

# Smoking and mental health: a neglected epidemic

June 2015



*This document aspires to provide a broad overview of the evidence on smoking and mental health issues and is aimed at public health professionals and policy makers.*

## Key points:

- there is irrefutable evidence that people with mental health issues have reduced life expectancy compared to the general population
- people with mental health issues are dying prematurely because of a smoking intervention gap
- people with mental health issues are as motivated to quit as the general population
- people with mental health issues use a third of total UK tobacco consumption
- up to 3 million smokers in the UK, 30% of all smokers, have evidence of mental disorder and up to one million with longstanding disease
- there are links between smoking and mental health, smoking and mental health and physical illness, and smoking, mental health, debt and poverty
- the estimated economic cost of smoking in people with mental disorders was £2.34 billion in 2009/10 in the UK, of which, about £719 million (31% of the total cost) was spent on treating diseases caused by smoking
- smoking increases psychotropic drug costs in the UK by up to £40 million per annum
- there is consistent evidence that stopping smoking is associated with improvements in depression, anxiety, stress, psychological quality of life, and positive affect compared with continuing to smoke
- there is some evidence of an association between smoking and suicide
- further research into tailored cessation interventions for smokers with mental health issues is necessary if disparities in health are to be addressed.

## Contents

<b>Introduction.....</b>	<b>3</b>
<b>Economic costs .....</b>	<b>4</b>
<b>Smoking, mental health and inequalities .....</b>	<b>5</b>
The role of ‘rollies’ .....	7
Illicit tobacco.....	7
Tobacco control interventions - the inequalities gap .....	7
<b>Smoking and mental health.....</b>	<b>8</b>
Smoking prevalence in people with mental health issues .....	8
What do we mean by mental health issues? .....	8
Smoking initiation .....	8
Mental well-being.....	8
Stress, anxiety and low mood .....	9
Nicotine dependence .....	9
Nicotine and cognitive function .....	10
Genetics of nicotine dependence.....	11
Depression .....	11
Bipolar affective disorder.....	12
Schizophrenia, schizotypal and delusional disorders .....	12
<b>Smoking and substance misuse.....</b>	<b>13</b>
The interplay between smoking, mental health and substance misuse.....	15
Alcohol .....	15
Cannabis.....	16
Methadone .....	16
<b>Smoking and suicide .....</b>	<b>17</b>
<b>Smoking in acute mental health settings.....</b>	<b>18</b>
Human rights argument – the ‘Rampton’ ruling .....	19
Carstairs ruling.....	20
Do e-cigarettes have a role to play?.....	21
<b>Smoking in prisons .....</b>	<b>22</b>
<b>Smoking in the homeless population.....</b>	<b>24</b>
<b>Smoking cessation and mental health.....</b>	<b>25</b>
Motivation to quit smoking .....	25

Smoking cessation for improved mental health .....	25
Smoking cessation interventions .....	25
Varenicline .....	25
Barriers to smoking cessation .....	26
<b>Smoking and psychiatric medication .....</b>	<b>27</b>
<b>Exposure to second-hand smoke .....</b>	<b>28</b>
Second-hand smoke exposure and mental health.....	29
Second-hand smoke exposure and domiciliary care .....	29
<b>Recommendations .....</b>	<b>29</b>
<b>Resources.....</b>	<b>30</b>
<b>References .....</b>	<b>32</b>

## Introduction

It may seem strange but nicotine dependence is in itself a recognised psychiatric illness, referred to as ‘tobacco use disorder’<sup>1</sup>, and was once called ‘*the most prevalent, most deadly, most costly, yet most treatable of all psychiatric disorders*’<sup>2</sup>. Smoking in Great Britain peaked at 82% for men in 1948 and 45% for women in 1966<sup>3</sup>; growing awareness of tobacco’s harms was accompanied by a drop in smoking prevalence such that it now stands at just over 20%<sup>4</sup> in Scotland. Unfortunately this sustained decline of smoking in the general population has not been echoed for people with mental health and substance misuse issues, who as well as having higher smoking rates, appear to be more addicted to nicotine, smoke more cigarettes per day, and find it harder to quit<sup>5, 6, 7</sup>. The Scottish Government has set an ambitious target to make Scotland smoke-free (<5%) by 2034<sup>8</sup> but national smoking prevalence cannot be further reduced unless smoking cessation in this vulnerable population group, sometimes described as ‘*where the smokers are*’<sup>9</sup>, is better supported. Moreover, in a world where tobacco usage remains the most common preventable cause of death<sup>10, 11</sup>, addressing smoking and mental health in Scotland wouldn’t just mean meeting a public health target, it would mean improving health, reducing inequalities and saving lives.

## Economic costs

*'Globally, tobacco use killed 100 million people in the 20th century, much more than all deaths in World Wars I and II combined. Tobacco-related deaths will number around 1 billion in the 21st century if current smoking patterns continue.'*

The Tobacco Atlas<sup>12</sup>, 2015

A 2014 research paper<sup>13</sup> published in the BMJ journal Tobacco Control noted that *'the avoidable economic burden of smoking in people with mental health disorders comprises three components: direct healthcare costs, indirect morbidity costs and indirect mortality costs due to smoking-related diseases.'* The paper further noted that the estimated economic cost of smoking in people with mental disorders was £2.34 billion in 2009/10 in the UK, of which, about £719 million (31% of the total cost) was spent on treating diseases caused by smoking.

A 2010 report using data from the 2007 Adult Psychiatric Morbidity Survey (APMS) for England<sup>14</sup> estimated that about 42% of all cigarettes smoked by the English general population are smoked by people with a mental disorder, although it was also noted that this was likely to be an underestimate since APMS 2007 was a survey of people living in private households and so did not include those living in mental health settings, prisons or who are homeless or in temporary housing – all groups known to have a higher rate of smoking<sup>15, 16</sup>. Discounting those with a dependence on alcohol or illicit drugs, those with problem gambling and those who had made a suicide attempt in the past year, it has been calculated<sup>17</sup> that 33% of all cigarettes are smoked by people with a mental disorder. Figures from the United States indicate that people with a mental disorder account for 44% of total national tobacco consumption<sup>18</sup>, and for Australia<sup>19</sup> the figure is 42%. Smoking also increases psychotropic drug costs (see section below: [smoking and psychiatric medication](#)) in the UK by up to £40 million per annum<sup>20</sup>. Tobacco generates £940 million a year in taxes for Scotland (year 2008/9) but the combined costs of healthcare, productivity losses, litter and fires exceed this by at least £129 million<sup>21</sup>.

## Smoking, mental health and inequalities

Much of all-cause mortality, including lung cancer, cardiovascular disease and chronic obstructive pulmonary disease (COPD) is caused by cigarette smoking<sup>22</sup>. Smoking is a major contributor to health inequalities, with smoking prevalence and rates of premature smoking-related morbidity and mortality substantially increased for those who are socioeconomically and otherwise disadvantaged in society<sup>23</sup>. Knowledge of tobacco-related harms decreases with decreasing socioeconomic status<sup>24</sup> and research from the United States suggests that it may even be related to reading levels<sup>25</sup>. Cigarettes kill half of lifelong regular smokers, and of those an average of 22 years life expectancy will be lost<sup>26</sup>.

*'There are so many reasons why effective tobacco control is good for Scotland. However, perhaps the most troubling aspect of current smoking patterns is the hugely disproportionate impact on Scotland's most deprived communities.'*

Creating a tobacco-free generation - a Tobacco Control Strategy for Scotland<sup>27</sup>

Smoking is the most important preventable cause of ill-health and premature death in Scotland, with smoking-attributable deaths accounting for around a quarter of all deaths<sup>28</sup>. However, amongst the most affluent it drops to around 15% of deaths, whilst for the least well-off it rises to 32%<sup>29</sup>, borne out by the fact that adults in the 15% most deprived areas of Scotland are considerably more likely than those in the rest of Scotland to say that they are current smokers (40% and 20%, respectively)<sup>30</sup>.

