Levelling Up Health:
A practical, evidence-based framework
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Partnership: We would like to thank the members of our partnership Expert Panel and NIHR School for Public Health Research’s Equal England Public Panel who have provided advice and guidance in the design and interpretation of this report. The members of the Expert Panel were:

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Commissioned by Public Health England

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December 2021
Executive summary

There are substantial differences in health across the country which have been exacerbated by the pandemic. Men and women in deprived areas live an average of 9 and 7 years less, respectively, than their counterparts in more affluent places. There are also large regional health inequalities across England with people in the northern regions living an average of two years less than those in the rest of England. The UK government have committed to a programme of levelling up to help left behind areas to prosper in the same way as other parts of the country. There are already several frameworks and models which have set out how to address inequalities, but none have applied the existing literature and case studies to levelling up. Therefore, the aim of this report is to set out a practical, evidence-based framework to ‘level up’ area-level health based on a review of the evidence and key case studies.

We undertook a rapid scoping review of the key published and grey literature as well as identified case studies to support the evidence. To navigate the literature in a short time frame, this rapid review focused primarily on umbrella reviews – high-level studies which pull together systematic reviews in a particular topic. Case studies from across the country were obtained from the evidence review, website searches, and liaison with public health policy makers and practitioners. The literature review and case studies were then synthesised into a practical framework for levelling up.

The rapid evidence review included 16 published umbrella reviews (covering 667 individual studies), 19 grey literature publications, and an additional 15 key evidence reviews or primary studies. The case study search identified 143 potentially relevant case studies and we included 12.

We identified five principles to guide levelling up area-level health - exemplified by two cross cutting case studies and 10 theme-specific case studies. The cross-cutting case studies were (i) the national health inequalities strategy from the 2000s which was a multi-level, multi-component programme that closed the gap in life expectancy by six months; and (ii) the cities of Coventry and Manchester which have implemented the principles set out in the Marmot Review at the strategic level and ensured all policies are designed to tackle inequalities in the social determinants of health.

The following five guiding principles are not mutually exclusive, but should work together in a long-term way across national, regional, and local systems:

- **Healthy-by-default and easy to use initiatives** – Initiatives that make healthy choices the default and services easy to use tend to be ‘upstream interventions’ that target structural factors and do not require much agency to improve health (i.e. individuals do not need to invest much of their own resources or effort to benefit). On the other hand, high agency interventions tend to increase inequalities. Case study examples include Stockton-on-Tees which has made a range of changes to the town to help economic recovery and promote physical activity, and the Pupil Premium, additional funding provided direct to schools based on the number of pupils receiving free school meals or who are classified as looked-after.

- **Long-term, multi-sector, multi-component action** – Health inequalities are driven by an unequal distribution of the wider determinants of health. Any programme of levelling up health needs actions across multiple sectors and which are cross-government to address this unequal balance of the wider determinants of health. Case study examples include the Preston model which involved the city council leading a multi-sector approach to build community wealth, and Healthy New Towns an initiative led by NHS England in partnership with 10 housing development sites across England and a range of different local organisations to design and shape new places so that they promote health and wellbeing.

- **Locally designed focus** – Services and programmes need to be designed around the specific needs of places and communities, especially in disadvantaged or ethnically diverse areas.
Evidence suggests that programmes with good community engagement are more likely to be effective. Case study examples include the Big Local which provided 150 of England’s most deprived neighbourhoods with £1million each over 10-15 years to improve their area and Fit for the Future which was a Gateshead Council initiative which shifted service design to a more grassroots approach.

- **Targeting disadvantaged communities** – Disadvantaged areas and communities need bespoke interventions above and beyond what is provided to the rest of the population. Case study examples include the New Deal for Communities which targeted 39 deprived neighbourhoods in England focusing on crime, community, housing, education, health, and worklessness, and the Wirral Council programme on helping people who were out of work back into employment.

- **Matching of resources to need** – More resources should be given to those with more need to enable the extra support they need to enjoy good health. Case study examples include South Tees Sport England Pilot which provided a greater intensity of physical activity services - weighted by the index of multiple deprivation (IMD), and the Cambridgeshire and Peterborough Health Inequalities Strategy which developed a simple allocation formula to weight local NHS funding based on IMD.

Based on the above evidence review and case studies, our policy recommendations are:

1. Levelling up health should be a core part of the cross-government levelling up activity.
2. A long-term, cross-government Levelling Up for Health or Health Inequalities Strategy is needed to drive national, regional and local action.
3. A clear vision for levelling up health and what success would look like is needed informed and supported by an agreed set of metrics.
4. National and local policies to level up should be informed and checked against the evidence-based principles outlined above.
5. Local areas supporting the levelling up agenda need the adequate resources to effect change, working closely with local communities.
6. A prioritisation process should be undertaken to identify a set of cross-government priority domains and actions (e.g. housing, education, or welfare) which are likely to have the greatest impact on levelling up health. This may include a combination of stakeholder engagement, literature review and data analysis to identify those domains which are likely to have the biggest impact in the short, medium and long term.
7. Allocating resources in proportion to need should be used for distribution of public funds rather than competitive bidding.
8. There is a need to broaden the public narrative on health outcome disparities from being perceived as a predominantly health service issue (dealing with the impact) to a social/structural issue that everyone needs to invest in. This could be facilitated through a public conversation on levelling up health.

Our research recommendations are:

- Research studies should routinely examine the distribution of impacts of interventions across socio-economically disadvantaged areas and groups.
- Health inequalities programmes need robust evaluation.
- There needs to be more research into multiple disadvantage and intersectionality.
- A Health Equity Evidence Centre is needed to develop the evidence of what works to address inequalities.
- More support is needed to help local systems translate research evidence into practice.
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1 Introduction

Our society is afflicted by substantial health inequalities - the systematic differences in health between social groups or across the socio-economic gradient - and, of particular relevance to this report, its geographical distribution. The Government have committed to a programme of Levelling Up to help left behind areas and regions to prosper in the same way as other parts of the country. An important aspect is levelling up health outcomes to narrow the health gap between areas while also maintaining overall health. The aim of this report is to set out a practical, evidence-based framework to level up health based on a review of the evidence and key case studies. Section 1 sets out a background to health inequalities and an overview of current levelling up policy. Section 2 and 3 set out the aims and theoretical understanding of place and health, Section 4 describes the methods of the report; Section 5 the framework, supporting evidence, and case studies; and Section 6 a discussion of the findings and related recommendations.

1.1 Health inequalities before and during the pandemic

For the first time in history, we have the empirical data to witness a rapid compounding of existing inequalities due to COVID-19, particularly for lower socio-economic and minority ethnic groups (1, 2). Deaths in the most deprived areas of the country are double those in the least deprived (3). Furthermore, deaths are up to three times higher in minority ethnic groups (4). The true impact on inequalities is expected to be much greater due to the long-term economic repercussions of the pandemic including increased unemployment, food and housing insecurity, debt, and poverty (5), which are likely to disproportionally affect people living in areas of higher deprivation and minority ethnic groups (6).

Before the pandemic, there were already substantial inequalities across geographies and minority ethnic groups. Men and women in deprived areas live an average of 10 and 8 years less respectively than men and women in more affluent places (7). Left behind neighbourhoods, which have not prospered as much as other areas, experience even greater health inequalities and the health of disadvantaged areas in the Northern regions has been falling further behind (8). At the most extreme, a baby boy born today in Blackpool can expect an additional 17 years in poor health compared to a baby boy born in Richmond upon Thames, and a baby girl an additional 13 years (1). Further, coastal towns experience significant health burdens and stark health inequalities exist between urban and rural areas (9, 10).

Many households were also struggling financially prior to the pandemic. In 2018/19, one in five people (14.5 million) in the UK were in poverty (i.e. below 60% of medium-income after housing costs) (11). At that point, a third of those at the lower end of the income distribution reported that they would be unable to manage for a month if they lost their main income source (12). During the pandemic, the economic impact of lockdown has been profound – on 8 October 2020, compared with 12 March 2020, there was a 90% (2.7 million people) increase in Universal Credit claimants (13). However, unemployment and loss of income have not affected all groups or areas equally. Employees in the lowest weekly earnings decile were seven times more likely than those in the highest decile to be in one of the shutdown sectors (14). Food insecurity has worsened with 4.9 million adults (9%) and 1.7 million children (12%) experiencing food shortages – an increase of almost 250% from pre-pandemic levels (15).

