Wales Centre for Public Policy
Canolfan Polisi Cyhoeddus Cymru
October 2022

Healthy lifestyle behaviours: Adults

Introduction

The Well-being of Future Generations Act (Wales) 2015 requires Welsh Government Ministers to set National Indicators to measure progress towards the seven national well-being goals (Figure 1). On March 16th, 2016, a set of 46 National Indicators were laid. The Act also requires Ministers to lay National Milestones for 2050 which 'set out expectations of progress, including the scale and pace of change required' (Welsh Government, 2019b, p. 3) to assess whether Wales is on track to meet the well-being goals. The Welsh Government is in the process of developing the second wave of Milestones by mid-2022.

Figure 1: The seven well-being goals for Wales
Source: Welsh Government, 2020

National indicator 3

The briefing aims to inform the development of a realistic and ambitious Milestone for National Indicator 3: *percentage of adults who have two or more healthy lifestyle behaviours*. The 'healthy lifestyle behaviours' identified in the Indicator are:

- not smoking,
- eat five or more portions of fruit/vegetables daily,
- not drinking above weekly guidelines,
- being physically active for at least 150 minutes a week,
- maintaining a healthy weight/BMI.

In what follows, we outline the determinants of healthy lifestyle behaviours among adults, policy context and levers, trends in the indicator data, and the impact of the Coronavirus pandemic on health and relevant determinants, as well as key considerations for developing the Milestone for Indicator 3. This briefing is based on a rapid review of available evidence and was intended to inform a stakeholder event on the 17th of March 2022. As such, it does not reflect a comprehensive or systematic review of relevant evidence. A set of final considerations, drawing from discussion at the stakeholder event, concludes this briefing.

Determinants of healthy lifestyle behaviours

Determinants of health are factors that influence health outcomes for individuals and communities. Social determinants of health, our focus here, are the non-medical aspects of people's lives that influence their health behaviours and outcomes (World Health Organisation, 2021). Some of the key determinants of adult health (Dahlgren and Whitehead, 1993) include living and working conditions and the wider socio-economic, cultural, commercial, political, and physical climate. Figure 2 shows Dahlgren

and Whitehead's (1993) model of the interconnections between such factors operating at society, community, and individual levels.

This section will focus on the social determinants of healthy lifestyle behaviours among adults in Wales. The five healthy lifestyle behaviours measured by the National Indicator are both determinants of adult health themselves (i.e., engaging in these behaviours influences health outcomes) and influenced by the broader social determinants of health. An understanding of the wider factors that determine patterns of healthy lifestyle behaviours within a population is key to setting a realistic milestone within a framework of milestones and indicators relevant to policy responses designed to improve the well-being of future generations.

All five of these behaviours are socioeconomically patterned, following a 'social gradient' of health. Indeed, according to Marteau et al. (2021, p.1), behavioural and social causes of health share several drivers: such as 'an unequal distribution of income, goods and services, education, employment, power and, importantly, poverty—with its attentional, emotional, and material consequences'. While Dahlgren and Whitehead's (1993) model shows the social determinants of health, other frameworks also connect these determinants up to health *inequalities* (see Figure 3).

Individuals' healthy lifestyle behaviour choices are therefore partly bounded by the socioeconomic context in which they have grown up and live in, and the infrastructure and resources they have access to. This can affect them in material ways (e.g., not having money for healthy food or to attend a gym) or in psychological ways (e.g., using alcohol, ultra-processed foods, and smoking to relieve stress, depression, and anxiety), the latter elaborated on further below.

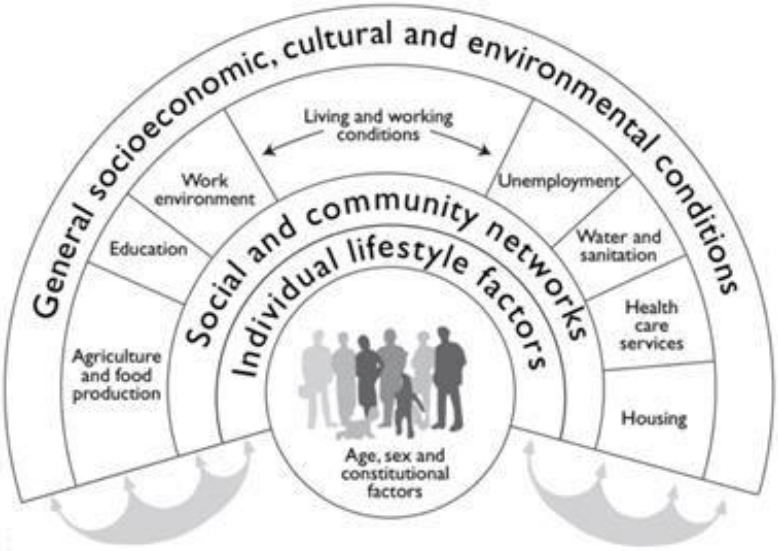

Figure 2: The main determinants of health in the Dahlgren and Whitehead model
Source: Dahlgreen and Whitehead, 1993

Such socioeconomic inequalities are further complicated by and interact with other inequalities based on, for example, race and ethnicity, gender, sexuality, age, and life course events which, in turn – and differently combined, through their intersectionality – influence adult healthy lifestyle behaviours. Intersectionality means that multiple marginalisations interact and create qualitative differences in the experiences of different groups (Crenshaw, 1989; González, 1988). Due to such complexity, establishing causation related to lifestyle behaviours can be challenging.

This socioeconomic patterning of healthy behaviours and the intersection of socioeconomic inequalities with other social inequalities is highly relevant to setting and achieving a milestone. To enable more

people to engage in healthy behaviours, policy responses require a focus on tackling social inequalities *at the same time as* population-wide policies that enable healthy behaviours. In addition, the social determinants of healthy behaviours are linked to the areas identified within the Welsh Government's wellbeing goals, such as education and employment, therefore enabling potential win wins or co-benefits across policy domains.

The Marmot Review 2010 and the Marmot Review 10 Years On 2020 report are widely recognised as instrumental in bringing the social determinants of health inequalities to the foreground in England and for contributing to the wider debate, including on how these should impact on policy making (Chief Medical Officer for Wales, 2021; Kelly et al., 2016; UCL Institute of Health Equity & Public Health England 2017). The Marmot Reviews provide evidence that poor health outcomes are often the result of systemic societal inequalities and their cumulative effects, and argue that is a whole of government issue, and not only relating to healthcare and individual choice. Recognising this, the Marmot Reviews make recommendations for action across the social determinants including childhood poverty and ensuring a best start for all children, education and lifelong learning, fair employment, access to goods and resources such as fuel and transportation, healthy foods, and an overall quality standard of living, and, for future generations, how climate change and sustainability need to factor into health policy development.

As an example of policy in practice, Greater Manchester as a regional authority has developed a policy focus on reducing health inequalities and inequalities in the social determinants of health. A collaboration between the Institute of Health Equity and Greater Manchester developed a framework of beacon indicators designed to be used to monitor performance over time in addressing inequalities in both health and its social determinants (Marmot, et al., 2021).

The beacon indicators for Local Authorities in England are:

- Healthy life expectancy at birth – males and females
- Life expectancy at birth – males and females
- Inequality in life expectancy at birth – males and females
- People reporting low life satisfaction
- Good level of development at age 5
- Good level of development at age 5 with free school meal status
- GCSE achieved (5A*-C including English & Maths)
- GCSE achieved (5A*-C including English & Maths) with free school meal status
- 19-24 year olds who are not in employment, education or training
- Unemployment % (ONS model-based method)
- Long-term claimants of Jobseeker's Allowance
- Work-related illness
- Households not reaching Minimum Income Standard
- Fuel poverty for high fuel cost households
- Utilisation of outdoor space for exercise/health reasons

Social inequalities affect healthy behaviours through differential access to goods and resources necessary for healthy behaviours, and through how they make people think and feel (psychosocial pathways) as shown in Figure 3 (Institute of Health Equity & PHE 2017).

Adverse factors or 'stressors' such as unemployment, poor working conditions (including working more than one job to make a living wage, toxic work environments, vulnerability in work), poor living conditions (including lack of access to cultural and green spaces), poverty, crime, and food insecurity are unequally distributed throughout society and individuals who are affected by these will respond differently based on their life experience, background, and access to resources. Additional stressors include gender

inequality and sexism, racism, homophobia and transphobia and discrimination against disabled people, which are also socially determined and defined. These stressors can start from childhood and a life course perspective is crucial when discussing the impact of mental health on health outcomes, including health behaviours (Bécares et al., 2011; Marmot Review, 2010; 2020; UCL Institute of Health Equity & Public Health England, 2017). Unhealthy behaviours, therefore, should not be seen solely from the perspective of individual choice, but through the lens of individuals inserted into sociocultural contexts that are outside of their control (UCL Institute of Health Equity & Public Health England, 2017).

Similar to Dahlgren and Whitehead's model (1993; Graham, 2009), this perspective focuses on how wider contexts can narrow individuals' choices, in this case by creating adversity and stressors in their lives, that can further develop into depression, anxiety, trauma, and other mental health conditions.

