BMA

Prevention before cure

Securing the long-term sustainability of the NHS

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Prevention before cure: securing the long-term sustainability of the NHS

Advances in diagnosis and treatment have meant that as a society we are all living longer. Yet despite average life expectancy increasing for both men and for women, the number of years we spend living in ill-health is also rising. Patients are suffering from an increasing number of complex conditions – one in three patients has five or more health conditions compared to one in 10 patients a decade ago.[1] Despite this there have been significant cuts to public health budgets and services that are vital in supporting people's health and wellbeing. Doctors and their patients are seeing the effect of these systematic pressures across the NHS. Recent data show a 4.9% increase in attendances at A&E in the last year,[2] and a 15% increase in general practice consultations between 2010/11 and 2014/15 in England.[3] And yet, a significant proportion of this pressure is avoidable by investing in ill-health prevention – particularly primary prevention.[a]

Preventable ill-health accounts for an estimated 50% of all GP appointments, 64% of outpatient appointments and 70% of all inpatient bed days.[4] Moreover, it is estimated that 40% of the uptake of health services in England may be preventable through action on smoking, drinking alcohol, physical inactivity and poor diet.[5,6] More recently, the 2018 PHE (Public Health England) health profile for England showed the impact of these factors on life expectancy.[7] These drivers of preventable ill-health are in turn underpinned by wider societal factors – the circumstances into which we are born, grow up, live, work and age (the social determinants of ill-health[b]), the combination of which contribute to the increasing prevalence of a number of long-term conditions.

In recent years politicians and policymakers across the UK have recognised this relationship and acknowledged the need to prioritise prevention (figure 1).

Figure 1 – Political commitments to prevention

Securing our future health: taking a long-term view – 'The Wanless Review' (2002)
"Improved public health, through health promotion and disease prevention, could have a significant impact on health status and ultimately the demand for health services and the resulting cost."

NHS England's Five Year Forward View (2014)
"The future health of millions of children, the sustainability of the NHS, and the economic prosperity of Britain now all depend on a radical upgrade in prevention and public health."

Northern Ireland's Department of Health, Social Services and Public Safety strategic framework for public health, 2013-2023, Making life better (2013)
'...[a commitment] to improve and protect health and wellbeing and reduce inequalities, through a focus on prevention, health promotion and earlier intervention...'

NHS Scotland's A fairer, healthier Scotland. Our strategy, 2012-2017 (2012)
'We need to make sure that longer life means longer, healthy life – adding quality of life to years as well as years to life. We need to make sure that the benefits of investing in prevention and early intervention are understood and acted upon.'

Public Health Wales strategic plan 2015-2018, A healthier, happier and fairer Wales (2015)
'...the way our health system is currently designed simply cannot meet increasing demands... Helping people to prevent their ill health in the first place and then preventing their exacerbations of ill health must be thoroughly addressed...'

a The World Health Organization set out three levels of prevention. Improving the overall health of the population (primary); reducing the impact of disease or injury (secondary); and improving treatment and recovery (tertiary).
b The social determinants of health are those factors that impact upon health and wellbeing: the circumstances into which we are born, grow up, live, work and age. They are sometimes referred to as the causes of the causes of ill health.

Despite this rhetoric, prevention has in recent history suffered from short-term thinking, inadequate funding and a lack of priority given to addressing the underlying causes of ill-health. As a society, our relationship with alcohol is normalised. Fast food outlets are increasingly prominent on high streets. School playing grounds are being sold-off as government budget cuts are felt. And smoking continues to harm lives. Politicians and policymakers have neglected the long-term sustainability of the health service in favour of an agenda dictated by short-term political cycles. The BMA's 2017 briefings on population health document the inconsistent implementation of prevention measures across the UK, as well as dramatic cuts to funding, despite good evidence of effectiveness. More recently, the BMA's 'Feeling the squeeze' briefing has demonstrated the impact that these cuts are having on the quality and provision of public health services by local authorities in England.

The BMA has an established record of making the case for prioritising and investing in a range of population health measures. This briefing will build on this to bring together the latest evidence to make the case for why politicians must move beyond rhetoric and prioritise prevention to secure the long-term sustainability of the NHS.

