TARGETING HEALTH INEQUALITIES: REALISING THE POTENTIAL OF TARGETS IN REDUCING HEALTH INEQUALITIES

HEALTH EQUITY NORTH

Newcastle University

University of Strathclyde Glasgow

The Health Foundation

Clare Bambra[1], Katherine E Smith[2], Chioma Nwaru[1], Natalie Bennett1, Viviana Albani[1], Andrew Kingston[1], Adam Todd[1], and Fiona Matthews[1]

[1] Population Health Sciences Institute, Faculty of Medical Sciences, Newcastle University
[2] School of Social Work & Social Policy, University of Strathclyde

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AUTHORS
Clare Bambra, Katherine E Smith, Chioma Nwaru, Natalie Bennett, Viviana Albani, Andrew Kingston, Adam Todd, Fiona Matthews.

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FOREWORD

Whoever forms the next government will be leading a country in which improvements in life expectancy have stalled and where the health of the poorest has got worse. This presents a problem, not only for health and well-being but also for the future of our economy, the NHS and social care. For the nation's economy to prosper, and keep up with progress in other economies across the world, it needs a healthy workforce. Poorer health limits people's opportunity to engage in work. In turn, being out of work can lead to poverty, which is associated with worse health outcomes.

As this report makes clear, improving people's health and reducing health inequalities must be delivered as part of a long-term mission that encompasses action across government departments and the four nations of the UK over a decade or more. To those who assume that politicians are incapable of thinking beyond the next headline – or at most the next election – that may sound unachievable. But it doesn't have to be like this: politicians can act differently if they choose to.

Of course, even with the right intentions, any government could feel intimidated at the challenge. But this report gives reassurance that, while difficult, reducing health inequalities has been done before and can be done again. It shows how ministers have used targets to drive action on health inequalities in the past, and gives today's policymakers an outline of the long term health targets and medium term social and behavioural metrics that can guide action and measure progress.

While this previous success is positive, progress will not be made simply by setting a target: targets will only work if they sit alongside a wider set of enablers and incentives, in particular funding. Caution also needs to be applied to avoid organisations hitting the target but missing the point or creating other perverse incentives.

This report doesn't claim that there is only one approach that policymakers can legitimately take. For example, different governments may decide to set more ambitious targets for improving diet, or make tackling poverty the centrepiece of their approach. Likewise, decision makers could take different approaches to measurement issues, such whether to prioritise datasets that are comparable across the four nations of the UK. There is clearly scope in the future for more detailed modelling to add further specificity to the targets, and further opportunities for better measures if we can improve our national datasets, but this report sets out a potential way forward.

This report makes clear the value of targets and metrics as a central component of a wider mission to galvanise action across government to address the health inequalities that are holding the country back. The Health Foundation will continue to be interested in this debate as the work moves forward.

Gwen Nightingale and Katherine Merrifield
Job-share Assistant Directors in the Healthy Lives team at the Health Foundation.

EXECUTIVE SUMMARY

This discussion paper examines the potential of using targets to reduce heath inequalities in all four UK nations. It specifically considers the role of targets to galvanise action on health inequalities and puts forward suggestions for appropriate health targets. It reviews the previous use of health inequalities targets in UK health policy and summarises the main lessons from these experiences; considers the benefits and drawbacks of different health metrics as targets; scrutinises which social determinants of health indicators could provide short-term tracking of health progress; discusses conceptual and measurement issues for designing targets; and sets out various options and recommendations for targets for policy makers to consider across the UK.

HEALTH INEQUALITIES

Health inequalities are the systematic, avoidable differences in health which exist between different social groups. Striking health inequalities exist in the UK between different socio-economic groups, between different areas of the country and between different ethnic groups.

There are stark geographical inequalities in health in the UK. The most deprived areas have worse health outcomes than the least deprived areas. For example, both male and female life expectancy is highest in the London borough of Westminster (85 years for men, 87 years for women), and lowest in Glasgow City (74 years for men, 79 years for women). This is a difference in life expectancy of 11 years for men and 8 years for women. Westminster is the least deprived local authority, whilst Glasgow is the most deprived.

Male and female life expectancy

London borough of Westminster	Glasgow City
Men	Men
85	74
Women	Women
87	79

Life expectancy across the UK has stalled over the last decade and health inequalities have increased. They were also exacerbated by the COVID-19 pandemic.

The causes of these different health inequalities are complex and multi-faceted. However, the research consensus to date suggests that they are largely driven by inequalities in the social determinants of health.

Health inequalities have significant costs to the individuals who suffer ill health or die prematurely, their families and for society. Health inequalities have large economic costs in terms of lower productivity and higher healthcare and welfare costs, with for example, the excess poor health in the north of England, estimated to cost the UK economy over £13 billion per year in lost productivity.

It is against this backdrop of stalling life expectancy, increasing health inequalities and the ongoing threats and challenges to health and wellbeing that politicians and policymakers across the political spectrum have started to talk more about how we can act to reduce health inequalities and improve the health of the UK population.

This is not an easy, short-term or straightforward task and it requires a whole government approach – nationally and locally. However, there are lessons to be learnt from past strategies.

This discussion paper aims to help these emergent discussions by examining the potential of using targets within national strategies to improve health and reduce health inequalities.

TARGETS AND MISSIONS: HEALTH INEQUALITIES POLICY IN THE UK

In this section, we consider how policy targets for tackling health inequalities have been designed and implemented previously in the UK and synthesise some of the evidence examining the impacts of these targets.

We start with the first national example of health inequalities targets that we can identify, which were introduced by the UK government for England from 1997, in the context of a broader 'performance assessment' approach to public sector governance.

We also review the rather different approach to targets that was taken in Scotland and Wales and Northern Ireland in the same period.

We consider the most recent UK target for reducing health inequalities, which is the health 'mission' part of the Levelling Up strategy. Finally, we draw together some of the key 'lessons' learned from these examples, noting the benefits of using targets but also some of the challenges and limitations.

We found that the English health inequalities targets of 1997-2010 were achieved, at least partially, with inequalities in life expectancy, infant mortality rates and in mortality amendable to health care all decreasing in this period. It took around 10 years to realise these achievements. Health inequalities in Scotland also fell over a similar timeframe, across a variety of health indicators.

Although it is difficult to ascertain the specific role that targets played in this achievement – it is plausible that they played a role as an integral part of the wider cross-government health inequalities strategy.

WHO/WHERE TO TARGET? CONCEPTUAL AND MEASUREMENT ISSUES

This section considers some of the key conceptual and measurement issues which need to be taken into consideration when designing any health inequalities targets.

We discuss four main issues: (1) how we conceptualise and therefore measure health inequalities targets; (2) targeting different socio-demographic groups; (3) scale of analysis including geographical measures of social status compared to individual measures; and (4) timescales for achieving a reduction in health inequalities.

We conclude that: improving the health of the most disadvantaged groups and areas (e.g. the 20% most deprived areas, children and minority ethnic groups) is the most likely to be effective and that the health gains are likely to be evident within a 10 year time frame.

From a practical perspective, given how data on social (and health) inequalities is collected and analysed in the UK, geographical data provides the best available way of tracking heath progress.

WHAT TO TARGET? ASSESSING DIFFERENT HEALTH METRICS

In this section, we review a range of possible health indicators that could be used for targets across the four nations of the UK.
We identified six key indicators upon which targets could be based:

- infant mortality rates
- life expectancy
- healthy life expectancy
- prevalence of overweight and obesity (in adults and children)
- prevalence of anxiety and depression (in adults)
- suicides

We describe each indicator, the mode of assessment, the frequency of measurement, geographic coverage, measure of inequality, and the advantages and disadvantages of each measure.

These metrics are chosen because they are broadly comparable across all four nations, are regularly updated, and are available by deprivation (and/or local authority and/or ethnicity).

INTERIM INDICATORS: THE SOCIAL AND BEHAVIOURAL DETERMINANTS OF HEALTH

Given that experience suggests that it takes around 10 years to achieve measurable reductions in health inequalities, this section argues that it would be beneficial to include interim, medium-term targets related to some key social determinants of health. These could be used to track progress on a more frequent basis.
In this section, we examine the advantages and disadvantages of various social determinants of health metrics for tracking future changes in health inequalities.

We conclude that the following would be best placed to act as interim indicators of progress for our health metrics:

- Household relative poverty rates
- Employment rates
- Relative child poverty rates
- Educational attainment rates (5+ GCSEs grades A*-C)
- Meeting recommended physical activity rates
- Consuming five or more fruit and vegetables per day

The rationale for these decisions is because the indicators are broadly comparable across all four nations, are regularly updated, are available by Index of Multiple Deprivation (IMD) (and/or local authority and/or ethnicity) and are strongly associated with at least one of our key health outcomes.

CONCLUSION AND RECOMMENDATIONS

Reducing health inequalities is beneficial for all of society – not just from a health improvement perspective but also because lower health inequalities can boost employment and productivity, reduces pressure on the NHS budget and increases fiscal revenues.
In this report, we conclude that targets have the potential to improve health and reduce health inequalities. Based on our research, we make several recommendations below for what makes a 'good' health target (and the summary Figure):

RECOMMENDATION 1:

Targets should be used in a cross-government health inequalities strategy

We have provided an overview of the benefits and drawbacks of using targets in policy implementation and we have outlined the specific issues which need to be considered when designing health inequalities targets. Whilst targets have some drawbacks (such as gaming the system or perverse incentives), we still conclude that they can be effective in galvanising action by providing a shared policy focus. There is also evidence that they contributed to the success of the 2000-2010 English health inequalities strategy. They should therefore be used within any new health inequalities reduction strategy.

RECOMMENDATION 2:

Targets should use a geographical measure of inequality

We also discussed key conceptual and measurement issues, including whether health inequalities should be considered from a gradient or a gap perspective, as well as measurement issues in terms of which socio-demographic inequalities to target, as well as the scale of analysis. Despite their drawbacks, given the geographical way in which health and related interim data is collected across the UK, we conclude that a geographical measure of health inequalities is the best available to use at present. All health and related social and behavioural determinants of health data recommended here is available at the regional and local authority level, whilst some is also available at the neighbourhood geographical level.[50]

Where possible, targets should be aimed at the lowest geographical level possible to enable health gains in all of the most deprived parts of the country. This can be supplemented – where data is available – for other socio-demographic factors that are locally important, most notably for ethnicity. Future data collection should improve the data on health inequalities that is available at the individual level to overcome the limitations of using geographical data.[51]

RECOMMENDATION 3:

Targets should measure a range of health outcomes

We also considered the benefits and drawbacks of different health measures, and we conclude that a range of metrics should be used in order to capture the full WHO definition of health as "a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity" (WHO, 1948). Specifically, we see value in examining:

- Life Expectancy (LE),
- Healthy Life Expectancy (HLE),
- Infant Mortality Rate (IMR),
- Overweight and obesity,
- Anxiety and Depression,
- Suicide rates.

These health measures are chosen because they provide comparable data across all four countries; are updated at least annually; between them cover both physical and mental health; include measures for adults and children; collectively measure mortality and morbidity; and can be analysed by some indicator of social inequality (most commonly by IMD but in some cases also by ethnicity). Where data is lacking, collection and analysis methods should be improved.

RECOMMENDATION 4:

Targets should be accompanied by interim indicators

We have also examined the likely timescales within which we could expect a change in health inequalities to occur. The evidence from the 2000-2010 health inequalities strategies suggests that it takes around 10 years of concerted policy action to achieve small measurable reductions in health inequalities. We therefore conclude that any targets should also be designed with at least a 10-year timeframe in mind. To support monitoring of progress across this 10-year window, we examined whether social and behavioural determinants of health factors could act as interim indicators and provide short-term tracking of policy progress. They could also help gain buy-in form non-health departments (e.g. DWP, Education) for a 'health in all policies' approach. We conclude that interim measures should be used to provide early signs of progress. Specifically, based on current data availability across the UK, we suggest that the following would be best placed to act as interim indicators of progress on our suggested health metrics:

- Household relative poverty rates
- Employment rates
- Relative child poverty rates
- Educational attainment rates (5+ GCSEs grades A*-C)
- Meeting recommended physical activity rates
- Consuming five or more fruit and vegetables per day

Other interim indicators (such as smoking) could also be included if data collection and analysis methods are improved in the future.

RECOMMENDATION 5:

Targets should be aspirational and achievable

Health inequalities targets should be aspirational but also be achievable. Whilst addressing the whole social gradient in health is the most desirable from a health inequalities perspective, it is also the most aspirational. A focus on raising the position of the worst-off local areas (e.g. the bottom 20% as they have the worst health outcomes) compared to the national average may be the best way to start and, as seen in the 2000s, where the quickest gains can be made both in terms of health inequalities and in terms of overall population health gains. Based on previous UK experience, reductions in health inequalities (e.g. of around 10% reduction in the life expectancy gap between the bottom 20% of local authorities and the national average) should be achievable within a 10-year time frame. We therefore propose that initial targets focus on:

Levelling Up Health

- ✓ Reduce the life expectancy and the healthy life expectancy gaps between the most deprived 20% of local areas and the national average
- ✓ Reduce the gap in obesity rates amongst adults between the most deprived 20% of local areas and the national average

Improving Child Health

- ✓ Reduce the infant mortality rate gap between the most deprived 20% of local areas and the national average and between all minority ethnic groups and the national average
- ✓ Reduce the gap in obesity rates amongst primary school age children between the most deprived 20% of local areas and the national average

Better Mental Health

- ✓ Reduce the anxiety and depression gap between the most deprived 20% of local areas and the national average
- ✓ Reduce the suicide rate gap between the most deprived 20% of local areas and the national average

RECOMMENDATION 6:

Targets should be resourced and supported by policy action and political leadership

This report has also provided an overview of the policies and actions which were used in previous UK strategies to reduce health inequalities. This provides pointers for the sort of policies that will need to be developed and implemented if reducing health inequalities is to be translated from policy aspiration to epidemiological achievement. Further, as health is a devolved responsibility for Scotland, Wales and Northern Ireland, and with considerable emphasis within devolution deals and local authorities in England, targets will need to have local buy-in and influence over design (e.g. agreed with devolved governments, combined authorities and local authorities). Resourcing should be adequate and provided nationally but with devolved influence and control as many of the interventions will be implemented locally. National targets are only likely to coalesce action if they are accompanied by high-profile political leadership which consistently affirms their importance.

Summary National Health Inequalities Targets

	Target	Interim Indicators	Health Metrics
Levelling Up Health	Reduce the life expectancy and the healthy life expectancy gaps between the most deprived 20% of local areas and the national average Reduce the gap in obesity rates amongst adults between the most deprived 20% of local areas and the national average	■ Reduce poverty rates in 20% most deprived local areas ■ Increase employment rates in 20% most deprived local areas ■ Increase educational attainment rates in 20% most deprived local areas. ■ Increase % of adults meeting guidelines for physical activity in 20% the most deprived local areas ■ Increase % of adults consuming 5 or more fruit and vegetables per day in the 20% most deprived local areas	Life expectancy Healthy Life Expectancy Overweight and obesity
Improving Child Health	Reduce the infant mortality rate gap between the most deprived 20% of local areas and the national average and between all minority ethnic groups and white groups Reduce the gap in obesity rates amongst primary school age children between the most deprived 20% of local areas and the national average	■ Reduce child poverty rates in the most deprived 20% of local areas ■ Increase % of children meeting physical activity guidelines in in the 20% most deprived local areas ■ Increase % of children consuming 5 or more fruit and vegetables per day in the 20% most deprived local areas	Infant Mortality Rate Overweight and obesity
Better Mental Health	Reduce the anxiety and depression gap between the most deprived 20% of local areas and the national average Reduce the suicide rate gap between the most deprived 20% of local areas and the national average rate	■ Increase employment rates in 20% most deprived local areas ■ Increase educational attainment rates in the 20% most deprived local areas ■ Reduce household poverty rates in the 20% most deprived local areas ■ Increase employment rates in 20% most deprived local areas. ■ Increase educational attainment rates the 20% most deprived local areas ■ Reduce household poverty rates in the 20% most deprived local areas.	Anxiety & Depression Suicide rates

1 TARGETING HEALTH INEQUALITIES: REALISING THE POTENTIAL OF TARGETS IN REDUCING HEALTH INEQUALITIES

1. Background

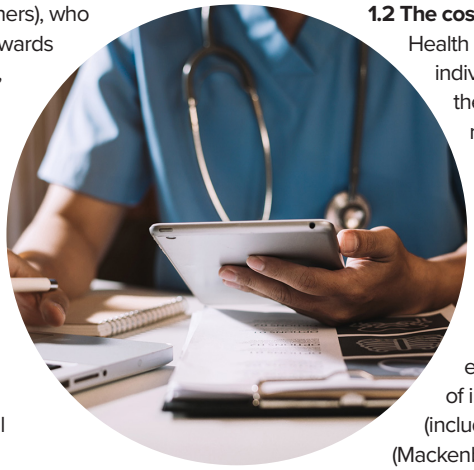
This discussion paper examines the potential of using targets to reduce heath inequalities in all four UK nations. It specifically considers the role of targets to galvanise action on health inequalities and puts forward suggestions for appropriate health targets. It reviews the previous use of targets in UK health policies; considers the benefits and drawbacks of different health metrics as targets; scrutinises which social determinants of health indicators could provide short-term tracking of health progress; discusses conceptual and measurement issues for designing targets; and sets out various options and recommendations for targets for policy makers to consider across the UK.

1.1 Health inequalities

Health inequalities are the systematic, avoidable differences in health which exist between different social groups (Whitehead, 2007). Striking health inequalities exist in the UK between different socio-economic groups, between different areas of the country and between different ethnic groups (Bambra and Marmot, 2023).

Inequalities in health are experienced by everyone across the entire social gradient: on average, people with more education, income and/or occupation (e.g. barristers) have better health outcomes than those in the middle of the social hierarchy (such as teachers), who in turn have better health outcomes than those towards the bottom (e.g. factory or shop workers) (Bambra, 2016).

There are also stark geographical inequalities in health in the UK. The most deprived areas have worse health outcomes than the least deprived areas.[1] For example, both male and female life expectancy is highest in the London borough of Westminster (85 years for men, 87 years for women), and lowest in Glasgow City (74 years for men, 79 years for women). This is a difference in life expectancy of 11 years for men and 8 years for women. Westminster is the least deprived local authority, whilst Glasgow is the most deprived.



These health inequalities are also evident at a smaller, neighbourhood scale.[2] There is a life expectancy gap in England of around 8 years for men and 6 years for women between those living in the 20% most deprived neighbourhoods and the 20% most affluent. In Scotland the gap is over 12 years for men and almost 9 years for women. In Wales it is 7.5 years for men and over 5 years for women. In Northern Ireland, it is 7 years for men and 5 years for women. In all four UK nations, people living in the most deprived areas have a lower healthy life expectancy too (Bambra and Marmot, 2023).[3]

There are also ethnic inequalities in health in the UK with evidence suggesting that membership of a minority ethnic group may also be associated with a health disadvantage (Toleikyte and Salway, 2018; Nazroo, 2022). This is particularly stark in relation to maternal mortality rates (with Black women over four times more likely to die in childbirth than white women [Maternal, Newborn and Infant Clinical Outcome Review Programme, 2020]) and infant mortality rates (where Black and Asian ethnic groups have the highest IMR and white groups the lowest [ONS, 2021a]).[4] This is likely partly because ethnic minority groups are much more likely to live in deprivation (ONS, 2021a)[5] but may also relate to discriminatory health care practices (MacLellan et al, 2022).

Other minority and marginalised social groups also experience poorer health outcomes than the rest of UK society. These groups include "Inclusion Health Groups"[6], LGBTQ+ groups, and people with disabilities (including learning disabilities) or long-term health conditions.

These different social inequalities in health are experienced intersectionally. People simultaneously belong to multiple social groups (e.g. they experience their socio-economic status, ethnicity, locality, gender and sexuality simultaneously, Bambra 2022). This leads to complex experiences of social inequalities, which influence health in different ways. People thereby experience different amounts of disadvantage and privilege associated with their different characteristics. Individuals might experience the health benefits related to one aspect of social stratification (e.g. the advantage of whiteness in terms of ethnicity), whilst simultaneously experiencing the health disadvantage of another (e.g. low income in terms of socio-economic status) (Bambra 2022). The intersection of multiple disadvantaged identities can lead to a compounded effect on health outcomes; individuals belonging to several marginalised groups often experience an accrual of health disadvantages due to the complexities of their intersecting social inequalities (Bambra and Marmot, 2023).