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1 age-sex standardised cumulative death rate in least deprived areas is 350 deaths per 100,000 compared to 669 in the most

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1.2 The Levelling Up agenda

In 2019, the UK Government committed to levelling up the country to help people and communities who have been left behind to catch up. The pandemic has brought this into sharp focus, such as the very high COVID-19 rates seen in the Northern regions (16). Since 2019, the Government has set out a number of policy initiatives aimed at levelling up, including investing £830 million to transform high streets in 57 local areas, £10 million to support improvement for local authorities with lower educational outcomes, £18 million to expand the opportunities areas programme to help vulnerable and disadvantaged young people into work, and moving 22,000 civil services roles outside London and the South East (17). To support the programme, a new No.10/Cabinet Office Level Up Unit has been set up. This unit will support the development of a Levelling Up White Paper. If successful, investing in employment, education, and housing in the most disadvantaged areas will likely also help to improve their health outcomes. The Government has also established the Office for Health Improvement and Disparities and committed to reducing health inequalities. However, the detail on how this will be achieved is yet to be announced.

1.3 Existing approaches to levelling up and reducing health inequalities

Public Health England has proposed the Place-Based Approaches to Reducing Inequalities (18) model which recognises the complex causes of health inequalities and provides a set of practical tools for local areas to help address them. It focuses on service, civic and community actions and how each of these sectors can work together through multi-component interventions and the use of local data and best available evidence to address health inequalities. Furthermore, Public Health England published an Inclusive and Sustainable Economies framework which links health to local economic, social and environmental development to support local areas in playing their part in addressing inequalities (19). It highlights the building blocks for inclusive economies which address inequalities, such as good work, education and training, sufficient income, and transport connectivity.

In the 2010 Marmot Review Fair Society, Healthy Lives set principles for addressing inequalities and encompass six policy objectives: 1) give every child the best start in life; 2) enable all children, young people, and adults to maximize their capabilities and have control over their lives; 3) create fair employment and good work for all; 4) ensure a healthy standard of living for all; 5) create and develop health and sustainable places and communities, and 6) strengthen the role and impact of ill-health prevention. The Greater Manchester region has worked with the Marmot Principles and has additionally designed a new Build Back Fairer framework in response to the inequalities experienced from the onset of the COVID-19 pandemic. The Building Back Fairer framework centres on bringing a health equity focus into every aspect of governance and consists of six recommendations, each of which intersects with different social determinants of health (20). These recommendations include Build Back Fairer: 1) for future generations by prioritizing children and young people; 2) resources through proportionate universal funding and rebalancing spending towards prevention; 3) standards through identifying and guaranteeing standards for healthy living; 4) institutions by extending anchor institution approaches and scaling up social value contracting; 5) monitoring and accountability through the development and evaluation of equity targets; and 6) through greater local power and control through increased devolution, advocacy for local control, and community involvement (20).

The Local Government Association has a framework outlining the role local governments can play in improving health and addressing the social determinants of health through civic leadership (such as through Health in All Policies approaches); as an employer and anchor institution (by providing and modelling healthy working environments); securing services (in particular those which address the social determinants of health); planning and licensing (such as by planning health promoting spaces or restricting alcohol licenses); and as a champion of prevention (21). Another LGA report outlines important themes in tackling health inequalities including neighbourhood (asset-based community development approaches); place (health in All Policies approaches and multiple interventions)
addressing wider determinants of health and priorities as identified by joint strategic needs assessments; system (collaboration across systems and with long-term plans); quality and sector led improvement (quality framework and resources to improve performance levels); solution-based research (to improve the evidence base on effective approaches for health and well-being improvement); and sustainable funding (actions are more possible with fair, longer-term funding)(22).

A 2015 resource from PHE and the UCL Institute of Health Equity provides a guide on reducing health inequalities by utilising the Social Value Act. Under this framework, local authorities can define social value according to their own needs, assets, organizational priorities, strategies, and policies while remaining within the focus on “economic, social and environmental wellbeing” set out by the Act (23). It is theorized within the guide that action to promote wellbeing using social values which is distributed equitably and acts on the social determinants of health will reduce health inequalities and that reducing inequalities will improve wellbeing (23). The Health Foundation has developed a framework for improving health through inclusive economies via six areas: 1) building a thorough understanding of local issues; 2) leadership providing long-term visions for local economies; 3) engaging with citizens; 4) capitalizing on local assets and using local powers more actively; 5) cultivating engagement between public health and economic development; and 6) providing services that meet people’s health and economic needs together (24). Additionally, this framework identifies four themes that should serve as a foundation to action across every level of government: 1) promoting economic conditions that recognize the needs of groups facing inequality; 2) including health and wellbeing in the measurement of economic success; 3) actively managing technological transitions and responding to economic shocks; and 4) promoting standards of good work and wide labour market participation (24).

These varied frameworks for levelling up and reducing health inequalities provide a background understanding of current action and theory within this arena. Many of them have similar focuses and recommendations such as action to address multiple social determinants of health, place-based efforts, and collaboration across the levels of government and other organisations. A comprehensive view of the different ways of thinking about addressing health inequalities can be helpful in developing new ones which more precisely fit specific organisational or local contexts.
2 Aims of this report

Our overarching aim was to develop a practical, evidence-based framework for ‘levelling up’ area-level health supported by a review of effective strategies and case studies. The purpose was to generate useful evidence that will inform policy making and be of practical use to a variety of decision-making bodies, such as local authorities, metropolitan mayors, integrated health care systems, regional teams, and national government.

The specific objectives of this report are to present:

- A rapid scoping review of effective strategies to level up, promising practices, and evidence gaps.
- Case studies from around the country of local, regional, and national level examples of actions to level up health.
- An evidence-based practical framework with worked examples synthesised from the case studies and evidence review.
- Recommendations for policy, practice and research.
Understanding health and place

In this section we describe the relationship between health and place, highlighting how the interaction of population composition factors (who lives in a place), local context, and the wider macro conditions (what a place is like) all combine to influence the health of a place.

3.1 The interaction of compositional factors with the local context and macro conditions

Geographical health inequalities between neighbourhoods, cities, towns, and regions can be explained in terms of place-based factors - the interrelation of individual-level compositional factors (who lives in a place), local contexts, and macro-level conditions (what is this place like). The characteristics of individuals are influenced by the characteristics of the area. For example, a person’s job can be in part determined by the education they receive at the local school and the employment opportunities in the local labour market. In another example, children might not play outside because they do not have a private garden (a compositional resource), or there are no public parks or transport to get to them (a contextual opportunities structure resource), or it might not be seen as appropriate for them to do so (contextual social functioning resource) (25). Further, the collective resources model suggests that all residents, and particularly those on a low income, enjoy better health when they live in areas characterised by more/better social and economic collective resources (26). This may be especially important for those on low incomes as they are usually more reliant on local services. Conversely, the health of lower income people may suffer more in deprived areas where collective resources and social structures are limited, a concept known as deprivation amplification (i.e., the health effects of individual-level deprivation, such as lower socio-economic status, can be amplified by area-level deprivation) (27).

3.2 Who lives here: Compositional factors

‘Who lives here’ or in other words compositional factors are one of the contributors to the health of a place. These are primarily thought of in relation to the demographic characteristics (age, sex, ethnicity), health related practices (smoking, alcohol, physical activity, diet, drugs, gambling), and socio-economic characteristics (income, education, occupation) of the people living within a particular area (neighbourhood, town, city, region). However, many of these compositional factors are ‘social characteristics’ that matter for and impact on health because instead of individual properties they represent relationships between people, as well as their relationship with their society and environment (28). This is critical in our understanding of place and health because it gives us insight into the conditions which cause the connection between different compositional factors and health outcomes (28). For instance, health behaviours, such as excessive drinking, which negatively impact health may not be indicative of individual failings, but rather may indicate lack of access to healthier opportunities, such as therapy.

