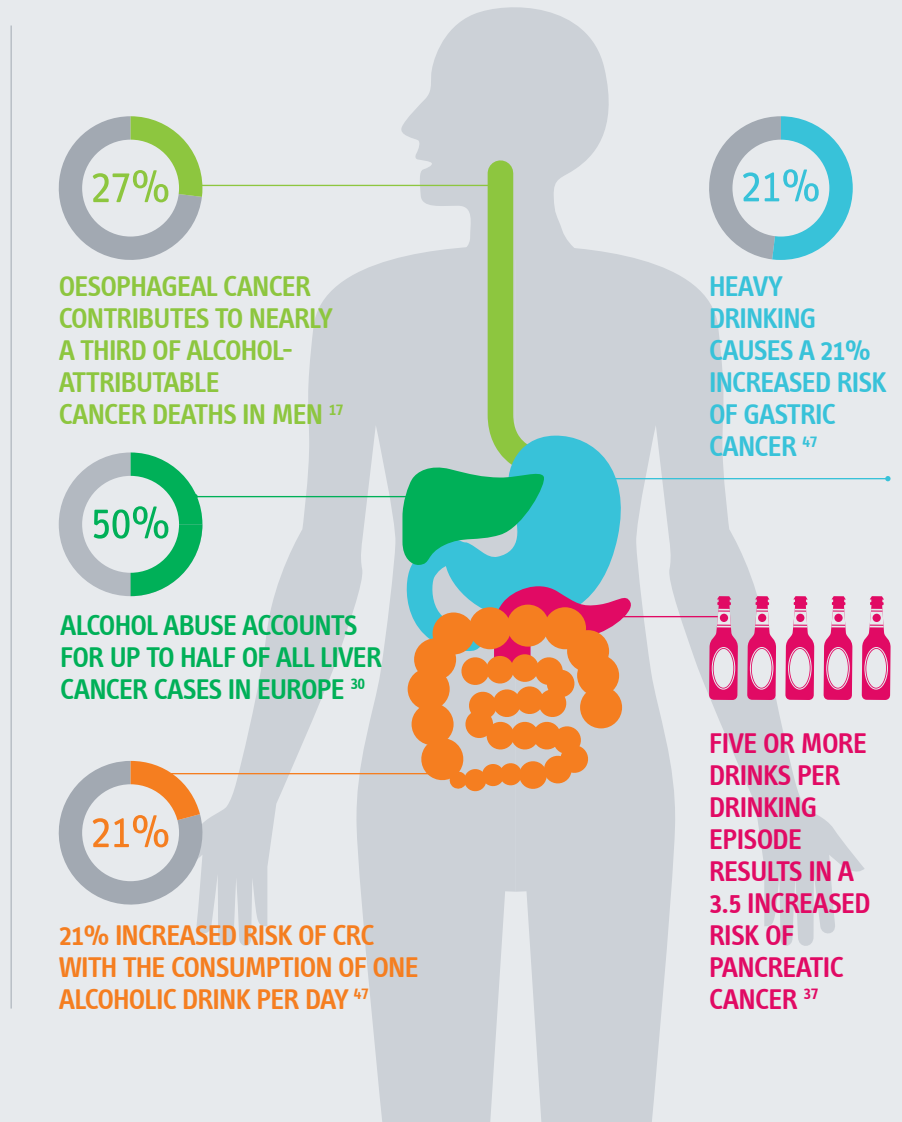
**HEAVY DRINKERS TWICE AS  
LIKELY TO DEVELOP GASTRIC  
CANCER THAN LIGHT DRINKERS**

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Evidence states that light, moderate and heavy alcohol consumption all increase our risk of digestive cancers. It is imperative that immediate action is undertaken, by both healthcare professionals and policy makers, to increase public awareness of this risk and allow consumers to make more informed choices about their drinking habits.

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Professor Thierry Ponchon  
Chair of the UEG Public Affairs  
Committee



## ALCOHOL AND DIGESTIVE CANCERS: IMPLICATIONS FOR THE PUBLIC

The World Cancer Report, produced by the World Health Organisation's specialised cancer agency, predicts new cancer cases will rise from an estimated 14 million annually in 2012 to 22 million within two decades. Over the same period, cancer deaths are predicted to rise from 8.2 million a year to 13 million. The report also highlights that about half of all cancers are preventable and the disease could be tackled by addressing lifestyle factors, such as alcohol consumption as well as smoking, diet and exercise and the widespread implementation of screening programmes.<sup>49</sup>

There is strong evidence to suggest that the more alcohol people drink, the higher the risk of digestive cancer but as Professor Bohumil Seifert explains; "Awareness about the dangers of drinking across Europe is poor and a population-wide pan European educational campaign to highlight the link between alcohol misuse and digestive cancers is essential to inform the public about how drinking impacts their health and the simple steps they can take to significantly reduce their risk."