Such stressors can impact on adult healthy lifestyle behaviours, for example negatively affecting eating and physical activity habits for individuals and groups who lack the time and money to invest in healthy eating and exercise (DHCS, 2020; Kelly et al., 2016). The stress of poor working conditions, underemployment, or unemployment has been associated with multiple health conditions including chronic illnesses, higher blood pressure, poor mental health and maladaptive behaviours, such as drinking more and fewer doctor visits (Hergenrather et al., 2015;UCL Institute of Health Equity & Public Health England 2017). Poor mental health derived from work stress or issues such as debt and homelessness, in turn, are associated with unhealthy behaviours such as self-medicating with alcohol (UCL Institute of Health Equity & Public Health England 2017). Conversely, psychological factors that were seen as 'protectors' or 'enablers' of a positive change in behaviour included placing a high value on health as a preventative practice; feelings of self-efficacy; a positive view on ageing; wellbeing goals and maintenance and integration of the healthy behaviour into the lifestyle (Kelly et al., 2016). Changing unhealthy behaviours was also found to be achievable when the necessary conditions of time and access to resources were met.

Against this broad exploration of the social and psychosocial determinants of adult healthy lifestyle behaviours, we can go on to consider the social determinants of each of the five individual behaviours from National Indicator 3 in turn. Smoking, misuse of alcohol, unhealthy diet, lack of physical exercise and an unhealthy weight are all well-known risks to health, but each behaviour has its own 'complex web of causation', incorporating individual, community, and societal-level factors, including psychosocial pathways (UCL Institute of Health Equity & Public Health England 2017, p. 32).

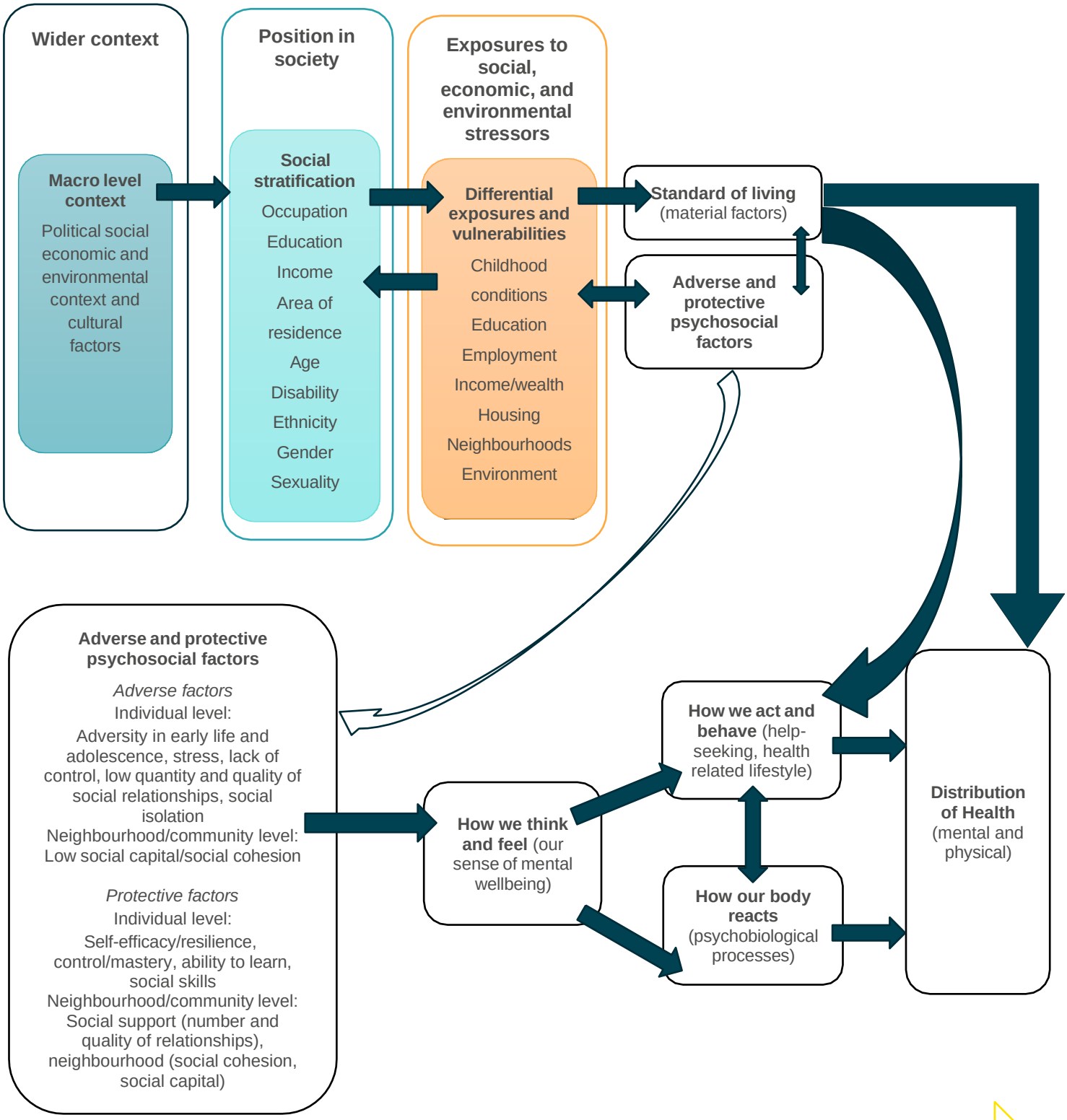

Figure 3: Psychosocial pathways – linking social determinants with psychobiological processes, health behaviours, and distribution of health outcomes
Source: UCL Institute of Health Equity & Public Health England 2017

Smoking

In Wales, smoking is the lifestyle behaviour that has contributed to the most years of life lost. On the other hand, the number of people who have never smoked and who have quit smoking is an increasing trend (Public Health Wales Observatory, 2017; Public Health Wales, 2022).

Smoking is one of the most common healthy lifestyle behaviours assessed (Petrovic et al., 2018). It is a behaviour that is most associated with people living in more deprived areas, with people in lower socioeconomic groups tending to smoke more than in higher socioeconomic groups (Kelly et al., 2016). In England, for example, smoking follows a social gradient and is more prevalent among low-income groups and people living in more deprived areas. Additionally, unemployed people in Britain are nearly twice as likely to smoke (35%) as those in employment (19%) (UCL Institute of Health Equity & Public Health England 2017, p. 33). Evidence also suggests that the type of schooling people are exposed to (comprehensive *versus* selective) might impact on whether they begin smoking (Basu et al., 2018) and that mental health factors need to be considered when considering smoking habits (UCL Institute of Health Equity & Public Health England 2017). Indeed, psychosocial processes are at play in the decision to start smoking, continuing to smoke and in quitting. Smoking also presents demographic differences: men and young people tend to smoke more than women and middle-aged individuals (Petrovic et al., 2018).

It is more difficult to get people in lower socioeconomic groups and those who began smoking at a very young age to stop smoking; unemployment and lack of motivation also present barriers to quitting. Facilitators for stopping smoking include individuals developing illnesses which force them to stop; the start of other healthy lifestyle behaviours and effective campaigns combined with community action in more socioeconomically deprived areas (Kelly et al., 2016).

Nutrition

The consumption of healthy food is heavily associated with achieving and maintaining a healthy weight. Research on dietary patterns is rarer (Petrovic et al., 2018) due to methodological challenges on how the data is collected and which standard of healthy eating pattern is used (Gramza-Michałowska, 2020; Marino et al., 2021; Rauber et al., 2020). There has been a focus on getting people to shift away from the consumption of ultra-processed foods, but it is important to realise that this does not mean a diet that will necessarily include fruits and vegetables, and both goals should be encompassed. Additionally, other important recommended elements are missing in the British diet, such as fibre and potassium (Gramza-Michałowska, 2020).

A person's diet will be affected by learned behaviour throughout his/her life (Carter, Hill-Dixon, 2021), and, although inconclusive, there is evidence to indicate that knowledge alone is insufficient to ensure change in dietary patterns (Ayaz-Alkaya et al., 2020). Social determinants heavily influence dietary patterns through affordability and access (Consumer Data Research Centre, 2020; The Social Market Foundation, 2018). Wales has several areas considered 'food deserts', defined as such by the CDRC through a scoring system based on:

- Proximity and density of grocery retail facilities;
- Transport and accessibility;
- Neighbourhood socioeconomic and demographic characteristics;
- E-commerce availability and propensity.

Areas receive a total score based on the characteristics described above, which is used to create a ranking from 1 to 10. Based on both of these ordering systems (scoring and ranking) and excluding areas that were ranked well (or low), Figure 4 maps these areas, with size and colour (larger and yellow) indicating more drastic food desert cases.