A 2014 meta-review<sup>31</sup> (a review of systematic reviews) by Oxford University psychiatrists which explored the risks of all-cause and suicide mortality in major mental disorders found that the average reduction in life expectancy in people with bipolar disorder is between nine and 20 years, while it is 10 to 20 years for schizophrenia, between nine and 24 years for drug and alcohol abuse, and around seven to 11 years for recurrent depression. The Lancet series 'No Health Without Mental Health<sup>32</sup>' neatly summarised the impact of mental health upon physical health and vice versa: *'[m]ental disorders increase risk for communicable and non-communicable diseases, and contribute to unintentional and intentional injury. Conversely, many health conditions increase the risk for mental disorder, and comorbidity complicates help-seeking, diagnosis, and treatment, and influences prognosis. Health services are not provided equitably to people with mental*

*disorders, and the quality of care for both mental and physical health conditions for these people could be improved.'*

*'It is generally conceded that poverty can be both a determinant and a consequence of poor mental health.'*<sup>33</sup>  
Life, Stress and Mental Health, 1963

A study<sup>34</sup> which linked individual data from the Whitehall II study covering health, socio-economic status, and perceived status with census data on neighbourhood deprivation found that individual and neighbourhood deprivation increased the risk of poor general and mental health. Debt may also be a factor: a large cross-sectional study<sup>35</sup> found that both low income and debt are associated with mental illness, but the effect of income appears to be mediated largely by debt; and a study of the relationship between personal debt and specific common mental disorders<sup>36</sup> found that adults in debt were three times more likely than those not in debt to have common mental disorders. The same study reported that an increased likelihood of common mental disorders among those in arrears was found for all common disorders and was irrespective of source of debt - housing, utilities and purchases on credit. The situation was exacerbated among those with addictive behaviours - alcohol or drug dependence or problem gambling. Those with multiple sources of debt and who had to obtain money from pawnbrokers and moneylenders had the highest rate of common mental disorders - approximately equal to 50%. Smoking is an expensive addiction - the social enterprise Tobacco Free Futures has calculated<sup>37</sup> that a low-income family earning £21,000 a year, where both parents smoke 20 cigarettes a day, will spend a quarter of their total income on tobacco - or around £5,600 a year. This suggests that there may be a place both for smoking cessation and mental health support within money advice services, and possibly vice versa.

The Royal College of Psychiatrists have stated<sup>38</sup> that *'there is no public health without public mental health'*, noting the findings of the Marmot Review<sup>39</sup> that inequality is a key determinant of illness which then leads to further inequality. The Marmot Review also noted that *'[t]obacco control is central to any strategy to tackle health inequalities'*.

## The role of 'rollies'

The price of tobacco increased by 80.2% over the ten years from 2003 to 2013, making it 22.1% less affordable<sup>40</sup>, and in the same period releases (released from bond for home consumption) of hand-rolling tobacco increased by 179%<sup>41</sup>. In 2012 in the UK, 38% of men smokers and 24% of women smokers smoked hand-rolled tobacco<sup>42</sup>. Findings from the International Tobacco Control (ITC) Four-Country Survey (2002-2008) are that smokers use roll-your-own (RYO) tobacco because it is cheaper, and between 21% and 40% of RYO smokers believed them to be healthier than manufactured cigarettes<sup>43</sup>. Tobacco industry information from New Zealand suggests that the concentration of additives is higher in loose tobacco (though it will vary between products), at about 18% of dry weight, compared with 0.5% for factory made cigarettes<sup>44</sup>, and this confirms previous research which suggests that RYO cigarettes are at least as hazardous as manufactured cigarettes<sup>45, 46</sup>. The ITC Four Country Survey concludes<sup>47</sup> by warning that *'[i]f policy makers want to ensure that the RYO option does not inhibit the fight to end the tobacco epidemic, especially amongst the disadvantaged, they need to reduce the price advantage, target additional health messages at (young) RYO users, and challenge niche marketing of RYO by the industry.'*

## Illicit tobacco

Illicit tobacco is sold in bars, pubs, under-the-counter in shops or in the form of a door-to-door delivery at a price between a third and a half lower than that in regular shops<sup>48</sup>, and may be viewed positively by low-income smokers as a way of dealing with the increasing cost of cigarettes<sup>49</sup>. Results of research from Australia<sup>50</sup> seem to imply the existence of a relationship between illicit tobacco smoking and decreased mental and physical health.

## Tobacco control interventions - the inequalities gap

For tobacco control interventions to reduce rather than exacerbate inequalities, efforts must be made to address 'upstream' social determinants. In relation to smoking cessation specifically, it is important to ensure that services are of a particularly high standard (and probably more intense) in deprived areas<sup>51</sup> and that staff are trained in ways which enable them to take account of inequalities<sup>52 53</sup>. Place of residence may be associated with smoking, independently of individual poverty and socio-economic status, so policy and intervention responses need to tackle not only individual but also environmental disadvantage<sup>54</sup>.

## Smoking and mental health

### Smoking prevalence in people with mental health issues

As noted above, the joint Royal College of Physicians and Royal College of Psychiatrists report 'Smoking among people with mental disorders'<sup>55</sup> estimates (p35) that 'up to 3 million smokers in the UK, 30% of all smokers, have evidence of mental disorder and up to one million with longstanding disease'. Population surveys from the United States and Australia suggest<sup>56</sup> a smoking prevalence of approximately 38% for those with anxiety disorder, 45% for those with affective disorders, and 64% for those with substance use disorders.

### What do we mean by mental health issues?

One in four people in Scotland will have a mental health problem at some point in their life<sup>57</sup>, and mental health and substance use disorders are the leading cause of years lost to disability (23% of all non-fatal burden<sup>58</sup>) and premature mortality globally<sup>59</sup>. NHS Health Scotland<sup>60</sup> defines mental illness as '[a] *diagnosable illness such as depression, anxiety and schizophrenia which significantly interferes with an individual's cognitive, emotional or social abilities.*' A broader definition might be that mental health issues are conditions which have an impact upon a person's thinking, feeling or mood and may affect their ability to relate to others and function on a daily basis, ranging across a spectrum from mild and transient to severe and disabling.

### Smoking initiation

Nearly two-thirds of smokers start before they are 18 – a fact which the tobacco industry knows and exploits<sup>61</sup>. Half of lifetime mental disorder has arisen by the age of 14<sup>62</sup> and survey data of the mental health of children and young people in Great Britain<sup>63</sup> indicated that 23% of those aged 11-16 with an emotional disorder were smokers, as were 34% of those with conduct disorders, and 21% of those with hyperkinetic disorders. The Scottish Schools Adolescent Lifestyle and Substance Use Survey (SALSUS)<sup>64</sup> reported that in 2013 at 13 years old 2% were regular smokers; and at 15 years old 9% were regular smokers.

### Mental well-being

Using the Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS), the 2015 Scottish Health Survey Topic Report: Mental Health and Well-being<sup>65</sup> found that current smokers have significantly lower WEMWBS scores than both ex-smokers and those

who have never smoked. The report also noted that among current smokers, the proportion exhibiting signs of a possible psychiatric disorder (23%) is significantly higher than the equivalent proportions amongst those who are ex-smokers (16%) or have never smoked (12%).

### Stress, anxiety and low mood

Inhaled nicotine is easily absorbed by the alveoli (miniscule air sacs at the end of the smallest airways, where the exchange of oxygen and carbon dioxide takes place) of the lungs. There are some 300 million alveoli in two adult lungs, providing a surface area of approximately 160 m<sup>2</sup><sup>66</sup> (80 times the area of the skin). Whereas intravenous nicotine would first have to pass through the heart and into the arterial stream of the lungs before reaching the brain, inhaled nicotine can reach the brain in seconds<sup>67</sup>, although the amount of nicotine absorbed by smoking a cigarette depends on puff volume, depth of inhalation, the extent of dilution with room air, the rate of puffing, and the intensity of puffing. The speed of nicotine's effects, combined with its ability to cause dependence and the ability of individual smokers to modify the way they smoke, make cigarettes the most addicting method of nicotine administration<sup>68</sup>. Nicotine binds to brain tissues with high affinity, and the receptor-binding capacity is increased in smokers compared with non-smokers<sup>69</sup>. Nicotine activates the brain circuitry that regulates feelings of pleasure, increasing the levels of dopamine in the reward circuits<sup>70</sup>. Essentially, chronic nicotine exposure alters the function of brain reward systems, resulting in the development of a nicotine-dependent state<sup>71</sup>.