A person's risk of alcohol-related cancers is also largely influenced by their genes, specifically the genes that are involved in metabolising alcohol. There is considerable evidence highlighting the genetic predisposition to drinking.<sup>50</sup> Educating younger generations about the genetic risk of alcohol dependence is likely to also increase awareness of their susceptibility to drink which may help them to seek advice earlier and reduce the likelihood of alcohol misuse.

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Complacency about, and social acceptance of, drinking alcohol in Europe is deep-rooted and difficult to change. The younger generation seem more aware of the dangers and are stricter about avoiding alcohol but the middle and older generations are very difficult to influence.

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**Professor Bohumil Seifert**  
European Primary Care Expert

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We need patients to be more aware of their risk profile, due to both their genetic and lifestyle factors and to seek help as soon as they experience symptoms, to take advantage of early treatment and ensure better prognosis.

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**Professor Matthias Löhner**  
UEG and Pancreatic Cancer Europe cancer expert



**CHANGE IN  
PUBLIC ATTITUDE  
TOWARDS ALCOHOL  
CONSUMPTION IS  
URGENTLY REQUIRED**



**FIVE MILLION RISE  
IN CANCER DEATHS  
BY 2030<sup>51</sup>**



**8 MILLION RISE IN NEW  
CANCER CASES BY 2030<sup>51</sup>**

There needs to be a seismic shift in attitudes towards social drinking to address the complacency concerning the negative effects of alcohol, as well as dramatically changing the general lack of awareness about the impact of even moderate regular drinking on digestive cancers.

The alcohol industry has an important part to play in responsible labelling of alcohol, as Professor Haas explains; “Many beverages contain harmful ingredients as well as pure ethanol and the industry should provide mandatory health information detailing all the ingredients, amount of alcohol and calories on every bottle or can, to ensure the public are fully informed about what they are drinking.”

Patients’ awareness of symptoms is essential to prompt early referral and diagnosis and although much has been done to highlight alarm symptoms for many digestive cancers, not seeking advice or seeing the family doctor due to embarrassment or complacency is still a serious concern and barrier to early diagnosis. Patients can also overlook the severity of their symptoms as they may ‘come and go’ leading them to believe they aren’t serious.

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In France, changes to regulations and cultural eating habits with people no longer permitted to drink wine at work, as well as enforcing stricter alcohol advertising regulations, has reduced alcohol consumption with digestive cancer incidence declining as a result.

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**Professor Fitzgerald**

Oesophageal cancer expert, Addenbrooke’s Hospital, Cambridge, London

## ALCOHOL AND DIGESTIVE CANCERS: IMPLICATIONS FOR PRIMARY CARE PRACTITIONERS

As mortality rates for many digestive cancers are too high, prevention of digestive cancers is vital to stop incidence rates from rising. The family doctor is best placed as the first-line contact with patients to detect alcohol misuse, implement intervention programmes and also to assess alarm symptoms as early as possible, ensuring the quickest diagnosis and treatment.

As the EPIC study has shown, the impact of alcohol on digestive cancers is not just as a result of heavy drinking well above the recommended amounts. Primary care practitioners are best placed to identify at risk drinkers and either recommend abstinence for high risk drinkers or to reduce intake to one or less drinks per day, in order to significantly reduce their patient's risk of digestive cancers associated with alcohol. In fact, recommendations to cut back from 4 or more drinks per day to one or less drinks per day, potentially reduce a person's risk of colorectal cancer by over 20%.<sup>44</sup>

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There is little awareness amongst primary care practitioners about the consequences of drinking alcohol and increased digestive cancer risk. It is vital to highlight this link and the significant digestive cancer risk associated with moderate drinking as well as heavy drinking in order to reduce the incidence.

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Professor Bohumil Seifert  
European Primary Care Expert

### Identifying at risk patients is key to early diagnosis

Education campaigns are vital to mobilise patients to seek advice and treatment but also for primary care practitioners to identify at risk patients and to recognise alarm symptoms as early as possible. Risk assessment and intervention techniques differ widely across Europe and need to be improved within primary care consultations to facilitate more effective referral for screening and to maximise patient outcomes.

Concentrating on risk assessment in the Czech Republic, Professor Seifert explains; “We always undertake a questionnaire when accepting patients into the practice and ask general questions about the amount of alcohol they consume. However, this audit test is not very effective as you cannot be sure that the patient is accurately reporting their consumption. As a result, we now use a more detailed, sophisticated questionnaire which is a better way to identify a high-risk drinker. Rather than the usual ‘do you drink’ questions, it helps to assess whether the patient is able to abstain and how often they drink. This type of test should be rolled out more widely to identify at-risk drinkers. In the same way as smokers are referred, risk drinkers follow a ‘brief intervention’ pathway where the risks of drinking and the link to digestive cancers are explained in detail.”