Health related practices, such as smoking, alcohol, physical activity, diet, and addictions, all influence health significantly. Smoking remains the most important preventable cause of mortality in the wealthy world and is causally linked to most major diseases such as cancer and cardiovascular disease (29). Likewise, excessive alcohol consumption is related to some cancers and other key risks such as high blood pressure. Alcohol-related deaths and diseases are on the increase. Poor diet and low exercise rates are major risk factors for poorer health and lower life expectancy. Gambling addiction is associated with higher rates of poor mental health (30) and substance misuse is an increasingly important determinant of death amongst young people in the UK and USA (31). People who do not smoke, have only moderate alcohol intake, consume a high amount of fruit and vegetables and engage regularly in physical activity will on average have a 14-year higher life expectancy than individuals without access to or engagement in any healthy practices (32). So, on average, places (regions, cities, towns, neighbourhoods) with higher rates of these unhealthy practices amongst their populations would have worse health than other places.
The socio-economic status of people living in an area is also important. Socio-economic status is a term that refers to different but related factors such as occupation, income, or education (33). People in professional jobs have better health outcomes than those in non-professional jobs (e.g., manual workers). By way of example, data shows that infant mortality rates were 16% higher in children of routine and manual workers as compared to professional and managerial workers (34). In terms of income, the poorer someone is, the less likely they are to live in good quality housing, have time and money for leisure activities, feel secure at home or work, have good quality work or a job at all, or afford healthy food; conditions which are referred to as the social determinants of health (34).

3.3 What is this place like: Local Context

The context of a place (what is this place like) also impacts on the health outcomes of a place. Place mediates the way in which individuals experience social, economic, and physical processes in relation to their health: places can be salutogenic (health promoting) or pathogenic (health damaging) environments. In this way, places act as health ecosystems.

There are three contextual aspects to place that have traditionally been considered as important to health: economic, social, and physical. The geographical economic context includes area poverty rates, unemployment rates, wages, types and quality of work, and job availability and training in the area. The mechanisms whereby the economic profile of a local area impacts health are multiple. For example, it affects the nature of work that an individual can access in that place (regardless of their own skills or education). It also impacts the services available in a local area. Less deprived areas will attract more services (such as food or physical activity opportunities available locally) than more deprived areas as businesses adapt to the different consumer demands in each area. Area-level economic factors such as poverty are a key predictor of health including cardiovascular disease, infant mortality, all-cause mortality, limiting long-term illness, and health-related behaviours (27).

Places also have social aspects which impact health. Opportunity structures are the socially constructed and patterned features of an area which may promote health through the possibilities they provide (25). These include services provided, publicly or privately, to support people in their daily lives such as childcare, food availability, or access to healthcare services, as well as health promoting environments (e.g., access and affordability of good quality housing or high-quality schools). Local environments can shape our access to healthy – and unhealthy – goods and services, thus enhancing or reducing our opportunities to engage in healthy or unhealthy behaviours such as smoking, alcohol consumption, fruit and vegetable consumption, or physical activity. One example concerns obesogenic environments, where limited availability of healthy foods and opportunities for physical activity (e.g., access to parks or gyms, feeling safe outdoors, and pedestrian areas) in a neighbourhood are both drivers of obesity among its residents. Associations have been found between neighbourhood-level availability of fast food and obesity rates (35). Further, research has shown that in some low-income areas, there is a paucity of supermarkets and shops selling affordable fresh food on the one hand, alongside an abundance of convenience stores and fast-food outlets selling energy dense junk food and ready meals (36).

A second social aspect of place is collective social functioning. Collective social functioning and practices that are beneficial to health include high levels of social cohesion, community control, and social capital within the community. Social capital - “the features of social organisation such as trust, norms, and networks that can improve the efficiency of society by facilitating coordinated actions” (37) - has been put forward as a social mechanism through which place mediates the relationship between individual socio-economic status and health outcomes (38). Some studies have found that areas with higher levels of social capital have better self-rated health, mental health, and health behaviours and lower mortality rates. Moreover, place attachment (i.e., an emotional bond with
specific places) can have a protective health effect (39). Conversely, negative collective effects can come from the social stigmatisation (e.g., stigmatised places can result in feelings of alienation and worthlessness) and/or the traumatic history of an area (e.g., histories of racial oppression). Stigmatisation processes of certain places may be based on environmental factors such as air pollution, economic factors like low property prices, as well as certain behaviours among people which are disconnected from their social drives (40). In turn, residents of stigmatised places can be discredited by association with these place characteristics. Finally, local cultural attitudes (e.g., say around smoking), crime levels and neighbourhood safety can also influence health behaviours, physical and mental health either negatively or positively (41, 42).

The physical environment is widely recognised as an important determinant of health and health inequalities (43). In 2016, it was estimated that air pollution levels in London accounted for up to 10,000 unnecessary deaths per year (44). Another English study found that neighbourhoods with larger amounts of brownfield land have higher rates of poor health and limiting long term illness (45). Conversely, access to natural or green spaces are therapeutic or health-promoting. For example, studies have found that walking in natural, rather than urban, settings reduce stress levels and people residing in green areas report less poor health than those with less green surroundings (46). Research also indicates that green space can impact on health by attention restoration, stress reduction and/or the evocation of positive emotions (47). Awareness of how such factors differ by place has led to the development of the concept of ‘environmental deprivation’ - the absence of health promoting conditions in the physical environment (48). Environmental deprivation is associated with all-cause mortality: mortality was lowest in areas with the least environmental deprivation and highest in the most environmentally deprived (50).

### 3.4 Macro Conditions: What shapes this Place?

Wider policies and political decisions (e.g., national NHS funding and provision), the economic system (e.g., national tax rates, recessions), and environmental factors (e.g., climate crisis) also influence the health of places by shaping the wider conditions. These are the public policy, political, economic, and environmental structures and relations that are often outside the control of the individuals or the local areas they affect (49). Individual and collective social and economic factors such as housing, health care, income, and employment are key determinants of health and wellbeing. In this way, the relationship between health and place - and the health inequalities which thereby exist between places - are also shaped by public policies (50): place matters for health, but policy, politics, and the economy all matter for place (41).

Although this report focuses exclusively on area-level health (particularly in terms of deprivation), it is important to note that the influence of socio-economic status on health is experienced in combination with other factors, most notably ethnicity and gender, as we all have different aspects of our social identity that coexist and interact with one another (51). Intersectionality is a way of looking at multiple influences on health. It focuses on how socio-economic status, deprivation, ethnicity and gender, are experienced not separately but in combination. Gender and ethnicity are social factors rather than simply demographic ones, socially structured, constructed and experienced. So for example, health differences between men and women arise not just because of biological differences but as a result of the social construction of sex-related roles and relationships (gender). Likewise, ethnic inequalities in health can arise through racism with ethnic minority groups more likely to experience discrimination personally, institutionally (structural discrimination) and economically. Area-level health inequalities are experienced intersectionally.

The local-level contextual determinants of health are themselves shaped by macro-level structural determinants: politics, public policies, the economy, and the wider environmental conditions (33). Health inequalities between people and places are thereby shaped by public policy choices operating
at a national and often international level, with patterns of disease “produced, literally and metaphorically, by the structures, values and priorities of political and economic systems... Health inequities are thus posited to arise from whatever is each society’s form of social inequality, defined in relation to power, property and privilege” (49). Why some places and people are consistently privileged whilst others are consistently marginalised is a political choice – it is about where the power lies and in whose interests that power is exercised (50). In this way, the wider macro-conditions shape the local relationship between health and place because they shape the wider social, economic, and physical environment and the social and spatial distribution of salutogenic and pathogenic factors both collectively and individually (41).
4 Methods

4.1 Overall design
The framework was developed by undertaking an evidence review and identifying local case studies based on our initial theory (figure 4.1 below). The purpose of the evidence review was to identify evidence-based principles for levelling up and case studies to provide real-life examples of those principles in action.