There is a common misconception that smoking relieves stress, anxiety and low mood when, in reality, the biphasic nature of nicotine actually serves to create a cycle of dependence. In the first phase nicotine reaches the brain, producing positive feelings and altering dopamine pathways, and in the second phase, creating nicotine withdrawal and setting up a cycle of smoking to alleviate withdrawal.

### Nicotine dependence

Tobacco products may be legal to use and easy to obtain but it would be a mistake to regard them as pharmacologically benign as they also meet the standard criteria for dependence-producing drugs<sup>72</sup>. Nicotine produces tolerance and dependence such that abstinence can result in withdrawal symptoms as it affects the same neural pathway, the mesolimbic dopamine system, as alcohol, opioids,

cocaine, and marijuana<sup>73</sup>. For most smokers dependence results from a complex interplay of neurobiological, environmental and genetic factors cues<sup>74, 75</sup>, and appears to vary according to the severity of mental health issues<sup>76</sup>.

*'We don't smoke the shit, we just sell it. We reserve the right to smoke for the young, the poor, the black and the stupid.'*

Company Executive, RJ Reynolds (makers of Camel cigarettes)<sup>77</sup>

The tobacco industry has deployed a vast array of technologies, ranging from chemistry to particle physics, to develop methods which manipulate nicotine delivery and absorption (eg adding levulinic acid<sup>78</sup>, using filter tip ventilation<sup>79</sup>, and regulating particle size<sup>80</sup>). The modern cigarette is therefore a precision-engineered product designed to create and sustain dependence<sup>81, 82</sup>. Furthermore, the tobacco industry has a long, and well-documented history of 'marketing to the marginalised'<sup>83</sup>, including people with mental health issues.

### Nicotine and cognitive function

As there are nicotinic acetylcholine receptors throughout the cholinergic system which can bind to nicotine, the idea of nicotine as a mechanism for aiding cognitive function is entirely plausible<sup>84, 85</sup> although not using cigarettes as the delivery method. There has been some research to suggest<sup>86, 87, 88</sup> that smoking could have a protective effect for some forms of Alzheimer's disease, nicely summed up in the journal *Nature* as *'A puff a day keeps the plaque away?'*<sup>89</sup>. By 2008 a study of nicotine dependence in the journal *Human Genetics* was even declaring that *'epidemiological studies reveal that cigarette smoking is inversely associated with AD'*<sup>90</sup>. However, a 2010 analysis which controlled for tobacco industry affiliation\*, study design and other factors concluded that smoking is not protective against Alzheimer's disease but is instead a significant and substantial risk factor<sup>91</sup>. For a review of the evidence on smoking and an increased risk of Alzheimer's disease and other forms of dementia, and cognitive impairment, see the ASH Scotland briefing on smoking and dementia at:

[www.ashscotland.org.uk/media/5680/dementia.pdf](http://www.ashscotland.org.uk/media/5680/dementia.pdf)

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\* defined as current or past funding, employment, paid consultation, collaboration, or co-authorship on the included study with someone with then-current or previous tobacco industry funding (within ten years of publication).

## Genetics of nicotine dependence

Genetic predisposition to nicotine dependence has been firmly established<sup>92</sup>. There are several genes that cause an individual to be more susceptible to being addicted to nicotine<sup>93</sup>; these genes are responsible for how certain neurotransmitters are produced and metabolised, the number of receptors that are available to act on and how rapidly nicotine is metabolized by the individual. A better understanding of the molecular neurobiology of nicotine dependence could lead to more effective, personalised therapies for smoking cessation<sup>94, 95</sup>. It has also been hypothesised that genetic factors explain the co-occurrence of smoking and schizophrenia<sup>96</sup>, as there has been research showing that nicotinic receptors are abnormally expressed<sup>97</sup> and function abnormally in people with schizophrenia<sup>98</sup>.

## Depression

By the year 2020, depression is estimated to become the second largest contributor to the disease burden in the world, while tobacco use is estimated to be the largest single health problem in terms of mortality and disability<sup>99</sup>. Depression is associated with a 50% increase in mortality after controlling for confounders<sup>100</sup>. Moreover, there is an apparent association between smoking and depression<sup>101</sup> as depression is over-represented among smokers and smoking is over-represented among individuals with depression<sup>102</sup>, an association which a 26-year Danish study<sup>103</sup> seems to confirm. A study in the *British Journal of Psychiatry*<sup>104</sup> suggests that the link between smoking and depression arises from two routes; the first involving common underlying genetic and environmental factors, and the second a direct path in which smoking increases the risk of depression. This evidence is consistent with the conclusion that there is a cause-and-effect relationship between smoking and depression, in which cigarette smoking increases the risk of symptoms of depression. However, giving up smoking is associated with significant mental health gains, particularly in relation to symptoms of anxiety<sup>105</sup> and depression<sup>106</sup>.

## Bipolar affective disorder

*'Smoking is associated with poorer outcomes for people with bipolar affective disorder'*  
The co-occurrence of cigarette smoking and bipolar disorder: phenomenology and treatment considerations, 2011<sup>107</sup>.

A March 2015 systematic review and meta-analysis<sup>108</sup> of premature mortality in people with bi-polar affective disorder (BPAD) concluded that *'[t]here is no evidence that all-cause mortality for patients with BPAD has improved over time relative to the general population.'* People with bipolar disorder experience extreme swings in mood, from periods of overactive, excited behaviour, [known as 'mania' or 'manic episodes'], to deep depression, although they may have stable periods between these severe highs and lows. A 2015 review<sup>109</sup>, which aimed to explore the issues specific to smoking cessation in bipolar disorder and provide the most clarity regarding treatment options and outcomes, noted that *'although the relationship between tobacco smoking and bipolar disorder may be bi-directional and that cause and effect may be difficult to determine, the majority of studies reviewed suggest that tobacco smoking appears to play a mediating role in the severity of bipolar disorder.'* Research has also noted a relationship between smoking and more severe course (how the disorder manifests over time), relapse and higher number of hospitalisations<sup>110</sup>.

## Schizophrenia, schizotypal and delusional disorders

A 2005 meta-analysis<sup>111</sup> of 42 individual worldwide studies reported that people with schizophrenia had odds of smoking 5.3 times higher than the general population. People with schizophrenia have a 20% shorter life expectancy than the general population and are more vulnerable to many conditions, including diabetes, coronary heart disease, hypertension and emphysema<sup>112 113</sup>, and smoking-related fatal disease is more prominent than in the general population<sup>114</sup>. A 2010 study<sup>115</sup> from the UK found that men with schizophrenia living in the community had a 20.5 year reduced life expectancy whilst for women with schizophrenia it was 16.4 but since those who were most unwell were excluded this may be an underestimate. A large scale (n = 174,277) follow-up study from California<sup>116</sup>, covering approximately 1.7 million years, found that tobacco-related conditions accounted for roughly 53% of total deaths in schizophrenia.

Despite the high prevalence of cardiovascular risk factors in people with schizophrenia, these conditions tend to be both under-diagnosed and under-treated<sup>119</sup>. A number of studies<sup>120</sup> support the view that patients with schizophrenia may be dying prematurely as they are not gaining access to or receiving the same medical care as the general population.