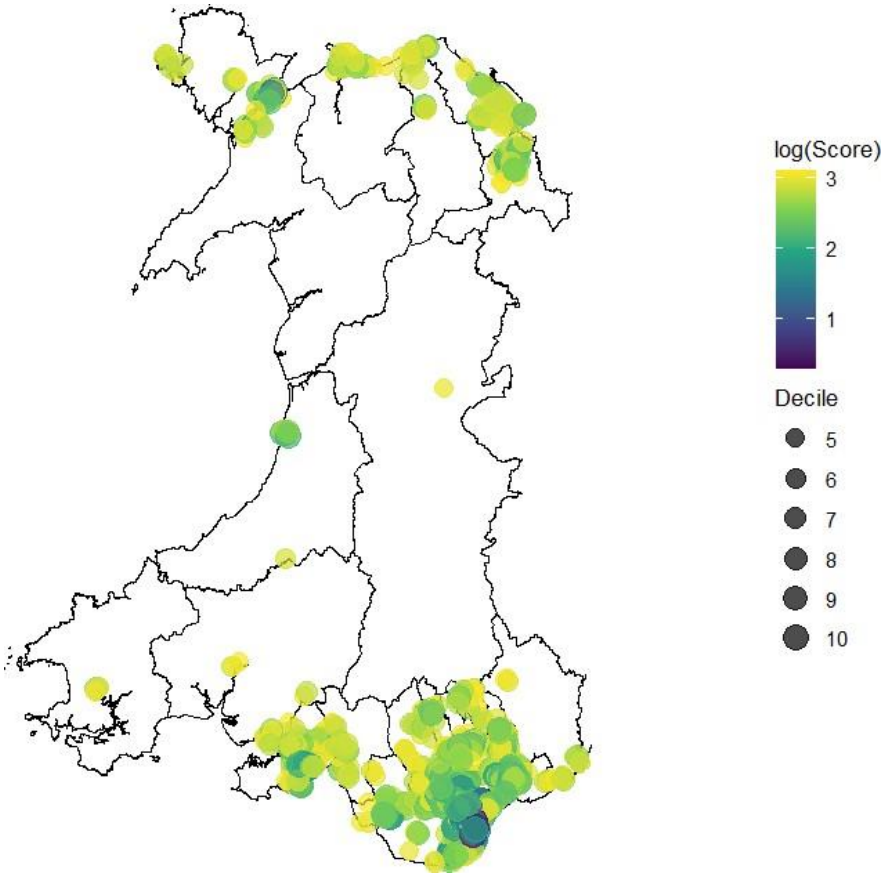

Figure 4: Map of food deserts in Wales
Source: replicated from the Consumer Data Research Centre, 2020

Individuals living in socioeconomically deprived areas and who lack access to a variety of products will often 'eat what they know' and what they have available; diet is also affected by the time available for meal planning and cooking due to work and care responsibilities (Kelly et al., 2016; Mallison et al., 2016;UCL Institute of Health Equity & Public Health England 2017). Ready-meals available tend to be ultra-processed foods, creating a vicious cycle of obesity in areas of high socioeconomic deprivation. Importantly, causality is undetermined, and these patterns work together, along with sedentarism (Rauber et al., 2020). Lastly, it is also relevant to consider psychosocial pathways that impact on nutrition, particularly driving patterns of 'emotional eating' (UCL Institute of Health Equity & Public Health England 2017).

The Eatwell Guide, the NHS's guidelines for a balanced diet, has been found to not be affordable to British families. Households with children in the UK, with parents earning less than £15,860 would have to spend 42% of their income to meet Eatwell guidelines. In Wales, the poorest 10% would have to spend 65.5% of their disposable household income to afford to eat a diet that complies with the Eatwell Guide, compared to 6.6% for the richest 10% (Scott et al., 2018). The current crisis and predicted further rise in cost of living in the UK are likely to make consuming a healthy diet even less affordable for low-income families.

Other barriers to changing behaviours around nutrition are the misinterpretation of health messages, including 'eating five a day' in the UK, sociocultural factors such as alcohol consumption, other unhealthy lifestyles, psychological factors such as lack of motivation or perceptions around capacity, and identity regarding food. Facilitating factors identified include clear choices, health concerns, swapping foods, and specific tools, in addition to support and accessibility (Kelly et al., 2016).

Alcohol

The social distribution of alcohol consumption is different from smoking. Evidence on alcohol consumption shows that individuals in lower socioeconomic groups drink less overall but are more likely to be heavy drinkers and experience poor health outcomes due to drinking (Angus et al., 2020; Bécares et al., 2011; The Marmot Review, 2010; Wadd, Papadopoulos, 2014). Specifically, alcohol intake is higher for more affluent socioeconomic groups, but the negative health impacts of drinking are more significant for individuals living in socioeconomically deprived areas. Given the evidence on psychosocial pathways and self-medication with alcohol due to stressors, it is possible that these results are skewed due to individuals within the most deprived areas experiencing poverty, homelessness, unemployment and underemployment drinking heavily, while more affluent individuals have more social situations that can lead to drinking (Chief Medical Officer for Wales, 2021; Kelly et al., 2016;UCL Institute of Health Equity & Public Health England 2017).

Barriers to changing behaviour regarding drinking alcohol include low socioeconomic status and living in a socioeconomically deprived area with high crime rates. Lesbian women were found to be less likely to change their behaviour towards drinking alcohol when they felt disconnected from their identity (Kelly et al., 2016).

Physical activity

According to Eurobarometer data (2018), 47% of the UK population are physically active with some regularity, compared to 40% of the European population (EU-28). Most of this physical activity is ‘walking for at least 10 minutes at a time’, with over 39% walking for less than 30 minutes; only 44% do ‘vigorous physical activity other than walking’ with some regularity. According to the Eurobarometer data, British women engage in more physical activity than men.

Sport plays a small part in the physical activity of European and British people alike, and evidence shows that policy efforts would benefit from focusing on walking rather than on other forms of activity that require higher costs of participation (Downward et al., 2021). Sport is defined in the Eurobarometer as any activity undertaken in a ‘sport context or sport-related setting, such as swimming, training in a fitness centre or a sport club, running in the park' (idem, p. 244). Other important considerations influencing lower levels of physical activity are disabilities and chronic illness, lack of time, and psychological issues such as poor body image and self-consciousness (Kelly et al., 2016). Importantly, physical activity is known to benefit mental health (Muhsen, Muhsen, 2020).

Evidence indicates that there are many barriers to changing behaviour around physical activity some of which are: chronic illness, lack of safety, lack of access in area and financial costs, perception of lack of capability (in women) and entrenched attitudes. Specifically for ethnic minority groups, there are language and cultural barriers. Women expressed issues with gender roles and hair maintenance. Disabled people had issues beyond health and physical access, including cost, information, and emotional and psychological barriers (Kelly et al., 2016).

Facilitators for behavioural change in physical activity include giving people support, specific tools, and good signposting, directing them towards enjoyment, a better quality of life, and the prevention of illness. For ethnic minority groups, facilitators include the type of physical activity and having the relevant equipment at home; for women, seeing physically active women role models. Facilitators for disabled people include improved access to equipment, information, lessened cost, and supporting them with issues related to emotional and psychological barriers (idem).

Body Mass Index

Achieving and maintaining a healthy BMI is intrinsically connected to nutrition and physical activity (Dicken et al., 2021; Rauber et al., 2020). It is also strongly determined by an individual’s wider

socioeconomic and cultural context. Higher BMI is more prevalent in most socioeconomically deprived areas (DHCS, 2020; Hillier-Brown et al., 2014, The Marmot Review, 2010), especially in industrialised countries (FAO et al., 2021).

Although higher BMI is an issue affecting the whole of the UK, it is more likely to affect people aged 55-74, living in socioeconomically deprived areas, and belonging to ethnic minority populations, with health risks increasing for the latter in comparison to health risks for white individuals (Public Health England, 2020).

Evidence on how to engage with individuals through policy shows that messages that focus on body image and weight loss, both in physical activity and nutrition, rather than health and enjoyment are less effective and do not have positive long-term effects (Kelly et al., 2016; Hillier-Brown et al., 2014).

Policy context and levers

In considering a suitable National Milestone, as well as understanding the determinants of adults' healthy lifestyle behaviours, it is useful to consider the powers, levers and policies available to the Welsh Government and Welsh public services to promote change in these determinants and, ultimately, against the Indicator itself.

Health is a devolved policy area in Wales. As such the Welsh Government has the power to determine its own health policies and strategies independent of the UK Government. The Welsh Government also has the power to propose laws related to health in Wales (Public Health Network Cymru, 2021a).

The overarching health strategy currently in place in Wales is **A healthier Wales: a long-term plan for health and social care.** This plan was set out by the Welsh Government in 2019 and *'sets out a long-term future vision of a 'whole system approach to health and social care', which is focussed on health and wellbeing, and on preventing illness'* (Welsh Government, 2019d, p. 3). It emphasises the importance of 'lifestyle factors' among adults and commits to a 'strong public health approach' to promote healthy behaviours (Welsh Government, 2019d, p. 7).

Public Health Network Cymru (2021) highlight that the nature of health and the number of determinants that influence health behaviours means that a range of policy areas beyond health are relevant to the development of effective health strategy and policy. Wider policy areas that can impact upon health which the Welsh Government has considerable power over include education, skills, food, sport and recreation, housing, regeneration, environment and planning, transport, and some tax raising powers, including Land Transaction Tax and Landfill Disposals Tax, and partial control over income tax.

Annex 1 shows a list of recent and current Welsh Government policies with relevance to health behaviours.

Limitations on powers

While the Welsh Government has the power to determine its own health policy, it does not have power over all policy areas and levers that can impact health behaviours.

In particular, the Welsh Government currently only has limited powers over social welfare or social security which limits its ability to address deprivation and inequality (in terms of finances and material resources) – an important influence on health and health behaviours. The tax raising powers of the Welsh Government are also limited. They have no control over VAT or the differential pricing of different foods. Another related policy lever that is not available to the Welsh Government is control over employment rights.

Beyond this, additional external factors such as Brexit and other legislation at UK level have the potential to affect food production in Wales and regulation around accepted levels of ingredients (e.g., sugar) and food quality, in addition to changes in the internal market.

Austerity, other financial issues, and trade deals are also relevant. Figure 5 highlights the importance of connecting health outcomes to deprivation/poverty and austerity/local authority spending. It shows per capita spending per local authority area in Wales as a difference from the previous financial year. This demonstrates the large variation in spending between years and local authorities per person, which can have a detrimental impact on people's quality of life.