1.2 The cost of health inequalities

Health inequalities have significant costs to the individuals who suffer ill health or die prematurely, their families and for society. Health inequalities result in unnecessary premature deaths, entailing large economic costs in terms of lower productivity and higher healthcare and welfare costs (Mackenbach et a, 2011a). Better health and lower health inequalities improve productivity — reflected in higher labour market participation rates, more working hours, higher rates of consumption and efficiency (Bambra et al, 2018). It has been estimated that the costs of inequalities in health across European countries (including the UK) amount to over 9 percent of GDP (Mackenbach et al, 2011a). 20% of the total costs in healthcare and 15% of the total costs of social security benefits result from health inequalities (Mackenbach et a, 2011a; Asaria et al, 2016). Increasing the average health of the lowest 50% of the European population to the average health of the top 50% would improve labour productivity by 1.4 percent of GDP each year – meaning that within five years of these health improvements, GDP could be more than 7 percent higher. More specifically, it has been estimated that the excess poor health in the north of England, for example, costs the UK economy over £13 billion per year in lost productivity (Bambra et al, 2018). Similarly, over 250,000 excess hospitalisations are associated with inequalities in health in England (Cookson et al, 2018) - with an estimated cost to the English NHS of almost £5 billion per year (Asaria et al, 2016).

1.3 Trends in health and health inequalities

Until 2010, life expectancy in the UK increased throughout the 20th century with, on average, one additional year of life expectancy at birth gained every four years (Marmot, 2020). This stalled in 2011 when the rate of improvement in UK life expectancy slowed considerably and then stopped improving all together (Leon et al, 2019; Welsh et al, 2021). Historically, this is unprecedented (Marmot, 2020, Bambra and Marmot, 2023). UK life expectancy now lags behind comparator G7 countries: average life expectancy in France, Japan, Germany and Italy is now

higher than life expectancy in the UK (Hiam et al, 2023).[7] The only G7 country with lower life expectancy is the USA. In terms of life expectancy, the UK ranking fell from 26th globally in 2010 to 36th by 2020 (Hiam et al, 2023).

This stall in overall life expectancy has been largely driven by a stalling (or falling) of life expectancy in the most deprived areas in all four UK nations. So, reducing health inequalities by improving health in the most deprived areas of the country, will also lead to overall population health improvement (Marmot, 2010).

There have also been significant increases in health inequalities over the last decade (Bambra and Marmot, 2023):

- In England, the life expectancy gap between men living in the bottom 20% of areas and men in the top 20% increased from 7.4 years in 2011-13 to 7.7 years in 2017-19. It also increased for women from 5.7 years to 6.2 years (ONS, 2021b).
- In Scotland, inequalities in life expectancy were also widening for women in the years before the pandemic. Between 2011–13 and 2017-19 the gap in life expectancy at birth between women living in the least and most deprived 20% of local areas widened by 2 years to a 9-year gap for women. The gap for men remained static at 11 years (National Records of Scotland, 2020; Finch et al, 2023).
- In Wales, the gap in life expectancy at birth between people living in the least and most deprived 20% of local areas widened by 1 year to a 7-year gap for men and was static with a 6-year gap for women over the period 2011-13 and 2017-19 (Office for National Statistics, 2021b).
- In Northern Ireland, between 2015-17 and 2019-21 the deprivation gap in life expectancy at birth between women living in the least and most deprived 20% of local areas widened by 1 year to 5 years for women and remained static at 7 years for men (Northern Ireland Department of Health, 2021).

These trends are shown for each of the four UK nations in Appendix 1.

There is a regional patterning to these trends in England - with life expectancy falling for men and women in the 10% most deprived areas outside of London (Marmot, 2020). This suggests that the health effects associated with deprivation appear to be 'amplified' in the English regions – particularly in the North East (Bambra et al, 2023).

The majority view amongst health inequalities researchers is that changes in the social determinants of health (e.g. increased child poverty rates, falling local authority and welfare budgets) associated with UK-wide austerity policies since 2011 are most likely to be the causes of the adverse trends in UK health and health inequalities (as examined in detail by Bambra and Marmot, 2023; Case and Kraftman, 2022 and McCartney et al, 2022).[8]

1.3 The social determinants of health

The causes of these different health inequalities are complex and multi-faceted. However, the research consensus to date suggests that they are largely driven by inequalities: the social determinants of health (WHO, 2008).

The social determinants of health are the conditions in which we grow, live, work and age (WHO, 2008). They are the everyday conditions which influence our access to health-enhancing goods, and which limit our exposure to health-damaging risk factors. They include economic resources (i.e., income), as they can determine our ability to afford, or access, good quality services (e.g., hospitals, schools, transport infrastructure, and social care) but also allow us to avoid harmful circumstances (e.g., poor housing, inadequate diet, physical hazards at work, environmental exposures such as air pollution).

The social determinants of health also include working conditions, housing and neighbourhood factors, labour market activity including unemployment and welfare receipt, and access to goods and services including health and social care.

The social determinants of health are themselves shaped by local, national and international government policies (such as economic, social or health care policies) (WHO, 2008).

Different socio-economic groups are unequally exposed to these health-damaging or health-enhancing factors - resulting in health inequalities.

The social determinants of health also shape health behaviours (e.g. smoking rates, alcohol consumption, dietary intake and participation in physical activity). Low-income leads to unhealthy 'choices' and the poorer health of those lower down the social hierarchy results from the restricted range of options available to those on low incomes, as well as the direct health impacts associated with the stresses and poor living and working conditions which result from poverty. As an illustration, the poor diet of people in poverty is, very largely, the result of poverty, not poor choices (Marmot, 2020).

So, tackling health inequalities involves tackling social inequalities (Marmot, 2010).

1.4 The unequal pandemic: covid-19 and health inequalities

The COVID-19 pandemic has been called a 'syndemic' because of the synergistic way in which the novel infectious disease interacted with and exacerbated existing social, economic and health inequalities (Bambra et al, 2020; 2021; 2023; Bambra and Marmot, 2023; Katikireddi et al, 2021).

Although it varied over the course of the pandemic, mortality rates were considerably higher in the most deprived local areas and regions of the country, higher amongst minority ethnic groups (particularly high amongst people of Asian or British Asian heritage) and amongst other socially excluded groups such as people with learning disabilities (Bambra et al, 2021; 2023; Katikireddi et al, 2021).

Health inequalities researchers have suggested that there are five key pathways through which existing inequalities in the social determinants of health result in higher mortality and morbidity from an infectious respiratory virus: unequal exposure, transmission, vulnerability, susceptibility, and treatment (e.g. Bambra et al 2020; 2021; 2023; Bambra, 2022b; Marmot, 2020; Albani et al, 2022a; and Katikireddi et al, 2021):

Excess deaths have increased since the pandemic, mental health has worsened particularly amongst young people (Bambra et al, 2022), long term sickness absence has increased (IPPR, 2023), health inequalities have increased (Marmot, 2021), and so too have NHS waiting lists. On top of this, the cost-of-living crisis is further expected to adversely impact on health and health inequalities.

1.5 Time for a (new) health inequalities strategy

It is against this backdrop of stalling life expectancy, increasing health inequalities and ongoing threats and challenges to health and wellbeing that politicians and policymakers across the political spectrum have started to talk more about how we can act to reduce health inequalities and improve the health of the UK population.

This is not an easy, short-term or straightforward task and it requires a whole government approach – nationally and locally. However, there are lessons to be learnt from past strategies.

This discussion paper aims to help these emergent discussions by examining the potential of using targets within national strategies (across the four UK nations) to improve health and reduce health inequalities. It specifically considers the role of targets in terms of galvanising action on public health and reducing health inequalities. It will review their previous use in health and other policy sectors; consider the benefits and drawbacks of different health measures; consider whether social determinants of health indicators could provide short-term tracking of likely progress; discuss conceptual and measurement issues; and set out various options and recommendations for actions for policy makers to consider.

2 TARGETS AND MISSIONS: HEALTH INEQUALITIES TARGETS IN UK POLICY (1997- 2023)

In this section, we consider how policy targets for tackling health inequalities have been designed and implemented previously, synthesising some of the evidence examining the impacts of these targets. We start with the first national example of health inequalities targets that we can identify, which were introduced by the UK government for England from 1997, in the context of a broader 'performance assessment' approach to public sector governance (Hood et al, 2009). As we show, a rather different approach to targets was taken to reducing health inequalities in the devolved nations over the same period. We therefore also consider these alternative approaches, before summarising available evidence of the impacts of these divergent approaches. We also consider the most recent UK target for reducing health inequalities, which is the health 'mission' part of the Levelling Up strategy. Finally, we draw together some of the key 'lessons' learned from these examples, noting the benefits of using targets but also some of the challenges and limitations.

2.1 Health inequalities targets in England (1997-2010): reducing health gaps

In 1997, the Department of Health committed itself to a series of health targets, but these initially focused on health services and specific diseases, rather than health inequalities (e.g., Secretary of State for Health, 1998). Although these could not be described as health inequalities targets (using any of the conceptualisations in section 3.1), several high-profile policy statements claimed that efforts to meet these broader health targets would facilitate the aim of reducing the 'health gap', while suggesting that specific targets for reducing health inequalities should be set locally (Secretary of State for Health 1998; Secretary of State for Health 1999). This changed in 2000, with the first commitment to setting a national target for reducing health inequalities in England (Department of Health 2000; HM Treasury, 2000; Department of Health 2001). The first iteration of these targets appeared in 2001:

- *'Starting with children under one year, by 2010 we will reduce by at least 10 per cent the gap in infant mortality between manual groups and the population as a whole.'*
- *'Starting with Health Authorities, by 2010 we will reduce by at least 10% the gap between the fifth of areas with the lowest life expectancy at birth and the population as a whole.'*

In this initial wording, we see the target for infant mortality focused on a difference between social groups (assessed via occupation), while the target for life expectancy was area-based. However, the following year, the two targets were amended[9] several times, before being combined into a single area-based target in the Spending Review 2004 Public Service Agreements 2005-2008 (HM Treasury 2004):

'Starting with Local Authorities, by 2010 to reduce by at least 10% the gap between the fifth of areas with the worst health and deprivation indicators and the population as a whole.'

The indicators on which this target was assessed included measures of life expectancy and infant mortality, reflecting the focus of the two original targets. In effect, possibly because of the greater availability of geographical data (see section 3.3), the whole target became area based. This is the target that remained in place until 2010 and it is this version of the target that most subsequent analysis has used to assess performance.

Perhaps unsurprisingly, given the performance assessment ethos of this era of governance, this was not the only health inequalities target. In 2002, an area-based inequalities dimension was added to a target for reducing teenage conception rates (Department of Health, 2002) and a suggestion was made that efforts to meet other health targets, such as those relating to cancer, heart disease and smoking during pregnancy, should be targeted at the most deprived groups and areas, to contribute to reducing health inequalities. Meanwhile, evidence that smoking during pregnancy had increased led to 'the quiet abandonment of a target for reducing the incidence of smoking during pregnancy in 2002' (Hood, 2006). This demonstrates the potential for targets to be rapidly discarded where they are perceived to be unachievable.

Two years later, the Treasury - which played a key role in negotiating targets with other government departments (Hood, 2006) - added health and deprivation indicators to some of the disease specific targets, creating two additional health inequalities targets for England (HM Treasury, 2004):

- *' Substantially reduce mortality rates by 2010 from heart disease and stroke and related diseases by at least 40% in people under 75, with a 40% reduction in the inequalities gap between the fifth of areas with the worst health and deprivation indicators and the population as a whole';*
- *'Substantially reduce mortality rates by 2010 from cancer by at least 20% in people under 75, with a reduction in the inequalities gap of at least 6% between the fifth of areas with the worst health and deprivation indicators and the population as a whole'*

In sum, the UK Government introduced a complex array of targets for reducing health inequalities in England, but there are nonetheless some important consistencies in how health inequalities targets were designed in England:

First, they all focused on addressing a health 'gap' by tackling health 'disadvantage' (rather focusing on gradients or proportionate universalism – see section 3.1).

Second, barring the first iteration of the infant mortality target, they were all area-based.[10] This area-based focus was useful not only in terms of data availability (section 3.3) but also in terms of delegating responsibility for action to achieve the targets to local areas, although the implementation was complicated by the continual evolution of the local policy landscape in England. NHS Primary Care Trusts and local authorities within Spearhead areas were charged with achieving mandatory local targets that focused on improving health within the local area, thereby contributing to the aim of reducing the health gap between these areas and others. In contrast, areas in receipt of Neighbourhood Renewal Funding (which were not also Spearhead areas) had mandatory local targets that focused on helping to achieve the national circulatory diseases inequality target and were asked to set targets for reducing within-area health inequalities. Areas that fell into neither category had a requirement to have local targets for narrowing within-area health inequalities.

All areas therefore had some local health inequalities targets but, depending on the way in which a local area was categorised[11] and the funding it received, these targets could focus on improving health indicators for the local area (i.e. addressing health disadvantage between the area and others, but with the potential risk of increasing within-area inequalities – see section 3.1), or on reducing within-area health gaps

(with no obvious sense of how this was expected to impact on national inequalities), or a combination. It is therefore not consistently clear how local and national health inequalities targets were expected to interact with each other and interview data suggest this caused some confusion for local bodies charged with responsibility for meeting some of these targets (Harrington et al, 2009).

Thirdly, it ought to be acknowledged that various policy documents made it clear that the government expected a range of other national targets to contribute to reductions in health inequalities in England. These included: targets focusing on more material and environmental factors, such as the Neighbourhood Renewal targets to narrow the 'gap' in employment rates, education, crime, housing and liveability as well as health (Social Exclusion Unit 2001); other public service agreement targets for government departments beyond the Department of Health (some of which were shared between departments) such as the Department of Transport's target to reduce the number of people killed in road accidents and the number of children killed and seriously injured in road accidents (for which there was a steep social gradient); the Department for Education and Skills target to narrow the gap in the educational attainment of disadvantaged children compared to the population as a whole; and the widely shared target of improving access to healthy affordable food (Department of Health 2002). Additionally, the UK's stated aim of halving child poverty by 2010 and eradicating it by 2020 is mentioned in several policy statements as a key target expected to help achieve reductions in health inequalities (e.g. Secretary of State for Health 2004).

2.2 Health inequalities targets in Scotland (1997-2007): targeting health disadvantage

Similarly, to the UK government, the Scottish Executive[12] began by setting targets for reducing chronic diseases and health-damaging lifestyle-behaviours but not for reducing health inequalities. As in the English case, Scottish policy statements suggested that these targets, whilst not health inequalities targets, would also help achieve the desired reduction in health inequalities. Differing from the UK government's approach to England, however, the Scottish Executive immediately committed itself to monitoring inequality trends for many of the health targets it had set. For example, Towards a Healthier Scotland (Secretary of State for Scotland 1999) set 'headline targets' for reducing coronary heart disease, cancer, smoking, excessive alcohol consumption, unwanted teenage pregnancies and improving dental health (to be achieved by 2010) and committed to regularly measuring the inequalities gap for each of these, 'to assess progress in reducing the disparity in health status between different socio-economic groups.'

Although the Scottish Executive had still not introduced any national health inequalities targets by 2001, when the targets for England were announced, the introduction of performance assessment to Scotland that year included a commitment to using the framework to track indicators of inequality (in contrast to performance assessment in England, which had been introduced earlier but initially focused almost solely on clinical performance). This was followed by the creation of a working group to specifically examine the measurement of health inequalities in Scotland, which reported in November 2003. The working group proposed monitoring 23 indicators of inequality but cautioned against creating specific health inequalities targets (The Measuring Inequalities in Health Working Group, 2003). The Scottish Executive partially accepted these proposals; progressing plans to monitor the proposed indicators but nonetheless subsequently announcing what were referred to as 'health inequalities targets' (even though their focus was on health improvement), as we discuss below.

The Performance Assessment Framework PAF Mark3 2003/04 (Scottish Executive Health Department 2003) introduced an inequalities aspect to a range of indicators which were to be assessed as part of the Framework:

- percentage of pregnant women who smoke at the time of their first antenatal visit;
- percentage of 5-year-olds with dental cavities;
- percentage of 16-64-year-olds who are current smokers;
- age standardised mortality rate from Coronary Heart Disease in people under 75;
- life expectancy at birth.

For each of these indicators, part of the performance assessment process included a comparison of the percentages for the 20% of the population living in the most deprived postcode sectors against the percentages for the 20% living in the most affluent postcode sectors (as determined by the Carstairs score[13] within each NHS Board) (Scottish Executive Health Department 2003). As in England, this approach to monitoring health inequalities focused attention on addressing a 'health gap' but unlike England, the gap was between the most deprived and the most affluent areas (rather than between the most deprived and the national average).

In 2003, the publication of Improving Health in Scotland: The Challenge (Scottish Executive Health Department 2003) included the first clear commitment to producing national targets for health inequalities in Scotland and suggested that they would reflect the focus of the PAF, focusing on 'the ratio between the 20 per cent living in the most deprived postcode sectors and the 20 per cent living in the most affluent postcode sectors as determined by the Carstairs deprivation index'. However, when national health inequalities targets were eventually introduced, in Building a Better Scotland Spending Proposals 2005-2008 (Scottish Executive 2004), they were health improvement targets with a specific focus on the most deprived areas:

'Objective 1: Working across Scottish Executive Departments and with other delivery partners to improve the health of everyone in Scotland and reduce the health gap between people living in the most affluent and most deprived communities.

- *Target 1: Reduce the mortality rates for those aged under 75, between 1995 and 2010 by health improvement action to tackle diet, physical activity, smoking and alcohol consumption and by action to ensure early detection and improved access to treatment and care: cancer - 20%; coronary heart disease - 60%; stroke - 50%.'*
- *Target 2: Reduce health inequalities by increasing the rate of improvement across a range of indicators for the most deprived communities by 15%, by 2008. (The range of indicators has been selected from the 23 recommended indicators of health inequality. For adults - coronary heart disease, cancer, adults smoking, smoking during pregnancy, and for young people - teenage pregnancy and suicides in young people)'*

An element of Target 2 (above) was incorporated into the targets for the Executive's cross-cutting initiative, Closing the Opportunity Gap, which was launched in the same year (Scottish Executive 2004) and stated as being:

'To reduce health inequalities by increasing the rate of improvement for under 75 Coronary Heart Disease mortality and under 75 cancer mortality (1995-2003) for the most deprived communities by 15% by 2008'

These targets were all presented as a health inequalities targets for Scotland, yet they were all theoretically achievable without reducing 'health gaps'.[14] A later document, Delivering for Health (2005), describes the Scottish health inequalities targets as aiming 'to reduce premature mortality by 15% above the national rate, for people in the most disadvantaged communities', which seems to describe a target that does specifically aim to reduce a health gap between the most deprived communities and the national average (like the English targets) as it depends on faster health improvement amongst deprived groups than the national average. However, there is no evidence of targets which depend on this aim in any other policy document. Rather, the health inequalities targets in Scotland could more fairly be described as 'health improvement targets for the most deprived communities', signifying a conceptualisation of health inequalities as an issue of 'health

disadvantage' (see 3.1). Indeed, the annex to Delivering a Healthy Scotland Meeting the Challenge (Minister for Health and Community Care, 2006) demonstrated that, whilst all but one of the six indicators for the 'health inequality targets' were on track to meet the targets, the inequalities 'gap' had widened for three indicators.[15]

As already outlined, this conceptualisation differs from that enshrined in the original Performance Assessment Framework for Scotland (Scottish Executive Health Department 2003), which focused on the health gap between the most and the least deprived areas. However, this was replaced with a new performance management system involving Local Delivery Plans, which were based on a core set of key Ministerial targets, referred to as HEAT (Health, Efficiency, Access and Treatment) targets. This new performance assessment system[16] combined the various targets that had been previously outlined into a single 'key target' to:

'Reduce health inequalities by increasing the rate of improvement for the most deprived communities by 15% across a range of indicators including; CHD, cancer, adult smoking, smoking during pregnancy, teenage pregnancy and suicides in young people: target date 2008'.

The new performance management system therefore further clarified that Scotland's 'health inequalities' target was a target for achieving health improvement in Scotland's most deprived groups. Although local bodies were (as in England) expected to play a key role in achieving these targets, substantially less information was published in Scotland (than England) to guide local bodies.

In summary, Scotland did not introduce national 'health inequalities targets' until 2004 and, when it did, the targets were to achieve health improvement in deprived areas rather than any reduction in health gaps or gradients.

Although the Performance Assessment Framework system, introduced in 2001, required a comparison of health indicators between the most and least deprived areas and, as such, constituted a similar approach to the English national targets, this system was replaced in 2006 with a new performance management system which reinforced the focus on health improved in deprived areas. Ultimately, therefore, all the Scottish Executive's targets and monitoring systems for health inequalities (including those forming part of its performance management system) only required certain levels of health improvement in the most disadvantaged areas and did not depend on the achievement of a reduction in 'health gaps' (between areas or people). As such, Scotland's health inequalities targets signified a conceptualisation of health inequalities as an issue of 'health disadvantage' (section 3.1).