Professor Seifert recognises, however, “It is very difficult to ‘treat’ heavy drinkers as although you can refer them to a special unit for alcohol dependency, they can only go on a voluntary basis.” Patient awareness of the link between alcohol and digestive cancers as well as symptom awareness are likely to be the main behavioural drivers for patients to seek treatment.



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Access to diagnostic services and specialists needs to improve across Europe as there is still considerable disparity between countries. There needs to be European recommendations to help improve primary care awareness of the dangers of alcohol and its link to digestive cancers and the importance of early diagnosis.

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**Professor Bohumil Seifert**  
European Primary Care Expert

## Screening key to reducing mortality

Quick referrals and improved screening programmes are essential to maximise patient outcomes. The UK and Czech Republic currently have some of the most successful treatment pathways and programmes, as Professor Seifert highlights: “In the Czech Republic the incidence of colorectal cancer was amongst the highest in Europe but it is now down to 7th place and mortality is decreasing which could well be due to improved screening programmes. The public and family doctors in the Czech Republic are now more aware of the alarm symptoms so primary care practitioners refer earlier, ensuring quicker diagnosis and improved patient outcomes.”

Novel point of care screening techniques in doctors’ practices, such as the Cytosponge test and microbiota profiling could provide even earlier diagnosis for patients and are exciting screening techniques that could be implemented within the next few years.

New research investigating the consequences of alcoholism on human gut microbiota, found that the gut microbiota of alcoholics was depleted in short-chain fatty acids (SCFAs), produced by certain bacteria, which are known to protect against the development of CRC as a result of the impact of ethanol. As a future prevention tool, microbiota profiling to determine whether a person’s gut is lacking cancer-protecting SCFAs could more effectively verify not only if a person is an alcoholic, rather than relying on inaccurate recall, but also the likelihood of digestive cancer developing.<sup>52</sup>

Evidence from the UK screening programme also shows that other interventions, such as a GP endorsement letter, telephone advice and an enhanced patient leaflet, have increased the uptake of bowel cancer screening and such approaches could be used to engage with at-risk alcohol-dependent patients.<sup>53</sup>

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## ALCOHOL AND DIGESTIVE CANCERS: IMPLICATIONS FOR POLICY MAKERS

Alcohol use disorders are common in developed countries, particularly where alcohol is cheap, readily available and heavily promoted.<sup>54</sup> With 135,000 alcohol-related cancer deaths predicted by 2035<sup>55</sup> and even moderate drinking having a significant impact on increasing the risk of digestive cancers, it is more vital than ever for government action and intervention to reduce the harmful use of alcohol.

Professor Haas emphasises; “We need a multidimensional approach, with coordinated efforts in Europe and internationally, to tackle this urgent problem. The alcohol industry and non-government organisations need to work together to implement proven strategies to reduce alcohol consumption more widely.”

The WHO’s efforts to establish a Global Strategy to reduce the harmful use of alcohol and the European Union’s adoption of an EU Alcohol Strategy will look to drive the development of “incentive measures”. These are aimed at protecting public health against the harmful use of alcohol and provide a stronger impetus for EU action on the abuse of alcohol.

Many countries have started to implement at a national level some of the policy options from the WHO’s global strategy to reduce the harmful use of alcohol, addressing the availability and marketing of alcohol as well as introducing new higher pricing of alcohol products to reduce its accessibility. Other policy options include reducing the public health impact of illicit alcohol and informally produced alcohol, a particular priority for Eastern European countries.

A recent report revealed the impact of introducing a minimum unit price for alcohol in England. It found that over 20 years, a 50p minimum price per unit of alcohol could reduce deaths linked to alcohol by around 7,200, including around 670 cancer deaths. It would also reduce healthcare costs by £1.3 billion.<sup>56</sup> Professor Cortez-Pinto explains; “Defining a minimum price unit has proven to be extremely effective in Canada and is being implemented in Scotland and Ireland too. Hopefully the rest of Europe will follow shortly. To reduce alcohol consumption and cancers associated with alcohol misuse, it is vital that politicians and the alcohol industry implement measures to make

alcohol less accessible. There is strong evidence that policies that increase the price of alcohol, reduce availability and improve publicity of the risks associated with alcohol as well as increase the minimum age to buy alcohol have led to an immediate reduction in the incidence of alcohol-related liver disease and deaths. I, and my colleagues at EASL, are concerned, however, that politicians and the alcohol industry are reluctant to implement these measures due to commercial interest and, as a result, we will not see the socio-economic as well as significant health benefits,” she adds.