One small Scottish study<sup>121</sup> found that people with schizophrenia started smoking at an average age of mid-to-late-teens just like the general population, and that of those people 90% had started smoking before their illness began. Some research appears to indicate that people with schizophrenia smoke as a kind of ‘self-medication’ to improve memory<sup>122</sup>, reduce symptoms<sup>123</sup>, and to alleviate medication-related side effects such as sedation and neuroleptic-induced Parkinsonism<sup>124</sup> but the reasons for the higher rates of smoking are complex and not yet clearly understood. A review of studies which examine the relationship between antipsychotic medication and cigarette smoking<sup>125</sup> found emerging evidence (but suggested that more evidence is needed) that in people with schizophrenia and schizoaffective disorder, typical antipsychotics may increase smoking and decrease people's ability to stop, whereas atypical antipsychotics decrease smoking and promote smoking cessation. A March 2015 clinical review<sup>126</sup> cautions that future research into smoking cessation for people with schizophrenia should consider the impact of stopping smoking on the weight and diabetes risk.

## Smoking and substance misuse

*‘Since tobacco dependence is a dependence disorder, psychiatrists are the experts in performing interventions in this area. It is their duty to do so in view of the major impact of tobacco dependence on, for example, the metabolism of psychotropic treatments, morbidity (such as lung cancer) and mortality.’*

European Psychiatric Association Guidance, 2014<sup>127</sup>.

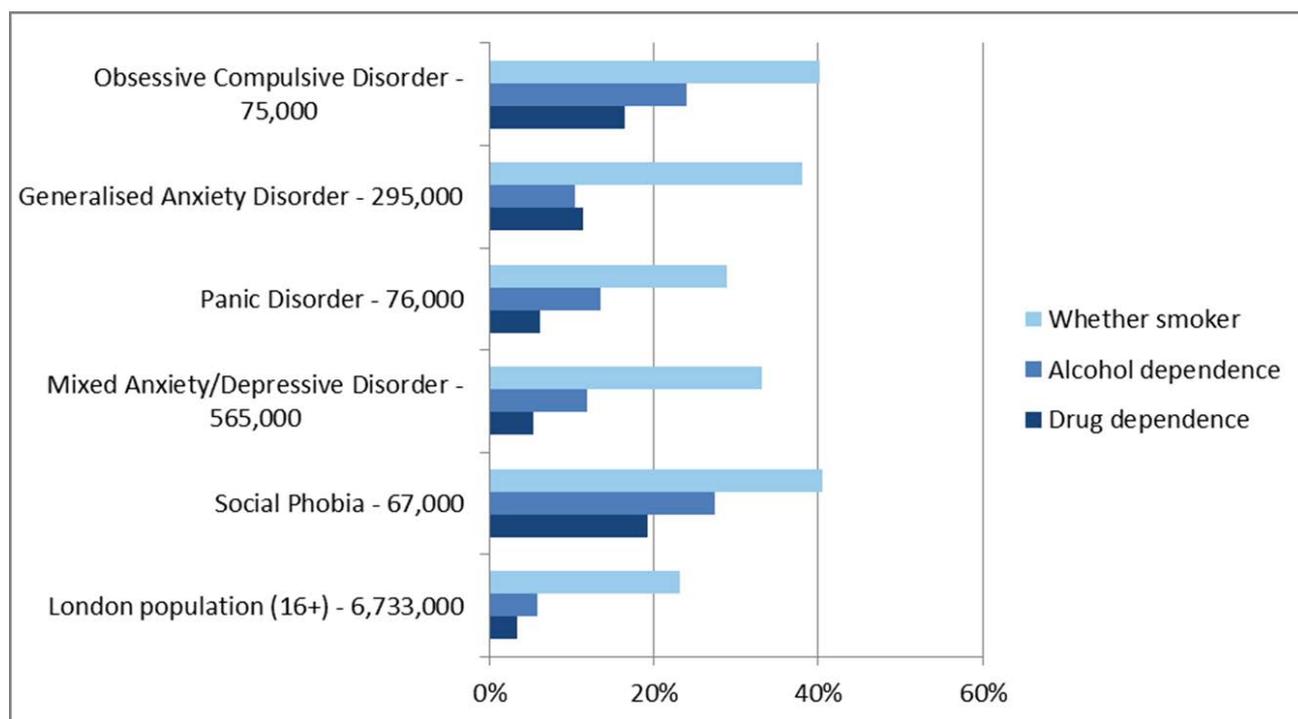
The 2013 joint report<sup>128</sup> by the Royal College of Psychiatrists and the Royal College of Physicians ‘Smoking and mental health’ noted that ‘*co-morbid alcohol and substance misuse, as well as smoking, is extremely common in those with other mental disorders.*’ Cigarette smoking amongst substance misusers is an important health risk within a population subgroup whose general health may already be compromised<sup>129</sup>. People who misuse substances tend to start smoking at a

younger age and are also more likely to be heavy smokers, nicotine dependent, and experience greater difficulty with quitting<sup>130</sup>. Individuals with current or past substance misuse issues are also likelier to have psychiatric, cognitive or medical problems which require more specialised cessation interventions<sup>131</sup>. A 2014 cohort study<sup>132</sup> of schizophrenia and related psychoses (the latter including bipolar disorder with psychotic features and schizoaffective disorder), calculated the following odds ratios for substance use relative to the general population: smoking (4.6), heavy alcohol use (4.0), heavy cannabis use (3.5) and recreational drug use (4.6).

Despite the serious risks which tobacco use poses, the benefits of smoking cessation have not always been a focus when engaging with substance misusers. Barriers which may contribute to this lack of focus include staff attitudes about and use of tobacco, lack of adequate staff training to address tobacco use, and limited tobacco-dependence treatment resources<sup>133</sup>. However, a 2004 meta-analysis revealed initial success with smoking cessation at post-treatment, along with evidence that smoking cessation efforts may actually support long-term drug and alcohol sobriety<sup>134</sup>. In addition, clinical studies suggest that smoking cessation can be integrated into substance misuse treatment without jeopardising recovery goals<sup>135, 136, 137</sup>.

An 11-year retrospective study which followed up on individuals who received addiction treatment found that more than half of all deaths were tobacco-related<sup>138</sup>. In a 24-year prospective study of heroin misusers entering treatment, the death rate of smokers was found to be four times that of non-smokers, making smoking status a significant predictor for death in this population<sup>139</sup>.

## The interplay between smoking, mental health and substance misuse



The chart above is specific to London<sup>140</sup> but it has been included as a good illustration (based on data from the Adult Psychiatric Morbidity Survey, 2007<sup>141</sup>) of the increased prevalence of smoking, alcohol and substance misuse (and how they overlap) amongst some groups of the population with mental ill health.

### Alcohol

Alcohol is responsible for one in twenty deaths in Scotland and mortality rates have doubled since the early 1990s<sup>142</sup>. A large-scale survey in the United States suggests that people who are dependent on alcohol are three times more likely than those in the general population to be smokers, and people who are dependent on tobacco are four times more likely than the general population to be dependent on alcohol<sup>143</sup>. Treatment of tobacco dependence in alcoholic smokers does not seem to cause excessive relapse to drinking and, in fact, stopping smoking may enhance abstinence from drinking<sup>144</sup>.

Alcohol and tobacco, alone or in combination, are associated with an increased risk of various cancers, including those of the upper aero-digestive tract and liver<sup>145</sup>. Combined alcohol and tobacco use can increase the risk of cancer of the oral cavity and throat (pharynx); the combined effect is such that heavy drinkers and smokers have 38 times the risk of abstainers from both products<sup>146</sup>. Similarly,

80 per cent of oesophageal squamous cell carcinomas in Europe and the Americas appear to be attributable to the synergistic effects of alcohol and tobacco<sup>147</sup>. There is clear evidence that for either alcohol or tobacco use, the risk of oesophageal cancer decreases rapidly, strongly and significantly with longer periods of abstinence, although the risk benefit of merely quitting alcohol drinking was delayed (>10 years of cessation) unless it was also accompanied by several years of smoking cessation<sup>148</sup>.