Nevertheless, although there was no specific target for reducing health differences between areas or groups, this did remain a stated policy aim of the Scottish Executive.

Beyond specific health inequalities targets, the Scottish Executive, like the English government, claimed a range of other targets that it committed to would likely contribute to reducing health inequalities. Several statements emphasised the Executive's commitment to the UK target to end child poverty by 2020. More broadly, the Social Justice Report (Scottish Executive 1999) and the subsequent cross-cutting, social justice policy, Closing the Opportunity Gap (Scottish Executive 2004) both made commitments (and set milestones) relating to key social determinants. Although these commitments did not specifically focus on health inequalities, they did include key social determinants of health inequalities (including, for example, targets to reduce worklessness and to improve educational opportunities and community regeneration).

2.3 Health inequalities targets in Wales (1997-2012): health improvement targets

Health Gain targets were first set for Wales in 1997 (to be achieved by 2002) and focused on reducing mortality rates for major chronic diseases (coronary heart disease, cancer, stroke, etc), accidents and suicide, as well as reducing smoking rates and alcohol consumption, improving diets, reducing low birth weight, back pain and arthritis, the proportion of children experiencing dental caries, and improving mental health. Although these Health Gain targets did not include any indicators/ measures of inequalities or even any specific mention of inequalities, local target setting was encouraged (Welsh Office, 1998). However, in contrast to England, this was not mandatory and there was no overarching national strategy to track local targets.[17]

In 1999, an Expert Group was established 'to develop indicators of health inequality, and indicators and targets (where appropriate) for the determinants of health within Wales.' The Group produced a report in 2001, Expert Group on Indicators of Health Inequality Report on phase 1: health indicators, which recommends a methodology for monitoring health inequality in Wales using mortality, morbidity and health behaviours data to compare the health of the people in the 20% most socio-economically deprived electoral wards with those in the 20% least deprived wards (using quintiles of deprivation, calculated using the Townsend Index[18]).[19]

The report recommended that each of the above indicators should be monitored at national level. However, the group did not recommend specific health inequalities targets because they acknowledged that 'it is highly unlikely that any change in health inequality will be evident during

the next decade or so, [but] by establishing a systematic way to look at health inequality now, we will be able to identify and describe change in the future'. Reflecting this recommendation, the Plan for Wales (2001) did not have specific health inequalities targets but committed that, by 2010, Wales would:

- Increase life expectancy and reduced death rates from major and long-term illness, especially in our most deprived communities
- Bring five-year survival-rates for serious cardiac disease and cancers far closer to the best in Europe
- Bring infant mortality-rates far closer to the best in Europe, with the largest reduction in our most deprived communities.
- Transform the NHS resulting in a service better attuned to the needs of the people
- Ensure looked after children achieve a range of qualifications at levels 2 and 3
- Support everyone who wants to remain in their own homes
- Close all long stay learning disability hospitals'

Improving Health in Wales (2001) made a commitment to setting targets, in 2002, for the reduction of current inequalities, which led to the creation of another Expert Group, who were charged with reviewing the 1997-2002 Health Gain targets and establishing new targets in five priority health areas: coronary heart disease (CHD); cancer; mental health; the health of older people; and the health of children, for the period from 2002 until 2012. Between 2003 and 2004, new Health Gain Targets were gradually announced (first for older people and CHD, then for cancer, mental health, and children). Each included what was referred to as a 'health inequalities target' but without any quantifiable aims. For example, the health outcome target for CHD was:

- *to reduce CHD mortality European Age Standardised Rate (EASR) in 65-74-year- olds to 400.0 in 2012.*

While the health inequalities 'target' for CHD was
- to improve CHD mortality in all groups and at the same time aim for a more rapid improvement in the most deprived groups.

There does not seem to have been any plan to enforce the monitoring of these indicators at a national level and the methodology for monitoring health inequalities recommended by the 2001 Expert Group (comparing the health of the people in the 20% most socio-economically deprived electoral wards with those in the 20% least deprived wards) does not appear to have been implemented. In 2005, a new policy called Designed for Life: Creating World Class Health and Social Care for Wales in the 21st Century (Welsh Assembly Government, 2005) set out a new vision, which included an aim to: 'improve health and reduce, and where possible eliminate, inequalities in health'.
The notion that health inequalities might, at least in some areas, be 'eliminated' was bolder than anything England or Scotland proposed. However, the proposed approach was more tentative, largely future orientated and non-specific, leaving little sense of what Health Boards and Local Authorities should be doing to help achieve the aim. Instead, there was a commitment to assessing future progress years, before publishing 'a revised health inequalities strategy in 2009' (Welsh Assembly Government, 2005).

In sum, the Welsh approach appears combined specific, quantified general targets for health improvement across key indicators with non-quantified aspirations to simultaneously reduce health inequalities.

Like the rest of the UK, the Welsh Assembly shared the UK government's commitment to eradicating Child Poverty by 2020 and, in 2006, some quantifiable intermediary targets for child poverty were agreed in Wales, as well as some targets relating to other social determinants of health. The following child poverty targets were framed as health inequalities child poverty targets:

'By 2020, the
- *Ratio of infant mortality rates between the most deprived and the most affluent fifths of the population will be no more than 1.3 (30%).*
- *Ratio of low-birth-weight rates between the most deprived and the middle fifth of the population will be no more than 1.12 (12%).*
- *Percentage of caries among the 5-year-old children of the most deprived fifth of the population will be 55.3 percent.*
- *Percentage of caries among the 12-year-old children of the most deprived fifth of the population will be 46.2 percent.*
- *Ratio of childhood pedestrian injuries reported to the police between the most deprived and the middle fifth of the population will be 1.20 (20%).'*

The strategy also made a commitment to develop new targets in areas where current data are limited, such as childhood obesity.

2.4 Health inequalities targets in Northern Ireland (2002): reducing health gaps

The Northern Ireland Executive also adopted health inequalities targets in 2002, which were very similar to England's (Department of Health, Social Services and Public Safety, 2002):

- *To halve the gap in life expectancy between those living in the fifth most deprived electoral wards and the average life expectancy here for both men and women between 2000 and 2010.*
- *To reduce the gap in the proportion of people with a longstanding illness between those in the lowest and highest socio-economic groups by a fifth between 2000 and 2010.*

However, there is a noticeable lack of follow-up from government bodies, policy makers, or researchers in tracking or assessing these health inequalities targets. This deficiency can likely be attributed, at least in part, to the repeated suspensions of the Northern Ireland Assembly since 2000: Much of the post-devolution period has been marked by suspensions of the Northern Ireland Assembly (11 February to 30 May 2000, 14 October 2002 to 7 May 2007, 9 January 2017 to 1 January 2020) as well as recent difficulties with appointing a new executive (since May 2022). These suspensions impeded health policy development and implementation because the UK government had to take over in a caretaker role with no remit to develop policies (Bambra and Marmot, 2023).

2.5 Responsibility for achieving health inequalities targets: consistently local, variably monitored

Across the UK nations, it was local bodies that were charged with meeting health inequalities targets; primarily NHS bodies, though there was also encouragement in all nations for local NHS bodies to work in partnership with local government and others on tackling health inequalities. However, the central administration approach to performance managing progress towards national targets differed vastly across the three nations.

In England, 'key targets' were associated with the 'element of terror' (Bevan and Hood, 2006) since performance towards achieving targets was made public and linked to funding agreements. Although the English health inequalities targets, and associated indicators, were not in the category of public service targets 'commonly referred to in the bureaucratic vernacular as 'hanging' targets' (Bevan and Hood, 2006: 515), they were still tightly performance managed compared to the other UK nations (Blackman et al, 2009).

At the other extreme, the Welsh Assembly Government's initial targets relating to health inequalities were non-quantified and therefore did not lend themselves to this kind of performance management approach. In any case, the Welsh Assembly Government seemed to be pursuing a very different approach to public sector governance from England. A 2005 health strategy, for example, noted that local partnerships might 'become self-directive' and require 'only a light touch from the centre' (Welsh Assembly Government, 2005; see also Harrington et al, 2009).

The approach in Scotland was somewhere in between the English and Welsh approaches. Local Health Boards were formally accountable

to the Scottish Executive for their progress towards achieving some of the health improvements intended to contribute to reducing health inequalities but not, ultimately, for the aim of reducing health inequalities. Health inequalities indicators were monitored via performance reviews of Health Boards but there is also no evidence that the Scottish approach to public sector governance involved the 'element of terror' (Bevan and Hood, 2005) frequently used to describe the English approach.

Indeed, in interviews with local policy actors in Scotland, Harrington et al (2009: 27) found an 'explicit rejection of what was often referred to as the 'command and control' strategies or 'market-driven' systems of England'. The consequence, as Blackman and colleagues set out (2009: 768), was:

'a gradient in the extent of a target culture to tackle these inequalities. England's PCTs [Primary Care Trusts] and LSPs [Local Strategic Partnerships] were formally accountable for their progress in narrowing gaps in mortality and smoking rates and reducing teenage pregnancy rates; Scotland's HBs [Health Boards] were accountable for the rate at which they were reducing smoking, mortality rates and teenage pregnancies in their most deprived areas; and Wales' LHBs [Local Health Boards] had no formal requirement to account for their progress in tackling health inequalities, despite several national targets'.

In England, this combination of tight performance management with a decision to place responsibility for achieving health inequalities targets on local bodies led to concerns about short-termism and 'lifestyle drift' (where initial ambitions to take preventative, population level approaches shift to more individual, ameliorative actions over time – see Whitehead and Popay, 2010). For example, Harrington et al's (2009: 27) interview-based analysis found some evidence 'of a shift in emphasis towards lifestyles and clinical solutions in England, with the new focus on quick wins by targeting the prescribing of statins, anti-hypertensives and smoking cessation aids'.

2.6 Were the health inequalities targets in the UK nations achieved?

In England, the performance assessment approach to governance meant that progress against key targets was regularly updated and considered in some depth. In 2007, for example, the Department of Health published a review of the health inequalities infant mortality target, which suggested there had been a series of implementation failures associated with this target, leading to low local recognition of this target (compared to others) and a lack of understanding of how the target could be achieved. The report also noted that the focus of the target on occupational groups was potentially limiting, when data suggested that a more useful focus might be on particular ethnic groups (e.g., Pakistani and Caribbean communities, both of which experienced substantially higher rates of infant mortality than other ethnic groups) and particular categories of mothers with higher infant mortality rates (single mothers, younger mothers and older mothers). This kind of report provided an opportunity to address some of these issues by raising awareness of the target and focusing on identifying actions deemed likely to help achieve the target.

Towards the end of the targets period in England, a 2009 House of Commons report on health inequalities, considered the broader approach to tackling health inequalities. This report noted that available indicators suggested the English national health inequalities target was not on track to be achieved (House of Commons, 2009). In reflecting on this, the report notes:

'We heard that in having a target which explicitly aims to reduce inequalities rather than simply improving the health of the poor, England has one of the toughest targets in the world. It was suggested that a better approach to improving health might be a focus on improving the health of the most disadvantaged groups rather than on narrowing differences.' (House of Commons, 2009: p59 [our emphasis])

The report also notes that this was in line with senior advice provided to the government:

'One should focus on the absolute level of ill-health of the poor. One of the pieces of advice I gave the Government a very long time ago was that setting a target in health inequalities is almost certainly a mistake, because almost certainly you will miss it— and, indeed, that is exactly what has happened.' (Professor Julian Le Grand, then Chair of Health England, quoted in House of Commons, 2009: p60)

In other words, the decision to commit to a target for reducing health inequalities in England looked, by 2009, bold, 'difficult and possibly unrealistic' (House of Commons, 2009: p59). In sum, it seems clear that the government had been advised they would be safer to focus on improving the health of disadvantaged communities (i.e. the approach that the administrations in Scotland and Wales took). External experts and advisors quoted in the 2009 House of Commons report seemed uniformly pessimistic that it would be possible to meet the English health inequalities targets in the time frame set (i.e. by 2010). As well as Professor Julian Le Grand, Professor Sir Michael Marmot is cited as saying it would have been more realistic to have a target focusing on achieving change in a 'generation' (House of Commons, 2009, p58), while Professor Ken Judge is quoted as saying, 'there is little evidence' that the targets have helped focus efforts or drive the kinds of changes needed to for them to be achievable. The only voices defending the targets appear to be the Healthcare Commission, who suggested the target played a valuable role in raising the profile of health inequalities (regardless of whether it was eventually reached), and the then Secretary of State for Health, who argued that 'it would be depressingly unambitious just to say, "Let's target the poor and forget about the inequality gap"' (House of Commons, 2009: p60). When asked to assess the likelihood of achieving the national health inequalities target, the Secretary of State for Health was one of the only optimistic voices in the House of Commons report.

In the end, this optimism proved well-placed. Although earlier analyses were pessimistic, more recent analyses (using more accurate data and more appropriate measures) suggests that the English health inequalities targets were achieved, at least partially. For example, Barr et al's (2017) analysis of geographical inequalities in life expectancy found that the national target to reduce the gap between Spearhead areas[20] and England by at least 10% was achieved for male life expectancy, though not for female life expectancy: inequalities in life expectancy decreased by just over a year for men and around six months for women (Barr et al, 2017). While Robinson et al's (2019) analysis found that absolute and relative (geographical) inequalities in the infant mortality rate (IMR) reduced during the strategy period: the gap in IMR narrowed by 12 deaths per 100,000 births per year (Robinson et al, 2019). Inequalities in mortality amendable to health care interventions also decreased by 35 deaths per 100,000 for men and 16 deaths per 100,000 for women (Barr et al, 2014).

Further, a systematic review of eleven studies examining health inequalities in England 2000-2010 (Holdroyd et al, 2021), found that: "absolute and relative inequalities had decreased throughout the strategy period for both [target] measures" and that inequalities in all-cause mortality narrowed, absolute inequalities in mortality due to cancer and cardiovascular disease decreased (but relative inequalities increased). However, "there was a lack of change, or widening of inequalities in mental health, self-reported health, health related quality of life and long-term conditions".

This does not, of course, tell us much about the role the targets played in this achievement. Targets were part of a wide-ranging and multi-faceted health inequalities reduction strategy in which policymakers systematically and explicitly attempted to reduce inequalities in health. In England for example, the cross-government strategy focused specifically on: supporting families, engaging communities in tackling deprivation, improving prevention, increasing access to health care, and reducing child and pensioner poverty rates as well as tackling the underlying social determinants of health (Holdroyd et al, 2022). For example, the strategy included large increases in levels of public spending on a range of social programmes, the introduction of the national minimum wage, a child poverty strategy, an increase in pension rates, area-based interventions such as the Health Action Zones, and a substantial increase

in expenditure on the healthcare system (Whitehead and Popay, 2010). These policies led to reductions in social inequalities in the key social determinants of health - including unemployment, child poverty, housing quality, access to health care and educational attainment (Bambra, 2016).

Nonetheless, it shows that national health inequalities targets that were widely criticised for being unachievable was, in fact, partially achieved. Recent analysis of health inequalities trends in Scotland suggest that health inequalities also reduced in Scotland over a similar timeframe, across a variety of indicators (Harpur et al, 2021; Miall et al, 2022).[21]

We have not been able to identify any similar analysis focusing on whether the targets set in Wales and Northern Ireland were achieved. However, Blackman et al's (2009) interviews with local and national policy actors in Wales found that health inequalities had been deprioritised over time, partly because targets and headlines around NHS waiting times were garnering far greater policy and media attention.

2.7 The levelling up health inequalities targets (2022+)

Back in the UK, in May 2018, the Prime Minister Theresa May (2016-2019) committed the UK government to increasing average healthy life expectancy by five years at birth by 2035 (May, 2018). She also committed the UK government to reducing inequalities in healthy life expectancy between the poorest and the richest in society (the so-called ageing society grand challenge).

In 2022, this short-lived (and somewhat under the radar) 'ageing society grand challenge' target was replaced by a Levelling Up health target (Department for Levelling Up, Housing and Communities, 2022). Launched under the Prime Ministership of Boris Johnson (2019 – 2022), the 2022 White Paper, Levelling Up, introduced a series of new (UK wide) targets that were referred to as 'missions', including the following, health focused 'mission':

'By 2030, the gap in Healthy Life Expectancy between local areas where it is highest and lowest will have narrowed, and by 2035 HLE will rise by five years.'

Although this new Levelling Up 'mission' includes a commitment to reducing the Healthy Life Expectancy gap (between areas where it is highest and lowest), the amount by which the mission is aiming to reduce this gap is left unstated. Further, this is combined with an aim to improve Healthy Life Expectancy overall – an aim which is quantified at five years benchmarked at birth. As such, the Levelling Up mission for health is conceptually similar to the original May 2018 commitment and the Welsh Assembly Government's approach, two decades ago (see 2.3), since it combines a quantified commitment to health improvement with an unquantified aspiration to reduce health inequalities.

There are a couple of reasons to be cautious about this latest mission as a basis for coalescing action to reduce health inequalities:

First, the way in which these dual aims are combined into a single mission obscures the fact that increasing Healthy Life Expectancy and reducing inequalities in Healthy Life Expectancy between areas do not necessarily go together: improving overall health can make it more difficult to reduce health inequalities.

Secondly, although focusing the 'mission' on reducing gaps in Healthy Life Expectancy seems potentially ambitious, and although the wider White Paper has a strong focus on economic and material inequalities, the specific suggestions for interventions to achieve this mission appear to prioritise medical and individualistic interventions that seem unlikely to achieve such an ambitious mission (an illustration of 'lifestyle drift' – see Whitehead and Popay, 2010). For example, upgrading hospital buildings and increasing GP appointments may be welcome interventions but are not addressing fundamental causes of health inequalities. While a proposal for an app that gives healthy lifestyle recommendations and rewards for healthier behaviours implies a belief that people simply lack the knowledge or motivation to behave healthily, ignoring the wealth of evidence demonstrating that multiple sociological, environmental and commercial factors are at play in understanding unhealthy behaviours (see section 1.3).[22]

In sum, while this Levelling Up mission – if it has not already been stymied by further changes in UK political leadership (e.g., two new Prime Ministers since its publication, Liz Truss, quickly followed by Rishi Sunak, in 2022) - might coalesce some action to increase Healthy Life Expectancy, it may not be specific enough to drive work to reduce health inequalities.

2.8 Labour's NHS mission

In 2023, the opposition Labour party announced its 'NHS Mission: Building an NHS fit for the future' (The Labour Party, 2023). This outlined three long term goals ('health missions') that it would implement if it won the next election. The goals were:

- An NHS that is there when people need it.
- Fewer lives lost to the biggest killers.
- A fairer Britain where everyone lives well for longer.

The latter included a target to "Improve healthy life expectancy for all and halve the gap in healthy life expectancy between different regions of England". Progress against this target would be "measured using ONS statistics on Health State Life Expectancies at the national and regional levels". They also noted a commitment to setting out "an explicit target to end the Black maternal mortality gap".

The policy paper also outlined Labour's approach to trying to achieve these goals – which included a commitment to:
"Embed long-term planning to ensure there is health in all policies: Cross-departmental working is vital to improving the wider determinants of health – the social, economic, and environmental factors that affect people's ability to lead healthy lifestyles. Labour will create a national framework that ensures focus and innovation across government, business, public services, and civil society is targeted towards delivering this long-term goal. We will establish a mission delivery board at the heart of Government to bring together all departments with an influence over the social determinants of health, a mission accountability body akin to the Climate Change Committee. We will ensure this flows through to local government and ensure that devolution agreements are designed to reward delivery of our mission outcomes at a combined authority level".

2.9 Key lessons about health inequalities targets

The evidence reviewed about targets in this section, suggests that policy targets for addressing health inequalities can be useful policy tools so long as they are carefully conceptualised, quantified and monitored in ways that maintain a focus on the target while avoiding some key limitations and challenges.

The English example suggests specific health inequalities targets have a communicative role, helping to signal policy interest in ways that can increase awareness of the issue across sectors and policy levels. Although it is impossible to unpack the specific role of the health inequalities targets in achieving reductions in health inequalities, it seems plausible that having a high-profile commitment to national targets played a role in ensuring that the issue did not easily disappear from policy agendas, even when indicators of progress were initially less promising than hoped.

The English example also suggests that, if specific, quantified targets are combined with consistent political support and monitoring (e.g. via performance assessment), this can coalesce effort horizontally (e.g. if departmental funding is linked to requirements to show how departments will contribute to achieving targets, as was the case in England) and vertically (if local bodies are held accountable for achieving progress towards national targets and provided with clear guidance on the kinds of actions viewed as promising mechanisms for achieving these targets). One of the reasons that we now know England's health inequalities targets were (partially) met is that they were clearly quantified, relatively

consistent and regularly monitored and were subject to later academic analysis (e.g. Barr et al, 2014; Robinson et al, 2019). In contrast, we lack similar analysis to assess what happened with the evolving, less specific health inequalities targets of the devolved nations.