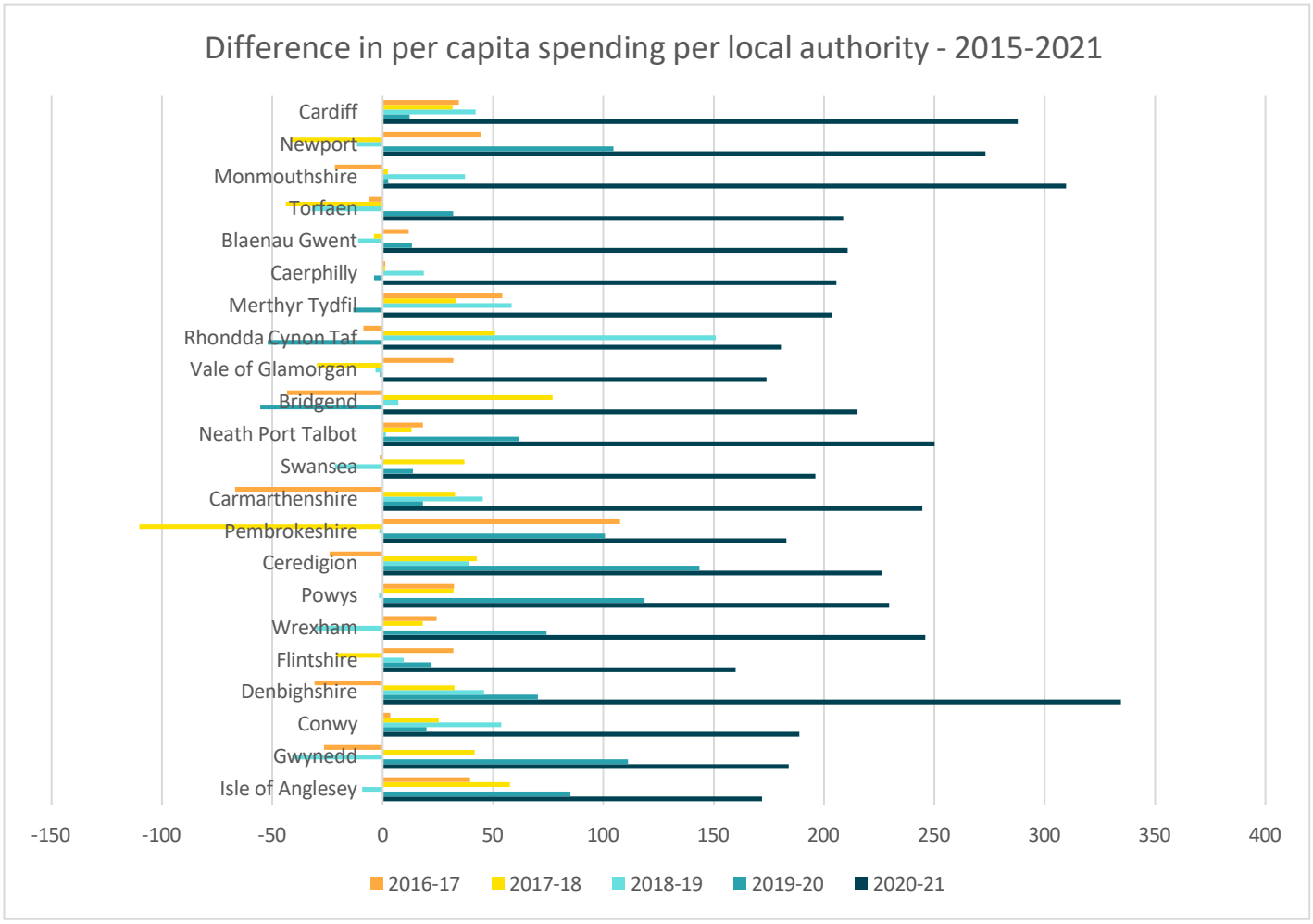

Figure 5: Difference in per capita spending per local authority - 2015-2021 (Source: StatsWales)

When considering the limits of Welsh Government powers, it is important to note that healthy behaviours are influenced by a number of factors that operate over a range of scales from the individual to the local, national and even global. As such, it is clear that some of the factors that influence adult healthy lifestyle behaviours in Wales will always remain well beyond the control of Welsh Government and public services.

However, despite the limited power of the Welsh Government over social welfare and taxation policies, much can be done to reduce social inequalities and improve health in policy areas over which the Welsh Government does have power (health and social care, education, skills, food, sport and recreation, housing, regeneration, environment and planning, transport, and some tax raising powers, including Land Transaction Tax and Landfill Disposals Tax, and partial control over income tax).

Baselines and trends

In order to consider a suitable National Milestone, it is necessary to understand the current 'direction of travel' in adult healthy lifestyle behaviours and the pace and scale of change that has been seen previously in relation to this National Indicator. The data for this comes from the National Survey for Wales (NSfW).

After considering some measurement challenges, the following section sets out the baseline of adult healthy lifestyle behaviours overall in Wales against the Indicator and then takes each of the five behaviours in turn, disaggregating by gender and deprivation quintile.[1]

Challenges with measurement

The challenge with data related to setting a National Milestone for adult healthy lifestyle behaviours in Wales is mainly one of consistency in measurement. The NSfW is conducted all year-round, on several topics, with a monthly sample size of roughly 1,000 people. The Covid-19 pandemic however required a change in survey methodology from face-to-face to telephone interviews and a re- phrasing of the survey questions. Respondents answer questions differently whether face-to-face, by telephone, or on paper /online. In addition, due to the pandemic, not all five lifestyle behaviours were equally surveyed throughout the period due to adaptions in the survey. These changes mean several gaps in the data and an inability to compare the current data with what was collected before (Public Health Wales, 2022).

All data discussed below are from the NSfW between 2016 and 2020. Data for 2021 are available only for January-March and do not enable any meaningful conclusions to be drawn at this stage.

Two or more healthy lifestyle behaviours

The percentage of adults with two or more healthy lifestyle behaviours is approximately 90% for all survey years (Figure 6). Overall, women are more likely to be in this group, with approximately 90% of women having more than two healthy behaviours in comparison to men, at 88.5% (Figure 7). Women show more consistency in maintaining two or more behaviours over survey years, while men show more variation over time.

According to the data, women tend to smoke and drink less and eat more fruit and vegetables, while men engage in more physical activity. More adults in less deprived quintiles report two or more healthy lifestyle behaviours, but more individuals in the first and second quintiles (most deprived areas) report only one healthy lifestyle behaviour. Although there is within-group variation between survey years, there remains a persistent gap between most and least deprived (Figure 8).

Smoking

Trends for the 2016-2020 period suggest some success in relation to policies seeking to curtail smoking. The majority of people reported that they had either stopped smoking or had never smoked, the latter being over 50% of the population for every survey year. There is a trend of smoking being more prevalent among individuals living in more socioeconomically deprived areas in Wales. No salient differences across age groups or survey years were found. Women are slightly more likely to have never smoked than men.

[1] The Welsh Index of Multiple Deprivation is a measure of relative deprivation for small areas in Wales, ranking all small areas from 1 (most deprived) and 1,909 (least deprived). The National Survey for Wales ranks deprivation quintiles based on this data from most to least deprived. This ranking can be found here: https://statswales.gov.wales/Catalogue/Community-Safety-and-Social-Inclusion/Welsh-Index-of-Multiple-Deprivation/WIMD-2019/welshindexofmultipledeprivation2019-by-rank-decileandquintile-lowerlayersuperoutputarea

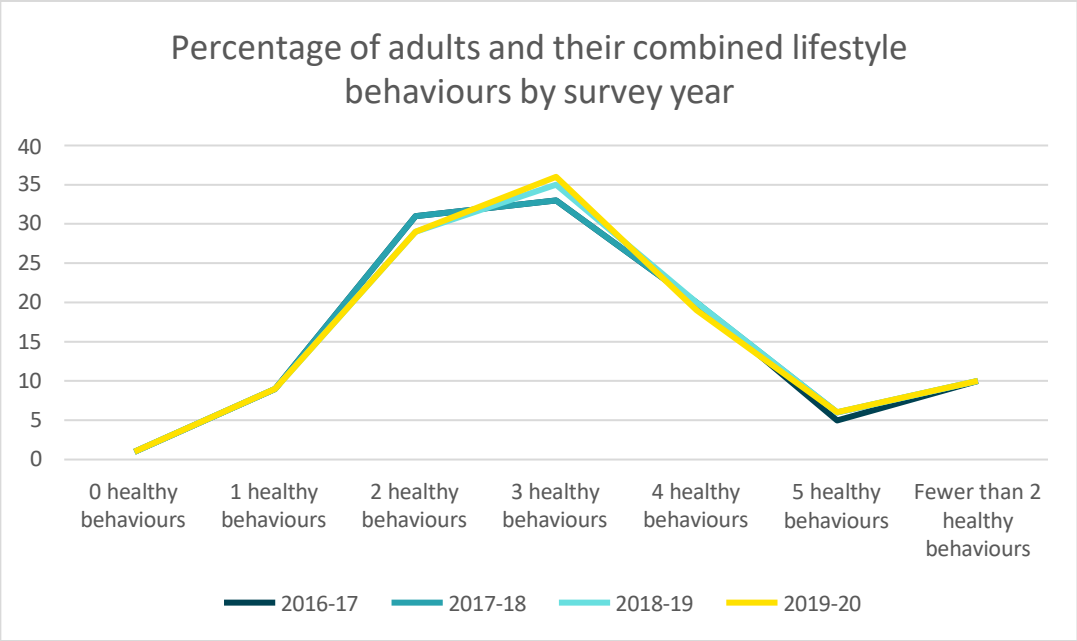

Figure 6: Percentage of adults and their combined lifestyle behaviours by survey year
Source: National Survey for Wales, 2016-2020