Long-term conditions: the prevalence and impact

Across the UK there are estimated to be 15 million adults living with long-term conditions.[8] Meanwhile health needs are also becoming increasingly complex—the most recent data show, between 2003/04 and 2015/16, the number of hospital admissions from those with two or more long-term conditions increased by over 200%.[9] Long-term conditions are associated with premature death[c], in the UK the top five causes of which are: cancer, cardiovascular disease, stroke, lung and liver disease.[10] The burden of disease on individuals, healthcare services and society[d] associated with these conditions is explored below along with Type 2 diabetes, that affects large proportions of the UK, and dementia, the leading cause of death since 2015.[11]

Cancer

Figure 2 – Annual deaths, NHS costs and societal costs from cancer

Source: Annual deaths: Cancer Research UK (2016) *Cancer Statistics for the UK*; **annual NHS costs**: Cancer Research UK (2012) *Lung cancer UK price tag eclipses the cost of any other cancer*; and **annual societal costs**: *Ibid.*

c The NHS defines premature death as death occurring before the age of 75.
d The total economic costs of conditions are often broad estimates, and are calculated using different methods by different analysts. Whilst the figures should therefore not be directly compared, they help to give a sense of the wider impact of the long-term conditions discussed.

The three most common cancers in the UK are breast, prostate and lung, in that order.[12] There are over 55,000 new cases of **breast cancer** in the UK – according to 2015 figures – (around 15% of all cases)[13], which costs the NHS in England over £504 million per year,[14] and costs society around £1.5 billion.[15,16] **Prostate cancer** is the next most common in terms of new cases in the UK – 47,100 in 2015 (13% of all cases) and has associated healthcare and societal costs of around £300 million and £800 million, respectively each year.[17] There are 46,000 **lung cancer** cases (13% of all cases), costing on average £9,071 per patient per year and total societal costs of £2.4 billion per year.[18,19,20] Yet there is an important distinction between cases and deaths. Despite being the third most prevalent, lung cancer causes the most deaths in the UK – 35,620 in 2015, compared to 16,300 for **bowel cancer** (the fourth most prevalent) and 11,000 for prostate and breast cancer.[21]

Cardiovascular disease

Figure 3 – Annual deaths, NHS costs and societal costs from cardiovascular disease

Source: Annual deaths: British Heart Foundation (2016) *CVD Statistics – BHF UK Factsheet;* **annual NHS costs (2017):** *Ibid;* and **annual societal costs (2017):** *Ibid.*

CHD (Coronary heart disease) and stroke account for the majority of all deaths associated with cardiovascular disease.[22] CHD affects 2.3 million people in the UK, and is the cause of 66,000 deaths every year.[23] The associated healthcare costs are £1.9 billion annually.[24] Annually **strokes** cause 38,000 deaths and 245,000 hospital admissions,[25] cost the healthcare system £2.6 billion[26] and wider society £8.9 billion.[27] The primary cause of CHD and stroke is **hypertension (high blood pressure)**.[28] 12.5 million people in England alone have high blood pressure, and it is estimated that there are a further 5.5 million people living undiagnosed.[29] Hypertension is also a major risk factor in chronic kidney disease and dementia.[30]

Respiratory disease

Figure 4 – Annual deaths, NHS costs and societal costs from respiratory disease

Source: Annual deaths [excluding lung cancer]: British Lung Foundation (2012) *Lung disease in the UK – big picture statistics*; **annual NHS costs** [cost of lung diseases such as COPD, and asthma]: British Lung Foundation (2017) *Estimating the economic burden of respiratory illness in the UK;* and **annual societal costs**: *Ibid.*