However, where targets contribute to raising the profile of an issue, this can also have consequences for the reliability of the underpinning data used to track progress. For example, Bauld et al's (2008) analysis of 1997-2002 Glasgow data on smoking during pregnancy (a key inequalities indicator for Scotland) found that what first appeared to be evidence of a substantial reduction in smoking rates among women from the most deprived areas turned out to be partially explained by an increase in the proportion of pregnant women from these areas whose smoking status was unknown. The authors propose that this may be because the greater focus on trying to reduce smoking during pregnancy was causing women to become increasingly cautious about admitting to smoking when engaging with health professionals (Bauld, 2008). They conclude:

'Measuring inequality in smoking during pregnancy provides a good example of how drawing attention to a particular adverse behaviour, and formulating a specific target to reduce it, might exacerbate the problem. An unintended consequence of Scotland's policy focus on this area has been an increasing awareness among women that they should not be smoking during pregnancy and therefore should not report smoking, even if they are smokers' (Bauld et al, 2008: 449)

Other examples in this section, and the wider literature on health care/system targets, highlight a series of further challenges and limitations in using targets. The Welsh example suggests that, if targets are not sufficiently specific (e.g. unquantified, aspirational targets) and not performance managed, they may be less effective in coalescing action. This is especially likely if, as was the case in Wales, there are other targets which are drawing attention away from health inequalities.

On the other hand, specific targets that are successful in garnering action can have unintended consequences, as another 1997-2010 health target demonstrates: Having entered office at a time of shortages in nursing staff in 1997, a situation which threatened to undermine broader commitments to rebuilding the NHS, the UK government introduced a series of targets for recruiting nurses – as each target was met, another, more ambitious target replaced it, ensuring a continuing focus on the overarching aim (Deeming, 2004). These targets were highly successful in achieving increases in nursing staff. However, much of this recruitment came from low- and middle-income countries, which were experiencing their own staff shortages, triggering international condemnation of these kind of high income country recruitment drives. The UK Government had itself committed to 'ethical foreign policy' and issued repeated guidance and ministerial statements discouraging recruitment from low- and middle-income countries with staff shortages but these statements appear to have little impact (Deeming, 2004). We might see this as an example of a target that was so successful in galvanising action that it was hard to control actions deemed undesirable.

The ambition built into targets must also be carefully considered. If targets are too easily achieved, as has been argued to be the case with the Levelling Up 'mission' to reduce the gap in Healthy Life Expectancy (Ralston et al, 2022), then they may garner little or no action. While targets that seem impossible to achieve, may prove too politically unattractive to survive.

Across the examples of health inequalities targets reviewed in Sections 2.1-2.8, it is evident that challenges arise from both the conceptualisation (i.e. the design) of targets and from the approach taken to achieving and monitoring the targets (i.e. the implementation).

Focusing on conceptualisation (and referring forward to the approaches outlined in section 3.1), we see that all the examples of quantified health inequalities targets that we identified focused either on reducing health gaps or on tackling health disadvantage. It is clearly easier to set specific targets that focus on gaps and disadvantages as opposed to reducing the whole social gradient, even though many researchers agree that reductions across the social gradient are desirable.

Targets can also reinforce a policy focus on particular axes of inequalities, at the cost of others. The UK's preoccupation with socio-economic and geographical inequalities (as opposed, say, to inequalities between ethnic groups) is one such example. The 2009 House of Commons report on health inequalities suggested that this was proving problematic for local areas in which ethnic inequalities in health were a stronger local concern (the example given to illustrate this concern was Tower Hamlets need to focus efforts on reducing infant mortality rates on minority ethnic communities rather than on socio-economic groups). This underlines the difficulty of designing a national target that can be performance assessed at a national level, while also stimulating meaningful action in local areas with diverse populations and context specific challenges.

The design of the different UK health inequalities targets demonstrate the importance of carefully considering the timelines of targets in their design. While the English approach was criticised for being too short-term, resulting in efforts to achieve the targets via 'quick wins' such as statins and smoking cessation, longer-term approaches risk waning political interest. A related point is that longer-term targets can result in delays or misappropriation of the political credit for achieving targets. For example, evidence that the English health inequalities targets had been partially achieved only emerged several years after the 2010 UK General Election (Barr et al, 2014).

Overall, the evidence reviewed about targets in this section, suggests that policy targets for addressing health inequalities can be useful policy tools so long as they are carefully conceptualised, appropriately quantified and monitored sufficiently frequently to maintain a focus on the target while avoiding some key limitations and challenges. Having reflected on the evidence of the past use of health inequalities targets in the UK, our suggestions are as follows:

- Quantified health inequalities targets require data that enable regular monitoring (i.e. policymakers should have confidence about the ongoing availability of relevant, suitably high-quality data for monitoring purposes).
- Health inequalities targets (e.g. to reduce gaps in life expectancy) may only be achievable over relatively long period (e.g. 10 years+). This means they may feel unachievable within typical political administrative cycles (the average length of a government in the UK is 3.7 years). To avoid targets being quietly abandoned, interim indicators likely to signal progress should also be identified and monitored.
- National and local targets should be carefully configured to ensure that targets contribute to achieving multi-level alignment of efforts.
- If local actors are expected to bear responsibility for achieving national targets, the targets must be co-designed in ways that take into account local priorities so that they work at a local level (e.g. consideration should be given to how the most important axes of inequalities may vary; for some areas, a socioeconomic focus may be key, while ethnicity may be more important for others).
- While a small number of high-profile, consistent targets can help focus attention over time, constantly shifting targets or overwhelming numbers of targets can lead to confusion, problems with monitoring progress and/or disinterest (target fatigue).
- It is possible for targets to simultaneously aim to achieve population health improvement and reductions in health inequalities. However, these two goals are distinct and targets that combine both must be carefully designed. Where targets quantify only the health improvement element (leaving the health inequalities dimension unaddressed), they are unlikely to focus attention on reducing health inequalities.
- Although a readoption of England's (1997-2010) performance assessment regime may not be required (and, indeed, brings risks of gaming and short-termism), national targets are only likely to coalesce action if they are accompanied by high-profile political leadership which consistently affirms their importance.

3 WHO/WHERE TO TARGET? CONCEPTUAL AND MEASUREMENT ISSUES IN DESIGNING INEQUALITIES TARGETS

This section considers key conceptual and measurement issues which need to be taken into consideration when designing any health inequalities targets. There are four main issues discussed here: (1) how we conceptualise and therefore measure health inequalities targets; (2) targeting different socio-demographic groups; (3) scale of analysis including geographical measures of social status compared to individual measures; and (4) timescales for achieving a reduction in health inequalities.

3.1 Conceptualising and measuring health inequalities

There are different ways in which health inequalities can be conceptualised, measured and targeted. There are four broad approaches: improving the position of the worst off – the most disadvantaged; reducing the gap between the best and worst off; reducing the entire social gradient in health; or by combining a shift in the social gradient with additional improvements amongst the most disadvantaged (Graham and Kelly, 2004; Marmot, 2010).

- The 'disadvantaged groups' approach: This focuses on improving the health of the most disadvantaged groups by concentrating on improving their absolute levels of health. This could be done by improving social and economic conditions, reducing risk factors and increasing life opportunities for specific target groups (Graham and Kelly, 2004). For example, actions to improve the health of Inclusion Health Groups or minority ethnic women (e.g. regarding maternal mortality). The 'disadvantaged groups' approach has the advantage of directing attention and resources to those of highest need – and therefore where there is the highest likelihood of a health 'pay-off' but it also equates the language of inequality to the language of disadvantage, the consequence of which is a shift in the focus of health promoting interventions from the whole population to a smaller proportion of people (Graham and Kelly, 2004). This could therefore end up in a 'trade-off' between overall population health improvement and the reduction of (specific) health inequalities.

- The 'reducing the gap' approach: This approach is driven by the realisation that improvements in health in the past have often been accompanied by a widening of inequalities between the best- and worst- off in the population.[23] If life expectancy improves across all social groups at a similar rate (or if their best off have the larger gains) then the health inequalities gaps remain. This approach therefore focuses on 'raising the health of the poorest, fastest' (Graham and Kelly, 2004: 8). It thereby enables resources to be targeted at certain groups or communities. For example, actions could be targeted at the 20% most deprived local authorities (as in the 2000-2010 national strategy – see section 2 above) or the 20% most deprived neighbourhoods (as is the case with the current NHS-England CORE20+5 approach, NHS England, 2022b) with the aim of improving health in these groups and leaving the other 80% untouched. However, as with the 'disadvantaged groups' approach, this strategy also only targets a small section of the population and has sometimes led to a focus 'quick fixes' through action on behavioural risk factors (Whitehead and Popay, 2010) as the cause of inequalities - ignoring the longer-term role of the social determinants of health (Graham and Kelly, 2004). Again, it could lead to health 'trade-offs' between different areas/communities/groups.

- The 'reducing the social gradient' approach: This approach aims to reduce the entire social gradient in health (Graham and Kelly, 2004). As such, it "locates the causes of health inequality, not in the disadvantaged circumstances and health-damaging behaviours of the poorest groups, but in the systematic differences in life chances, living standards and lifestyles associated with people's unequal position in the socio-economic hierarchy" (Graham and Kelly, 2004: 10). By way of example, this approach would look to improve the life expectancy of all parts of the country, all quintiles of socio-economic status and all population sub-groups whilst also reducing the inequalities that exist across the health hierarchy (the social gradient). The benefits of this type of approach are to refocus attention to the largest proportion of the population sitting between the two extremes of the hierarchy (e.g. the top and bottom 20%), thereby achieving maximum health gains for the majority. However, it means that resources either need to be higher or be more thinly spread.[24]

- The 'proportionate universalism' approach: This approach combines aspects of the 'disadvantaged groups', 'gaps' and 'gradient' approaches with the intention of improving the health of all, but improving the health of the most disadvantaged the most and the quickest (Marmot, 2010). It proposes that interventions should be available to the whole population (universal) but targeted at the worst off groups/areas (Marmot, 2010). An example of this would be the universal provision of smoking cessation services but with additional service provision in the most deprived areas. Similarly, the state pension is provided to everyone when they reach retirement age but there are top-ups for those with the lowest incomes (Albani et al, 2022b). This approach has the benefit of ensuring that those most in need gain additional support, whilst those occupying all other parts of the social gradient also receive interventions and their potential health benefits. Monitoring this approach would require multiple targets.

3.2 Targeting different socio-demographic groups

Another issue to consider when determining health inequalities targets is which socio-demographic groups to target. As noted in section 1.1, health inequalities are experienced by multiple different social groups. So, for example, targets that purely focus on reducing socio-economic inequalities in health might have less impact on the health inequalities experienced by inclusion health groups. Similarly, there are issues about who to target in terms of different stages of the life course. Targets which focus on improving the health of children, will have little impact on reducing health inequalities amongst the current older population (although will likely improve the health of our future adult population). Likewise, different health metrics would be needed for targets for different population groups (e.g. a target to reduce inequalities in childhood obesity would not be suitable for reducing poor mental health amongst current over-65s).

To really 'shift the dial' on health inequalities and get rapid improvements across the whole population, a multi-faceted life course approach could be taken. This would involve having targets for child health alongside targets for adult health, combined with targets for specific population groups such as minority ethnic communities. Targets could also be segregated by gender and ethnicity or other axis of inequalities. Different policies and interventions would likely be needed to achieve targets for different groups.

However, there are data gaps particularly in terms of our knowledge of the health of minority ethnic groups (Bambra and Marmot, 2023). There has historically been a lack of routine data linking ethnicity to mortality records and hence an absence of official, regular information on life expectancies for different ethnic groups (Marmot, 2020). Calculating life

expectancies for different minority groups is challenging because there can be an under-estimation of deaths in minority ethnic groups (due to emigration and resulting population changes) as well as a lack of reliable data on the size of minority ethnic populations (e.g. the ONS estimated that the 2011 Census undercounted the Bangladeshi population by 6% more than the White population, and the Black African population by 47% more than the White population). Both need to be accurately captured to produce reliable life expectancy estimates[25]. Issues such as these limit what can currently be done in terms of health targets for minority ethnic groups. Infant Mortality Rate (IMR) is one example where we do have reliable and regularly updated data by ethnicity though.

There are also issues in terms of whether health inequalities are measured as relative or absolute. Absolute inequality shows the size of difference between population groups/areas. It is most simply calculated by subtracting the value for one group/area from another. Relative health inequalities in contrast show the proportional difference between groups. It is most simply calculated by dividing the value for one group by another.[26] As such, it is possible for absolute inequalities to decrease overtime, whilst relative inequalities increase.[27] Best practice in epidemiology is to measure health inequalities in both relative and absolute terms "in order to understand their magnitude, especially when making comparisons over time or across geographic areas, populations, or indicators" (Keppel et al, 2005).

3.3 Scale of analysis: geographical versus individual measures of social status

Health inequalities can also be measured in different ways. In section 4 we discuss in more detail the different health metrics that could be used. But on top of this, there are matters of how the social indicators are measured specifically, the scale of analysis. In other words, whether social inequalities in health are measured using geographical or individual measures of social status.

As we saw in section 2, the previous English targets (and the current Healthy Life Expectancy targets) focused on a combination of geographical (closing the life expectancy gap between local authorities) and individual (closing the occupational class gap for infant mortality rates) measures of social (socio-economic) inequality.

From an epidemiological perspective, the advantage of using individual measures of social status (such as a person's income or occupation) is that they are more precise measures. It would therefore be the ideal measurement. However, there are also some disadvantages. For example, a person's social status may change over time (because of upward – or downward – social mobility); the meaning of a particular measure of social status may change over time (for example, having no educational qualifications is a greater marker of social disadvantage amongst younger people than amongst older people – when the school leaving age was younger); and may change across the country (e.g. renting a home may be more of an indicator of social disadvantage in rural areas compared to urban areas where renting is more the norm). There are similar issues with individual measures of other aspects of social inequality. For example, the recording of ethnicity is often self-reported and collection can be patchy (Nazroo, 2022).

There are also big practical issues in terms of how data on social (and health) inequalities is collected and analysed in the UK. There are national datasets which collect individual-level data on social status and health. However, these are usually based on survey samples (e.g. the UK Household Longitudinal Survey) – not covering the whole population (and often under-powered for analysis of different minority ethnic groups); only examine a limited range of health indicators (e.g. self-reported general health); and might not be regularly enough updated to track changes as a result of any targets/policies (e.g. the Census is only conducted every ten years).

For these reasons, most analysis of social inequalities in the UK is conducted using geographical measures of social status. Most frequently used is the Index of Multiple Deprivation (as discussed in section 1.1.). This provides area-level data on socio-economic status at different scales and is regularly updated.

Similar measures can also be created from the UK census to measure other aspects of social inequality at the area-level (e.g. ethnic composition – the proportion of an area's population that is from different minority ethnic groups - can be calculated, Steele et al, 2022).

Geographical data is available at varying scales – from region (calculated using the nine former government office regions such as North East of England)[28], to local authority (e.g. the most deprived local authorities such as County Durham compared to the least deprived e.g. Kensington and Chelsea)[29], to so-called Middle Super Output Areas[30] and Lower Super Output Areas (more colloquially called 'neighbourhoods')[31].

Many health measures are also available at these different geographical levels and are regularly updated (see section 4). It also needs to be noted that area-level measures might also be more attractive from a policy perspective as they match policy levers (e.g. the NHS is subject to local funding weights and services are delivered locally/regionally; and public health policies are delivered by local authorities or local health boards).

However, area-level measures of social status and of health do have some disadvantages. Most notably is the 'ecological fallacy' – that what holds true at the area-level cannot be assumed to hold true at the individual level (Fieldhouse and Tye, 1996). This is further complicated by the fact that not everyone who lives in a deprived local authority is themselves deprived (Bambra, 2016). Further, migration (internationally, within the UK or even locally) means that a person's geographic home might not be stable across their life course (people move around from one area to another).

Population churn means that health improvements can occur (and related targets can be achieved) by attracting healthier populations to move into an area (e.g. gentrification) rather than by improving the health of existing resident populations. The deprivation of a particular place can also change overtime (e.g. due to local economic changes). Recent research conducted in Scotland has also suggested that indices of multiple deprivation may be less accurate for rural compared to urban local authorities in terms of their accuracy as a measure of the socio-economic status of the population (McCartney and Hoggett, 2023).

These issues are particularly apparent at the higher geographical scale e.g. region, and so some of the disadvantages can be mitigated by using area-level data at the smallest scale at which it is collected - the 'neighbourhood level' (LSOAs).

3.4 Quick wins? Timescales for reducing health inequalities

As noted in section 2, the English health inequalities strategy took around ten years to have measurable impacts and for the targets to be partially met (Barr et al, 2014; 2017). This is partly because it does take time to positively shift population health as there are so many factors in play (e.g. the different social determinants of health as noted in section 1.4) and often time-lags to health benefits; once someone is ill it is difficult to regain health; and more broadly because large-scale policy change in any area requires long-term action (as has also been the case with regards to the UK's climate change commitments or the child poverty strategies implemented across the UK in the 2000s).

So, when designing health inequalities targets, there needs to be a realistic approach to timescales for measuring success. However, that is far from ideal within a policy environment. It's not attractive - or necessarily practical - to wait several election cycles before seeing any change/effect.

There are two potential solutions: (1) using health targets that are more sensitive and which can change more quickly (e.g. IMR); and/or (2) complimenting tracking the longer-term health inequalities targets by monitoring short- and medium-term interim indicators. We incorporate both of these approaches in our approach (sections 4 and 5).

4 WHAT TO TARGET? THE ADVANTAGES AND DISADVANTAGES OF DIFFERENT HEALTH OUTCOMES FOR TARGETS

In 1948, the World Health Organisation (WHO) defined health as "a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity". Health is therefore a holistic term encapsulating biomedical, social, and psychosocial aspects and crossing both physical and mental wellbeing. Reflecting this, we reviewed a range of possible health indicators that are consistently available across all four nations of the UK (Appendix 2). We identified six key indicators upon which targets could be based. In this section, we provide a more detailed overview of these.

They have been chosen as our key indicators because they provide comparable data across all four countries; are updated at least annually; between them cover both physical and mental health; include measures for adults and children; collectively measure mortality and morbidity; and can be analysed by some indicator of social inequality (most commonly by IMD but in some cases also by ethnicity). Our list of indicators is indicative but not exhaustive and if health inequalities targets were only designed for single countries of the UK (e.g for England only or Scotland only) then a wider range of indicators and datasets than we have presented below could be used.[32]

Health outcomes used in a target should use a valid and reliable measure of health. So, our suggested key indicators are: infant mortality rates (IMR), life expectancy, healthy life expectancy, prevalence of overweight and obesity (in adults and children), prevalence of anxiety and depression (in adults), and suicides (over age 10 years). Here we briefly describe each indicator (also summarised in Appendix 2, Table 1), the mode of assessment, the frequency of measurement, geographic coverage, measure of inequality, and the advantages and disadvantages of each measure. All of these measures also enable some international benchmarking If desired.

4.1. Infant mortality rate (imr)

IMR is defined as the number of deaths of children under one year of age per 1000 live births per year (OECD, 2021a). Data on birth and death registrations are used for estimating IMR across the UK. The measure is easy to calculate, understand, and interpret, and it provides useful insight into maternal and child health. In addition, IMR is a good indicator of overall health of a society because it reflects the current social, economic, and environmental conditions (Reidpath and Allotey, 2003). It is therefore a sensitive measure that can change quickly (Taylor-Robinson et al, 2019). A limitation with IMR is that it does not account for non-fatal outcomes and from a geographical coverage perspective there can sometimes be a small number of observations (Table 1, Appendix 2).

4.2. Life expectancy (le)

This is one of the commonest indicators used to measure population health internationally. LE is measured at a particular age, but most frequently at birth or at age 65. Life expectancy at birth is defined as the average number of years a new-born can expect to live if current mortality rates do not change (OECD, 2021b). As such it captures all causes of death. LE in the UK is calculated using data on death registrations and mid-year population estimates. The estimates are available by area deprivation across all four countries in the UK. England and Wales (combined) also present estimates by ethnicity. LE is easy to calculate and a useful tool for comparing between areas and for measuring changes over time. It is also easier to present to policymakers and the public, and to compare values between areas, than closely related measures (such as Standardised Mortality Ratios) (Silcocks et al, 2001). A disadvantage with the measure is that it does not consider morbidity (e.g., chronic disease or disability) and, as such, does not distinguish between living in 'good' or 'bad' health. LE also relies on the strict assumption that prevailing age-specific death rates will remain constant in the future, which is highly unlikely because several factors could influence future health. Another limitation when consideration of life expectancy as an outcome for health inequalities targets is the paucity of regularly updated and reliable data available by ethnicity.[33] Data collection and analysis in this regard should be significantly improved.