## Cannabis

Cannabis is most commonly smoked with tobacco and people with psychotic illness smoke more tobacco than the general population<sup>149, 150</sup>. The association between cannabis and psychosis remains controversial, although research suggests that it can be linked with an increased relative risk of developing psychosis<sup>151</sup>, and a decreased age of onset of psychosis<sup>152</sup>. However, tobacco too may be implicated: a 2013 cross-sectional study<sup>153</sup> using survey data from 1,929 young adults concluded that smoking is an equally strong independent predictor of frequency of psychotic-like experiences as monthly cannabis use; a 2014 population-based birth cohort study<sup>154</sup> appears to confirm this. Both studies attempt to control for how seldom cannabis is used without tobacco and make the case that future research should examine the effects of cigarette smoking more closely when evaluating risk of psychosis.

## Methadone

Smoking prevalence among outpatient methadone users in the UK is reported to be 93%<sup>155</sup>. Methadone has been shown to increase cigarette smoking in a dose-dependent manner, whereas smoking/nicotine has been shown to increase methadone self-administration and reinforcing properties<sup>156</sup>.

Positive benefits of smoking reduction using nicotine replacement therapy (NRT) were found amongst a group of individuals with respiratory illness in a U.S. methadone maintenance programme. An association between subjective short-term health changes and reduction in smoking was demonstrated<sup>157</sup>.

A 2011 case report<sup>158</sup> observed that decreased intake of cigarette smoke can lead to a reduction in methadone metabolism, resulting in higher serum concentrations. This suggests that methadone users should be monitored for signs of methadone

toxicity upon the start of smoking cessation, and the dose of methadone adjusted accordingly.

Substance misusers have a higher burden of both mental and physical disease than the general population<sup>159</sup>. Up to three in four people using drugs have mental health issues, and up to one in two people with alcohol problems may have a mental health problem<sup>160</sup>, yet their physical health needs are less likely to be met. Surveys suggest that many people in drug or alcohol treatment programmes are interested in giving up smoking<sup>161</sup>. Until drug and alcohol services engage more effectively with tobacco dependence in their client groups (whether in residential or community settings), many will pass through the treatment system and overcome their 'primary' drug of misuse only to die prematurely from tobacco-related illnesses.

## Smoking and suicide

It has been speculated for some time<sup>162</sup> that cigarette smoking is predictive of future suicidal behaviour. A 2012 meta-analysis of prospective cohort studies<sup>163</sup> established an independent association between smoking and suicide and there is some evidence<sup>164</sup> to support the proposition that population interventions for smoking could reduce risk for suicide.

The results of a 2013 study<sup>165</sup>, using data from the U.S. National Epidemiologic Survey on Alcohol and Related Conditions (NESARC), suggest that smokers with major depressive disorder (MDD) show distinct clinical characteristics, and cigarette smoking can predict attempted suicide in a community-representative sample of people with MDD.

A 2009 prospective study<sup>166</sup> of 116 people with bipolar disorder reported that current cigarette smoking was associated with suicidal ideation and behaviour both at baseline and at nine-month follow-up; those who smoked were significantly more likely to make suicide attempts during the prospective follow-up period, with fivefold increased odds of a prospectively observed suicide attempt in a nine-month follow-up period.

## Smoking in acute mental health settings

*'Condoning smoking reinforces the stigmatisation of psychiatric illness, patients and the facilities treating them. Whereas the rest of society is continually encouraged to quit on health grounds, the psychiatric hospital stands out as a beacon of hypocritical liberalism. Such a situation is anachronistic, belonging to the era of 'One Flew Over the Cuckoo's Nest' when patients demanded their fags from the tyrant Nurse Ratched.'*

Psychiatric Bulletin comment, May 2014<sup>167</sup>

In March 2006, Scotland introduced the law that banned smoking in enclosed public spaces such as workplaces, pubs and restaurants. However, designated rooms in psychiatric hospitals and psychiatric units were exempt from the ban. In January 2009, the Scottish Government consulted stakeholders, service users and the public on the best way to achieve smoke-free mental health services in Scotland. As no clear consensus emerged, guidance was viewed as a solution which avoided legislative bureaucracy and could effect change quickly. *'Smoke-free mental health services in Scotland: Implementation guidance'* offers a step-by-step approach to support the process of engagement with all concerned, including staff and patients who are most directly affected. See:

[www.healthscotland.com/documents/5041.aspx](http://www.healthscotland.com/documents/5041.aspx)

Although the exemption remains in place the current tobacco control strategy<sup>168</sup> has as an action: *'Taking account of the outcome of the Judicial Review of the State Hospital decision to prohibit smoking, mental health services should ensure that indoor facilities are smoke-free by 2015.'* All NHS grounds became smoke-free in March 2015. The Mental Welfare Commission for Scotland's Guidance on Smoking<sup>169</sup> says *'[t]he Commission is of the opinion that hospital managers are legally entitled to ban smoking in a hospital and in its grounds if they see fit'*.

In 2008 mental health units in England went smoke-free by law. It has been found<sup>170</sup> that patients generally approved of the smoke-free policy, provided they could smoke outside; however, structured support is recommended to ensure that opportunities for health promotion in a vulnerable population are not being missed.

Smoke-free mental health still has many barriers to overcome. A survey of staff attitudes toward smoking-related policies in England found that psychiatric staff

were almost three times more likely to oppose implementation of a smoking ban in their workplace than general hospital staff (29% v 10%)<sup>171</sup>. Smoking seems to have become entrenched in the culture of mental health settings and may have been used as a way to placate or to engage with patients<sup>172</sup>. A paper which reviewed the findings from 26 international studies found that staff generally anticipated more smoking-related problems than actually occurred and that there was no increase in aggression, use of seclusion, discharge against medical advice or increased use of as-needed medication following the ban<sup>173</sup>. A Japanese study<sup>174</sup> has found that non-smoking patients had fewer hospital readmissions than smoking patients, which may be another reason to promote smoking cessation.

A study of smoke-free policies across psychiatric inpatient settings in Australia<sup>175</sup> attempted to identify factors that may contribute to the success or failure of smoke-free initiatives. Factors associated with greater success of smoke-free initiatives were:

- clear, consistent, and visible leadership
- cohesive teamwork
- extensive training opportunities for clinical staff
- fewer staff smokers
- adequate planning time
- effective use of nicotine replacement therapies
- and consistent enforcement of a smoke-free policy.

Smoking bans in psychiatric settings can lead to better patient care. A report following an experimental ban on smoking in an emergency psychiatric in-patient unit in Italy<sup>176</sup> notes that it was clear that little thought was given to the impact of smoking because it was such a way of life for staff and patients and some staff even believed that their smoking with patients had therapeutic value. However, after an initial phase of opposition, both patients and staff adapted to the new policy. Non-smoking environments and support for quit attempts improve the overall health and well-being of both staff and patients. Unfortunately, it has been noted<sup>177</sup> that *'a strong evidence base that would confidently suggest how best to eliminate smoking and treat tobacco dependence in mental health in-patient settings (where no exemptions from the policy are allowed) is missing'*.

### Human rights argument – the 'Rampton' ruling

As mental health units are often acting as a person's home, especially if that person has been 'sectioned', it has been suggested that an individual has the

'right' to smoke. In July 2009, the Court of Appeal in London confirmed that the right to smoke was not protected by Article 8 of the Human Rights Act 1998 (HRA)<sup>178</sup>. Article 8 – Right to privacy ([1] everyone has the right for his private and family life, his home and his correspondence) is a qualified right and allows an individual choice only if it does not endanger others. Not only did the Court of Appeal undertake a detailed analysis of the rights protected by Article 8, it also considered whether, for those detained in hospital on a long-term basis, the hospital was their home. The court noted that a mental health unit was an establishment maintained wholly or mainly for the reception and treatment of persons suffering from mental disorder (as defined by the [UK] Mental Health Act 2007) and that Article 8 conferred a right to respect for private life with which there could be no interference except in the interests of, amongst other things, public safety, the prevention of disorder and crime, and the protection of health, morals, or the rights or freedoms of others. The court held that the smoking ban did not have a sufficiently adverse effect on a patient's physical or moral integrity. It was necessary and proportionate for the protection of the health of both patients and staff.