COPD (chronic obstructive pulmonary disease) and **asthma** are the two most common forms of respiratory disease.[31] COPD affects 1.2 million people and causes 30,000 deaths per year[32] – according to the GBD (Global Burden of Disease) study, it causes significantly more premature deaths than the average across comparative countries.[33] In total it costs the UK health service £1.9 billion every year.[34,35] COPD diagnoses and deaths are higher for men than women, and are also higher in more deprived areas of the UK when compared to less deprived areas – differences that are largely attributable to smoking behaviour.[36] While asthma accounts for far fewer deaths (around 1,400 per year),[37] it is far more prevalent than COPD, with 5.4 million people living with asthma in the UK,[38] resulting in £3 billion per year in healthcare costs.[39] 12.7 million work days are lost every year to asthma, with the resultant productivity cost estimated at £1.5 billion.[40]

Liver disease

Figure 5 – Annual deaths, NHS costs and societal costs from Liver disease[e]

Source: Annual deaths: British Liver Trust (2008) www.britishlivertrust.org.uk/about-us/media-centre/facts-about-liver-disease/annual; **annual NHS costs**: The Foundation for Liver Research (2017) Financial case for action on liver disease. London: Foundation for Liver Research; and **annual societal costs**: *Ibid*; and Institute of Alcohol Studies (2016) *The economic impacts of alcohol*. London: Institute of Alcohol Studies.

Deaths from **liver disease** are increasing in the UK. This contrasts with trends across Europe, where prevalence is generally decreasing, and is largely attributable to the rising number of people drinking harmful levels of alcohol.[41]

Type 2 diabetes

Figure 6 – Annual deaths, NHS costs and societal costs from type 2 diabetes

Source: Annual deaths[f]: NHS Choices (2011) *Claims of 24,000 'excess' deaths from diabetes*; **annual NHS costs**: Hex et al. (2011) Estimating the current and future costs of Type 1 and Type 2 diabetes in the UK, including direct health costs and indirect societal and productivity costs; and **annual societal costs**: *Ibid*.

e The burden of liver disease is calculated based on the costs to the NHS of obesity and alcohol – the two leading factors in liver disease conditions. It is therefore likely that these figures will be higher than those estimated.
f Based on total deaths standing at 24,000, and Type 2 accounting for 90% of all diabetes cases

More people than ever are at risk of **type 2 diabetes**. In 2017 there were estimated to be around 3.7 million people who have been diagnosed with diabetes in the UK – 90% of which is type 2 diabetes.[42] It is estimated there are 12.3 million people currently at increased risk of type 2 diabetes and that more than five million people will have either type 1 or type 2 diabetes by 2025.[43]

Dementia

Figure 7 – Annual deaths, NHS costs and societal costs from dementia

Source: Annual deaths: Office for National Statistics (2016) *Deaths registered in England and Wales;* **annual NHS costs**: Alzheimer's Society (2014) *Dementia UK report*; and **annual societal costs**: Alzheimer's Society (2018) *Dementia tax*.

There are 530,000 people in the UK with a **dementia** diagnosis, while it is currently estimated that 850,000 people in the UK are actually living with the condition.[44] This is set to rapidly rise given the ageing population in the UK – by 2050, it is forecast over 2 million will be living with dementia.[45] The cost of dementia in the UK is estimated to double in the next 25 years to £55 billion.[46]

Preventable ill-health: the contribution of lifestyle factors

Lifestyle factors such as eating a poor diet, being physically inactive, drinking alcohol and smoking, are all modifiable habits and behaviours that significantly impact overall health, and increase the risk of developing a number of long-term health conditions.[47] Smoking and poor diet account for the highest number of deaths due to preventable disease in the UK (19% of deaths were attributable to smoking, and 17% to poor diet).[48]

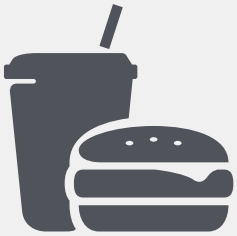
It is important to recognise that health behaviours and the choices that people make in this regard, are generally influenced, often involuntarily, by the world around us. Responsibility therefore lies with a range of actors including individuals, politicians and wider society to address the health impacts of lifestyle factors, and to the government to regulate industry in a way that protects the population from the harms associated with them.

Figure 8 – Prevalence of different lifestyle factors in the UK

In 2017, 14.9% of adults in England smoked. In Scotland 21% of adults reported smoking, in Wales 19% and in Northern Ireland, 20%.