4.3. Healthy life expectancy (hle)

This refers to the expected number of remaining years of life spent in good health from a particular age (mainly birth or age 65) assuming current mortality and morbidity rates remain the same (Young-Eun et al, 2022)[34]. Both mortality and health status data are required to calculate HLE so it is the average number of years that a person can expect to live in good health, not impeded by illnesses or injuries or 'not good' health[35].

It is a self-reported measure so may also include mental health. Across the UK, mortality data are derived from annual death registrations, while data on health state and disability status come from census data (collected decennially) and the Annual Population Survey (APS). HLE estimates are available by area deprivation in all four countries in the UK (Table 1, Appendix 2). Unlike LE, HLE captures both the length and quality of life lived. The estimates are also easy to understand both by the public and policy makers (Young-Eun et al, 2022). However, the quality-of-life dimension of the HLE, which is collected via self-report, may be subject to social and self-reporting biases (e.g., perception, culture, socioeconomic background) (Althubaiti, 2016). Like LE, HLE is also sensitive to changes over time.

4.4. Overweight and obesity (adults and children)

The World Health Organisation (WHO) defines overweight and obesity as abnormal or excessive fat accumulation that could impair health (WHO, 2021). Body Mass Index (BMI) –a measure of weight compared to height, is used to classify obesity and overweight in adults. According to the WHO classification, overweight in adults (i.e., persons aged 18 years and above) refers to a BMI greater than or equal to 25; and obesity is a BMI greater than or equal to 30 (WHO, 2021)[36]. Obesity is associated with an increased likelihood of multiple adverse health outcomes including diabetes, cardiovascular disease, musculoskeletal conditions and mental ill health (Hillier et al, 2014).

Across the UK, prevalence data on people being overweight or obese are collected via annual national health surveys; the prevalence estimates are available at national, regional (or NHS Health Boards), and local authority levels, as well as by area deprivation in most countries in the UK (Table 1, Appendix 2). England and Scotland also provide estimates by ethnicity and equivalised income groups, respectively (Table 1, Appendix 2). Since 2021, all four countries now collect data on weight and height amongst adults via self-report rather than the previous objective measurement. This approach is likely to introduce bias, although adjustments are made to correct for any biases resulting from the use of self-reported measurements (NHS England, 2022c).

Childhood overweight and obesity are also regularly monitored across the UK. Across the UK, statistics on overweight and obesity in children is calculated annually using height and weight measurements collected from pupils in reception class, aged between 4 and 5 years (or 6 years in Scotland) at the beginning of every school year (Table 1, Appendix 2). England and Northern Ireland also collect data from pupils in Years 6

and 8, respectively. The data is used to calculate the BMI of the children, which is thereafter categorised into centiles accounting for the age and sex of the children. Data on overweight and obesity are available by area deprivation in all four countries. England and Wales also provide estimates by ethnicity (Table 1, Appendix 2). Although statistics on overweight and obesity in children is based on direct measurement of height and weights, the data only covers pupils attending mainstream state-maintained schools. Children attending independent schools or those who are home-schooled are not represented in the analysis.

4.5. Anxiety and depression (adults)

Anxiety disorders, according to the WHO refer to excessive fear and worry and related behavioural disturbances, while depression encompasses feelings of sadness, irritability, emptiness, or loss of interest in activities, for most of the day, nearly every day, for at least two weeks (WHO, 2022). National statistics on anxiety and depression in the UK is calculated using annual survey questionnaires (Table 1, Appendix 2). Different countries use different tools for the evaluation. England and Scotland use the revised Clinical Interview Schedule (CIS-R)[37] while the Warwick Edinburgh Mental Well-being Scale (WEMWBS) is used in Wales, and the General Health Questionnaire (GHQ) in Northern Ireland. These tools have been validated and used in several settings.

However, they cannot be considered equivalent to psychiatric assessment conducted by trained professions. As with all self-reported measures, they are also subject to self-reporting bias. The prevalence estimates from the surveys are usually produced at the national level except when data from several years are combined to increase statistical power capable of producing estimates at lower geographic levels. In England, data can also be reported by ethnicity and employment status or by area deprivation (in Scotland and Wales). Measurement of anxiety and depression in children across the UK is more complex as it is less comparable across the four UK countries and is less regularly collected (Table 1, Appendix 2). Therefore, we do not include them in our set of recommended health indicators

4.6. Suicide rates

Across the UK, data on suicide are derived from high-quality national death registrations and coded using the UK National Statistics definition that includes deaths resulting from intentional self-harm for persons aged 10 years and above and deaths of undetermined intent for persons aged 15 years and above [NI and England].

The estimates are mostly available at the national level and by area deprivation (Table 1, Appendix 2), although some UK countries provide estimates at lower geographic levels (e.g., regional or NHS board levels) by combining data from several years. Suicide is often used as an indicator of serious mental health problems at the population level (Bachmann, 2018). It is not therefore a measure of more general mental health morbidity. Further, the inclusion of events of undetermined intent as probable suicide (based on the UK National Statistics definition) could lead to an overestimation of cases in the population. Another limitation is the challenge of measuring incidence rate, as data on suicide and self-harm are based on date of registration rather than date of occurrence. However, suicide is generally well-recorded in the UK and our suicide rate has been increasing since 2008 (Case and Deaton, 2020).[38]

5 MONITORING CHANGE THROUGH SOCIAL AND BEHAVIOURAL INTERIM INDICATORS

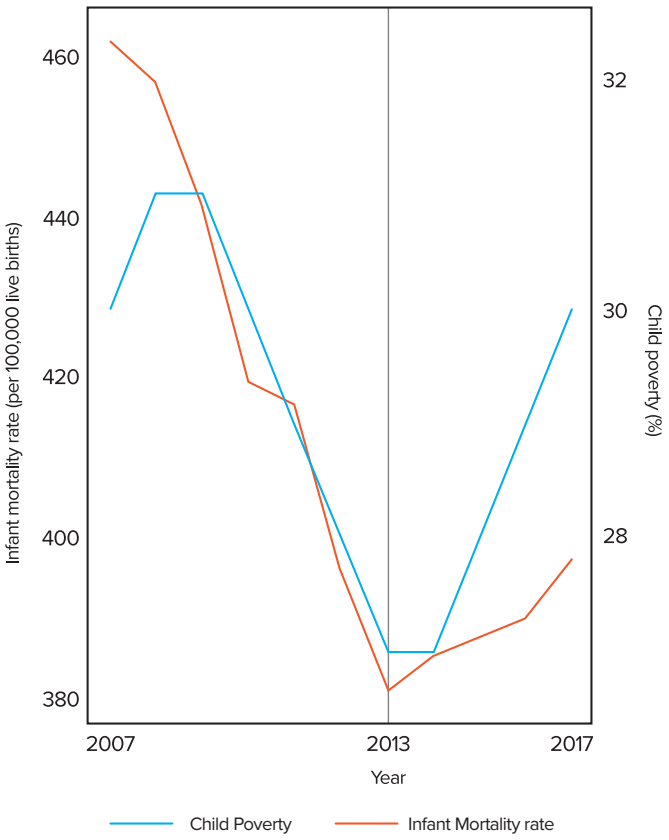
As noted in section 3.4, there needs to be a realistic approach to the timescales that it will take for measuring whether attempts to reduce health inequalities have been successful. However, indicators related to some key social and behavioural determinants of health could be used to track progress on a more frequent, interim basis. This may also help gain buy-in to the 'health in all policies approach' that would be needed from non-health actors in a cross-government strategy (e.g. Department for Work and Pensions, Department for Education).

As noted previously (section 1.3), health inequalities result from inequalities in the social determinants of health: the conditions in which we are born, grow, live, work and age (WHO, 2008; Bambra and Marmot, 2023). Heath behaviours are likewise shaped by the social, economic and physical environment in which people live (Bambra, 2016).

As such, many key indicators of the social and behavioural determinants of health are highly correlated with – and predictive – of health inequalities. For example, between 2000 and 2010, child poverty[39] decreased and so did infant mortality rates (Robinson et al, 2019); post-2011, child poverty rates increased and so did infant mortality rates (Taylor-Robinson et al, 2019) (Figure 1). So, interim indicators have the potential to be used as short- and medium-term measures of progress against longer term health inequalities targets.

In the following section, we describe and briefly evaluate the metrics available to track important social and behavioural determinants of health across each of the four countries of the UK, for different age groups. Each of these measures has positives and negatives related to both the chosen indicator itself and the nature of its measurement both within and across countries. We have limited our analysis to the data that is currently available across the UK and we have also noted where data collection could be improved to enable better monitoring of trends (e.g. for inequalities in smoking). More detail on each indicator is available in Appendix 2, Tables 2 and 3.

Figure 1: Association of Child Poverty and IMR in England, 2007-2017[40]



5.1 Social determinant interim indicators: children

5.1.1 Education measures

There are three population level measures available to monitor education levels in children: GCSE and A-level attainment; School absence; Not in Education or Employment or Training (NEET).

- Yearly statistics showing GCSE and A-Level (or equivalent) attainment for each of the devolved nations are available. Statistics are available by sex for all nations, and by ethnicity in England and Wales. Data in England and Scotland are linkable to Local Authority and Education Authority Area respectively. The attainment data is comparable across the nations except from Northern Ireland where grades and number of qualifications are grouped together in bands (e.g. "5+ GCSEs grades A*-C). Evidence suggests that poor educational achievement is associated with NEET status (Sadler et al., 2014) and poor adult mental health (Amin et al., 2023). Educational attainment data is broadly comparable across all four UK nations, is regularly updated and collected, is available by IMD and has a well-established association with health outcomes across the life course, we suggest this as one of the best available social determinants of health tracking indicators (section 5.5).

- Attendance rates data are available for all devolved nations. They are divided by primary and secondary school for all nations except Wales where attendance data for ages 5-15 is combined. Statistics are available by ethnicity and sex for all nations except from Wales. Local Authority (or equivalent) identifiers are available in all nations, facilitating the possibility of analyses by area deprivation. Evidence suggests that absenteeism is associated with self-harm and suicidal ideation (Epstein et al., 2020). Evidence also suggests that absence from school increases the likelihood of poor academic attainment (Department for Education 2016). Given that attendance rates impact on health via attainment, we consider that just using attainment is a better social determinants of health tracking indicator (section 5.5).

- In England, Wales and Northern Ireland, the definition employed for NEET young people is those aged 16 to 24 not in education, employment or training. The concept differs in Scotland and is referred to as the 'Annual participation measure'. This refers to the proportion of those aged 16 to 19 participating in education, training or employment for the past year. Due to the differing age ranges, these measures are not directly comparable across countries. All nations provide statistics by sex: Wales and England provide regional identifiers, while Scotland provides Local Authority level data. Evidence suggests that being NEET is associated with poor mental health and damaging health behaviours (Gariépy et al., 2021, Stewart et al., 2017). However, some argue that the concept is stigmatising and that targets aimed at reducing NEET numbers do not support sustained, long term improvements to young peoples' lives (Yates and Payne 2007). NEET data is also captured by employment rates (see 5.2.2) as so we consider that employment rate is a more holistic variable.

5.1.2 Poverty measures

There are two readily available population level measures to monitor poverty levels in children: Child poverty[41] and Free school meals.

- Child poverty is measured as the percentage of children aged 0-15 years who are living in households with below 60% median income after housing costs (End Child Poverty, 2023). This definition and measurement are identical across all nations.[42] UK wide data with regional and Local Authority (or equivalent) identifiers for each of the devolved nations is available from the DWP Family Resources Survey, which is updated yearly. These statistics are available by ethnicity and employment status among other indicators. Child poverty is associated with a range of negative health outcomes including having mental health problems later in childhood (Lai et al., 2018; Pickett et al, 2021), becoming overweight, having tooth decay and developing asthma, as well as childhood mortality (Wickham et al., 2016) and socio-emotional problems (Adjei et al., 2022, Wickham et al., 2017). Research suggests that rising child poverty rates in England may in part explain rising infant mortality rates (Taylor-Robinson et al., 2019). Figure 1 demonstrates the association between child poverty rates and IMR. As child poverty data is comparable across all four UK nations, is regularly updated and collected, is available by IMD and has a well-established association with health outcomes across the life course, we suggest this as one of the best available social determinants of health tracking indicators (section 5.5).

- Free school meals (FSM) eligibility refers to school age children who qualify to receive a free meal at lunchtime based on a range of criteria such as receiving Child Tax Credits or University Credit (under certain conditions). Eligibility for FSM varies across the devolved nations[43]. Direct comparison of FSM statistics across the devolved nations is therefore not recommended and caution should be exercised when comparing FSM rates over time and within geographies. Both eligibility and uptake data are available yearly for England, Scotland and Northern Ireland. Eligibility data only is available for Wales. Local Authority (or equivalent) identifiers are available for all nations except Northern Ireland. In addition, data by ethnicity are also provided for England. FSM eligibility and uptake is often used as an indicator of 'low socioeconomic status' in the literature and is argued to be a better indicator than alternatives such as parental SES due to the simple, consistent definition and the routine collection of the data (Gorard 2011), particularly within education statistics. Free school meal eligibility is associated with lower school attainment, both in terms of grades and number of qualifications (Gorard 2011) and this gap remains across all stages of the school education system (Farquharson et al., 2022). FSM data is not comparable across the four nations and it varies considerably within countries overtime due to changing eligibility rules. Therefore, we do not include it within our list of the best available social determinants of health tracking indicators (section 5.5).

5.2 Social determinant interim indicators: working age adults

5.2.1 Educational attainment

Adult educational attainment is recorded decennially in the population Census for each country. In each, it is measured as the highest qualification obtained for those aged 16 and over. The data are available by sex in England, Scotland and Wales, and by age group in Northern Ireland. Local area identifiers are also available for each country, meaning linkage to area deprivation (IMD) is possible. Educational attainment is an important determinant of many health outcomes across the life course. Studies have demonstrated an association between education levels and cardiovascular disease (de Mestral and Stringhini 2017), obesity and mental health and comorbidities of the two (Khanolkar and Patalay 2021) and higher mortality from cancer (Vaccarella et al., 2023). Educational level also has importance for intergenerational transmission of inequalities, with lower mortality rates reported for children with parents who are more educated (Balaj et al., 2021). So, as educational attainment data is broadly comparable across all four UK nations, is regularly updated and collected, is available by IMD and has a well-established association with health outcomes across the life course, we suggest this as one of the best available social determinants of health tracking indicators (section 5.5).

5.2.2 Economic activity metrics

There are three readily available population level measures to monitor economic activity in adults: Earnings below living wage; Unemployment; Benefit receipt.

- Data are available for the proportion of employees with hourly pay below the real living wage[44] as defined by the Living Wage Foundation (Living Wage Foundation, 2023; Kelly, 2016). The wage rate calculated by the Living Wage Foundation is based on the cost of living (and therefore is tailored to reflect higher costs of living in London) and is above the National Minimum Wage and the National Living Wage. The data from the Annual Survey of Hours and Earnings covers all UK nations and can be compared. Estimates for smaller geographies vary in precision and so caution should be exercised when assessing individual Local Authority data[45]. These data are produced yearly and provide the opportunity to assess inequalities by sex and area deprivation (via linkage through area identifiers). Evidence suggests income-based inequalities in a range of health outcomes including obesity (Booth et al., 2017) and cardiovascular disease (Khaing et al., 2017). As the data from local authority level and below varies in reliability/precision, we do not recommend this as one of our best available social determinants of health tracking indicators (section 5.5).

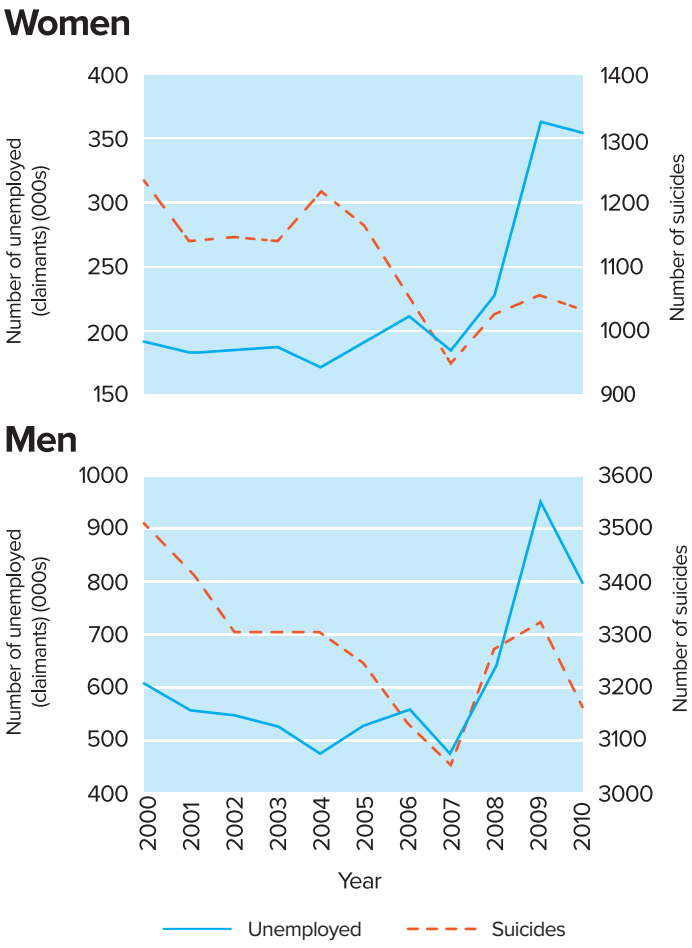
- The Labour Force Survey provides data on employment, unemployment and economic inactivity for all UK nations. Employment is defined as "those aged 16 and over, who are in employment if they did at least 1 hour of work in the reference week… and those who had a job that they were temporarily away from". Unemployment is defined as "those aged 16 and over, who are without work, have actively sought work in the last 4 weeks and are available to start work in the next 2 weeks; or are out of work but have found a job and are waiting to start it within the next 2 weeks". Finally, economic inactivity

is defined as "those aged 16 and over who are neither in employment nor unemployed. This group includes, for example, all those who are looking after a home or family, have a long-term illness or disability that prevents them working, or are retired" (Office for National Statistics 2015). The data are provided for the whole of the UK, by countries (and regions within England), and also by sex. Evidence suggests that unemployment is associated with negative health outcomes such as increased inflammatory markers (Hughes et al., 2017) and greater risk of Common Mental Disorder (Ford et al., 2010). Figure 2 shows the association between unemployment rates and suicide (Barr et al, 2012). Employment rates are comparable across all four UK nations and over time and is regularly (quarterly) updated and reported. We therefore recommend this as one of the best available social determinants of health tracking indicators (section 5.5).

- Claimant counts for both Universal Credit and Job Seekers Allowance are available via Nomis for all UK nations. Universal Credit is available to people under certain criteria who are on low income or out of work to help with living costs. Job Seekers Allowance is available to help unemployed individuals while they are actively seeking work. These data are available monthly and area available by both age and sex, as well as by Local Authority level (and can therefore be linked to area deprivation). The health implications of low income described above in the 'earnings below living wage' section also apply to people receiving benefits who are by definition on low incomes. However, benefit receipt data is quite a narrow variable and is one which is difficult to track over time due to changing eligibility rules. Therefore, we do not include it as one of our best available social determinants of health tracking indicators (section 5.5).

So, as employment rate data is comparable across all four UK nations, is regularly updated and collected, is available by IMD and has a well-established association with health outcomes, we suggest that this is the best available of the economic activity variables and so we include it as one of our best available social determinants of health tracking indicators (section 5.5).

Figure 2: Trends in the numbers of suicides and unemployment claimants in England, 2000-10, by sex[46]



5.2.3 Poverty metrics

There are three readily available population level measures to monitor poverty in adults: relative household poverty; food insecurity; fuel poverty.

- Relative household poverty is defined as households which have less than 60% of the average income after housing costs. Being classified as living in poverty means the household is likely to face difficulties in meeting the costs of basic services and resources. The DWP provides relative poverty statistics (using the same metric) for all devolved nations which is comparable between countries. In these data, it is possible to look at inequalities across a range of axes, including ethnicity, employment status and by region. In the literature, poverty has been shown to be associated with psychological distress in mothers (Wickham et al., 2017), and parental poverty has been shown to be associated with adverse childhood experiences (Lacey et al., 2022). This variable offers strong comparability and a variety of inequalities measures (ethnicity and IMD), so we therefore consider that it should be included as one of the best available social determinants of health tracking indicators (section 5.5).