### Carstairs ruling

In December 2011 the State Hospital, Carstairs, prohibited the possession of tobacco products and smoking in the grounds as well as within the hospital. A patient called Charles McCann challenged the ban, arguing that he would be allowed to smoke if he was a prisoner or if his condition could be treated in the community.

In August 2013 a judge, Lord Stewart, said he was prepared to make a restricted declaration that the policy was unlawful as it was a breach of Mr McCann's rights under the European Convention on Human Rights (ECHR). Lord Stewart commented that whilst it would be wrong to strike down the board's decision to go comprehensively smoke-free, he was allowing the application '*with a degree of reluctance*' adding that '*[i]t is a perfectly reasonable proposition, given contemporary understanding about the effects of tobacco smoking, that patients in a hospital should not be permitted to smoke*'. Lord Stewart also suggested the decision to prevent Mr McCann from smoking had not been made with due reference to the principles set out in Scotland's mental health legislation.

## Appeal:

The State Hospitals Board for Scotland appealed against Lord Stewart's decision, and three judges considered the appeal. On 12<sup>th</sup> August 2014 Lord Carloway ruled that *'[t]he decision about whether patients, or indeed staff and visitors, should be permitted to smoke within the boundaries of the State Hospital was, and is, one of management.'* He added that *'[i]t is not for the court to review the merits of the decision and to substitute its own views on the desirability of imposing a comprehensive smoking ban in the State Hospital'*, further noting that the ban was *'proportionate to the legitimate aim of promoting the health of those detained and those at work'*.

Lord Carloway appears to be saying that management decisions at the State Hospital were not governed by the Mental Health (Care and Treatment) (Scotland) Act 2003 and that Lord Stewart's ruling should not have been made on that basis; that the decision by management to implement the complete smoking ban was lawful; that the ban did not contradict the Government's policy; that a partial smoking ban would have been unworkable; and that Mr McCann's rights under the European Convention of Human Rights article 8 and article 14 had not been violated.

The full text of the ruling, Charles McCann v. The State Hospitals Board for Scotland, [2014] CSIH 71, Second Division, Inner House, Court of Session (12 August 2014) is available at: [www.scotcourts.gov.uk/search-judgments/judgment?id=fa44a0a6-8980-69d2-b500-ff0000d74aa7](http://www.scotcourts.gov.uk/search-judgments/judgment?id=fa44a0a6-8980-69d2-b500-ff0000d74aa7)

## Do e-cigarettes have a role to play?

Electronic cigarettes (e-cigarettes) are battery-powered devices that heat a liquid into a vapour, which is then inhaled by the user. The liquid often contains nicotine and flavours, mixed with a carrier liquid of propylene glycol or glycerine. E-cigarettes are not cigarettes and do not contain tobacco.

There has been much debate in the tobacco control community about whether e-cigarettes have a role in harm reduction<sup>179, 180</sup>, and recently (2014) a population survey from the United States suggested that that smokers with mental health conditions are differentially susceptible to e-cigarette use<sup>181</sup>. A special article in the 2014 Psychiatric Bulletin<sup>182</sup> observed, with reference to conventional smoking

cessation medications, *'[it] is probably fair to say that what mental health trusts are currently facing - albeit undoubtedly and rightly in the name of health promotion and equality - is the somewhat daunting prospect of enforcing entirely smoke-free trust premises, while trying to offer the majority of their patients treatment for cessation or temporary abstinence that they might not want to use.'* A small pilot study<sup>183</sup> has shown that the use of e-cigarette substantially decreased cigarette consumption without causing significant side effects in chronic schizophrenic patients who smoke not intending to quit. A secondary analysis from New Zealand<sup>184</sup> using data from people with mental health issues who were motivated to quit concluded that for people with mental illness, e-cigarettes may be as effective and safe as NRT patches, yet more acceptable, and associated with greater smoking reduction. Meanwhile, the Psychiatric Bulletin<sup>185</sup> comments that *'[t]he advent of electronic cigarettes, however, provides a real opportunity for psychiatric hospitals to go smoke free. A prescription of regular vaping for dyed-in-the-wool smokers could be an important addition to the armamentarium of those committed to changing the status quo.'* Further investigation appears to be warranted.

## Smoking in prisons

Smoking related issues in prison 2013	% of female offenders reporting	% of male offenders reporting
Are you a smoker?	87	73
If yes, do you want to give up smoking?	42	56
Do you share your cell with a smoker?	28	35
Have you received advice on smoking & its related health risks since coming into prison?	39	33

**Source:** Table 8, 14<sup>th</sup> Survey Bulletin, Scottish Prison Service, December 2013<sup>186</sup>.

NB: survey achieved an overall prisoner response rate of 60% (n=4137). Of these, 94% were male and 6% were female.

On 10 October 2014 the total population of prisoners in custody in Scotland stood at 7,755<sup>187</sup>. In a 2013 Scottish Prison Service Survey 80% of remand prisoners reported that they smoked, 54% expressed a desire to give up smoking, and 50% reported sharing their cell with a smoker, down from two-thirds (66%) in 2011<sup>188</sup>. The 1998 Office for National Statistics survey on psychiatric morbidity among prisoners in England and Wales<sup>189</sup> found that:

- over 90% of prisoners had one or more of the five psychiatric disorders studied (psychosis, neurosis, personality disorder, hazardous drinking and drug dependence)
- remand prisoners had higher rates of mental disorder than sentenced prisoners; and rates of neurotic disorder in remand and sentenced prisoners were much higher in women than in men.

HM Chief Inspector of Prisons in Scotland 2008 thematic review<sup>190</sup>, 'Out of Sight: Severe and Enduring Mental Health Problems in Scotland's Prisons' found that *'[a] very large proportion of prisoners have some form of mental health problem. Of these, only a small proportion have severe and enduring mental health problems. At least 315 prisoners with severe and enduring mental health issues were identified by prisons (not counting Polmont). A further eight prisoners were identified who were, at the time, undergoing assessment in a hospitality facility. Excluding Polmont, this represents around 4.5% of all prisoners. This is a much higher proportion than in the population as a whole.'* The most common issues identified in the review were schizophrenia and bi-polar affective disorder. The review additionally noted that the majority of prisoners with mental health issues also have substance misuse issues.

Since 26 March 2006 prisoners have not been permitted to smoke in communal areas and workshops within Scottish prison service establishments. Prisoners are allowed to smoke in cells as long as the governor has not designated the cell as a non-smoking cell in accordance with the prison rules. On admission to custody and when moving cells, prisoners are asked for their smoking preference to minimise, wherever practicable, non-smokers sharing cells with smokers. As may be seen from the table above there is a high smoking prevalence and, for male offenders especially, a wish to quit. It is an action in the current tobacco control strategy<sup>191</sup> that *'the Scottish Government will work in partnership with the Scottish Prison Service and local NHS Boards to have plans in place by 2015 that set out how*

*indoor smoke-free prison facilities will be delivered'.*

Feelings of social isolation, anxiety about legal matters, family left on the outside, transfers to other prisons, restricted movement and perceived social norms may contribute to the high rates of smoking in prisons. However, a 2014 review<sup>192</sup> suggests that smoking cessation programmes can be effective, even in prison environments that are highly conducive to smoking, and should form a part of routine care within prison systems.

## Smoking in the homeless population

In 2013-14, 36,457 households made homeless applications to their local council in Scotland, and 29,326 households were assessed by their local authority as homeless or potentially homeless<sup>193</sup>. Figures for rough sleepers are harder to obtain as there has been no comprehensive count since 2003, and those who are not engaged with the system tend to be missed from the statistics, but in 2013/14, 1,787 of those who went to their local authority for homelessness assistance reported that they slept rough the previous night; the previous housing situation for 204 of this group was 'long term roofless'<sup>194</sup>.