Figure 4.1: Overall design

4.2 Initial theory
The literature and case studies related to geographical health inequalities and levelling up area-level health is vast. To help navigate the literature and case studies ensuring that no key areas were missed, we developed an initial theory - based on the geographical inequalities in health literature summarised in Section 3. The initial theory presents a range of areas which hypothetically could be targeted to address inequalities. It was developed by the research team, in consultation with our expert and public panels, to identify key areas which warranted consideration. The purpose was not to include all these elements in the final levelling up framework, but rather to have a reference point to ensure all important aspects were considered during the literature review and case studies. The initial theory areas are structured by three levels of detail, as shown in Table 4.1.
Table 4.1: Domains of initial theory of geographical inequalities in health

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<td>Physical activity</td>
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</tr>
<tr>
<td></td>
<td>Diet</td>
<td></td>
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<tr>
<td></td>
<td>Gambling</td>
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</tbody>
</table>
4.3 Evidence review

The purpose of the evidence review was to compile the high-level evidence arising from research and key reports describing interventions, services, and policies that are likely to lead to levelling up of area-level health outcomes across a spectrum of domains as presented in Table 4.1. The aim was to focus on covering the breadth of the evidence base, rather than an in-depth exploration of one specific aspect. To ensure that we obtained the key documents, we employed two methods; first, a broad search of the published and grey literature, and second, a snowballing technique based on the documents already identified by the search strategy and by the PHE Library Services during a initial scoping exercise.

4.3.1 Broad search

Our initial scoping search revealed several umbrella reviews (i.e., reviews of reviews) relating to health inequalities. These studies had already collated and synthesised the evidence systematically. We therefore undertook a further search to identify all the published umbrella reviews in collaboration with an experienced information scientist and librarian (IK).

The search strategy used for the umbrella review search is shown in Appendix 9.1. We searched an electronic database (MEDLINE) from 2007 to July 2021 using terms drawn from our own previous work (52). Screening of the titles and abstracts was undertaken by one researcher (AL) using Rayyan, with all included and studies with unclear status checked by a second researcher (JB). The following inclusion and exclusion criteria were used for the umbrella reviews:

Inclusion criteria

- Umbrella reviews
- Interventions that take a place-based approach to levelling up or aim to reduce geographical health inequalities
- Studies based in high income countries (defined by latest World Bank list) (53)
- Studies which have a comprehensive search strategy and quality assessment process
- Studies published in English language only
- Studies with any health-related outcome (e.g., morbidity, mortality, health care access, health related practices)

Exclusion criteria

- Studies based in low- or middle-income countries
- Studies which are not umbrella reviews
- Studies published before 2007 covered by our previous review (52)
- Conference abstracts, commentaries, opinion pieces, editorials
- Studies that do not examine health inequalities by socio-economic status, geography or area measures
- Scoping or mapping reviews or reviews only of associations (i.e., those which do not assess if an intervention, policy or service was effective)
- Studies which have been superseded by a more up to date review.

The systematic reviews included in each umbrella review were examined and key studies which focused on actions to address inequalities were identified. When necessary, we also looked at the primary studies included within the systematic reviews.

We extracted key data from each included study, both the umbrella reviews, systematic reviews and primary studies. These were then mapped onto the initial theory and compared with the case studies. During this process, we identified potential gaps which required further literature searching,
such as studies relating to welfare. At this stage, we also included other key literature relating to case studies. For example, the umbrella review search did not identify any studies including the National Health Inequalities Strategy from the 2000s but this did appear in the case studies and so we included the relevant studies. Identified gaps in the research evidence are detailed in the discussion section at the end of the report. Formal quality assessment was not undertaken due to the time constraints.

4.3.2 Grey literature
PHE’s knowledge and library service had already identified several key resources and papers from an initial scope of the literature. To supplement this, we also undertook a broad grey literature search using an internet search engine (e.g. Google). Grey documents were reviewed to identify those which address socio-economic inequalities or actions to support levelling up. To identify any further grey literature, we used a snowballing technique: 1) a review of the references and sources used in these documents to identify additional key documents; and 2) citation follow-up of reviews included from the broader search above.

4.4 Case studies
We identified a range of national, regional, and local case studies to both inform the practical framework and give real life examples from England of how action on to address health inequalities. The case studies were primarily used to give real life examples of the themes, but if they had a robust evaluation, they also contributed to the evidence-based principles. The case studies sought to present a range of the best practices (in terms of effectiveness or long-term potential for effectiveness) from around the country.

Case studies were identified via three methods:
1. The evidence review;
2. A broad grey literature search of key websites (e.g., gov.uk, NHS England Health Inequalities resources, PHE Knowledge Library, local government websites in target levelling up areas) and a broad search using an internet search engine;
3. Expert consultation within the research team, expert advisors, and email requests to PHE inequalities and regional inequalities teams.

Each identified case study was assessed against the theoretical model and was included if it reported on changes to one or more segments and the effects on health inequalities. We also included case studies that we defined as promising practice whereby new programmes had been established to address inequalities that compliment evidence-based principles but outcomes are not yet available. Case studies that covered one or more elements of the model were exported into NVivo (v.12). Themes drawn from the evidence review were used as a framework to identify case studies that could add real world examples of this evidence in practice.

4.5 Development of a practical framework
To develop the framework, we reviewed and synthesised all the published literature. We then identified commonalities and themes that arose from the literature concerning what works to address inequalities through analysis of the findings of the studies and discussion within the research group. We only included themes which were supported by robust evidence (e.g. systematic review level data or high quality evaluation). Therefore, we did not include themes relating to policy recommendations from the grey literature or expert opinion. Themes were brought together in a diagram to highlight how they could be used to level up health inequalities. The themes and diagram were then discussed and refined across the research team, and then they were compared with the case studies for the identification of similarities and differences.
5 Findings

5.1 Studies included in the evidence review
The rapid evidence review included 16 published umbrella reviews, 19 grey literature publications, and 11 key systematic reviews and 4 key primary studies (see Figure 5.1). Included umbrella reviews were published between 2011 and 2020 and covered a total of 667 reviews or studies (not differentially reported by every umbrella review) on interventions related to housing, traffic, food systems, childhood obesity, parenting, physical activity, the built and natural environment, alcohol use, and adolescent health. Several reviews also examined impacts on health inequality by types of intervention delivery such as social media, public health policies, personalisation schemes, and community pharmacy-interventions. Finally, some reviews looked at the relationship between macroeconomic factors and the political economy conditions on health inequality. A detailed overview of the included published umbrella reviews and their key findings is presented in Appendix 9.2: Table 9.1. Grey literature sources relevant to levelling up included city and practice reports, theory and recommendations, and literature reviews. An overview of the grey literature is available in Appendix 9.2: Table 9.2. Additional key reviews and primary studies are shown in Appendix 9.2: Table 9.3.

Figure 5.1: Study flow diagram

5.2 Case studies identification
The search strategy resulted in 143 documents including potentially relevant case studies for review and mapped to the initial theory (n=103). Forty documents from the original search were excluded as they were commentaries that did not include any references to relevant case studies. Of the 103,
were identified as illustrative examples that complemented the findings of the evidence review and demonstrated possible actions on addressing inequalities in the social determinants of health. Two case studies were identified as cross-cutting examples that covered all themes drawn from the evidence review and 10 were linked to specific themes. A full list of all case studies is shown in Appendix 9.3.

5.3 A practical, evidence-based framework to levelling up health

In reviewing the literature on addressing health inequalities, five themes related to addressing inequalities were identified and combined into an evidence-based framework (see Figure 5.2 below): 1) healthy-by-default and easy to use initiatives; 2) long-term, multi-sector, multi-component action; 3) locally designed focus; 4) targeting disadvantaged communities; and 5) matching of resources to need. All the themes are supported by evidence and case studies and they are applicable at a national, regional and local level, resulting in a framework that can be implemented at different levels. Furthermore, it complements existing models, such as place-based approaches and the social determinants of health model. Table 5.1 presents a summary of the evidence and case studies contributing to each theme.