- Food insecurity is defined as disruption to food intake caused by a lack of financial or other resources. It is measured via the eight-item Food Insecurity Experience Scale in both of the available data sources, but with differing reference periods. The DWP data asks the questions in reference to the past 30 days, whereas the Food Standards Agency data ask the questions in reference to the past 12 months. DWP data is produced yearly for all devolved nations whereas the FSA data is released every two years and includes all devolved nations except Scotland[47]. Both provide a range of variables to assess inequalities including sex, ethnic group, age and employment status. Region is the smallest the data are available by in both datasets. Studies have demonstrated an association between being food insecure and depression, stress and anxiety (Pourmotabbed et al., 2020). As this variable is not updated as regularly as relative household poverty (annually/every two years), is only available at regional level and requires different datasets to be used for different devolved nations, we do not include it in our list of best available social determinants of health tracking indicators (section 5.5).

- Broadly, fuel poverty is a concept which aims to describe households which cannot adequately heat their home whilst maintaining an acceptable standard of living. Official measures of fuel poverty have changed over time and vary between the devolved nations, posing challenges for both temporal and between-country comparison. Notably, England is currently the only country using the Low Income Low Efficiency Measure. By this definition it is not possible to be defined as living in fuel poverty if a household's Fuel Poverty Energy Efficiency Rating is above band D, even if the household spends 10% of their income on fuel. The 10% measure employed by the other devolved nations is more commonly used in other high income countries globally. In Scotland and Northern Ireland, fuel poverty data are available by Local Authority or District Council areas. Modelled estimates by Local Authority also appear to be available on an ad-hoc basis in Wales. In England, the data are available by region only. These datasets offer the opportunity to analyse inequalities by a range of household-level variables, including household income, tenure, and rurality among others. Fuel poverty has been shown to be associated with poor respiratory, mental and general health (Ballesteros-Arjona et al., 2022, Liddell and Morris 2010). As this variable is not available regularly or comparably across all four UK nations, we do not include it in our list of best available social determinants of health tracking indicators (section 5.5).

Relative household poverty data is the most comparable of the three indicators across the four UK nations, it is regularly updated and collected,

is available by IMD and has a well-established association with health outcomes. So, we suggest that this is the best available of the poverty variables and so we include it as one of our best available social determinants of health tracking indicators (section 5.5).

5.2.4 Non-decent homes

Broadly, the term non-decent homes refers to the level of disrepair in a property. The definitions for this are similar across England, Wales and Northern Ireland and broadly encompasses the following factors: reasonable state of repair, modern facilities, provides a reasonable degree of thermal comfort. While data for England and Northern Ireland cover the general housing stock, data for Wales only cover social housing landlords. Scottish data on the topic come from the Scottish Household Survey which uses a different definition: whether a home is in critical or urgent disrepair. Non-decent housing quality is associated with negative health outcomes and health inequalities (Howden-Chapman et al., 2023). Non-decent homes, in particular, have been shown to be associated with worse health for people renting privately (Tinson and Clair 2020). As the data is not comparable across the four UK nations, we do not include non-decent homes as one of our best available social determinants of health tracking indicators (section 5.5).

5.3 Social determinant interim indicators: older people

Pensioner poverty data are collected as part of the Households Below Average Income data within the Family Resources Survey and are produced for each nation within the UK yearly. It includes people who were of the state pension age at the time of interview who were in persistent low income (relative low income in the last three of four interviews). These data include 60 and 70 percent median income thresholds as well as data for before and after housing costs. Inequalities by a range of axes can be studied within these data including sex, ethnicity, disability, age and education level among others. The data are available by country and region. The link between poverty and health is like that of household poverty mentioned previously, except here the measure is specific to the elderly and therefore, more vulnerable population. As this variable is only available at regional level, we do not include it in our list of best available social determinants of health tracking indicators (section 5.5).

5.4 Health behaviour interim indicators

In the following section, we describe and evaluate the four main indicators of health behaviours: smoking, alcohol consumption, fruit and vegetable consumption and physical activity rates. These are all associated with population health outcomes[48]. Compared to the relative consistency in definition and measurement of the metrics for tracking the social determinants of health, the data available to track health behaviours across countries in the UK varies considerably.

5.4.1 Smoking

The association between smoking and detrimental health consequences such as cancer, heart disease, COPD and diabetes is well established (US Department of Health and Human Services 2014). Smoking prevalence data for each of the devolved nations comes from different sources; the Annual Population Survey in England and the national health surveys in the other countries. Population smoking prevalence data are available for each country, with additional metrics pertaining to smoking related deaths, hospitalisations and smoking during pregnancy available in some countries (see Appendix 3, Table 2). Inequalities in smoking rates by sex are available for each country, but the other available measures of inequality vary by country. Local Authority (or equivalent) identifiers are also available for each nation except Northern Ireland. Due to the differing surveys and methodologies employed by each country to measure smoking prevalence, the comparability of these measures is unclear and so we do not include it as one of our best available social determinants

of health tracking indicators (section 5.5). Data collection on smoking prevalence in different areas and social groups should be improved across the UK so that smoking can be included as an interim monitoring measure

5.4.2 Alcohol

Measures of alcohol consumption and related harm also come from different data sources for each country. The most collected metrics pertain to alcohol specific harm such as alcohol specific mortality, hospital admissions specific to alcohol. Some countries also collect drinking behaviour data such as hazardous or harmful levels, drinking over the recommended guidelines and weekly frequency. Comparability of the drinking behaviour and volume measures is limited due to the differing questions and temporal reference periods employed by the surveys used to collect the data in each country.

Harm-related metrics are more routinely and consistently measured and are therefore a better choice for cross-country comparison. Alcohol-specific mortality is available in all countries and is available by sex, age and either deprivation quintile or Local Authority level (or equivalent) (and therefore linkable to area deprivation) for all. Alcohol plays a causal role in the development of over 60 medical conditions (Burton et al., 2016) and, in 2021, was reported to be responsible for 14.8 deaths per 100,000 people in the UK (ONS 2022).

The alcohol-harm paradox needs also to be considered though, whereby lower socioeconomic groups consume the same or less alcohol as higher socioeconomic groups yet experience greater rates of harm (Boyd et al, 2021). This suggests that caution should be applied in using alcohol related indicators in relation to conceptualising health inequalities and so we do not include it as one of our best available social determinants of health tracking indicators (section 5.5).

5.4.3 Fruit and vegetable consumption

Data on fruit and vegetable portions consumed by adults are provided for four UK nations. The National Diet and Nutrition Survey provides yearly UK data on grammes of fruit and vegetable consumption per day (including non-consumers) and gives these statistics by sex, age and country. Food frequency questionnaires (used to capture these data) are not the gold standard of dietary assessment. However, they are useful for large population studies and fruit and vegetable consumption is considered the best validated food group measured in these questionnaires. In addition, data for adults are available for each of the devolved nations in their respective health surveys.

These data provide information on the proportions of the population consuming five or more portions of fruit and vegetables per day on average (some nations also provide data for those consuming fewer portions). The measurement of these is very consistent across nations and can be easily compared. Data are provided by age, sex and local authority (except for Scotland, where only deprivation quintile is available). Other dimensions of inequality are also available for some nations including ethnicity in England and religion in Northern Ireland. Data on fruit and vegetable consumption in children are available for all devolved nations (except Northern Ireland) in their respective health surveys. The age range for which these data are available varies by country. For the childhood data, information on age and sex are provided in all datasets (except for Northern Ireland).

Additionally, data on Local Authorities are provided for England and deprivation quintiles for Scotland. In a Global Burden of Disease Study analysis of 2010 data, of all dietary risk factors, the largest burden was associated with low fruit diets (4.2% of global Disability Adjusted Life Years) (Lim et al., 2012). In addition, higher consumption of fruit and vegetables is associated with better cardiometabolic health such as decreased risk of hypertension (Madsen et al., 2023). Fruit and vegetable consumption data is comparable across the four UK nations (albeit from different national surveys), is regularly updated and collected, is available for both children and adults, by IMD or local authority and it has a well-established association with health outcomes.

So, this is one of the best available of the UK health behaviour variables and so we include it as one of our best available social determinants of health tracking indicators (section 5.5). However, this data focuses on individual consumption and tells us nothing about the context of consumption (such as the availability of fruit and vegetables for sale in an area compared to, say, the availability of fast food, Bambra, 2016). Data collection on types of food availability and the other commercial determinants of health in different areas and social groups should be improved across the UK so that they can be included as an interim monitoring measure.

5.4.4 Physical activity

Data on intensity, frequency and duration of exercise are provided for all UK nations. For adults, this is provided either by separate question responses, or pre-compiled into an indicator showing whether an individual meets the guidelines for moderate or vigorous physical activity (MVPA). These are available for each of the four nations in their respective health surveys (except for England, where data is obtained from the Active Lives Adult Survey from Sport England). Each nation uses the same adult MVPA definition as given by the Chief Medical Officers in 2019 (UK Government 2019)[49].

Data are provided by age, sex and local authority (except for Scotland where only deprivation quintile is available). Other dimensions of inequality are also available for some nations including ethnicity and socio-economic position in England and religion in Northern Ireland. Data on physical activity in children are available for England, Scotland and Wales but not for Northern Ireland. Data on activity type, duration and frequency are provided in each dataset, such that the proportion of children meeting the recommended 60 minutes of exercise per day can be calculated and information on age, sex, Local Authority or area deprivation are available in all three datasets for children. Evidence suggests that exercise reduces obesity and diabetes (Diabetes UK, 2023), improves the symptoms of common mental disorders and decreases inflammation (Mikkelsen et al., 2017), has cardiovascular benefits (Moreira et al., 2020) and increases life expectancy in people with multimorbidity (Chudasama et al., 2019).

The UK physical activity data is comparable across the four UK nations for adults and for three countries or children (albeit from different national surveys), it is regularly updated and collected, is available by IMD or local authority and it has a well-established association with health outcomes. So, this is one of the best available of the UK health behaviour variables and so we include it as one of our best available social determinants of health tracking indicators (section 5.5). However, as with our diet indicator (fruit and vegetable consumption) this data focuses on individual behaviours and tells us nothing about the context of the behaviour (such as access to green space or parks or swimming pools in an area, Bambra, 2016). Data collection on the wider environment should also be regularly collected and monitored.

5.5 Recommended interim indicators

In section 5, we have examined the different social determinants of health and health behaviour indicators in the different devolved nations which could act as interim measures and provide short-term tracking of policy progress against health outcomes. We conclude that the following would be best placed to act as interim indicators of progress for our health metrics:

- Household relative poverty rates
- Employment rates
- Relative child poverty rates
- Educational attainment rates (5+ GCSEs grades A*-C)
- Meeting recommended physical activity rates
- Consuming five or more fruit and vegetables per day

The rationale for these decisions is because the indicators are broadly comparable across all four nations, are regularly updated, are available by IMD (and/or local authority and/or ethnicity) and are strongly associated with at least one of our key health outcomes.

6 CONCLUSION AND RECOMMENDATIONS

There is an urgent need for a new cross-government UK health inequalities strategy – over the last decade or so, life expectancy across the UK has stalled, health inequalities have increased – even more so since the pandemic - and the health of the public faces ongoing threats and challenges. Now is the time to act to reduce health inequalities and improve the health of the UK population. If not now, then when?

We acknowledge that this is not an easy, quick or straightforward task. However, there are lessons from different national and international examples of what can be done – even in challenging and uncertain times.

Reducing health inequalities is beneficial for all of society – not just from a health improvement perspective but also because lower health inequalities can boost employment and productivity, reduces pressure on the NHS budget and increases fiscal revenues.

In this report, we have outlined why there is an urgent need for a new health inequalities strategy. We have examined the potential of using targets to improve health and reduce health inequalities. Specifically, we have considered: the role of targets; the conceptual and measurement issues involved; the benefits and drawbacks of different health measures; whether interim indicators can provide short-term progress tracking; and examined the evidence base on actions which policy makers could take.

Based on our research, we make several recommendations below for what makes a 'good' health target (and which we summarise in Figure 3):

RECOMMENDATION 1:

Targets should be used in a cross-government health inequalities strategy

We have provided an overview of the benefits and drawbacks of using targets in policy implementation and we have outlined the specific issues which need to be considered when designing health inequalities targets. Whilst targets have some drawbacks (such as gaming the system or perverse incentives), we still conclude that they can be effective in galvanising action by providing a shared policy focus. There is also evidence that they contributed to the success of the 2000-2010 English health inequalities strategy. They should therefore be used within any new health inequalities reduction strategy.

RECOMMENDATION 2:

Targets should use a geographical measure of inequality

We also discussed key conceptual and measurement issues, including whether health inequalities should be considered from a gradient or a gap perspective, as well as measurement issues in terms of which socio-demographic inequalities to target, as well as the scale of analysis. Despite their drawbacks, given the geographical way in which health and related interim data is collected across the UK, we conclude that a geographical measure of health inequalities is the best available to use at present. All health and related social and behavioural determinants of health data recommended here is available at the regional and local authority level, whilst some is also available at the neighbourhood geographical level.[50]

Where possible, targets should be aimed at the lowest geographical level possible to enable health gains in all of the most deprived parts of the country. This can be supplemented – where data is available – for other socio-demographic factors that are locally important, most notably for ethnicity. Future data collection should improve the data on health inequalities that is available at the individual level to overcome the limitations of using geographical data.[51]

RECOMMENDATION 3:

Targets should measure a range of health outcomes

We also considered the benefits and drawbacks of different health measures, and we conclude that a range of metrics should be used in order to capture the full WHO definition of health as "a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity" (WHO, 1948). Specifically, we see value in examining:

- Life Expectancy (LE),
- Healthy Life Expectancy (HLE),
- Infant Mortality Rate (IMR),
- Overweight and obesity,
- Anxiety and Depression,
- Suicide rates.

These health measures are chosen because they provide comparable data across all four countries; are updated at least annually; between them cover both physical and mental health; include measures for adults and children; collectively measure mortality and morbidity; and can be analysed by some indicator of social inequality (most commonly by IMD but in some cases also by ethnicity). Where data is lacking, collection and analysis methods should be improved.

RECOMMENDATION 4:

Targets should be accompanied by interim indicators

We have also examined the likely timescales within which we could expect a change in health inequalities to occur. The evidence from the 2000-2010 health inequalities strategies suggests that it takes around 10 years of concerted policy action to achieve small measurable reductions in health inequalities. We therefore conclude that any targets should also be designed with at least a 10-year timeframe in mind. To support monitoring of progress across this 10-year window, we examined whether social and behavioural determinants of health factors could act as interim indicators and provide short-term tracking of policy progress. They could also help gain buy-in form non-health departments (e.g. DWP, Education) for a 'health in all policies' approach. We conclude that interim measures should be used to provide early signs of progress. Specifically, based on current data availability across the UK, we suggest that the following would be best placed to act as interim indicators of progress on our suggested health metrics:

- Household relative poverty rates
- Employment rates
- Relative child poverty rates
- Educational attainment rates (5+ GCSEs grades A*-C)
- Meeting recommended physical activity rates
- Consuming five or more fruit and vegetables per day

Other interim indicators (such as smoking) could also be included if data collection and analysis methods are improved in the future.

RECOMMENDATION 5:

Targets should be aspirational and achievable

Health inequalities targets should be aspirational but also be achievable. Whilst addressing the whole social gradient in health is the most desirable from a health inequalities perspective, it is also the most aspirational. A focus on raising the position of the worst-off local areas (e.g. the bottom 20% as they have the worst health outcomes) compared to the national average may be the best way to start and, as seen in the 2000s, where the quickest gains can be made both in terms of health inequalities and in terms of overall population health gains. Based on previous UK experience, reductions in health inequalities (e.g. of around 10% reduction in the life expectancy gap between the bottom 20% of local authorities and the national average) should be achievable within a 10-year time frame. We therefore propose that initial targets focus on:

Levelling Up Health

- ✓ Reduce the life expectancy and the healthy life expectancy gaps between the most deprived 20% of local areas and the national average
- ✓ Reduce the gap in obesity rates amongst adults between the most deprived 20% of local areas and the national average

Improving Child Health

- ✓ Reduce the infant mortality rate gap between the most deprived 20% of local areas and the national average and between all minority ethnic groups and the national average
- ✓ Reduce the gap in obesity rates amongst primary school age children between the most deprived 20% of local areas and the national average

Better Mental Health

- ✓ Reduce the anxiety and depression gap between the most deprived 20% of local areas and the national average
- ✓ Reduce the suicide rate gap between the most deprived 20% of local areas and the national average

RECOMMENDATION 6:

Targets should be resourced and supported by policy action and political leadership

This report has also provided an overview of the policies and actions which were used in previous UK strategies to reduce health inequalities. This provides pointers for the sort of policies that will need to be developed and implemented if reducing health inequalities is to be translated from policy aspiration to epidemiological achievement. Further, as health is a devolved responsibility for Scotland, Wales and Northern Ireland, and with considerable emphasis within devolution deals and local authorities in England, targets will need to have local buy-in and influence over design (e.g. agreed with devolved governments, combined authorities and local authorities). Resourcing should be adequate and provided nationally but with devolved influence and control as many of the interventions will be implemented locally. National targets are only likely to coalesce action if they are accompanied by high-profile political leadership which consistently affirms their importance.

Figure 3: Summary National Health Inequalities Targets

	Target	Interim Indicators	Health Metrics
Levelling Up Health	Reduce the life expectancy and the healthy life expectancy gaps between the most deprived 20% of local areas and the national average Reduce the gap in obesity rates amongst adults between the most deprived 20% of local areas and the national average	■ Reduce poverty rates in 20% most deprived local areas ■ Increase employment rates in 20% most deprived local areas ■ Increase educational attainment rates in 20% most deprived local areas. ■ Increase % of adults meeting guidelines for physical activity in 20% the most deprived local areas ■ Increase % of adults consuming 5 or more fruit and vegetables per day in the 20% most deprived local areas	Life expectancy Healthy Life Expectancy Overweight and obesity
Improving Child Health	Reduce the infant mortality rate gap between the most deprived 20% of local areas and the national average and between all minority ethnic groups and white groups Reduce the gap in obesity rates amongst primary school age children between the most deprived 20% of local areas and the national average	■ Reduce child poverty rates in the most deprived 20% of local areas ■ Increase % of children meeting physical activity guidelines in in the 20% most deprived local areas ■ Increase % of children consuming 5 or more fruit and vegetables per day in the 20% most deprived local areas	Infant Mortality Rate Overweight and obesity
Better Mental Health	Reduce the anxiety and depression gap between the most deprived 20% of local areas and the national average Reduce the suicide rate gap between the most deprived 20% of local areas and the national average rate	■ Increase employment rates in 20% most deprived local areas ■ Increase educational attainment rates in the 20% most deprived local areas ■ Reduce household poverty rates in the 20% most deprived local areas ■ Increase employment rates in 20% most deprived local areas. ■ Increase educational attainment rates the 20% most deprived local areas ■ Reduce household poverty rates in the 20% most deprived local areas.	Anxiety & Depression Suicide rates