Research is scarce but the prevalence of tobacco smoking among homeless people may be more than 90%<sup>195</sup>. Homeless people have higher rates of premature mortality than the rest of the population, especially from suicide and unintentional injuries, and an increased prevalence of a range of infectious diseases, mental disorders, and substance misuse<sup>196</sup>. The excess mortality may be explained by high exposure to (often coexisting) risk factors, including alcohol, smoking, illicit drug use, and mental disorders<sup>197</sup>. The poor health of the homeless population is further exacerbated by unmet health care needs<sup>198, 199</sup> and challenges in adherence to treatment plans and taking medication<sup>200</sup>. For some homeless smokers, smoking may also entail additional risk-taking behaviour such as sourcing illicit tobacco, gathering tobacco from discarded butts and sharing cigarettes<sup>201</sup>. Engagement with services may be an issue for smokers who are homeless but findings from research conducted in the United States<sup>202</sup> suggest that they may benefit from smoking cessation programs that are co-located in medical or drug treatment settings.

## Smoking cessation and mental health

### Motivation to quit smoking

There appears to have been a belief amongst mental health professionals that people with mental health issues are not motivated to quit smoking<sup>203</sup>. However, a 2009 review assessing motivation to quit smoking in people with mental illness<sup>204</sup> makes it apparent that there is evidence people with mental disorders are as motivated to quit smoking as the general population (in Scotland in 2013, 70% of smokers wanted to quit<sup>205</sup>), although it notes that those with psychotic disorders may be less motivated than individuals with depression.

### Smoking cessation for improved mental health

It was once believed that smoking cessation could exacerbate mental health issues<sup>206, 207</sup>. However, an extremely robust systematic review and meta-analysis published in the 2014 British Medical Journal<sup>208</sup> noted that *'[t]here is consistent evidence that stopping smoking is associated with improvements in depression, anxiety, stress, psychological quality of life, and positive affect compared with continuing to smoke. The strength of association is similar for both the general population and clinical populations, including those with mental health disorders.'* Smoking cessation interventions (whether brief interventions, intensive individual or group support, or pharmacotherapies) are among the most cost-effective interventions available in preserving life<sup>209</sup>, even if an individual has smoked for many years.

### Smoking cessation interventions

A 2013 Cochrane Review<sup>210</sup> found that nicotine replacement therapy (NRT), bupropion and varenicline had been shown to improve the chances of quitting. Combination NRT and varenicline are equally effective as quitting aids. The review also notes that 'on current evidence, none of the treatments appear to have an incidence of adverse events that would mitigate their use.'

### Varenicline

Varenicline (trade name Champix®) is a drug prescribed to assist smoking cessation which in clinical trials during drug development excluded patients with active psychiatric illnesses, leaving the risks associated with varenicline use in this patient population unknown. A review of the evidence in Expert Opinion on Drug Safety<sup>211</sup> has concluded that although the risk of potential neuropsychiatric events

is evident through voluntary reporting systems and reported cases in the literature, multiple studies and case reports support the use of varenicline in the mental health population. Studies<sup>212, 213</sup> conducted to-date of varenicline, where some research participants have pre-existing psychiatric conditions, have found it to be effective and generally well-tolerated. More recent findings from a pilot study<sup>214</sup> showed that varenicline did not prompt exacerbation of psychiatric symptoms in a small sample of people with schizophrenia. Larger scale trials assessing the safety and efficacy profile of varenicline in people with a range of mental health conditions are ongoing<sup>215</sup>, but a March 2015 systematic review and meta-analysis<sup>216</sup> of randomised placebo controlled trials that found *'no evidence of an increased risk of suicide or attempted suicide, suicidal ideation, depression, or death with varenicline'*. The results of a 2013 Cochrane Review<sup>217</sup> suggest that varenicline is the most clinically effective drug for short-term abstinence in smoking cessation.

*'A significant number of people approaching NHS Stop Smoking Services may also happen to be living with mental health conditions. If these services are to offer a consistently safe and effective intervention for all of its clients, then routine screening of all clients for mental health problems should be undertaken.'*  
The prevalence of mental health problems among users of NHS stop smoking services: effects of implementing a routine screening procedure. 2011<sup>218</sup>.

### Barriers to smoking cessation

A 2013 cross-sectional study<sup>219</sup> within a database of electronic UK primary care medical records (The Health Improvement Network (THIN) database) found that interventions are lower *per consultation* for smokers with mental health indicators compared with smokers without mental health indicators. A 2014 systematic review<sup>220</sup> of the qualitative and quantitative literature on perceived barriers to smoking cessation in selected vulnerable groups (including people with mental health issues, prisoners, and the homeless) suggests that *'interventions with vulnerable groups need to address wider social, community and cultural factors as well as individualised cessation support. Addressing the predictors of cessation found within the general population, such as nicotine dependence and enjoyment, remain important for vulnerable groups.'* Withdrawal from nicotine may pose a challenge to mental well-being<sup>221</sup>, and enhanced mood or stress management intervention may need to be incorporated into quit support<sup>222</sup>. It has been

suggested<sup>223</sup> that a simple screening procedure to increase the routine recording of mental health issues in a stop-smoking service would help ensure that services can be tailored and delivered appropriately to the client group.

### Steps for implementing smoking cessation in practice

- Assess the nicotine dependency
- Agree on the quit smoking momentum
- Provide smoking cessation counselling
- Offer pharmacological support
- Monitor medication, weight, metabolic markers and offer exercise

Stubbs B, Vancampfort D, Bobes J, De Hert M, Mitchell AJ. How can we promote smoking cessation in people with schizophrenia in practice? A clinical overview. *Acta Psychiatrica Scandinavica*. 2015: 1-9. [www.ncbi.nlm.nih.gov/pubmed/25754402](http://www.ncbi.nlm.nih.gov/pubmed/25754402)

## Smoking and psychiatric medication

Smoking affects the metabolism of various medications, including diazepam, haloperidol (partial), olanzapine (partial), clozapine, mirtazapine (partial), tricyclic antidepressants, barbiturates and benzodiazepines. Smoking cessation may improve the effectiveness of medication and reduce the amount needed. The Royal College of Psychiatrists has estimated that smoking increases psychotropic drug costs in the UK by up to £40 million per annum<sup>224</sup>.

According to the Maudesley Prescribing Guidelines<sup>225</sup>, *'[t]obacco smoke contains polycyclic aromatic hydrocarbons (PAHs) that induce (increase the activity of) certain hepatic enzymes (CYP1A2 in particular). For some drugs used in psychiatry smoking significantly reduces drug plasma levels and higher doses are required than in non-smokers.*

*When smokers quit, enzyme activity reduces over a week or so. (Nicotine replacement has no effect on this process.) Plasma levels of affected drugs will then rise, sometimes substantially. Dose reduction will usually be necessary. If smoking is restarted, enzyme activity increases, plasma levels fall and dose increases are therefore required. The process is complicated and effects are difficult to predict. Of course, few people manage to give up smoking completely, so additional complexity is introduced by intermittent smoking and repeated attempts at*

*stopping completely. Close monitoring of plasma levels (where useful), clinical progress and adverse effect severity are essential.'*

A guide to which medications must be carefully monitored, '*Smoking and patients with mental health problems*' is free to download from:

[www.nice.org.uk/proxy/?sourceUrl=http%3A%2F%2Fwww.nice.org.uk%2Fnicedia%2Fdocuments%2Fsmoking\\_mentalhealth.pdf](http://www.nice.org.uk/proxy/?sourceUrl=http%3A%2F%2Fwww.nice.org.uk%2Fnicedia%2Fdocuments%2Fsmoking_mentalhealth.pdf)

## Exposure to second-hand smoke

Direct exposure to second-hand smoke (SHS) can cause many of the same diseases as active smoking<sup>226</sup>. Whilst less is known about indirect exposure to second-hand smoke, tobacco smoke is a toxic substance with no safe level of exposure although the risks from exposure are largely dose-related<sup>227, 228</sup>. Even low levels of exposure may cause irritation to eyes and lungs, nausea and headaches as well as creating an unpleasant smell. A 2006 report from the US Surgeon General concluded that '*second-hand smoke is not a mere annoyance. It is a serious health hazard that leads to disease and premature death in children and non-smoking adults*'<sup>229</sup>.