ONS data show that in Great Britain in 2017, 57% of respondents drank alcohol in the week before being interviewed, equating to 29.2 million people.

In England in 2015/16, 26% of adults were classified as inactive; 34% in Wales. 64% of adults in Scotland met government guidelines and 55% in Northern Ireland.



NHS Digital data show that in 2016 only 26% of adults and 16% of children met the recommended requirement for eating five portions of fruit and vegetables a day.

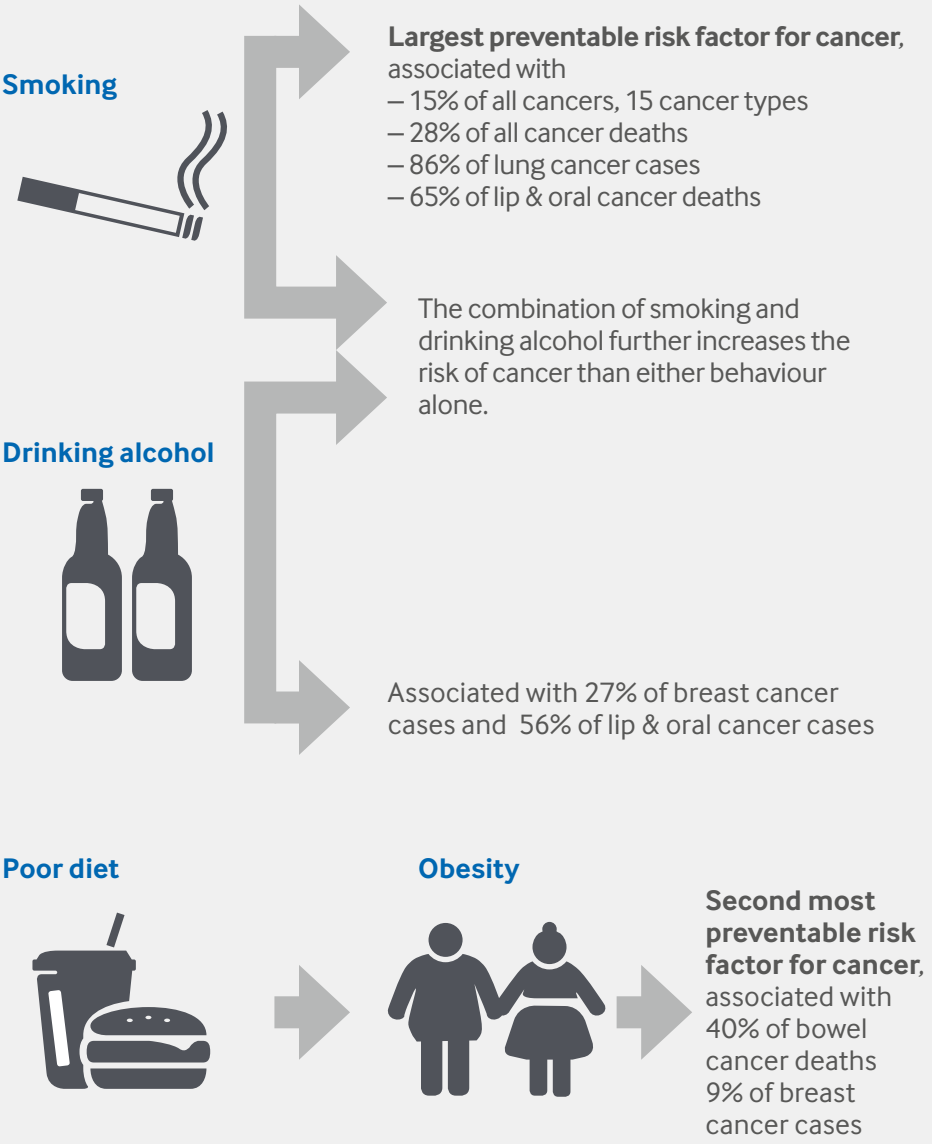
Source: NHS Digital (2018) *Statistics on smoking: England*. London: NHS Digital; Scottish Government (2017) *Scottish Health Survey*. Edinburgh: Scottish Government; Welsh Government (2017) *National survey for Wales 2017-18: population health – lifestyle*. Cardiff: Welsh Government; Department of Health Northern Ireland (2017) *Health survey (NI): first results 2016/17*. Belfast: Department of Health Northern Ireland; Office for National Statistics (2018) *Adult drinking habits in Great Britain: 2017*. Newport, Wales: Office for National Statistics. Office for National Statistics (2018) *Physical activity and diet – England, 2018*. Newport, Wales: Office for National Statistics.