7 NOTES AND REFERENCES

1 As measured using the Index of Multiple Deprivation which ranks places based on relative local scores for: income, employment, health, education, crime, access to services and living environment, (DCLG, 2019). There are separate versions of England, Scotland, Wales and Northern Ireland.
2 statistically measured as Census Lower Super Output Areas - which are made up of around 400-1200 households (Office for National Statistics, 2011).
3 Healthy Life Expectancy is the average number of years that a person can expect to live in full health, not impeded by disabling illnesses or injuries or poor health. It is a self-reported measure so may include mental health)
4 IMR rates for England and Wales, 2017-2019 (latest data available by ethnicity) show that IMR was 6.4 per 1000 live births for Black ethnic groups, 5.5 per 1000 for Asian ethnic groups compared to 3 per 1000 for white groups (ONS, 2021a).
5 For example, in England, over 50% of people from Pakistani and Bangladeshi minority ethnic backgrounds and over 40% of Black African, Black Caribbean and Black Other minority ethnic backgrounds, live in the 20% most deprived areas compared to 17% of White British people (Commission on Race and Ethnic Disparities, 2021).
6 According to NHS England (2022a), inclusion health groups are people who are socially excluded, "who typically experience multiple overlapping risk factors for poor health, such as poverty, violence and complex trauma". Inclusion health groups include "people who experience homelessness, drug and alcohol dependence, vulnerable migrants, Gypsy, Roma and Traveller communities, sex workers, people in contact with the justice system and victims of modern slavery". People belonging to inclusion groups, tend to have poor health outcomes, negative experiences of health care and a lower average age of death (NHS England, 2022a).
7 The G7 is an intergovernmental political forum of the world's largest liberal democratic economies
8 It is the majority view (as summarised for the UK COVID-19 Public Inquiry by Bambra and Marmot, 2023) but the view is not universal (key disagreements are outlined in Case and Kraftman, 2022).
9 The two targets were combined into one PSA target in Spending Review 2002 Public Service Agreement (HM Treasury 2002) and the wording of the life expectancy target was later revised, in Technical Note for the Spending Review 2002 Public Service Agreement (Department of Health 2002), following the replacement of local Health Authorities with much larger Strategic Health Authorities; the revised working replaces the reference to Health Authorities with Local Authorities so as to retain the focus on local areas.
10 The government's decision to focus targets on reducing differences between the worst performing areas and the rest of the population reflected a broader area-based approach to governance, which was epitomised in the Neighbourhood Renewal programme and, subsequently, the introduction of 'Spearhead areas' (the name given to the fifth of areas with the worst health and deprivation indicators - Department of Health, 2004).
11 As many of the areas receiving Neighbourhood Renewal Funding are also part of the Spearhead groups, many areas may fall into both of the first two categories.
12 The 'Scottish Executive' was the used to refer to the post-devolution Scottish administration during the Labour-led era (1997-2007). Following the election of an SNP led administration in 2007, the name was changed to the 'Scottish Government'.
13 A Scottish specific measure of deprivation (similar to IMD)
14 For example, if indicators improved by 15% for the most deprived communities, targets would be achieved, even if these improvements occurred alongside improvements at a greater rate among rest of the population, i.e. even if the 'health gap' between communities increased
15 i.e. because of the focus on health improvement amongst deprived groups, Scotland was meeting aspects of its 'health inequalities' target even though the 'gap' between the most deprived groups and others had widened
16 The new performance management system was structured around a hierarchy of 4 Key Ministerial objectives (the HEAT targets), which incorporated 28 Key targets, 32 Key performance measures and 20 Supporting measures.
17 Bro Taf Health Authority stands out as an example of a local area which worked hard to coalesce action on health inequalities, including via a Declaration, 'pledging the Authority to cooperate in partnership with others to reduce health inequalities', a strong thematic emphasis on health inequalities in Director of Public Health reports, and the publication of a Health Equity Strategy, which included plans for health inequality impact assessment (South East Wales Regional Committee, 2000). However, even here, there were no specific health inequalities targets.
18 The Townsend Index is another measure of are level deprivation (like IMD)
19 The following health indicators were selected for this purpose: all deaths, coronary heart disease mortality, Lung cancer mortality under 75, cervical cancer registrations, mental health status, back pain, low birth weight babies, smoking, consumption of fruit and vegetables.
20 The 20% most deprived local authorities in England
21 For example, the absolute gap in Infant mortality rates between the most and least deprived areas of Scotland fell from 3.3 deaths per 1000 live births in 2000-2002 to 2.0 deaths in 2008-2010. Relative inequalities also fell from 1.8 to 1.7. See Harpur et al (2021) or Miall et al (2022) for a full overview.
22 While other sections of the Levelling Up strategy do engage with social factors with relevance to health inequalities (such as the economy, local communities and public services), they are not clearly linked to the health focused 'missions'.
23 Most of the 2000s targets were focused on the gap between bottom and the average, rather than the bottom and the top. The 2022 Levelling Up mission targets the gap between bottom and top (albeit without quantifying the extent to which the gap should be reduced).
24 It is also harder to quantify progress and would require, for example, using less easily accessible measures such as the slope index of health inequalities (Mackenbach and Kunst, 1997)
25 The multiple issues pertaining to the data challenges are presented in more detail by Nazroo (2022).
26 For example, in time period 1, if 30% of people in Area A have heart disease, and 20% of people in Area B have heart disease then the absolute inequality between the groups is 10 percentage points and the relative inequality is 1.5, i.e. heart disease prevalence is 1.5 times higher in area A than in area B (example adapted from PHE, 2020).
27 If, in time period 2, heart disease prevalence in A reduces to 24% and in B it reduces to 15%, then the absolute inequality between them has decreased to nine percentage points. However, the relative inequality between them has increased to 1.6 times (example adapted from PHE, 2020).
28 The nine regions have no administrative or democratic existence and so are used for data analysis purposes only.
29 Local authorities are local administrative and democratic units including county councils, unitary authorities, borough or city councils
30 Middle Super Output Areas (MSOAs) contain a minimum of 2000 and a maximum of 6000 households.
31 Lower Super Output Areas (LSOAs) cover several streets with a range of 400-1200 households in each LSOA.
32 We were asked by the report funders (The Health Foundation) to focus on those that work for all 4 countries together,
33 There has historically been a lack of routine data linking ethnicity to mortality records and hence an absence of official, regular information on life expectancies for different ethnic groups (Bambra and Marmot, 2023). The multiple issues pertaining to the data challenges are presented in more detail by Nazroo (2022: Appendix 3). Recently, ONS produced some 'experimental estimates' of life expectancy by ethnicity in England and Wales for 2011 to 2014 based on the linkage of Census 2011 to Patient Register records and subsequent deaths (ONS, 2021c).
34 These years of good/ ill health are not necessarily consecutive.
35 A closely relate measure is Disability Free Life Expectancy. This Is a type of HLE measure that reflects the average number of years in which a person is expected to live in the absence of a disability.
36 BMI as a measure has some limitations (e.g. it is not as accurate in different ethnic groups) and there are other controversies and challenges regarding using obesity and overweight more generally as health indicators such as stigma.
37 The CIS-R is a structured validated instrument used to examine the presence of common mental disorders.
38 Suicide is one of the so-called 'deaths of despair' (which also includes drug-related deaths an alcohol-related deaths) (Case and Deaton, 2020).
39 Child poverty is measured as the percentage of children aged 0-15 years who are living in households with below 60% median income after housing costs (End Child Poverty, 2023).
40 From Taylor-Robinson et al (2019)
41 Note that separate statistics are presented for adult and pensioner poverty.
42 Child poverty data is provided specifically for each UK nation, so for example, child poverty rates in Northern Ireland are calculated as the percentage of children aged 0-15 years who are living in households with below 60% median Northern Ireland (not UK) income after housing costs (End Child Poverty, 2023).
43 Scotland offers free school meals to all primary school children for P1-5 (the first five years of primary school in Scotland, so generally covering children aged 4-9). This universal policy is gradually being extended to higher age groups. Wales are also rolling out universal free school meals in primary schools.
44 The Real Living Wage is based on the actual cost of living. It is higher than the government's mandatory 'National Living Wage'. In 2023, the mandatory Government minimum National Living Wage for over 23s is £10.42 per hour across UK. In contrast, the Real Living Wage is £10.90 per hour (Living Wage Foundation, 2023).
45 The level of precision for each estimate is clearly noted in statistical outputs from the data provider.
46 From Barr et al (2012)
47 Scotland will be included in the next survey wave as a pilot.
48 The available indicators focus on measuring health behaviours amongst individuals. Other indicators, which could be collated, would focus on measuring corporate behaviours instead, e.g. reformulation resulting in reduced sugar in drinks, reduced availability/ marketing of high salt, high fat, high sugar. This would be more aligned to the commercial determinants approach (WHO, 2023).
49 At least 150 minutes of moderate intensity exercise or 75 minutes of vigorous exercise per day (UK Government 2019).
50 As measured by Census Wards or Middle/Lower Super Output Areas (see section 3.3).
51 As summarised in section 3.3.

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APPENDIX 1: TRENDS IN LIFE EXPECTANCY BY DEPRIVATION

FIGURE 1A: Life Expectancy At Birth By Deprivation Quintiles, Males, England, 2011-2020

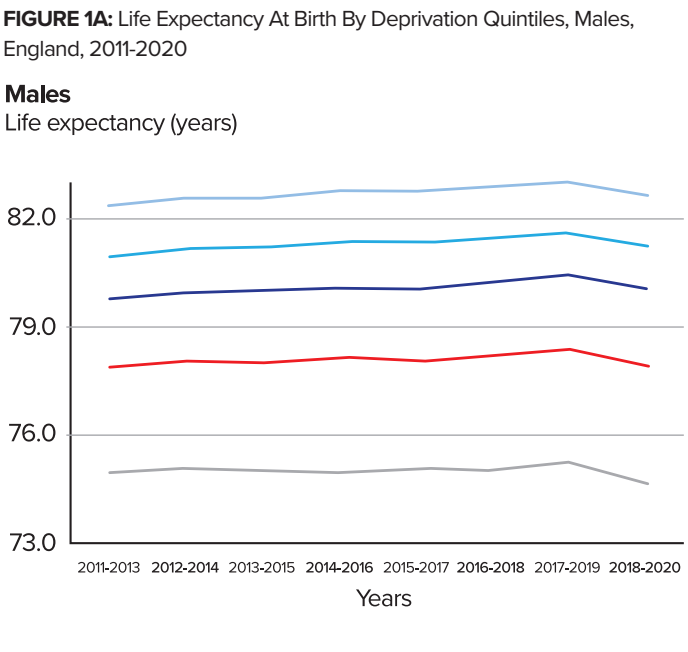


FIGURE 2A: Life Expectancy At Birth By Deprivation Quintiles, Males, Scotland, 2001-2021

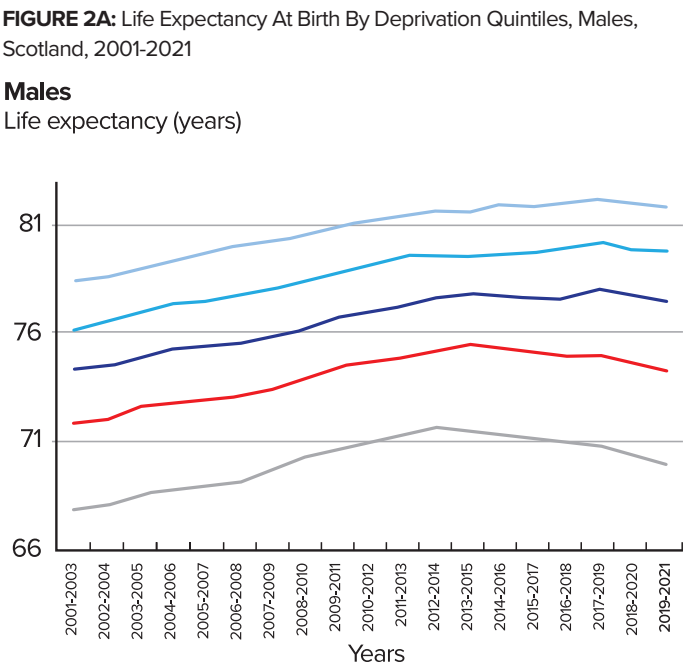


FIGURE 1B: Life Expectancy At Birth By Deprivation Quintiles, Females, England, 2011-2020

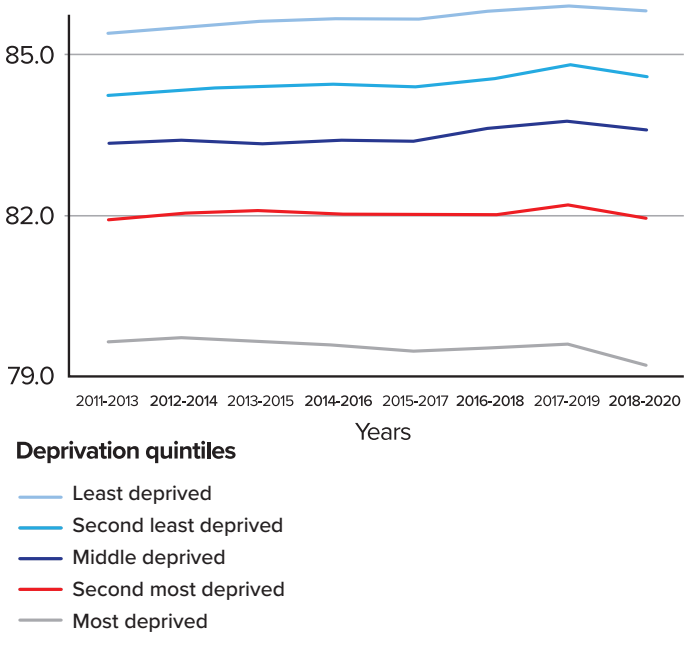


FIGURE 2B: Life Expectancy At Birth By Deprivation Quintiles, Females, Scotland, 2001-2021

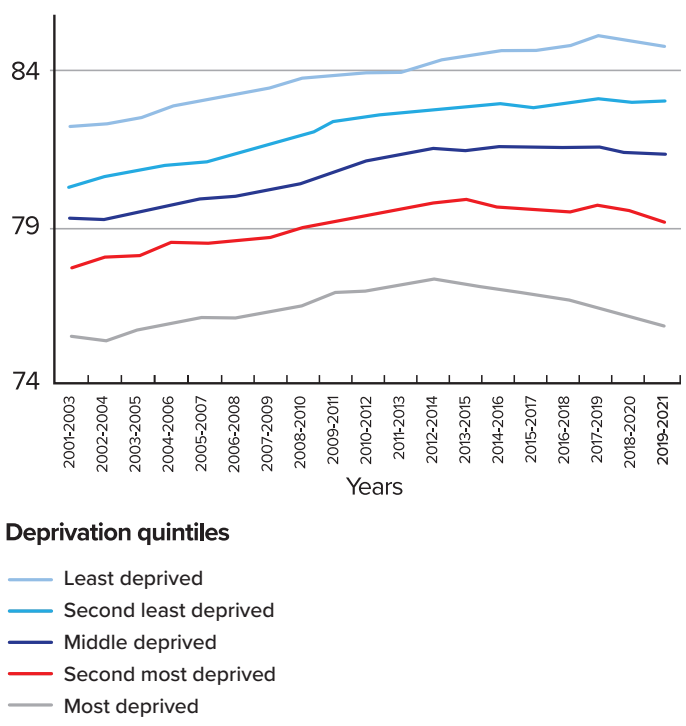


FIGURE 3A: Life Expectancy At Birth By Deprivation Quintiles, Males, Wales, 2011-2020

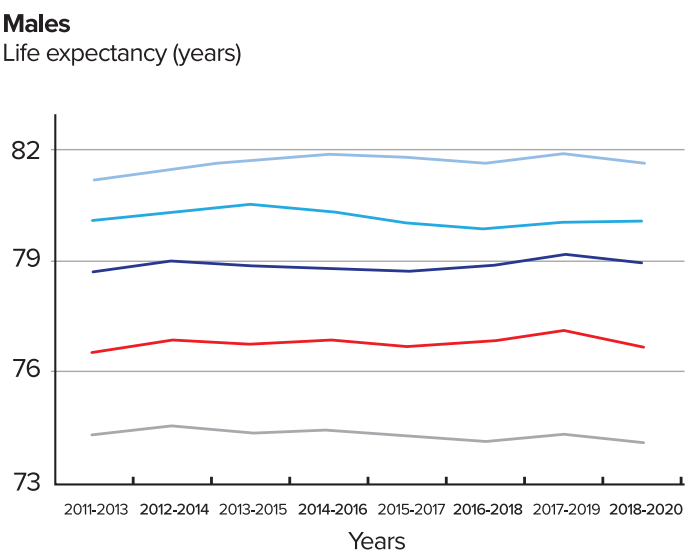


FIGURE 4A: Life Expectancy At Birth By Deprivation Quintiles, Males, Northern Ireland, 2015-2021

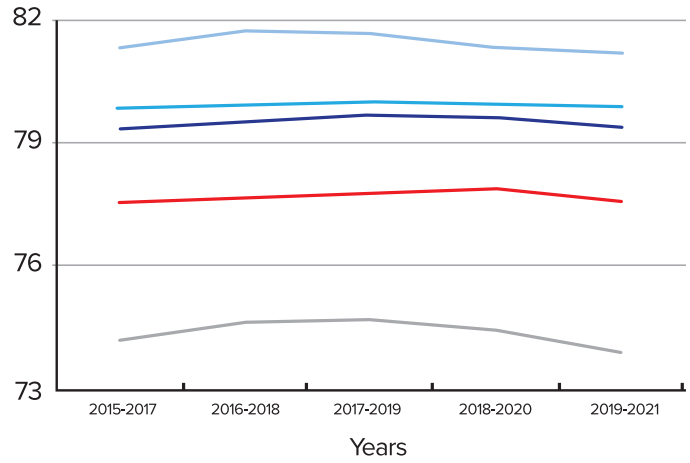


FIGURE 3B: Life Expectancy At Birth By Deprivation Quintiles, Females, Wales, 2011-2020

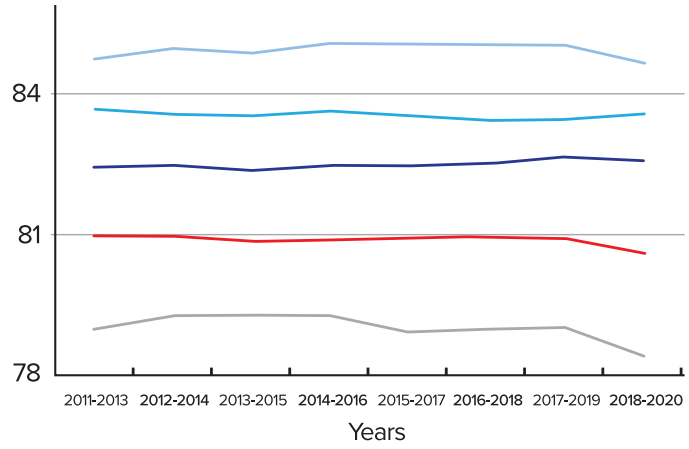
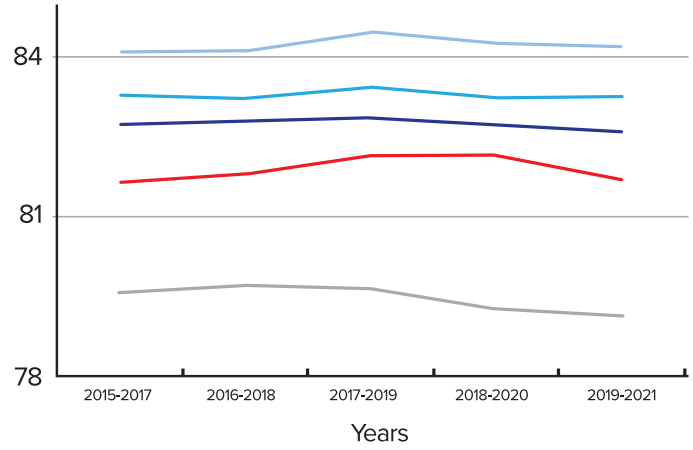


FIGURE 4B: Life Expectancy At Birth By Deprivation Quintiles, Females, Northern Ireland, 2015-2021



APPENDIX 2: INDICATORS

TABLE 1: key indicators used to measure population health and their data sources, frequency, coverage, and measure of inequality in the uk.