Inhaling second-hand smoke can cause cancer in non-smokers and many of the cancer-causing chemicals are present in higher concentrations than in the smoke inhaled by the smoker themselves<sup>230</sup>. Research<sup>231</sup> indicates that non-smokers' heart arteries show a reduced ability to dilate when exposed to tobacco smoke, diminishing the ability of the heart to receive blood. In addition, the same half-hour of second-hand smoke exposure activates blood platelets, which can initiate the process of atherosclerosis (blockage of the heart's arteries) that can lead to heart attacks. These effects may explain other research showing that non-smokers regularly exposed to SHS suffer death or disease rates 30% higher than those of unexposed non-smokers<sup>232</sup>. There is clear evidence for reducing exposure to second-hand smoke<sup>233, 234, 235</sup>, whether at population level or within mental health units.

## Second-hand smoke exposure and mental health

A well-designed study using data from the Scottish Health Survey<sup>236</sup> found that second-hand smoke exposure was associated with psychological distress and risk of future psychiatric illness. A large cross-sectional study of Canadian adults<sup>237</sup> has also found that SHS exposure in private spaces is negatively associated with the mental health of non-smokers.

## Second-hand smoke exposure and domiciliary care

Even though second-hand smoke is a known health hazard, many community staff still find themselves regularly exposed to it on home visits. They may find it difficult to ask clients not to smoke in their own homes and it is therefore vital that managers and employers have a clear policy on how to protect staff from the harms of second-hand smoke. For examples of best practice on domiciliary visits see:

- The Royal College of Nurses guidance  
[www.rcn.org.uk/\\_data/assets/pdf\\_file/0006/78702/003043.pdf](http://www.rcn.org.uk/_data/assets/pdf_file/0006/78702/003043.pdf)
- NHS Lothian smoke-free home visits  
[www.nhslothian.scot.nhs.uk/MediaCentre/PressReleases/2015/Pages/SmokefreeHomeVisits.aspx](http://www.nhslothian.scot.nhs.uk/MediaCentre/PressReleases/2015/Pages/SmokefreeHomeVisits.aspx)

## Recommendations

- the huge health disparities for people with mental health issues should be acknowledged in the forthcoming mental health strategy for Scotland, with an emphasis on improved support for smoking cessation
- health advocates must challenge any remaining assumptions that smoking is a useful coping mechanism
- clear guidelines for both smoke-free acute and community mental health settings should be developed
- ASH Scotland supports the Royal College of Physicians and Royal College of Psychiatrists<sup>238</sup> in recommending that *'professionals working with or caring for people with mental disorders should be trained in awareness of smoking as a major health issue, to deliver brief cessation advice, to provide or arrange further support for those who want help to quit and to provide positive (i.e. non-smoking) role models. Such training should be mandatory'*.

- there should be a higher priority for research, prevention and treatment of the determinants of premature death in people with mental health issues
- smoking cessation advice should receive a higher priority in everyday clinical practice for people with a mental health diagnosis
- smoking cessation for people with mental health issues, and the attendant health disparities, should also be embedded in population health programmes
- there should be support to build national networks to develop specialist smoking cessation services for people with mental health issues
- better recording of smoking and interventions should take place within mental health services, as well as better recording of mental health indicators in smoking cessation settings.

## Resources

- **Smoke-free mental health services in Scotland: Implementation guidance** (February 2011) provides a step-by-step approach to support the process of engagement with all concerned, including staff and patients who are most directly affected. [www.healthscotland.com/documents/5041.aspx](http://www.healthscotland.com/documents/5041.aspx)
- **Barriers and facilitators to smoking cessation in people with enduring mental health problems** - A report from the Institute for Applied Health Research, School of Health and Life Sciences, Glasgow Caledonian University (published March 2013). [www.biomedcentral.com/1471-2458/13/221](http://www.biomedcentral.com/1471-2458/13/221)
- **Developing a smoke-free environment at the State Hospital, Carstairs.** A report from NHS Scotland on the steps taken to develop a smoke-free environment at the State Hospital, Carstairs (published February 2012) [www.ashscotland.org.uk/media/5737/Carstairs%20Working%20Towards%20Smoke-Free%202012.pdf](http://www.ashscotland.org.uk/media/5737/Carstairs%20Working%20Towards%20Smoke-Free%202012.pdf)
- **Stop-smoking support in mental healthcare settings: case studies, plus expert commentary** from Dr. Lisa McNally - these Scottish Tobacco Control Alliance Mental Health Working Group and Cancer Research UK reports identified and articulated some of the challenges in providing stop-smoking advice to individuals who may be experiencing mental ill health (published March 2010): [www.ashscotland.org.uk/media/5761/SMHWG%20Case%20Studies.pdf](http://www.ashscotland.org.uk/media/5761/SMHWG%20Case%20Studies.pdf) and [www.ashscotland.org.uk/media/5762/SMHWGcasestudiesexpertcom.pdf](http://www.ashscotland.org.uk/media/5762/SMHWGcasestudiesexpertcom.pdf)

- **Guidance - Smoking cessation in secondary care: mental health settings.**  
Self-assessment framework for NHS mental health trusts to develop local action to reduce smoking prevalence and the use of tobacco.  
Public Health England, January 2015.  
[www.gov.uk/government/publications/smoking-cessation-in-secondary-care-mental-health-settings](http://www.gov.uk/government/publications/smoking-cessation-in-secondary-care-mental-health-settings)
- **NICE guidelines [PH48] November 2013S - smoking cessation in secondary care: acute, maternity and mental health services**  
<https://www.nice.org.uk/guidance/ph48>
- The UK Forum for Mental Health in Primary Care has produced ‘**Pharmacy guidance on smoking and mental health**’ (February 2010) which may be downloaded from:  
[www.rcgp.org.uk/get\\_involved/rcgp\\_standing\\_groups/mental\\_health/resources.aspx](http://www.rcgp.org.uk/get_involved/rcgp_standing_groups/mental_health/resources.aspx)
- **Evidence-based guidelines for the pharmacological management of substance misuse, addiction and comorbidity: recommendations from the British Association for Psychopharmacology.** Journal of Psychopharmacology 18(3) (2004) 293–335.  
[www.bap.org.uk/pdfs/BAP\\_Guidelines.pdf](http://www.bap.org.uk/pdfs/BAP_Guidelines.pdf)
- **European Psychiatric Association (EPA ): Guidance on tobacco dependence and strategies for smoking**  
[www.europsy.net/wp-content/uploads/2013/11/EPA-Guidance-on-Tobacco-Dependence-and-Strategies-for-Smoking-Cessation-in-People-with-Mental-Illness.pdf](http://www.europsy.net/wp-content/uploads/2013/11/EPA-Guidance-on-Tobacco-Dependence-and-Strategies-for-Smoking-Cessation-in-People-with-Mental-Illness.pdf) (full text)
- **Smoking cessation for persons with mental illnesses: a toolkit for mental health providers.** Developed by the University of Colorado at Denver and Health Sciences Center, Department of Psychiatry. (updated January 2009)  
[www.integration.samhsa.gov/Smoking\\_Cessation\\_for\\_Persons\\_with\\_MI.pdf](http://www.integration.samhsa.gov/Smoking_Cessation_for_Persons_with_MI.pdf)
- **The Bringing Everyone Along project** (from the USA) has developed resources to assist health professionals to adapt their treatment services to the unique needs of tobacco users with mental health and substance use disorders. [www.tcln.org/bea/](http://www.tcln.org/bea/)

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