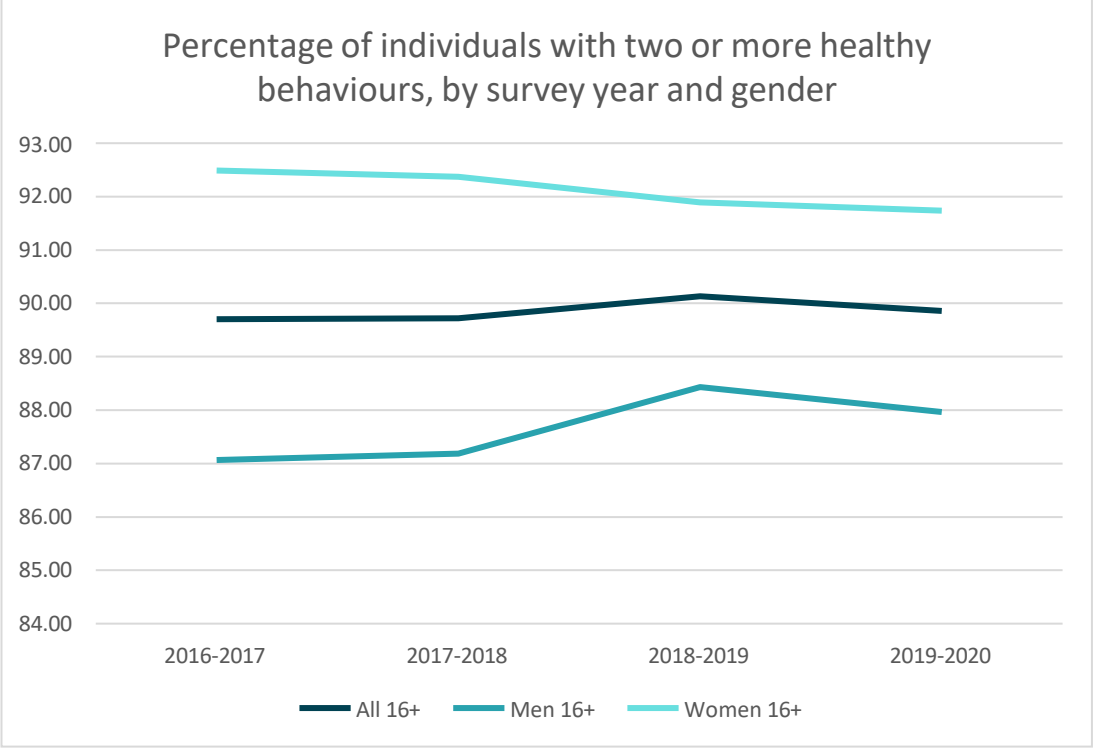

Figure 7: Percentage of individuals with two or more healthy behaviours, by survey year and gender
Source: National Survey for Wales, 2016-2020

Alcohol

The majority of respondents stated that they drink moderately, i.e., up to 14 units per week. However, that number is affected by a significant number of women being moderate drinkers, while more men responded as drinking heavily. There are more non-drinkers in the first quintile (most deprived), but no discernible pattern of moderate drinkers by deprivation quintile. Alcohol consumption has a mild increase as the level of deprivation of area declines.

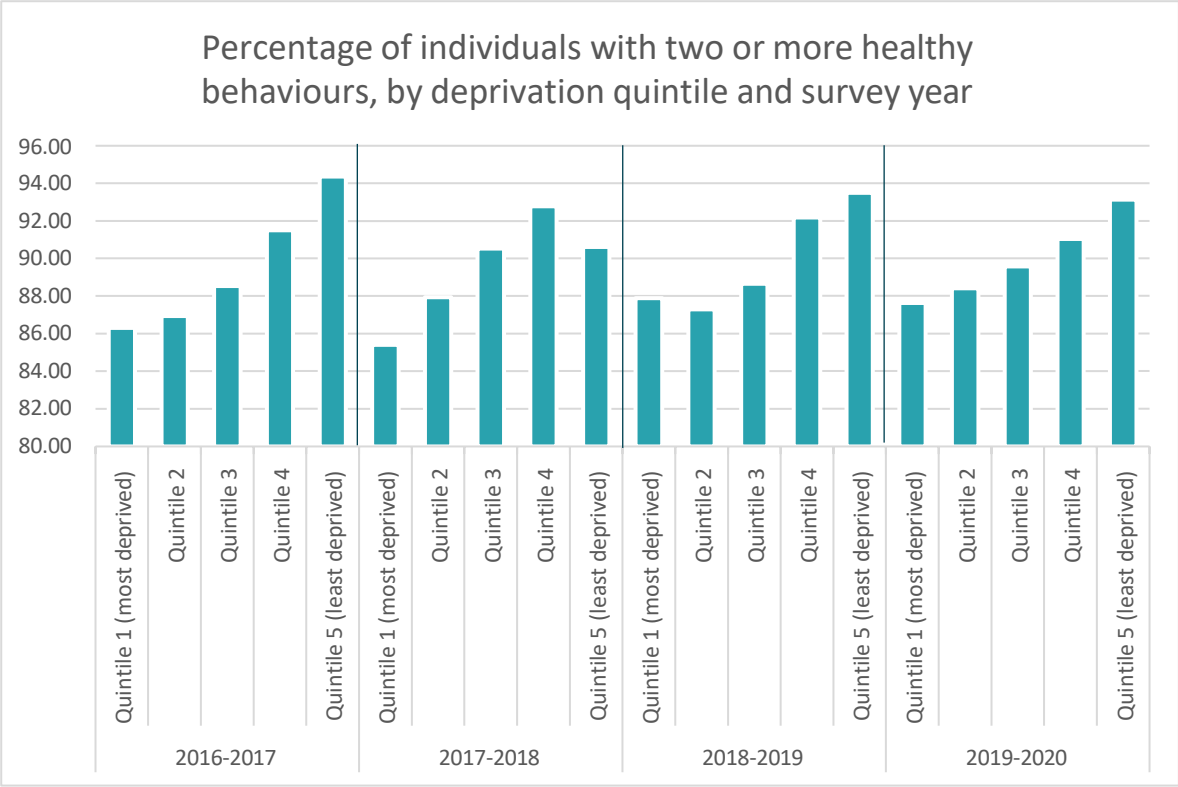

Figure 8: Percentage of individuals with two or more healthy behaviours, by deprivation quintile and survey year
Source: National Survey for Wales, 2016-2020

Nutrition

Women are more likely to adhere to nutrition guidelines and to have eaten five portions of fruit or vegetables on the day prior to the survey than men. There has been a small increase over time of adherence to the guidelines from both genders. Individuals in less deprived quintiles have had the highest response rate to having eaten their 'five a day'. However, even at their highest rate in the fifth quintile, this is only 30% of respondents (2019-2020).

Physical activity

The National Survey for Wales data shows slightly higher adherence to physical activity guidelines for men compared with women, and for individuals in the least deprived quintiles compared with those in the most deprived. This might indicate differences in types of physical activities being undertaken by different groups and whether they are for sport and exercise or daily tasks, given research on what physical activity entails and which people are likely to be engaging in it for exercise and sport alone (Downward et al., 2021). However, the National Survey for Wales does not ask what the activity undertaken is, in contrast with the Eurobarometer survey, so this can only be inferred by the higher rates of activity among these groups.

Body Mass Index

Approximately 38% of the Welsh population has a BMI between 18.5 and 25, considered a healthy weight; another 36% have a BMI between 25 and 30, meaning overweight, but not obese. According to the 2019-2020 survey, 25% of the population is at an unhealthy BMI or obese, an approximate 2.5% increase from previous years. In total, 60% of the Welsh population had a BMI over 25 (overweight or obese) in 2019-20.

There is a gender difference, as women are more likely to have a BMI between 18.5 and 25 and men are more likely to have a BMI between 25 and 30, that gap being roughly 10% for all survey years. The

percentage of people with a BMI between 18.5 and 25 is decreasing in all quintiles, while the percentage with a BMI between 25 and 30 is increasing. There is a trend of closing the gap between quintiles in that range, however, as the percentage of individuals with a BMI between 25 and 30 increases in the least deprived quintiles.