The framework highlights the need to flatten the health gradient (i.e., level up) while simultaneously improving the health of all. These principles of action are not mutually exclusive, and many overlap. They should be viewed as evidence-based principles for designing and delivering programmes to level up health and reduce inequalities. Each principle should be implemented in conjunction with each other, not selected individually or in a piece-meal fashion and all five principles should be viewed as equally important to the task of 'levelling up'. Furthermore, addressing health inequalities is a long-term goal and as such should be worked towards with sustained policies and services over a large time span.
Figure 5.2: A practical, evidence-based framework to levelling up area-level health
<table>
<thead>
<tr>
<th>Theme</th>
<th>First author (year)</th>
<th>No. of included reviews</th>
<th>Domains covered</th>
<th>Evidence</th>
</tr>
</thead>
</table>
| Healthy-by-default and easy to use initiatives | Thomson (2018) | 29 SRs (150 studies) | Tobacco, alcohol, nutrition, reproductive health, infectious disease control, the environment, workplace regulations | - 2 studies found USA food stamp (subsidy) programme had positive impacts on foetal survival and weight gain during pregnancy of low-income populations.  
- 9 studies 10–20% increased intake of targeted foods or nutrients of participants in food subsidy programme  
- 4 studies of taxes on unhealthy foods and drink showed positive equity effects on diet outcomes  
- 1 SR found significant drop in casualties in the more deprived areas, compared to the less deprived areas from speed limit interventions.  
- 2 studies found evidence that fiscal incentive schemes (maternity allowance, childcare benefits) may decrease inequalities in vaccination rates. |
| | Eyles (2012) | 32 studies | Nutrition and diet | - 11 out of 14 studies reporting impacts by SES found pro-health and pro-equity outcomes for food taxes and subsidies (although many note that taxes would be regressive with more financial burden on low-income individuals). |
| | McGill (2015) | 36 studies | Nutrition and diet | - 10 of 18 “price” interventions were likely to reduce inequalities by improving healthy eating outcomes more for individuals of low SES, particularly when interventions were a combination of taxes and subsidies with all 6 respective studies reducing inequalities.  
- 4 of 6 “place” interventions reduced inequalities and none widened them.  
- 8 of 19 “person” (individual-based information and education) interventions widened inequalities. |
| | Cauchi (2016) | 63 SRs | Childhood obesity | - 48 studies with positive outcomes reported the following effective environmental strategies: improving overall school food environment (nutrition standards, reformulating school lunches, removing vending machines/banning sale of sugar sweetened beverages/snacks high in fat, sugar, or salt), purchasing new PE/sports equipment, daily formal physical activity sessions, providing free or low-cost fruit, making playgrounds available for physical activity after school hours, providing free/low-cost water, providing healthy breakfasts at school, substituting sweetened beverages, reducing screen time at home. |
| | Beauchamp (2014) | 14 studies | Obesity | - 5 of 6 interventions with a positive equity impact included structural changes to support behaviour change, 5 had a wide reach (3 community-based and 2 school-based), and all were multi-year in duration.  
- 4 of 5 interventions with no beneficial impact among lower SES groups had low structural changes and 1 had moderate amounts of structural change, 3 were very short term (2-10 weeks), and 4 were based solely on information delivery. |
<table>
<thead>
<tr>
<th>Author</th>
<th>Studies</th>
<th>Intervention Focus</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Durand (2014)</td>
<td>19 studies</td>
<td>Shared decision-making</td>
<td>• 5 of 7 studies differentiating outcome by disadvantage/literacy levels reduced disparities in knowledge, decisional conflict, uncertainty and treatment preferences suggesting SDM interventions could narrow health disparities by promoting skills/resources needed to engage in SDM.</td>
</tr>
</tbody>
</table>
| Moore (2015)      | 20 studies | Universal school-based interventions on health behaviours | • Of 4 education-based interventions, 1 widened inequalities and 3 had a neutral effect.  
• Of 4 environmental interventions, 1 reduced inequalities and 3 had a neutral effect.  
• Interventions combining education and environmental change had mixed results. |
| Carey (2019)      | 6 studies | Personalisation schemes                   | • Accessing and benefiting from schemes based on personalisation requires high levels of skills and resources at the individual level.  
• Identified factors associated with better outcomes in personalisation schemes were higher levels of economic, cultural, social, and symbolic capital in the forms of education, being employed, having capable networks and support, knowledge and skills in navigating complex systems, household income, knowledge of where to access information and the capacity to self-manage individual budgets. |
| Cairns (2015)     | 18 studies | Obesity                                  | • 0 of 11 counselling or advice-based interventions reduced inequalities in obesity. |
| Craike (2018)     | 17 SRs  | Physical activity                         | • 1 SR found that 2 of 4 universal policies showed a positive equity impact on children’s physical activity levels: provincial school physical education policy requiring students to take physical education to graduate from secondary school and a children’s fitness tax credit. |
| Haby (2016)       | 15 SRs, 7 economic evaluations | Agriculture, food, nutrition              | • 1 SR reported on health inequality impact found reduction in health inequalities from balancing taxes on unhealthy foods with subsidies on healthy food. |
| Gibson (2011)     | 5 SRs (130 studies) | Housing and neighbourhood conditions     | • 1 SR (72 studies) found highest efficacy in interventions aimed at multiple pathways (rehousing and changes to: indoor equipment or furniture; respondents’ knowledge or behaviour; community norms or collective behaviour; housing policy or regulatory practices, and health practitioners’ behaviour) and which are ecological (target multiple levels (i.e. individuals, households, housing and neighbourhoods)). |
| Craike (2018)     | 17 SRs  | Physical activity                         | • 3 reviews on children found that physical activity interventions, particularly those that were school-based and multicomponent were likely to be effective. Common elements of successful policy-focused interventions included enhancements to physical education, additional physical activity opportunities, school self-assessments, and education about physical activity.  
• 1 SR on all age groups found intensive interventions are most likely to reduce socio economic status inequalities in physical activity. |
<p>| McGill (2015)     | 36 studies | Nutrition and diet                        | • 4 out 6 place-based interventions demonstrated to reduce inequalities were implemented in a range of settings including schools, workplaces, and communities/neighborhoods. |</p>
<table>
<thead>
<tr>
<th>Author</th>
<th>Studies (studies)</th>
<th>Focus</th>
<th>Details</th>
</tr>
</thead>
</table>
| Naik (2019)   | 62 (umbrella, meta-analyses, & narrative) | Macroeconomic determinants         | • High quality SR showed evidence of pro-equity impact from taxing tobacco and moderate quality SR found mixed, but mostly positive impact on reductions in preterm births among mothers with low education and black mothers. Supported by findings of 4 other lower quality reviews.  
• 3 reviews (low quality) found some association between unemployment insurance and reduced inequalities and better health outcomes.  
• 4 reviews (moderate to low quality) on gendered health inequalities found positive equity impacts from the dual-earner policy model and welfare conditions reducing job precarity.  
• 2 reviews (moderate quality) found pro-equity impacts of occupational health and safety regulations such as preventing toxin exposures. |
| Simpson (2021)| 38 studies       | Social security policy and mental health | • 14 of 21 studies on expansionary policies (increased benefit amount or access) improved mental health; 4 studies evaluated inequalities of which 2 reduced inequalities and 2 had no impact.  
• 11 of 17 studies on contractionary policies (decreased benefit amount or access) worsened mental health; 10 evaluated inequalities which widened in 3, narrowed in 2, and had mixed or no effects in 5. |
| Macintyre (2020)| 15 SRs (1720 studies) | Adolescent health                 | • Evidence for market regulation impact in SR on youth smoking found 7 (of 38) studies showed positive impact on inequalities, 16 showed neutral effects, 12 negative impact, 4 mixed and 1 unclear. Taxation/increasing the price of cigarettes had the most evidence for positive equity impact. |
| Cauchi (2016)  | 63 SRs           | Childhood obesity                 | • Environmental interventions had beneficial equity impacts (ES: 0.09 [0.16, 0.02]).  
• Community-based interventions of any type & parental involvement resulted in small but consistently positive ES ranging from 0.094 [p = <0.001] to 0.151 [0.334, 0.031]. |
| Craike (2018)  | 17 SRs           | Physical activity                 | • 1 SR on interventions with pre-schoolers: 6 of 11 included studies showed a significant effect; all 3 community-based interventions were effective.  
• 9 SRs on adults found factors associated with higher effectiveness were: the involvement of the community in the design and implementation of interventions; developing community infrastructure to sustain effective interventions; interventions delivered through personal contact; and tailored interventions.  
• 1 SR on all age groups found community settings were the most effective intervention setting for socioeconomically disadvantaged groups. |
| Crocker-Buque (2016)| 41 studies       | Immunisation                       | • 16 studies on multicomponent locally designed interventions demonstrated higher efficacy from improving immunisation in children and adolescents in the short term for ethnically diverse, low-income populations. |
| Pierron (2018) | 21 SRs           | Supporting parenting               | • 1 SR found increased effectiveness from diversifying approaches shared between state, school, and neighbourhood organisations and varying intervention to local context and different cultures/societies.  
• 2 SRs reported on necessity of integrating the entire network related to parenting (environment, professionals, organisations, social contexts, etc.). |
| Thomson (2019)| 15 SRs (157 studies) | Community pharmacy-               | • 17 studies found increased vaccination rates among people who had missed vaccination the previous year or otherwise wouldn’t have accessed vaccination services with pharmacy-delivery and that of those delivered a |
| 24 | delivered interventions | third of the vaccinations took place outside traditional working hours documenting the increased accessibility provided by community pharmacy networks.
- 1 study found increased breast and cervical cancer screening uptake among low- and moderate-income women. |