Preventing cancer

While cancer is one of the leading causes of ill-health in the UK, it is also highly amenable to prevention. Prevention offers the most cost-effective long-term strategy for controlling cancer.[49] This requires a joined-up approaching to tackling a range of lifestyle factors.

4 in 10 cases of cancer are preventable

Figure 9 – The relationship between lifestyle factors and cancer in the UK



Source: Brown KF, Rumgay H, Dunlop C, et al. The fraction of cancer attributable to known risk factors in England, Wales, Scotland, Northern Ireland, and the UK overall in 2015. British Journal of Cancer 2018; https://www.cancerresearchuk.org/about-cancer/causes-of-cancer/smoking-and-cancer/smoking-facts-and-evidence#smoking_facts1 (last accessed on 2.8.2018); and https://www.cancerresearchuk.org/health-professional/cancer-statistics/statistics-by-cancer-type (last accessed on 2.8.2018); and Global Burden of Disease tool.

Preventing respiratory disease

Tackling smoking rates would reduce respiratory disease – smoking is the most significant factor in the development of chronic respiratory disease, contributing to an estimated 69% of deaths from respiratory disease in the UK.[50] 22% of all hospital admissions for respiratory disease are estimated to be attributable to smoking.[51] For COPD, smoking accounts for 80-90% of cases[52] and 83% of deaths.[53] Smoking (including second-hand) exacerbates asthma over the long-term and can cause permanent damage to the lungs. In the short-term, it can trigger asthma symptoms including asthma attacks.[54]

Preventing liver disease

Liver disease is highly amenable to prevention – approximately 95% of cases are estimated to be preventable by addressing the underlying causes.[55] Alcohol is the most common cause, leading to alcohol-related hepatitis, fibrosis[g] and contributing to half of deaths due to cirrhosis[h] in the UK.[56,57] The impact is variable by the level of consumption. There is also a strong relationship between being overweight or obese and NAFLD[i] (non-alcoholic fatty liver disease).[58] There is an emerging link between rising levels of childhood obesity and early reporting of NAFLD; some prevalence studies show that up to 38% of obese children have evidence of NAFLD.[59]

Preventing Type 2 diabetes

Type 2 diabetes can also be prevented or delayed by maintaining a healthy weight, eating well and being active. Eating a poor diet contributes to 34% of deaths due to type 2 diabetes in the UK.[60] 80% of people with type 2 diabetes worldwide are overweight or obese at the time of diagnosis,[61] and being physically active can reduce the risk of diabetes by up to 40%.[62] People suffering from type 1 and type 2 diabetes are at increased risk of heart attacks and stroke. A significant 2018 study by the British Heart Foundation found that the number of people suffering heart attacks and stroke as a result of diabetes would rise by 29% by 2035.[63]