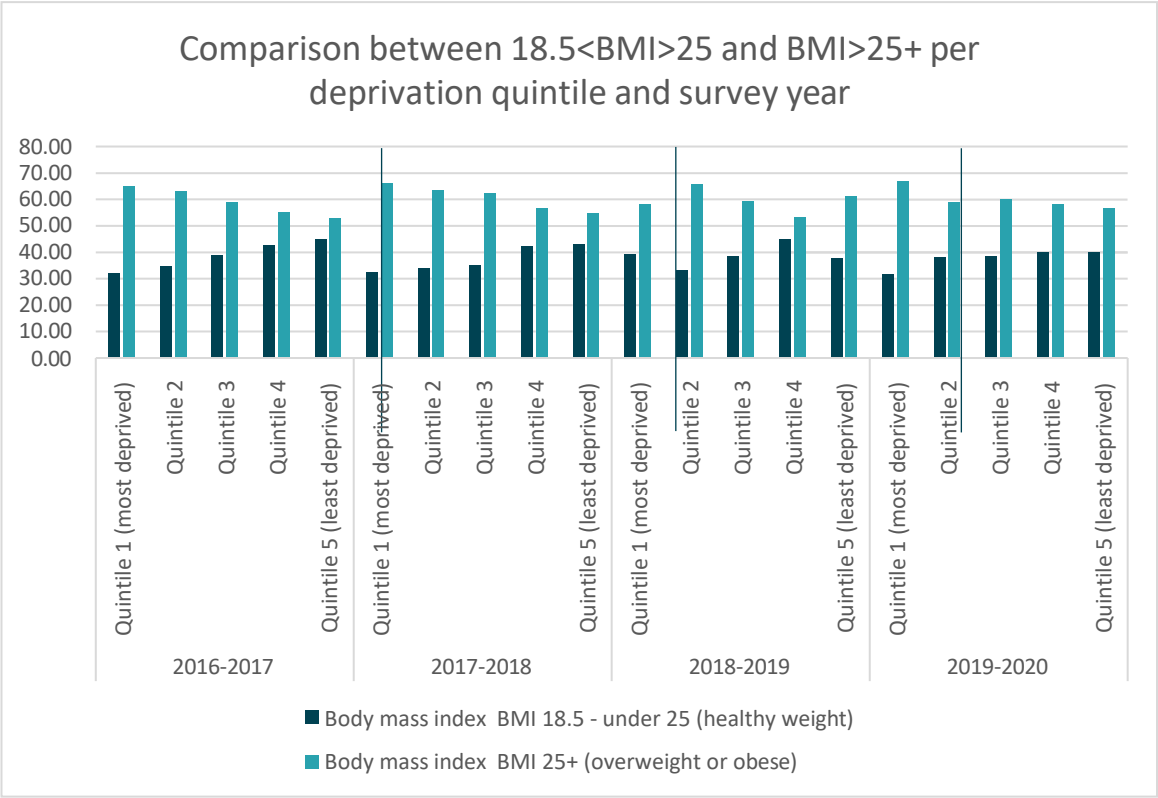

Figure 9: Comparison between 18.5<BMI>25 and BMI>25+ per deprivation quintile and survey year
Source: National Survey for Wales, 2016-2020

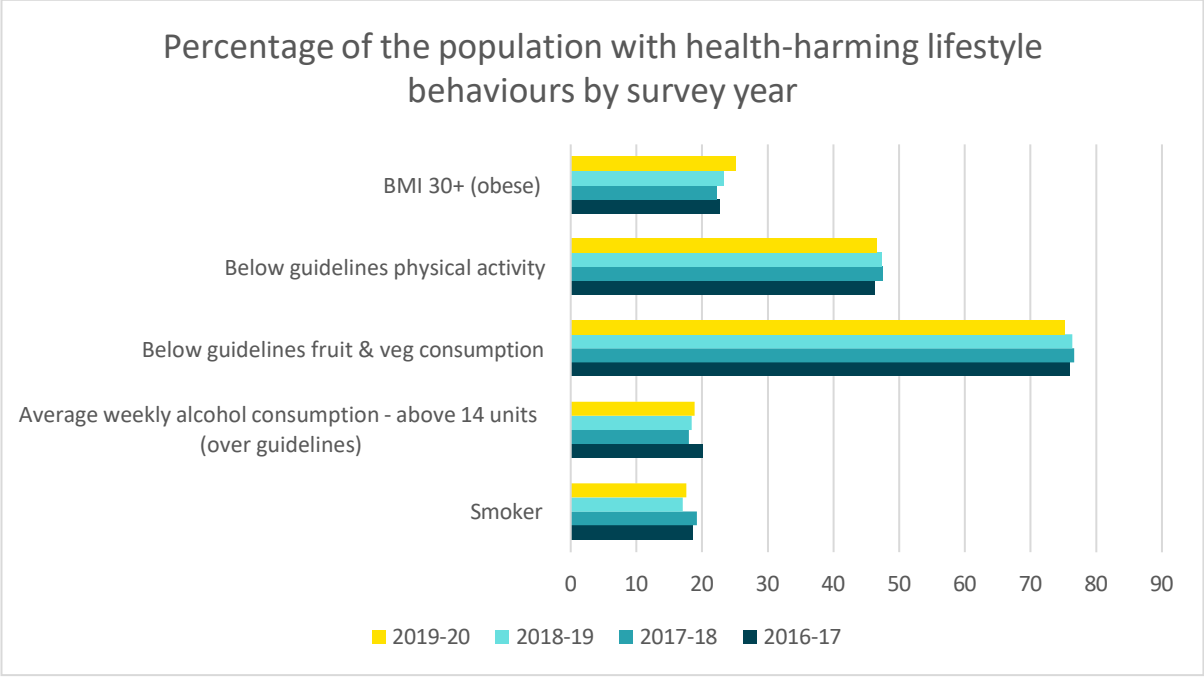

Figure 10: Percentage of the population with health-harming lifestyle behaviours by survey year

Impact of Coronavirus

While the Welsh Government has powers to influence a range of determinants of healthy lifestyles, there are broad economic and social factors outside of the direct control of the Welsh Government and Welsh public services' that are likely to affect health trends. A key external factor, for example, is Covid-19, declared a pandemic by the WHO on 11 March 2020. This has served to only exacerbate existing health inequalities (Marmot and Allen, 2020) and is likely to influence health in Wales for many years to come, although evidence in this area is limited and only beginning to emerge.

Health impact of Coronavirus

The impact of the novel coronavirus pandemic on healthy lifestyle behaviours has been widespread and varied. Generally, the evidence indicates that the pandemic has exacerbated unhealthy behaviours that were previously present, although sedentarism seems to have increased across the board, including among people who engaged in more physical activity (Czenczek-Lewandowska et al., 2021; Richardson et al., 2021). Detrimental health impacts from the pandemic come from decreased access to outdoor spaces and to shopping alternatives, issues with the global supply chains, changes in work patterns including unemployment, economic changes (Benzeval et al., 2020), and the psychological consequences of living with these stressors, including the pandemic health scare. Evidence points to *cumulative effects*, which although already present in lifestyle behaviours prior to the pandemic, were increased during it, and reinforced patterns of behaviour (Czenczek-Lewandowska et al., 2021; Mazidii et al., 2021; Richardson et al., 2021; Robinson et al., 2021).

Mental health

Lockdowns during the Covid-19 pandemic caused several stressors and mental health issues for the population. Several studies analyse the impact of the pandemic and lockdown on anxiety, depression and fatigue, among others (Hampshire et al., 2021). People's overall level of well-being decreased, and levels of anxiety increased, with less support from mental health services being reported (ONS, 2022; Rethink, 2020). While there was a decrease in routine psychiatric appointments, there was an increase in emergency mental health appointments during and following the March 2020 lockdown (Royal College of Psychatrists, 2020).

During the first lockdown period of 2020, having opportunity and motivation either to start or maintain healthy behaviours was crucial (Spence et al., 2020); and not having either the opportunity or the motivation often meant the start of an unhealthy behaviour or relapse (O'Donnell et al., 2021) as demonstrated in the psychosocial model in Figure 3.

Physical activity

Evidence shows that there was a steep increase in sedentary behaviour during lockdown periods, specifically demonstrated in more time spent sitting (Czenczek- Lewandowska et al., 2021; Richardson et al., 2021; Spence et al., 2020). Lack of access to green spaces and gyms/sports centres meant that individuals had decreased access to vigorous and leisurely physical activities, which can help prevent diabetes, hypertension, heart disease, obesity, and mitigate mental health symptoms such as depression and anxiety (Caroppo et al. 2021). Importantly, several of these issues are comorbidities with Covid-19.

Decreased physical activity was associated with mental health, vulnerability and loneliness and social isolation, identified specifically in individuals who were either:

- suffering more with generalised anxiety (anxiety was reportedly higher for individuals with lower levels of education);

- young women (Czenczek-Lewandowska et al., 2021);
- vulnerable populations such as those experiencing homelessness ;
- over 85;
- divorced or single;
- living alone;
- reporting feeling lonely (McBride et al., 2021);
- showing symptoms of depression (Salman et al., 2021).

On the other hand, the majority of British adults (57%) maintained or increased their levels of physical activity during the first lockdown period, with the important trade-off that this came with more sedentary behaviour (Spence et al., 2020). Younger people (within the 18-35 study sample), however, were identified as more likely to increase their sedentary behaviour and decrease their levels of physical activity during lockdown (Czenczek-Lewandowska et al., 2021).

Diet and healthy food

The pandemic also had an impact on how individuals were eating, and evidence shows an overall increase in 'snacking' behaviour (McBride et al., 2021; Mazidii et al., 2021) and issues with weight management (Robinson et al., 2021). It is suggested that mental health decline due to the pandemic could have further induced those pre-disposed to overeating (Herle et al., 2021; Robinson et al., 2021). Changes in dietary patterns concentrated on increased intake of foods with high fat and sugar content and was often associated with other behaviours such as excessive drinking, sedentary behaviour, the 'moment' of the pandemic, employment status, and gender – with men favouring unhealthy foods rather than healthy ones (Dicken et al., 2021). Whether this impacted on individuals' BMIs depended on their levels of physical activity and alcohol intake. Healthier dietary patterns were identified among older adults (over 61) or people living in areas of lower socioeconomic deprivation (Mazidii et al., 2021). Individuals who were already underweight reported eating less during the pandemic (Herle et al., 2021; McBride et al., 2021). When used, social media had a positive impact on self-management of healthy behaviours through access to accurate information on workouts and dietary quality and to keep in touch with social groups (Goodyear et al., 2021).