<table>
<thead>
<tr>
<th>Moore (2015)</th>
<th>20 studies</th>
<th>Universal school-based interventions on childhood health behaviours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>10 of 20 universal interventions had a neutral impact on inequalities. 6 of 20 universal interventions widened inequalities.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Thomson (2018)</th>
<th>29 SRs (150 studies)</th>
<th>Tobacco, alcohol, nutrition, reproductive health, infectious disease control, the environment, workplace regulations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>3 studies documented a widening of socio-economic inequalities from mass media intervention for pre-conception folic acid use from the national campaign (which persisted for 3 years), but not in the local campaign. The studies showed worsening health inequality effects in terms of folate uptake by education level, and the prevalence of neural tube defects by ethnicity. 1 SR found that the Expanded Food and Nutrition Education Program (EFNEP) – a federal community outreach programme targeted at low-income families – increased fruit and vegetable consumption and had a positive effect on health inequalities. 2 studies found interventions targeted toward disadvantaged groups increased screening rates – particularly amongst lower socio-economic groups. 4 studies found positive effects of ‘reminder and recall’ systems when targeted at disadvantaged groups, but that universal systems had no effect on reducing inequalities in vaccine uptake rates. 7 studies found a combination of targeted and universal immunisations improved health outcomes for indigenous populations. 1 study found complex interventions targeted interventions were effective in encouraging child-hood vaccination when specifically targeted at lower SES groups of younger children.</td>
</tr>
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<table>
<thead>
<tr>
<th>Cairns (2015)</th>
<th>18 SRs</th>
<th>Obesity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2 RCTs (strong/moderate quality) demonstrated reduced inequalities in physical activity interventions targeted at low-income workers. 1 observational study (moderate quality) showed increased inequalities from a universally delivered workplace physical activity intervention.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bird (2018)</th>
<th>17 SRs</th>
<th>Built and natural environment</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>1 SR found provision of affordable and diverse housing was found to be associated with higher or increased physical activity, primarily walking and perceived safety among those from low-income groups. 9 SRs reported that provision of affordable housing to vulnerable individuals with specific needs (those living with intellectual disability, substance users, individuals experiencing homelessness, and those living with a chronic condition) was associated higher or improved social, behavioural, physical and mental health-related outcomes.</td>
</tr>
</tbody>
</table>
Gibson (2011) | 5 SRs (130 studies) | Housing and neighbourhood conditions | • 30 studies found warmth and energy efficiency interventions had the clearest positive impacts on health. Interventions that reported the largest effects were targeted at vulnerable groups, including those with existing health conditions and the elderly.  

Durand (2014) | 19 studies | Shared decision-making | • 3 studies suggested that despite knowledge levels being lower in disadvantaged groups pre-intervention, disparities between groups tended to disappear post-intervention, particularly when the intervention was adapted to disadvantaged groups’ needs (e.g. low literacy).

Barr (2017) | NHS resource allocation | • Between 2001 and 2011 the increase in NHS resources to deprived areas accounted for a reduction in the gap between deprived and affluent areas in male mortality amenable to healthcare of 35 deaths per 100 000 population (95% confidence interval 27 to 42) and female mortality of 16 deaths per 100 000 (10 to 21). This explained 85% of the total reduction of absolute inequality in mortality amenable to healthcare during this time.  
• Each additional £10m of resources allocated to deprived areas was associated with a reduction in 4 deaths in males per 100 000 (3.1 to 4.9) and 1.8 deaths in females per 100 000 (1.1 to 2.4).

Barr (2014) | UK Health Inequalities Strategy | • During the strategy the gap in life expectancy for men reduced by 0.91 months each year (0.54 to 1.27 months) and for women by 0.50 months each year (0.15 to 0.86 months) compared to increasing inequalities before and after strategy implementation.  
• By 2012 the gap in male life expectancy was 1.2 years smaller (95% confidence interval 0.8 to 1.5 years smaller) and the gap in female life expectancy was 0.6 years smaller (0.3 to 1.0 years smaller) than it would have been if the trends in inequalities before the strategy had continued.

SR = systematic reviews
5.4 THEME 1: Healthy-by-default and easy to use initiatives

The structures and social practices in which we live influence our ability to make healthy choices and subsequently our risk and behaviours. These concepts are often referred to as ‘agency’ and ‘structure’ which are respectively the “scope individuals have for determining their own lives” and the “ways in which those life chances are shaped by social structures” (28). No one person in themselves is more or less capable of making healthy choices or avoiding risk, yet we all live within different conditions which impact our ability to do so. Population health efforts that make healthy choices easy are considered ‘low-agency’ or ‘upstream’ because they target these structural factors to improve health rather than requiring individuals to invest a high degree of their own resources or effort to benefit2 (54, 55). Within the literature there is a broad range of evidence that indicates greater effectiveness and positive equity impacts of these interventions, policies, and programmes which make health and health supporting conditions the default.

5.4.1 Evidence

In an umbrella review of fifteen systematic reviews and seven economic evaluations related to agricultural interventions (56), researchers identified four studies that assessed the impact of taxes and subsidies on health, all of which reported positive health outcomes. Taxes and subsidies are a good example of low agency interventions because they change the conditions under which people make healthy choices. For instance, when healthy foods are more affordable than unhealthy foods, eating healthily is an easier choice. Fourteen studies within one of these systematic reviews (57) specifically examined differentiated impacts among socioeconomic groups and eleven found that a combination of taxing less healthy foods and simultaneously subsidising healthy foods had greater impacts on health outcomes for low-income groups for both food/nutrient consumption and health/disease outcomes as compared to other income groups. This points to the ability for this type of fiscal upstream intervention to reduce inequalities.

Further evidence is found in a systematic review (58) covering thirty-seven interventions aimed at promoting healthy eating. Price-based interventions were most likely to improve equity with ten out of eighteen price interventions reducing inequalities in outcomes ranging from diet to coronary heart disease incidence. The same review (58) found evidence indicating the efficacy of place-based environmental interventions, such as changing food offered in vending machines at schools or workplaces or improving access to supermarkets in a community, in reducing inequalities with four out of six interventions being reported as likely to reduce inequalities and none of them likely to widen inequalities. In contrast, it was found that of eighteen person-focused interventions (individual based information and education – downstream and high agency), eight worsened inequalities, indicating them to be the most likely intervention type to widen inequalities in a variety of outcomes related to diet, weight, and cholesterol levels (58).