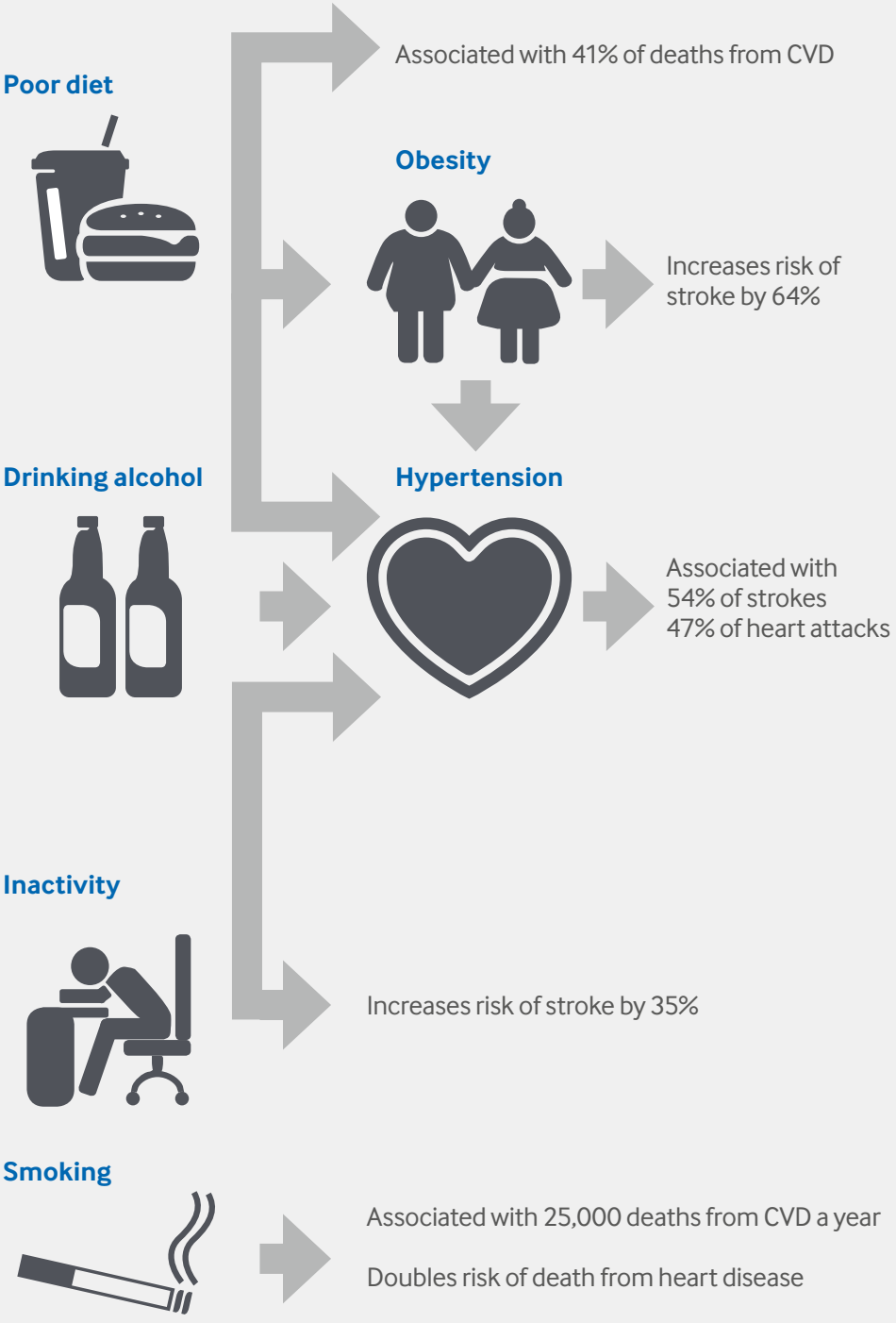
Preventing cardiovascular disease

Cardiovascular disease is considered highly preventable[64] by action taken at a national or local government level, as well as through individual changes in lifestyle. Regular physical activity has, for example, been estimated to reduce the risk of coronary heart disease and stroke by up to 35%.[65]

g The build-up of scar tissue which stiffens lungs.
h The scarring of the liver caused by long-term liver damage.
i The term for a range of conditions caused by a build-up of fat in the liver.

80-90% of deaths from CVD are preventable.

Figure 10 – The relationship between lifestyle factors and cardiovascular disease in the UK



Source: British Heart Foundation (2017) Physical inactivity and sedentary behaviour report, 2017. London: British Heart Foundation; https://www.stroke.org.uk/what-is-stroke/what-can-i-do-to-reduce-my-risk (last accessed on 2.8.2018); Global Burden of Disease tool; Action on Smoking and Health (2016) Smoking, the heart and circulation. London: Action on Smoking and Health.