Indications show that the majority of the British population (64%) maintained their dietary behaviours, although there were changes made by some specific groups of people. For example, depression and loneliness were associated with eating more while being single or divorced and stress were associated with eating less. Additionally, more highly educated individuals were more likely to change their behaviour (Herle et al., 2021).

The pandemic will likely have a long-term impact on changes in weight or BMI, as evidence shows fluctuation in patterns of behaviour and in weight (Dicken et al., 2021). A significant association was determined between having an 'unhealthy' pattern and changing it to a 'healthy' one during the pandemic, indicating that the pandemic changed the physical opportunity and motivation for a group of individuals, but no significant group differences were found (Mazidii et al., 2021).

Alcohol intake and smoking

During the lockdown beginning on 22 March 2020, alcohol sales increased by 31.4% and one in five people reported drinking more frequently (Rodrigues et al., 2022). Similar to the patterns for other lifestyle behaviours, specific groups increased or changed their drinking/smoking behaviour, while the majority maintained their behaviour prior to lockdown. The heaviest alcohol buying quintile was the one that increased their alcohol purchases during lockdown (Public Health England, 2021).

Drinking more alcohol throughout lockdown was often associated with 'boredom' and attempts to maintain a sense of normalcy, along with online socialisation (Dicken et al., 2021; Rodrigues et al.,

2022). Associations between stress and depression and excessive drinking were also found; high-risk alcohol consumption also seemed to occur alongside shifts towards unhealthy dietary habits (Dicken et al., 2021). The specific danger of relapse for those who were abstinent from alcohol during lockdown was identified, but only a small group became abstinent during the period (Kim et al., 2020).

Smoking demonstrated a similar association with 'boredom' and stress, with the end of routines and distractions that had kept individuals from smoking throughout the day (O'Donnell et al., 2021). However, evidence suggests that 'quit rates' increased during the pandemic, possibly due to the risk smoking poses to those infected with Covid-19 (McBride et al., 2021).

Inequalities and deprivation during Covid-19

Inequalities based on socioeconomic status, gender, ethnicity, and geographical difference were exacerbated during the pandemic and increased the level of vulnerability of already vulnerable groups. While Covid-19 had an impact on the whole of society, it did not impact all equally. For example, highest rates of death were found in ethnic minority populations throughout the pandemic in the UK (ONS, 2021). Given the higher rates of obesity in these groups (obesity also being associated with deprivation), this caused a cumulative health risk for these populations (DHCS, 2020; Public Health England, 2020).

Covid-19 exacerbated existing economic difficulties for those already in situations of deprivation (Benzeval et al., 2021) and more likely to have less access to healthy foods (either due to lack of purchasing power, shopping alternatives, transportation, self-isolation, or a combination of these).

Figure 8 shows how these dimensions can intersect in different ways and must, therefore, be considered beyond individual factors contributing to health and healthy behaviours. Dimensions of vulnerability almost always intersect.

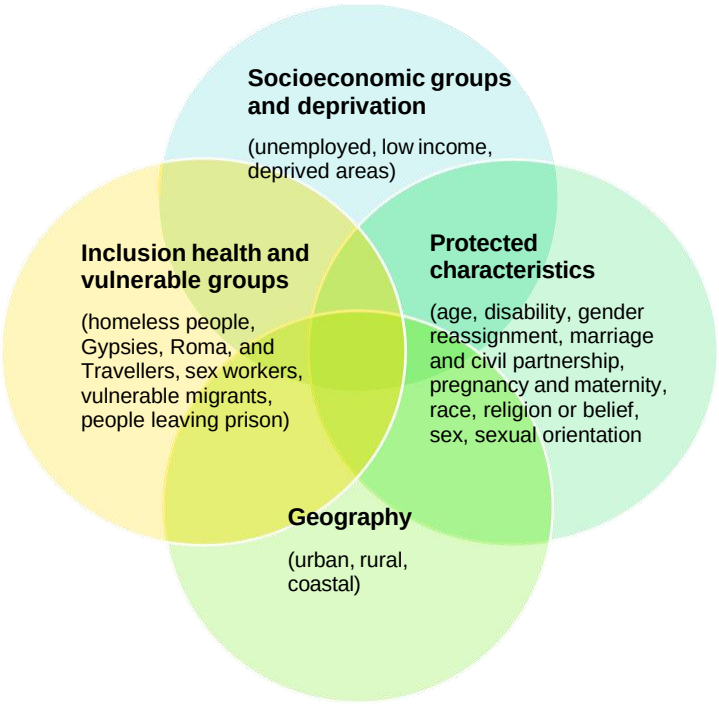

Figure 11: Intersecting dimensions of health inequalities
Source: Public Health England et al., no date

Key considerations for Milestone development

The evidence base reviewed suggests some key considerations for the development of a Milestone for healthy lifestyle behaviours in adults. These include:

Positive articulation

During the consultation period for National Indicator 3 and other Indicators, there were challenges to how this Indicator and the respective Milestone might be articulated. An important theme raised by respondents was that the National Milestone was negatively phrased. It was suggested that a more positive wording would aid clarity of the Milestone (and Indicator) making them easier to interpret, as well as reinforcing a healthy lifestyle message. The wording for National Indicator 3 was thus amended by the Welsh Government to as it stands at the beginning of this briefing.

Measurement challenges

Currently, approximately 90% of the adult Welsh population already meets the 'two or more' healthy lifestyles benchmark set by National Indicator 3. Declining trends in smoking and rising trends in BMI in Wales suggest that *any* two healthy lifestyle behaviours may not be an adequate measurement in isolation for improvement in healthy lifestyle and that emphasis might need to be placed on some behaviours more than others to see real progress achieved.

Additionally, the evidence reviewed suggests that the articulation of some of the behaviours in the National Indicator might welcome further reflection or supporting information, for example as there are relevant issues with associating obesity solely with the Body Mass Index, and evidence suggests that, along with the BMI, other measures should be used to properly measure obesity, such as Waist Circumference and/or Waist-to-Hip-Ratio (Chrysant, Chrysant, 2019). In addition, some have suggested that 'five fruits or vegetables' is not considered to adequately measure healthy nutrition (Gramza-Michałowska, 2020; Marino et al., 2021; Rauber et al., 2020).

Consistency of data collection methods, impacting on what can be measured, was mentioned earlier in this document and examples provided of disruption in the NSfW data. It is important to continue to take this into consideration to ensure that no further gaps or inconsistencies occur given the long-term goal and nature of the Milestone.

Pace of change

Policy decisions on health inequalities and outcomes can focus on targeting the communities with the worst health outcomes; improving the absolute gap between groups; or improving the differences in health gradient (Graham, 2009; Hiller-Brown et al., 2014). Policies are then designed based on which area of society they are intended to impact , i.e., a targeted or universal approach. Alternatively, the Marmot Review 2010 proposes that efforts should be made to 'level up' the social gradient while improving population wide outcomes, by policies that are universal but implemented at a scale and intensity proportionate to the degree of need: a form of 'proportionate universalism'.

Policy choices should be defined by governments based on the results they expect to see. However, the evidence shows that governments often have conflicting or ambiguous policies and decisions in relation to the results they want to achieve (Graham, 2004; 2009). This is a relevant consideration, and it is important to consider carefully the target group(s) of policies and how fast a result is needed (see Table 1). Policies on social determinants might be 'slow acting' (e.g., cultural change on racism), but policies on equalising access can be 'fast acting' (e.g., ensuring those without means receive fresh produce). The pace of change will be determined by the goal and the policy set.

Other types of fast-acting policies rely on regulation and/or taxation (i.e., smoking bans, minimum pricing of alcohol, or ban of transfats). These have universal impact, whereas actions such as mass media messaging or interventions through primary health care depends on individual take-up and is known to be less effective (Capewell and Capewell, 2017).

Table 1: Tackling inequalities in social determinants			
		in broader determinants	**in individual risk factors**
Tackling health inequalities	reducing health gradients	(1) increase in level of determinants in all groups to match that in most advantaged group	(2) reduction in prevalence in all groups to match that in most advantaged group
	narrowing health gaps	(3) faster rate of improvement in determinants in poorest group than comparator group	(4) faster rate of reduction in risk factors in poorest group than comparator group
	improving health of poorest groups	(5) improvement in determinants in poorest group	(6) reduction in risk factors in poorest group

Source: Graham, 2009, p. 473

Coronavirus

The impact of the pandemic is already being felt. First, the emergency itself, people infected with Covid-19, hospitals occupied to, or over, their capacity, burnout of the NHS staff, and the possibility of further variants. Second, the chronic effects known as 'long Covid' and how they might affect people's health and health inequalities over time. Third, there are health impacts on people who did not have Covid-19 but had other conditions that did not receive adequate care during the pandemic or who faced mental health issues due to lockdown (Hampshire et al., 2021). Many of these are children and adolescents who will be the target group in a few years.[2] The pandemic has shifted how we do many things, from hygiene, to exercise, to smoking, to eating habits (McBride, et al., 2021). These studies are still happening, and it is important to keep track of these changes and their evolution (Chief Medical Officer for Wales, 2021).

Type of Milestone

There are different types of Milestones that might be set, for example through **comparison with a 'comparable' country** or a **'point to point' comparison** for the same country between two 'points' in time.