In an umbrella review on environmental interventions for childhood obesity, researchers found evidence that structural and environmental changes were most effective in reducing inequalities related to diet, activity levels, and weight (59). Of fourteen studies that reported results by socioeconomic position, five interventions widened inequalities and of these, four were high agency education-based interventions (such as a national intervention based on publishing nutrition guidelines and mass media campaigns) with little or no inclusion of environmental changes to support behaviour modifications. In contrast, the six studies that showed reduced inequalities

2 It should be noted that “low-agency” is used to describe the uptake of services or programmes by participants and does not describe the amount of agency or effort required for organisations to provide said services or programmes.
included environmental, structural, or social changes such as healthier school meals and nutrition policies (60). The effective interventions which improved equity were also generally of wide reach (implemented in multiple schools or across an entire community) and sustained for a longer time period (2-5 years) (60). Similarly, Moore et al. found in a systematic review of ninety-eight studies on universal school-based health behaviour interventions, those that contained environmental changes were more likely to reduce inequalities in diet, physical activity, obesity, smoking, or alcohol use whereas interventions which only provided education did not reduce inequalities (61). In an umbrella review, Thomson et al. identified several systematic reviews indicating that information campaigns may worsen inequalities by SES and race/ethnicity, particularly when compared to mandatory fortification which was less likely to widen inequalities by SES or race/ethnicity (62). This suggests that mere provision of information to promote healthy choices may be over reliant on individuals to use their own resources to benefit and will ultimately favour those with more resources.

Low agency programmes can also provide the resources needed to support healthy lifestyles. For example, an umbrella review of public health policy impact on health inequalities identified a mandatory national tooth brushing education programme which integrated daily supervision for 5-year-olds to brush their teeth and distribution of fluoride toothpaste for home use as reducing inequalities related to dental carries (62). In the realm of dental health, there is also strong evidence from PHE monitoring reports and a high quality systematic review that the fluoridation of water sources is an effective and pro-equity low-agency intervention with reduced caries overall and higher benefits for children in relatively deprived areas (62, 63). There are also evidenced examples of campaigns widening inequalities when this type of environmental and resource support was not included, such as with a national campaign utilising advertisements, commercials, and posters which was associated with a three-year widening of socioeconomic inequalities in folic acid use for a healthy pregnancy (62).

Low agency considerations are also important within service design and delivery. A 2019 systematic review investigated the equity impacts of personalisation schemes where citizens have control over the services they receive, for example via personal budgets or vouchers (64). These types of interventions require a much higher degree of agency. The systematic review found that recipients holding a high degree of economic, cultural, social, and symbolic capital such as higher income, education, knowledge, and bureaucratic navigation skills, were more likely to benefit (64). These findings indicate that those who benefit most and can access services under personalisation schemes are of higher socioeconomic position which is likely to widen inequalities (64). Similarly, there is concern that shared decision-making (SDM) consultation models in healthcare may increase health inequalities as they require high degrees of knowledge, literacy skills, advocacy skills, time, health literacy and often access to computers (65, 66). However, there is evidence from a systematic review of nineteen studies that interventions which are tailored to the needs of disadvantaged groups, increase the accessibility (culturally, linguistically, and resource-wise) of SDM information, and promote skill development for engaging in SDM can help mitigate the inequalities seen in SDM participation for marginalised groups (65).
5.4.2 Case study examples

- **Stockton-on-Tees Place-making strategy**

  The Stockton-on-Tees case study highlights an example of a low agency regeneration initiative that aims to promote positive perceptions of place and increase economic activity. Stockton-on-Tees developed a place-making strategy in 2010/11 to address the decline in economic activity within its town centre. The area had suffered an increase in empty retail units, reduced footfall on the high street, and increasing negative perceptions of the area. The strategy resulted in a £26 million regeneration programme, with additional funds secured from the Big Lottery, which included a colour changing concrete wall and water feature, lighting columns with dimming technologies, artist-designed seating, and 20,000 square metres of high-quality paving. There was additional investment into improving road and public transport to and from the high street and in historic buildings which led to reusing vacant commercial properties. Although no independent evaluation was identified in the public domain, Stockton Borough Council reported there has been a decrease in empty retail units, a growth in independent stores, people have been spending more time in the high street, and there has been an increase in visitors from outside the area (67). More recently, Stockton Borough Council announced a further £37 million investment adjacent to the high street which would see the demolition of a large shopping centre, a multi-story car park, and a hotel to create the new Stockton Waterfront site. This would open the high street to the river Tees and create a large open space on the waterfront for leisure, cultural events, and recreation. (67, 68)

- **Pupil Premium**

  Pupil Premium (PP) is a national low agency initiative to improve educational outcomes for disadvantaged pupils. Introduced in 2011, PP is additional funding allocated to schools based on the numbers of children entitled to free school meals (FSM) and proportion of looked after children. Currently, schools receive £1345 per FSM pupil in primary schools, £995 per FSM pupil in secondary schools, and £2345 for looked after pupils (69). The funding is expected to support eligible pupils and close the attainment gap between them and their peers. An independent evaluation of the initiative in 2013 (by Manchester and Newcastle Universities) found that almost all schools surveyed considered providing additional staff to support disadvantaged pupils as very effective. The majority of schools were focusing resources on pupils with low attainment, those not making good progress, or those with special education needs. However, some schools also targeted those whose first language was not English or pupils from specific ethnic minority populations (69). Schools also reported they were monitoring attainment outcomes in addition to improvements in attendance, confidence, and behaviour. In secondary schools and Pupil Referral Units they were also assessing reductions in exclusions and pupils being Not in Education Employment or Training after leaving school. Although most schools reported they had been targeting resources to disadvantaged pupils prior to the introduction of the Pupil Premium, they also reported they were now providing new support or enhancing their previous provision (70). This initiative allows school leaders to decide how best to utilise the funds to improve attainment and evidence suggests investing in staff, targeted support for eligible pupils, and wider approaches such as school breakfast clubs can be effective in improving attainment. (69, 71)
5.5 THEME 2: Long-term, multi-sector, multi-component action

It is widely accepted that social, economic, physical, environmental, and psychological factors determine how healthy we are. Inequalities in health are caused by a multitude of different factors. There is no simple solution to these complex problems, but rather sustained, multi-sector, and cross-government action is needed to address multiple determinants of health.

5.5.1 Evidence

Much of the literature supports an integrated approach to reducing inequalities. In an umbrella review of seventy-two housing and neighbourhood interventions on health, the authors found improved health outcomes and some limited evidence of reduced inequalities (72). In their assessment, they found that a reduction in health inequalities may not be observed post-intervention due to the reality that disadvantaged populations face many barriers and an intervention aimed at one determinant alone (housing) is unlikely to be effective when they are still impacted by others (working conditions or access to healthy foods, for example) (72). The review found that housing interventions were most likely to be effective in improving health and reducing inequalities when there were multiple interventions targeting several health-determining pathways such as housing policy, regulatory practices, rehousing, improving indoor equipment and furniture, and increasing housing knowledge and skills (72). This requires collaboration across different sectors – including business and community organisations – and levels of government. Further support for this principle is found in systematic and umbrella reviews of physical activity and healthy eating interventions which show that interventions are more likely to reduce inequalities if they are more intensive, multi-component, address multiple barriers to healthy behaviours, and are based in a range of settings from schools and workplaces to churches and community centres (58, 73, 74).

In an umbrella review assessing the macroeconomic factors impacting health and inequalities which analysed sixty-two systematic reviews, Naik et al. found evidence of varied pathways that economic policies and conditions can impact health, supporting a stated need for cooperative efforts to integrate public health into economic development (75). International analysis of welfare states found that increased spending on health and social care was associated with improved health outcomes for child mortality, general health, infant mortality, adult mortality, and life expectancy as well as reduced health inequalities (75). While more research is still needed, they also found evidence indicating detrimental health and equity outcomes from unaffordable housing, housing foreclosures, and economic crises, but also that these may be mitigated by policies which reduce the risk of crises and support people in recovery when they occur (75). Market related action can be effective in reducing health inequalities. Changes to the market through taxation and subsidisation on goods to promote health has strong evidence for reducing inequalities, such as for tobacco products or food (76). Taxation and increasing of cigarette prices are population-wide interventions with particularly strong evidence for inequality reduction (62, 75, 76).