Preventing dementia

Emerging research indicates that smoking, drinking alcohol, and eating an unhealthy diet can all be contributory factors in developing dementia, and approximately one in three cases may be preventable.[66] There is strong evidence that cardiovascular conditions, diabetes and hypertension significantly increase the risk of dementia, particularly vascular dementia[j].[67] Healthy behaviours during mid-life such as regular physical exercise and maintaining a healthy diet and weight can decrease the risk of dementia.[68]

Mental health

In England and Scotland, around one in six adults has a mental health condition.[69,70] In Wales, this is around one in seven ,[71] and in Northern Ireland it is around one in five.[72] There is significant comorbidity between long-term physical health conditions and mental health problems, with 30% of people with a long-term condition having a mental health problem and 46% of people with a mental health problem having a long-term condition.[73] Evidence shows increased hospitalisation rates associated with multiple mental health problems and long-term conditions.[74] Health care costs increase by 45% for each person with a comorbid mental health problem and long-term condition, suggesting that 12-18% of all NHS spending on long-term conditions is linked to poor mental health (£8-13 billion a year).[75]

As highlighted in the BMA's 2014 report *Recognising the importance of physical health in mental health and intellectual disability – achieving parity of outcomes*, evidence consistently shows that people living with long-term conditions are two to three times more likely to experience mental health problems than the general population; in particular depression and anxiety.[76] There is particularly strong evidence of a close association with cardiovascular disease, diabetes, and COPD.[77] Poor mental health can be exacerbated by existing health conditions, in particular in relation to the cardiovascular, nervous and immune systems.[78] Mental health problems can also indirectly impact health through reduced ability or motivation to manage these health problems.[79]

There is also a correlation between mental health problems and lifestyle factors. In England, 40.5% of adults with a serious mental illness are smokers, which is more than twice the rate of the general population (16.9%).[80] This is repeated across the rest of the UK.[81] The prevalence of alcohol-dependence among people with diagnosable mental health problems is almost twice as high as in the general population, and three times as high for those with severe mental illness.[82,83] A 2010 systematic review and meta-analysis found that people experiencing depression have been found to have a 58% increased risk of becoming obese,[84] while being physically active at recommended levels can reduce the risk of depression by around a third.[85] Therefore action to tackle rates of smoking, drinking alcohol, physical inactivity and poor diet would have benefits for both mental and physical health.

j Vascular dementia is a common type of dementia caused by reduced blood flow to the brain.

Preventable ill-health: the social determinants of health

Key to preventing ill-health are the wider societal factors that influence people's health behaviours.[86] Unemployment, for example, can impact a variety of health behaviours such as smoking, increased alcohol consumption and decreased physical exercise.[87] It is also associated with mental health problems and suicide.[88,89] Manual work is associated with double the rates of death from heart disease and cancer.[90] Cold, damp and overcrowded homes are strongly associated with cardiovascular disease,[91] respiratory[92,93] and mental health problems.[94,95,96]

Poor diet

As highlighted in the 2017 BMA report *Health at a price – reducing the impact of poverty*, children born into poverty are more likely to suffer from diet-related problems such as tooth decay, malnutrition, obesity and diabetes. Children living in the most deprived areas in England are more than twice as likely to be obese than children living in the least deprived areas of the country.[97] The BMA's 2015 report *Food for thought: promoting healthy diets among children and young people*, showed increased rates of diet-related problems are caused by income influencing the ability of individuals and households to afford a healthy diet including fruit and vegetables.

Data from the National Diet and Nutrition survey (between 2008/09 and 2011/12) show that the lowest income group generally consume less protein, iron, fruit and vegetables, vitamin C, calcium, fish and folate[98] Education is also a factor – people with no educational qualifications are less likely to eat fruit and vegetables, and more likely to eat energy-dense foods.[99] This is likely linked to education level and dietary knowledge.[100]

Physical inactivity

There is a strong association between socioeconomic status and participation in physical activity. Evidence shows rates of both any and regular physical activity increase as socioeconomic status increases. [101,102] There is also evidence that higher educational attainment is associated with increased physical activity.[103]