Due to how Wales uniquely sets and measures against its adult healthy lifestyle indicators, worldwide or country-to-country comparisons are challenging. The World Health Organisation and the Eurobarometer include measurements for the United Kingdom, but not for each of its nations. The different international standards in measurements (such as five portions or 400g of fruit and vegetables but excluding starchy roots and the Healthy Diet Indicator or 150–300 minutes of moderate-intensity aerobic physical activity as developed by WHO), and different age groups used by WHO and Wales (15+ and 16+, for example), make comparisons to other countries more difficult.

It might be that efforts could be made to enable comparisons between Wales and other countries in the UK. Given the broad challenges of country-to-country comparison, however, a 'point to point' approach which compares Wales 'against itself' between a clear baseline and 2050 could be most meaningful. Additionally, some form of interim milestones might be useful given the length of time to 2050.

One suggestion is that the Milestone for adult healthy lifestyle behaviours might match the ambition set for the Milestone for Indicator 5 on children's healthy lifestyle behaviours, given their complementarity. This Milestone is: 'To increase the percentage of children with two or more healthy behaviours to 94% by

[2] https://www.bbc.co.uk/news/health-60417283

2035 and more than 99% by 2050'. However, there are some limitations to a composite measure. First, approximately 90% of the Welsh adult population already meets the threshold of 'two or more' healthy lifestyle behaviours. Additionally, a composite measure would mask the fact that this overall percentage is heavily influenced by non-smokers and individuals drinking alcohol within guidelines, while most do not maintain healthy standards of eating, physical activity, or have a healthy BMI. The composite Indicator also masks the inequality gap that exists in lifestyle behaviours and health outcomes, with some behaviours being more easily maintained by those in less deprived areas and with better access to healthcare. Consequently, it is also a question as to whether the Milestone should reflect the National Indicator by referring to the *whole* population or focus on healthy lifestyle behaviours for (or the differences between) specific adult population groups. These different possibilities for articulation of the Milestone are set out below:

1. Statistical weighting of healthy lifestyle behaviours, where those behaviours currently with poorer outcomes in Wales, such as fruit and vegetable intake, would influence the Milestone more heavily;
2. Prioritisation of specific behaviours, with 'two or more' being articulated to include at least one specific behaviour with poorer performance;
3. Focus on the inequality gap between population groups in maintaining 'two or more' healthy lifestyle behaviours, with the Milestone focusing on decreasing the gap between the most and the least deprived;
4. Focus on a specific population group - the most deprived - with the Milestone being targeted to increase the percentage of those maintaining 'two or more' healthy lifestyle behaviours in more deprived areas.

Whichever articulation is chosen, the importance of disaggregation by gender and deprivation cannot be understated, as this would aid in unmasking key inequalities in health and health outcomes in Wales.

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Except where cited, views expressed in the report are the authors' own.

Annex 1: List of Welsh Government policies related to adult's health behaviours

The following list provides a non-exhaustive overview of some key policies and policy approaches in Wales related to adult's health and health behaviours.

Health-related policies and strategies

The overarching health strategy currently in place in Wales is **A healthier Wales: a long-term plan for health and social care.** This plan was set out by the Welsh Government in 2019 and *'sets out a long-term future vision of a 'whole system approach to health and social care', which is focussed on health and wellbeing, and on preventing illness'.* (Welsh Government, 2019d, p. 3)

In addition to this long-term plan, some key health policies and programmes in Wales that relate to adult health and health behaviours include:

Healthy Weight, Healthy Wales

Introduced in 2019, this is the Welsh Government's strategy to reduce and prevent obesity.. This plan consists of four national themes, each with goals to be met by 2030, and consists of five plans delivered over two-year cycles between 2020 and 2030. The current cycle has been disrupted by the Coronavirus pandemic (Welsh Government, 2019c).

Tobacco Control Action Plan (TCAP)

Introduced in 2012, this plan ran until the end of 2020 and had the overall aim of reducing adult smoking levels to 16% by 2020. The plan's interim target of 20% smoking prevalence among adults by 2016 was met ahead of schedule. The TCAP had four action areas and was supported in its implementation by the Tobacco Control Strategic Board which was established in 2016 and a Tobacco Control Delivery Plan which covered the period 2017-2020 (Welsh Government, 2017).

It has now been extended with the goal of a tobacco-free Wales by 2030, with the current strategy between 2022 and 2024.

Public Health (Minimum Price for Alcohol) (Wales) Act 2018

The Welsh Government is able to set a minimum price for alcohol under the Public Health (Minimum Price for Alcohol) (Wales) Act 2018. In March of 2020 Wales introduced Minimum Unit Pricing on alcohol which requires retailers to charge at least 50p per unit of alcohol in their products. This is intended to discourage people., from engaging in unhealthy drinking behaviours (BBC News, 2020). The Welsh Government also has control over the enforcement of age of sale and alcohol availability regulations in Wales.

Food for Wales, Food from Wales

The strategy visualised food policy from production, to supply, to market, to consumer, with sustainable, economic, and health goals. The **Towards Sustainable Growth: An Action Plan for the Food and Drink Industry 2014-2020** focused on the former two and reinforcing cultural aspects of Welsh food.

Policy approaches

Health in All Policies

It should also be noted that the Well-being of Future Generations Act (Wales) 2015 encourages a Health in All Policies (HiAP) approach. HiAP is an approach to policy-making and governance which acknowledges that health is impacted by all areas of life and has various social determinants which lie outside the purview of health policy (Public Health Network Cymru, 2019).

The HiAP approach encourages policy makers to (Public Health Network Cymru, 2019):

- Acknowledge and consider the health implications of the decisions they make in all policy areas.

- Seek out synergies between health objectives and the objectives of policy in other areas.
- Target the social determinants of health in policymaking in all areas.
- Avoid causing harm to health outcomes through active consideration of the health implications of all policies.
- Seek to reduce health inequalities through all policymaking.

As can be seen in the new Welsh curriculum and the Future Wales plan above, health objectives are being woven into some wider policies and strategies.

Making Every Contact Count

The Making Every Contact Count (MECC) approach to behaviour change is being promoted among health and care services (and their partner organisations) in Wales. This approach 'enables health and care workers to engage people in conversations about improving their health by addressing risk factors such as alcohol, diet, physical activity, smoking and mental wellbeing. (Public Health Network Cymru, 2021b)'

It encourages health and social care workers to recognise the importance of each contact they have with individuals, , and to use these interactions to support healthy lifestyle behaviours and choices. Public Health Network Cymru (2021) highlight that MECC should not be viewed as a public health initiative but instead should be something that all service providers engage in. They suggest that doing so 'will allow us to move to a position where discussion of lifestyle and wellbeing is routine, non-judgemental and integral to everyone's professional and social responsibility' (Public Health Network Cymru, 2021b). In this way the MECC approach can support healthy lifestyle behaviours across all aspects of life.

Other relevant policies and policy areas

As highlighted at the start of this section, health and healthy behaviours are also affected by factors and policy areas outside health policy. Key policy areas that impact upon health and its determinants include income security and social protection policies, living condition policies, social and human capital policies, and employment and working conditions policies.

Some key policies and interventions in Wales that influence health and its determinants but are not themselves health specific include:

Future Wales: The National Plan 2040

The Future Wales plan is the national development plan for Wales which runs until 2040. This plan influences all levels of planning and development in Wales and aims to support the healthier Wales goal of the Well-being of Future Generations Act (Wales) 2015, and the increase extent to which the built environment and neighbourhoods enable health behaviours (Welsh Government, 2021a).

Active Travel Act 2013

The Active Travel Act, which was introduced in 2013, aims to promote active travel in Wales and to 'make active travel the most attractive option for shorter journeys'. It requires local authorities to support active trave, by continuously improving active travel routes and facilities. This legislation and the action it requires local authorities to take aims to support active travel to school among children in Wales – encouraging daily physical activity (Welsh Government, 2014).

Policies linked to children's health behaviours

The following policies relate to children's health behaviours (health behaviours in childhood are known to have a significant influence over health behaviours in adulthood):

Healthy Child Wales Programme (HCWP)

The Healthy Child Wales programme, introduced in 2016, outlines how the Welsh Government supports the health and welfare of children from conception up to age seven. The programme encourages partnership working between key actors including maternity services, health boards, education providers, the third sector and communities in recognition that many actors contribute to and influence child health and well-being. The HCWP sets out the key contacts and interactions that children and their families should expect from their health board up until age seven. Three areas of health board intervention are covered by the HCWP - screening; immunisation; and monitoring and supporting child development (surveillance) (Welsh Government, 2016).

The health of children in Wales is also addressed by a number of sub-national plans implemented by local governance actors including Local Area Development Plans which are developed and implemented by local authorities and the Well-being Plans of Public Services Boards which were brought into existence by the Well-being of Future Generations Act (Wales) 2015. Many of the current well-being plans include healthy start in life (or a variant of this) as a key aim.

Curriculum and Assessment (Wales) Act 2021

On 29th April 2021, the Curriculum and Assessment (Wales) Act 2021 became law. This Act provides a framework which supports the development and implementation of a new Welsh curriculum and assessment framework. The new curriculum in Wales will be rolled out from September 2022. It includes healthy individuals as a key goal and will allow schools in Wales to promote healthy lifestyle behaviours among children in Wales in ways that are most relevant to them and their communities (Welsh Government, 2021b).

As already noted, there are many more policies that can and do influence child health and lifestyle and its determinants in Wales that are not explored here.

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