Population health indicator	Data holder	Data sources (s) used to estimate the health indicator	Frequency of data update	Geographic coverage	Measure of inequality
Infant Mortality Rate (IMR)					
England [1]	Office for National Statistics (ONS)	Registered Births and Deaths registered via the General Register Office	Annual	England	English index of multiple deprivation
Wales [1]	ONS	Registered Births and Deaths	Annual	Wales	Welsh Index of Multiple Deprivation
Scotland [2]	National Records of Scotland (NRS)	Registered births and deaths sourced from the Vital Events branch of the NRS	Annual	Scotland	Scottish Index of Multiple Deprivation, age, sex
Northern Ireland [3]	Northern Ireland Statistical Research Agency (NISRA)	Registered Births and Deaths	Annual	Northern Ireland	Northern Ireland Multiple Deprivation Measure
Life Expectancy					
England [4]	ONS	Registered deaths held by ONS, and mid-year population estimates.	Annual	England, regions, local areas sex.	England Index of Multiple Deprivation,
Wales [5]	ONS	Registered deaths held by ONS and mid-year population estimates.	Annual	Wales, Health Board, local authorities	Welsh Index of Multiple Deprivation, sex
Scotland [6]	NRS	Death registrations and mid-year population estimates for Scotland	Annual	Scotland Council areas NHS Health Boards	Scottish Index of Multiple Deprivation, sex, urban-rural classification
Northern Ireland [8]	Department of Health	Official deaths data sourced from the General Register Office and population estimates sourced from NISRA	Annual	Northern Ireland Local Government Districts Health and Social Care Trusts	Northern Ireland Multiple Deprivation Measure, sex
Healthy life expectancy					
England [4]	ONS	Death registrations held by ONS, health state and disability data from Annual Population Survey (APS) & the Census Data	APS is collected annually, and census data, decennially	England, regions, local areas	England Index of Multiple Deprivation, sex
Wales [5]	ONS; Public Health Wales Observatory Authority	Registered deaths held by ONS, mid-year population estimates from the ONS, data on health state and disability are sourced from APS & Census Data	APS is collected annually, and census data, decennially	Wales, Health Board, local authorities	Welsh Index of Multiple Deprivation, sex
Scotland [7]	NRS	Death data from the civil registration system; mid-year population estimates (or small area population estimates; APS; and Scotland's Census	APS is collected annually, and census data, decennially	Scotland NHS Board Scottish council areas	Scottish Index of Multiple Deprivation, sex
Northern Ireland [8,9]	Department of Health	Death data sourced from the General Register Office, Health data from the Northern Ireland Health Survey, and population estimates from NISRA.	Health survey is collected annually, and populations estimates (decennially).	Northern Ireland	Northern Ireland Multiple Deprivation Measure, sex
Overweight and obesity (in adults)					
England [10]	NHS Digital	Health Survey for England (HSE)	Annual	England, regions	English Index of Multiple deprivation, age groups, sex, ethnicity
Wales [11]	Welsh Government	National Survey for Wales	Annual	Wales, Health Board, Local authorities	Welsh Index of Multiple Deprivation, age, sex
Scotland [12]	Scottish Government	Scottish Health Survey	1995, 1998, 2003, and annually since 2008.	Scotland Health Board Local authority (by combining data over several years)	Scottish Index of Multiple Deprivation, Equivalised income, age
Northern Ireland [13]	Department of Health	Health Survey Northern Ireland	Annual	Northern Ireland	Northern Ireland Multiple Deprivation Measure, sex
Overweight and obesity (in children)					
England [14]	NHS Digital	National Child Measurement Programme	Annual	England, regions, local authority	Age, sex, ethnic groups, English Index of deprivation
Wales [15]	Public Health Wales	Child Measurement Programme for Wales	Annual	Wales, Health Board, Local authority	Welsh Index of Multiple Deprivation, ethnic groups

Population health indicator	Data holder	Data sources (s) used to estimate the health indicator	Frequency of data update	Geographic coverage	Measure of inequality
Overweight and obesity (in children) cont.					
Scotland [12,16]	Public Health Scotland; Scottish Government	Scottish Health Survey (SHeS), Primary 1 Body Mass Index (SMI) Statistics	Data was collected in 1995, 1998, 2003, and annually since 2008.	Scotland, NHS Health Boards, Council Areas.	Scottish Index of Multiple Deprivation, Equivalised income, sex
Northern Ireland [17]	Department of Health	Child Health System; Health Survey Northern Ireland	Annual	Northern Ireland Health Care Trust Local government Districts	Northern Ireland Multiple Deprivation Measure
Anxiety and depression (in adults)					
England [18]	NHS Digital	Adult Psychiatric Morbidity Survey (APMS) GP Patient Survey (GPPS)	APMS, Every 7 years (1993, 2000, 2007, and 2014); GPPS, annually	England, regions, strategic Health Authorities	Age, sex, household type, ethnic groups, employment status
Wales [19]	Welsh Government	National Survey for Wales	Annual	Wales, Health Board, local authority	Age, sex, Welsh Index of Multiple Deprivation
Scotland [20]	Scottish Government	Scottish Health Survey	1995, 1998, 2003, and annually since 2008.	Scotland, Health Boards, LocaL authorities	Age, sex, Scottish Index of Multiple Deprivation
Northern Ireland [21]	Department of Health	Northern Ireland Health Survey	Annual	Northern Ireland	Northern Ireland Multiple Deprivation Measure
Suicide rates					
England [26]	ONS	Death registrations held by ONS.	Annual	England, regions, local authorities	Age, English Index of deprivation
Wales [26]	ONS	Deaths registered in Wales	Annual	Wales	Welsh Index of Multiple Deprivation
Scotland [27]	NRS	Deaths from probable suicides as registered in the NRS database	Annual	Scotland NHS Board Council areas	Scottish Index of Multiple Deprivation
Northern Ireland [28]	NISRA	Deaths registered with the General Register Office	Annual	Northern Ireland Northern Ireland Health Trust	Northern Ireland Multiple Deprivation Measure

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TABLE 2: key indicators of the social determinants of health and their data sources, frequency, coverage, and measure of inequality in the UK

Country	Specific measure(s)	Data provider & frequency	Measures of inequality and area level available (national unless otherwise stated)
Children and young people			
Education			
GCSEs and A-levels			
England	Average A-level result, number of students getting three A grades or better by ethnicity, 'retained and assessed' rate and average results by 'disadvantage'	Gov.uk - A level and other 16 to 18 results [1] and Students getting 3 A grades or better at A level [2]- Department for Education (Yearly)	Ethnicity, 'disadvantage' status, (average result linkable to area deprivation by Local Authority), sex
Scotland	National 5, Highers and Advanced Highers attainment (grade count and percentage by subject and total entries)	Scottish Qualifications Authority – Attainment statistics [3] (Yearly)	Sex, sex by subject and grade (linkable to area deprivation via education authority area)
Wales	GCSE and A-level subjects and grades (number and proportion of grades achieved by subject and total entries)	Welsh Government – examination results [4] (Yearly)	Sex, ethnicity, free school meal eligibility, special educational needs
Northern Ireland	Number of GCSEs/A-Levels and grades (in categories of number achieved and grade range achieved)	Department of Education Northern Ireland - performance of Year 12 and Year 14 pupils in Northern Ireland [5] (Yearly – excluding pandemic year)	GCSEs and A-levels by free school meal receipt, sex, sex and free school meals
School absence			
England	Primary and secondary attendance rates	Department for Education pupil attendance dashboard [6] (weekly and yearly)	Free school meals, additional needs, ethnicity, sex and language (linkable to deprivation by Local Authority)
Scotland	Primary and secondary attendance rates, including reason for absence	Scottish Government - School attendance and absence statistics [7] (Yearly)	National inequalities by sex, rurality, additional needs, ethnicity, English language level, Scottish index of multiple deprivation quintiles, (local authority data also provided)
Wales	Rates for ages 5-15 combined	Welsh Government - Attendance of pupils in (maintained schools [8] (Yearly)	Linkable to deprivation via local authority)
Northern Ireland	Primary and secondary attendance rates	Department of Education Northern Ireland School Level attendance [9] (Yearly)	National inequalities by sex and ethncitiy provided in reports, (Linkable to deprivation via school area)
NEET (not in employment, education or training)			
England	Percent NEET (age 16-24)	Department for Education - Statistics: NEET and participation [10] Data come from the Labour Force Survey (Yearly)	Region, sex, age, health condition (including disability)
Scotland	Annual participation measure (age 16-19)	Skills development Scotland – Annual participation measure [11] (Yearly)	Sex (linkable to deprivation at the local authority level)
Wales	Percent NEET (age 16-24)	Welsh Government- Young people not in education, employment or training (NEET) [12] (statistical first release and Annual Population Survey data available) (Every three months)	Ethnicity, disability, region, age
Northern Ireland	Percent NEET (age 16-24)	Northern Ireland statistics and research agency – Labour Force Survey Tables [13] Data come from the Northern Ireland Labour Force Survey (Quarterly and yearly)	sex
Poverty			
Child poverty			
UK wide	Children (age 16 and under or 16-18 and in school) in persistent (in relative low income in last three of four interviews) low income (both 60 and 70 percent of median income and before and after housing costs)	Gov.uk - Family Resources Survey [14] (yearly – by financial year), local authority data available through Stat-Xplore	Region, tenure, ethnicity, employment (inc. one parent working), number of children, age of youngest, up to date with bills, (linkable to area deprivation by local authority or equivalent available for all countries).
Free school meals			
England	Eligibility and receipt of FSM	Gov.uk - Schools, pupils and their characteristics [15] (yearly)	Ethnicity, (linkable to deprivation by local authority)
Scotland	Pupils registered and taking free school meals by primary and secondary	Scottish Government- School Healthy Living Survey supplementary statistics [16] (yearly excluding 2021 due to COVID-19)	(linkable to deprivation by local authority)
Wales	Eligibility for FSM	Stats Wales - Pupils eligible for free school meals by local authority, region and year [17] (yearly)	(linkable to deprivation by local authority)
Northern Ireland	Eligibility and uptake of FSM	Northern Ireland Department of Education - School meals statistical bulletins [18] (yearly excluding 2021 due to COVID-19)	n/a

Working Age Adults **Educational attainment (highest educational qualification – age 16 and over)**			
England	Highest qualification level age 16+	Census – UK Data service [19] (Decennial)	Sex, (linkable to deprivation data via area identifiers from LSOA upwards)
Scotland	Highest qualification age level 16+	Scotland's census [20] – (2021 census not yet available – data expected to be released 2024) (Decennial)	(linkable to deprivation via Scottish data zones and larger)
Wales	Highest qualification age level 16+	Census – UK Data service [21] (Decennial)	Sex, (linkable to deprivation data via are identifiers from LSOA upwards)
Northern Ireland	Highest qualification levels age 16+	Census – Northern Ireland Statistics research agency [22] (Decennial)	Age group, (linkable to deprivation local government district)
Work **Earnings below living wage**			
UK	Percent earning below Living Wage Foundation rates	ONS - Annual Survey of Hours and Earnings (ASHE) - Estimates of the number and proportion of UK employee jobs with hourly pay below the living wage, by place of residence [23] (Yearly)	Sex and full or part time employment status (n.b. estimates vary in precision by geography)
UK	Employment, unemployment and economic inactivity	Office for National Statistics - Employment, unemployment and economic inactivity for people aged 16 and over and aged from 16 to 64 [24] UK Regional labour market: headline Labour Force Survey indicators for all regions [25] (including Wales, Scotland and Northern Ireland) (Yearly)	Sex (in both datasets)
Benefits (job seekers and universal credit)			
UK	% of working age population claiming out of work benefit	ONS via Nomis - 'Universal Credit and Job Seekers Allowance claimants' [26] Also available via PHE Fingertips for England. (Monthly)	Provided by age and sex. Can be linked to area deprivation at Local Authority level
Poverty **Household poverty (relative)**			
UK	Households below average income (including 50, 60 and 70% thresholds, both before and after housing costs)	Department for Work and Pensions-Gov.uk - Households below average income (HBAI) statistics [27] from the Family Resources Survey. Available via Stat-Xplore (Yearly – use of three-year averages recommended)	Region, tenure, ethnicity, employment (inc. one parent working), number of children, age of youngest, up to date with bills, food bank use
Food insecurity			
England, Wales Northern Ireland (n.b. upcoming wave will also include Scotland as a pilot – however may not be continued thereafter)	Household food security (United States Department of Agriculture (USDA) 10-item US Adult Food Security module. Questions relate to 12 months prior to interview)	Food and You 2 survey [28]– Food Standards Agency (Every two years)	NS-SEC, age, sex, country, region, IMD quintile, household composition, long term illness/disability, receipt of free school meals, ethnic group, employment status, benefit receipt
UK	Household food insecurity (USDA 10-item US Adult Food Security module. Questions relating to 30 days prior to interview)	Department for Work and Pensions- Family Resources Survey [29] (Yearly)	Country and English region, Household composition, age of head of household, disability, educational attainment, ethnic group, state support receipt, income, tenure, tenure and age
Fuel poverty			
England	Low income low efficiency (LILEE) – home is fuel poverty energy efficiency rating of band D or blow and after subtracting (modelled energy and housing costs remaining income is below the poverty line	Gov.uk - Fuel poverty detailed tables [30] and Fuel poverty statistics [31] Yearly)	Income decile, income decile by Fuel Poverty Energy Efficiency Rating (FPEER), warm home discount eligibility, help to heat eligibility, in receipt of benefits, payment method, employment status, household contains someone classed as vulnerable, long term illness/disability, ethnicity, number of occupants, oldest occupant, youngest occupant, household composition, household composition by FPEER, housing sector, tenure by FPEER, dwelling age, dwelling type, region, rurality
Scotland	Spends in excess of 10% of household income on all fuel use to maintain adequate temperature and if after deducting these costs a household is left with insufficient funds to maintain an acceptable standard of living	Scottish government - Scottish House Condition Survey [32] (Yearly)	Local authority area, annual household income, tenure, receipt of benefits, payment method, dwelling age, rurality
Wales	Spending in excess of 10% of income on maintaining a satisfactory heating regime.	Welsh Government- Fuel poverty modelled estimates for Wales [33] (*additional modelling was undertaken by the data provider to obtain local authority estimates [34]. It is not clear how frequently this will be updated) (2004, 2008, 2012, 2016, 2018, 2021)	Household composition, income decile, dwelling type, tenure, dwelling age, EPC rating bands, rurality, *Local Authority
Northern Ireland	Two measures: 1) spends in excess of 10% of household income on all fuel use to maintain adequate temperature. 2) Low income high costs	Housing Executive Northern Ireland - House Condition Survey [35] (2001, 2004, 2006, 2009, 2011, 2016, the next planned for 2023)	Tenure, dwelling type, dwelling age, District council area, age of head of household, household composition, employment status, household income, household religion

Older adults **Pensioner poverty**			
UK wide	Pensioners (of state pension age at time of interview) in persistent (in relative low income in last three of four interviews) low income (both 60 and 70 percent of median income and before and after housing costs)	Gov.uk - Family Resources Survey [36] (yearly – by financial year)	Ethnicity, sex, family type, long standing illness/ disability, region/country, highest educational qualification, up to date with bills, tenure, age
Housing **Non-decent homes**			
England	Number of homes not meeting the Decent Homes Standard (reasonable state of repair, modern facilities, provides a reasonable degree of thermal comfort)	English housing survey [37] (Yearly)	Tenure, dwelling type, region, dwelling age
Scotland	Critical and urgent disrepair	Scottish House Condition survey (part of the Scottish Household Survey) [38]	Local authority area, annual household income, tenure, receipt of benefits, payment method, dwelling age, rurality
Wales	Social housing quality – meeting the Welsh Housing Quality Standard (good state of repair, safe and secure, adequately heated and fuel efficient, modern, well managed, suitable to the inhabitants needs)	Stats Wales- data from Registered Social Landlords (RSLs) - Compliance with the overall Welsh Housing Quality Standard by provider and measure [39] (Yearly)	Local Authority level
Northern Ireland	Non-decent homes number and rate (Decent homes standard - Standard incorporates four main criteria: the statutory minimum fitness standard for housing, repair, modern facilities and services thermal comfort. Any property that does not meet all four criteria is deemed to have failed the standard. Over 90% of fails do so based on thermal comfort)	Housing Executive Northern Ireland - House Condition Survey [40] (2001, 2004, 2006, 2009, 2011, 2016, the next planned for 2023)	Tenure, dwelling type, dwelling age, age of head of household, household composition, employment status, household income, household religion

TABLE 3: Health behaviours and indicators and their data sources, frequency, coverage, and measure of inequality in the uk

Country	Specific measure	Dataset & frequency	Measures of inequality and area level available (national unless otherwise stated)
Health behaviours **Smoking**			
England	Smoking attributable hospitalisations, smoking attributable deaths, smoking prevalence in adults age 18+, smoking status at time of delivery	All available via Fingertips PHE [41] (Local Tobacco control profiles). Habits data come from the Annual Population Survey.	(linkable to area deprivation via Local Authorities), regions
Scotland	1) Smoking prevalence 2) Ante-natal smoking 3) smoking prevalence in young people (13-15 years)	Scottish Health Survey (1) [42] (Yearly) Public Health Scotland (2) [43] (Yearly) Scottish Schools Adolescent Lifestyle and Substance Use Survey [44] (superseded by the new schools health and wellbeing census, which was expected to launch in 2020)(3) (every two years until 2018)	Age, sex, deprivation quintiles, council areas, ante-natal smoking by Scottish data zones, young smokers by sex and by deprivation quintile
Wales	Adult smoking prevalence	National Survey for Wales and Welsh Health Survey – both available via Public Health Wales [45] (Yearly)	Local authority, sex, age group, deprivation quintile
Northern Ireland	Smoking status	Health Survey Northern Ireland Smoking Trends [46] (Yearly)	Sex, years smoked, parental smoking status, age, deprivation quintile and decile, limiting long term illness/disability, highest qualification, religion
Alcohol			
England	Alcohol specific mortality (age standardised estimates available), potential years of life lost due to alcohol specific conditions, admission episodes for alcohol-specific conditions, admission episodes for alcohol-related conditions under 18	All available via Fingertips PHE [47] (death and life lost data from ONS Public Health Mortality File. Admissions data from Hospital Episode Statistics)	(linkable to area deprivation via Local Authorities), life lost available by sex
Scotland	1) Alcohol-specific deaths (age standardised estimates available) 2) Hazardous/harmful levels of weekly alcohol consumption 3) mean number of units of alcohol consumed per week (Yearly)	1) National Records of Scotland [48] (1) 2) Scottish Health Survey [49] (2,3) (Yearly)	1) Sex, age and sex, deprivation, rurality, Scottish council areas 2,3) age, sex, age and sex, deprivation quintile, long term illness, equivalised income
Wales	Proportion of adults reporting drinking over the guidelines, alcohol-specific hospital admissions, alcohol specific mortality (age standardised estimates	Alcohol in Wales [50] - Public Health Wales Observatory. Data from National Survey for Wales (Not comparable with the Welsh Health Survey), Patient Episode Database Wales, NHS	Sex and age, deprivation quintiles, deprivation and sex

Country	Specific measure	Dataset & frequency	Measures of inequality and area level available (national unless otherwise stated)
Health behaviours			
Smoking			
	available)	Wales Informatics Service (Yearly)	
Northern Ireland	1) Alcohol specific deaths (age-standardised estimates available) 2) drinking on three or more days per week	1) Northern Ireland Statistics and Research Agency – Alcohol-specific deaths in Northern Ireland [51] 2) Health Survey Northern Ireland [52] (yearly)	1) Age, sex, local government district, deprivation quintile 2) sex, age, deprivation quintile and decile, limiting long term illness/disability, highest qualification, religion
Fruit and vegetable consumption			
UK	Total fruit and vegetable consumption in grams per day (including non-consumers) Adults and children (sample includes age 1.5 to 18)	National Diet and Nutrition Survey [53] (yearly)	Age, sex, country
England	Proportion of the population consuming the specified number of portions of fruit and vegetables per day Adults and children (from age 0)	Health Survey for England [54] (Yearly)	Age, sex, ethnicity, Local Authority
Scotland	Proportion of adults consuming five or more portions of fruit and vegetables per day Adults and children (from age 0)	Scottish Health Survey [55] (Yearly)	Age, sex, age and sex, deprivation quintile, long term illness, equivalised income
Wales	1) Proportion of adults consuming five or more portions of fruit and vegetables per day (only available for adults age 16+) 2) Percentage of children who eat fruit or vegetables everyday (ages 11, 13 and 15)	1) National Survey for Wales [56] (Yearly) 2) Health Behaviour in School Aged Children study (data access restricted. Summary statistics available via StatsWales) [57] (Every four years)	1) Local authority, sex, age group, deprivation quintile 2) sex, school year group, 'family affluence'
Northern Ireland	Average number of portions and proportion consuming five or more portions of fruit and vegetables per day (only available for adults age 16+)	Health Survey Northern Ireland [58] (Yearly)	Sex, age, deprivation quintile and decile, limiting long term illness/disability, highest qualification, religion
Physical activity			
England	1)Percentage of physically active adults, questions relating to intensity, frequency and duration of physical activity also i ncluded(may be possible to calculate % meeting guidelines for moderate or vigorous physical activity (MVPA) from this) 2) Frequency, type and duration of exercise for children. Proportion of children meeting the recommended 60 minutes of exercise per day. (age 5-16)	1) Active Lives Adult Survey (Sport England), available via: fingertips PHE [59] (Twice per year) 2) Sport England's Active Lives Children and Young People Survey [60] (Yearly, following academic calendar)	1) Age, sex, socio-economic group (NS-SEC), ethnicity, disability, area deprivation (deciles and quintiles of IMD), Local Authorities 2) sex, school year, school stage, ethnicity, sex and ethnicity, limiting illness or disability, disability and school year, number of impairments, region, active partnership, local authority
Scotland	Proportion of adults meeting the 2019 CMO's guidelines for MVPA (150 minutes of moderate physical activity or 75 minutes of vigorous physical activity, or an equivalent combination of the two per week). Frequency, type and duration of exercise for children. Adults and children (questions asked of those aged 5-15)	Scottish Health Survey [61] (Yearly)	Age, sex, age and sex, deprivation quintile, long term illness, equivalised income
Wales	Proportion of adults meeting the 2019 CMO's guidelines for MVPA (150 minutes of moderate physical activity or 75 minutes of vigorous physical activity, or an equivalent combination of the two per week). Frequency, type and duration of exercise for children. Adults and children (age 3-17)	National Survey for Wales [62] (Yearly)	Local authority, sex, age group, deprivation quintile
Northern Ireland	Percentage of physically active adults, questions relating to intensity, frequency and duration of physical activity also included (may be possible to calculate % meeting guidelines for moderate or vigorous physical activity (MVPA) from this) (only available for adults age 16+)	Health Survey Northern Ireland [63] (Yearly)	Sex, age, deprivation quintile and decile, limiting long term illness/disability, highest qualification, religion

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