Drinking alcohol

Compared to other unhealthy lifestyle factors, the relationship between socioeconomic status and drinking prevalence is mixed. 2015/16 ONS (Office for National Statistics) data show binge-drinking is twice as common among the highest earners (21.8%) compared to the lowest (10.7%).[104] However 2015 OECD (Organisation for Economic Cooperation and Development) evidence shows that people with further education are more likely to drink alcohol, but less educated men, and more educated women, are more likely to engage in risky drinking.[105] Despite this variability lower socioeconomic status is associated with an almost two-fold greater risk of alcohol-related death.[106] This is likely to be linked to the types of products drinkers at different socioeconomic levels are consuming. For example, white cider is favoured by those on lower income and contains high units of alcohol. Data also show that job loss in the previous year corresponds to increased alcohol consumption, possibly due to strain and financial pressure.[107]

Smoking

Death rates from tobacco are two to three times higher among disadvantaged social groups than the more advantaged.[108] 11% of those earning £40,000 or more smoke tobacco, compared to 19% of those earning less than £10,000.[109] The data also show that 30% of unemployed adults are smokers compared to 16% of employed adults[110] and manual workers (more strongly associated with lower socioeconomic status) were most likely to be smokers (25%).[111] Adults with higher qualification levels were less likely to be smokers – only 9% of those with a degree being smokers compared to 21% with no formal qualifications.[112] Robust evidence shows a strong association between low socioeconomic status and head and neck cancer,[113] which may be due to the higher rates of smoking (as well as risky drinking).

Feeling the squeeze: the local impact of cuts to public health budgets in England

The BMA's 2018 briefing, *Feeling the squeeze*, highlighted the level of cuts being made to public health funding in England despite already failing to meet local population needs and leaving patients without the support they need.

Tobacco

Several local authorities with smoking rates in excess of the national average have cut or restricted access to specialist smoking cessation services.

Alcohol

Budgets for the treatment and prevention of alcohol misuse are also being cut nationally, including significant cuts in areas that experience high levels of alcohol-related harm.

Obesity and physical activity services

Children's and adult's physical activity have faced cuts including in areas with high prevalence of overweight or obesity.

Next steps: prioritising and preventing ill-health

There are around 15 million people living with long-term conditions in the UK, many of whom have multiple conditions. This is associated with significant health outcomes and economic costs at an individual and societal level. Doctors and their patients see that the increasing pressures on health services across the UK are, in part, due to the considerable costs associated with diagnosing and treating long-term conditions, yet a significant proportion of long-term conditions are amenable to prevention.

Despite welcome progress in certain parts of the UK, this has been inconsistently prioritised and translated into adequate action. The long-term sustainability of the NHS depends on an evidence-based and adequately resourced approach to prevention of physical and mental ill-health. Failure to take effective action to reduce future demand for health services, will reduce the impact of any new funding committed to the health service, and will continue to result in a health service that struggles from one crisis to the next.

To prioritise prevention and secure the long-term sustainability of the NHS:

1. **Improving population health (both physical and mental health) and reducing health inequalities should be a central goal of future NHS planning at a local and national level, and this should be translated into clear evidence-based action;**

2. **Since 2015/16 public health funding in England has been cut by around £550 million in real terms. There must be adequate funding for ill-health prevention across the UK, both within and outside the NHS, to support improvements in population health.**

3. **Comprehensive regulatory, legislative and educational measures should be introduced at a national level to tackle key lifestyle factors driving ill-health.**

While these core principles should underpin a future approach to prevention, a range of specific targeted actions across all areas of population health are necessary. This includes:

- **regulating to introduce a minimum unit price for alcohol across all UK nations as part of a comprehensive new alcohol strategy**
- **delivering an increase in taxation on all tobacco products above the rate of inflation**
- **introducing a comprehensive approach to tackling diet related ill-health including restrictions on the marketing and promotion of unhealthy food and drink**
- **adopting a health in all policies approach to explicitly consider health in all government policymaking.**

Further information about the range of specific measures required to support improvements *in public and population health*, are available here

- **Alcohol**
- **Diet and obesity**
- **Tobacco**
- **Reducing health inequalities.**

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