Scandinavian countries provide a successful example of how lower accessibility to alcohol, with state-owned alcohol selling monopolies that do not sell alcohol in the evening, reduces harmful drinking. “Accessibility has a direct effect on misuse and in Germany and the UK there is access 24 hours a day, providing greater opportunity for alcohol misuse, particularly for high risk drinkers, with serious health risks as a result. It is important that the alcohol industry take considerable responsibility for the increase in alcohol misuse across Europe, particularly as the majority

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With reasonable evidence at hand, political action like minimum pricing and reducing access to alcohol needs to be taken now to prevent many future casualties. Research has to follow to generate the data and fine-tune political action in the future.

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**Professor Markus Peck**

Liver cancer expert and Chair-elect of UEG  
Public Affairs Committee

**135,000**

**ALCOHOL-RELATED  
CANCER DEATHS  
PREDICTED BY 2035 <sup>55</sup>**

of alcohol sales are to people who drink at hazardous or harmful levels; for example, in the UK around three-quarters of alcohol sales are to hazardous or harmful consumers”<sup>57</sup> Professor Haas explains.

Recent research collated in the Addiction supplement, ‘Alcohol marketing regulation – from research to public policy’,<sup>79</sup> also reveals the overall scientific opinion that there are positive associations between young people’s exposure to alcohol marketing and a progression to hazardous drinking. It recommends a global rather than European wide strategy and a common code for regulation and public health NGO’s to enforce the regulations to better protect the public.

Countries leading the way include France, which has tightened marketing as well as drinking at work regulations and seen a decrease in alcohol consumption and digestive cancer incidence as a result. Recent reductions in liver deaths in Mediterranean countries have also corresponded to a fall in the consumption of cheap table wine and the wine industry has changed its model to sell smaller quantities

of quality wine, which is hoped to continue to have a positive impact.

Another important strategy includes raising awareness of the risk of alcohol via labelling of alcoholic beverages. The European Alcohol Trade associations has welcomed the EU Commission’s call for a self-regulated approach to alcohol labelling, aiming to provide information about the ingredients in alcoholic beverages to ensure consumers are fully informed about what they are drinking and to help them make healthier choices. Ireland has already implemented stricter labelling requirements on certain alcoholic beverages and it is hoped more European countries will follow suit.

More research and Europe-wide agreement is also needed to resolve the quantification for light, moderate and heavy drinking and clearer dose-response relationship studies, as quantities currently differ from country to country. This will inform comprehensive public awareness campaigns to ensure the public are aware of the direct link between specific quantities of alcohol consumed and the increase in risk of digestive cancers.

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## TIME FOR CHANGE

There is a wealth of evidence to confirm the link between alcohol consumption and digestive cancers. However, there is much more to do to convince the public, healthcare professionals and policy makers of the urgent need for change across Europe.

United European Gastroenterology, its member organisations and stakeholder partners are collectively behind Eurocare's recommended target for a minimum 10% reduction of total alcohol consumption by 2025 and this review highlights a number of requirements to meet this challenge. In summary, these are clear information, research, risk assessment, screening, education and marketing regulation.



### Clear information

Eradicate confusion and mixed messaging around alcohol consumption and associated risks through clear and consistent pan-European information



### Research

Further research to provide more data about the impact of different types of alcohol and drinking patterns on specific cancer sites and how other lifestyle factors and genetics affect risk



### Risk assessment

Improved risk assessments and interventions within primary care settings to increase the number of early referrals for screening and treatment



It is time for Europe to change its approach and attitude towards alcohol consumption. UEG calls upon EU policy makers and citizens to recognise the evidence of the digestive cancer risks associated with alcohol consumption. The societal costs and healthcare implications of increased alcohol consumption are huge. Now is the time to take positive and pro-active action for the benefit of current and future generations.



**Professor Paul Fockens**  
UEG President 2017-2019



Policy makers at both EU and Member State level have a critical role to play in promoting cancer prevention, early diagnosis and the improvement of cancer treatments. National policies targeted towards reducing alcohol consumption, as well as unified screening programmes throughout Europe, will help to decrease the burden of digestive cancers and improve overall patient outcomes. The EU should look to provide support for the Member States by setting harmonised rules and facilitating the exchange of best practice.



**MEP Poc**  
Vice-Chair of MEPs Against Cancer (MAC), a European Parliament Interest Group



## Screening

A unified approach to national screening programmes to help increase uptake rates to more than 60%



## Education

Investment in public and primary care education campaigns to increase awareness of the impact of alcohol on digestive cancers and reduce the alcohol related risk of digestive cancers, allowing consumers to make informed choices



## Marketing regulation

Increased pressure on the alcohol industry to tighten their marketing regulations on alcohol promotion as well as more responsible labelling

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