Policies related to the labour market are also an important leverage point in the effort to reduce health inequalities. Evidence supports the impacts on health and inequalities of policies which promote employment, improve working conditions, and reduce precariousness such as dual earner policies, unemployment insurance, cash transfers, subsidies, and welfare provision (75). Political structures and process may also be important in addressing health inequalities with some evidence from a moderate quality review that greater political incorporation of minoritised racial and ethnic groups was associated with a reduction in inequalities (77). In a detailed systematic review of thirty-eight observational studies examining the impact of specific social security policies on mental health outcomes and inequalities the authors found that policies which expand benefits or eligibility – such as increased in-work tax credits, welfare-to-work policies, child benefits, and retirement benefits – are likely to improve mental health outcomes (shown by fourteen of twenty-one relevant studies).
Policies which reduce benefits – such as for social assistance, disability, retirement, and unemployment benefits – or tighten eligibility requirements are likely to worsen mental health (shown by eleven of the seventeen relevant studies) (78). Furthermore, the fourteen studies which evaluated policy impact on health inequalities found that (78) expansionary welfare policies reduced inequalities and contractionary policies increased inequalities. Regulation related to occupational health and safety also has documented associations with improved equity outcomes through pathways such as preventing exposure to toxic chemicals (75).

5.5.2 Case study examples
Case studies discussed here demonstrate examples of long-term, multi-sector initiatives. Preston City Council has worked collaboratively to ensure anchor institutions procure goods and services from within the local area to boost their economy and return economic power to local people and institutions. The Healthy New Towns programme in Darlington was a multi-sector initiative that aimed to create long-term healthy places through embedding healthy design principles into new housing developments and reshaping existing ones.

- The Preston Model
Preston is a city and non-metropolitan district in Lancashire, Northwest of England. The post-financial crash recession, a sustained climate of austerity, and the breakdown of a £700 million regeneration project resulted in Preston suffering from rising rates of poverty and reduced investment in the city centre. In response, in 2011, Preston City Council began conversations with the Centre for Local Economies Strategies (CLES) about harnessing spending for greater local economic benefit. Initial evaluations of procurement spending of anchor institutions by CLES found that of the collective £750 million spent by institutions procuring goods and services, only 5% was being spent within the Preston boundary. It was also found that over £458 million was leaking out of the wider Lancashire economy. Preston City Council wanted to prioritise community wealth building, an approach referred to as 'The Preston Model' which works to return economic power to local people and institutions. Under this model, local economies are reorganised to ensure that wealth is not extracted but held and re-circulated within an area. The city council wanted to identify where money was leaking out of the economy or being used in unproductive ways so this could be rectified to benefit the local community. Over several years, the anchor institutions (the local councils, police forces, and higher education institutions) in Preston began working closely with CLES to establish ways they could increase local economic and social benefits through their supply chains. This process has resulted in significant outcomes, with the 2016/17 anchor institution spending analysis finding that procurement spending retained within Preston was £112.3 million, an increase of £74 million since 2012/3. Furthermore, an analysis of the wider Lancashire economy found that £488.7 million had been retained, an increase of £200 million. This case study indicates the potential future role of local government and communities and how they can drive economic restructuring to benefit their local area. Community wealth building can yield significant results and ensure money is retained within local areas to benefit the community. This model can be adapted and considered for use in other areas of the country. (79, 80)
Healthy New Towns (HNT) was a three-year (2016-19) NHS England initiative which provided resources (through a process of competitive bidding) to ten housing development sites across England to shape the health of communities and to rethink how health and care services could be planned more effectively from a whole-systems, integrated approach. Within a national context of housing shortages, there was recognition that the rapid development of new places and communities provided an opportunity to design and shape new towns so that they promote health and wellbeing, prevent illness, and keep people independent for longer (81). Darlington, a large market town in the North East of England, was selected as one of the ten Healthy New Towns demonstrator sites in 2016. The Darlington HNT programme was delivered by a collaboration between Darlington Borough Council (lead agency), Darlington Clinical Commissioning Group, County Durham and Darlington NHS Foundation Trust, the housing developer Keepmoat, and InHealthcare a digital health and telehealth technology provider. Although to date there has been no evaluation across all ten demonstrator sites (81), an implementation and process evaluation was conducted independently by Newcastle University and found that the programme in Darlington acted as a catalyst to accelerate the ideas and innovations that were percolating before the NHS England HNT programme was announced. It provided resources and spaces for working collaboratively across the health and social care sector and allowed stakeholders to be innovative and work through a process of testing, learning, and adapting. These spaces, for example, enabled the inclusion of HNT design principles in the local plan for Darlington which cements health within local policy in perpetuity. This case study highlights the potential to shape healthy new places through collaborative multi-sector partnerships. (82, 83)
5.6  THEME 3: Locally designed focus

To address the local needs of the population, services should be locally designed around places - neighbourhoods, towns, city and counties. This is particularly important in low income or ethnically diverse areas for which top-down decision-making can seem out of touch and not relevant. It is also helps to re-distribute power and ensure that local services meet the actual needs of the populations. Caution is needed because without careful planning, targeting and accompanying resources community-led initiatives may increase inequalities if they have a greater engagement in more affluent areas or only engage certain groups in the population. However, when carried out well and with intention, efforts designed and implemented at the local level may have the best success at tailoring initiatives to the realities in that place because of the on-the-ground ability to engage with people and consider their specific and differing assets, needs, and barriers to health. This type of capability approach and place-based customisation is particularly important in efforts to promote justice because it works to “respect the lifeworlds of ordinary people and work with them to build their skills, assets and capabilities (rather than focusing on their deficits and trying to correct them via redistribulional activities)” (84).

5.6.1 Evidence

When examining physical activity interventions among socioeconomically disadvantaged groups in an umbrella review, researchers found that the inclusion of community-based infrastructure developments was associated with more sustainable interventions, maintaining increased adult physical activity levels, and reduced inequalities (74). Multicomponent interventions to increase child and adolescent immunisation rates tailored to specific contexts have been shown to be more effective in reducing inequalities for deprived, urban, and ethnically diverse communities (85). Similarly, researchers have found increased effectiveness of place-specific designs adapted for local contexts in parenting interventions, particularly by involving a range of stakeholders in implementation across state, school, and neighbourhood settings (86).

Tailoring programmes to the local community allow for the specific needs and barriers to be addressed and to utilise and strengthen their assets. In the umbrella review on interventions supporting parents to address health inequalities there was evidence that mobilising peer and support networks and designing programmes with a diagnostic approach (rather than assuming participant knowledge levels) increased programme efficacy (86). Recognising community networks and local knowledge sources is likely to be more easily integrated when programmes and services are designed and implemented in a place-specific basis.

Using community resources and accounting for specific community needs and barriers may increase programme efficacy by increasing service access. For instance, an umbrella review of community pharmacy-based interventions found that previously unvaccinated individuals were a third more likely to receive the influenza immunisation outside of traditional working day hours (87). Furthermore, a broad range of individuals from different ethnic/racial groups accessed vaccination services delivered at community pharmacies (87). This shows that access barriers can be addressed by leveraging community resources such as pharmacies which can stay open during evenings and weekends. The success of peer-support programmes is also indicative of the potential for locally designed services to reduce health inequalities more effectively by adapting to the particular contexts of communities. A 2015 systematic review found reduced health inequalities associated with community-based peer-support programmes when implementers “prioritise the importance of assessing community needs; investigate root causes of poor health and well-being; allow adequate time for development of relationships and connections; value experiential cultural knowledge; and share power and control during all stages of design and implementation” (88).
### 5.6.2 Case study examples
Big Local and the Fit for the Future programme a highlight the positive effects of increasing community involvement and engagement in designing and delivering place-based services.

- **Big Local**

  Big Local is an area-based initiative which has provided 150 of England’s most deprived neighbourhoods with £1 million each over 10 to 15 years to help improve the area (89). This unique long-term initiative gives the chosen neighbourhoods freedom to spend the fund in any way they see fit, allowing residents to target the most prominent issues facing their community. The Local Trust was established in 2012 to help deliver this Big Local initiative by providing training, support, and advice to the communities involved (89). Gaunless Gateway is a Big Local community in South-West Bishop Auckland that spans five contiguous villages that are some of the most deprived areas in County Durham. Through community consultations one of the priorities for this area was identified as the need to tackle unemployment. To address this issue the Gaunless Gateway partnership allocated £120,000 to work with the local college and support people in accessing apprenticeships or further education. Funds would be provided to remove barriers to employment, education, or training. One young person has received funds for driving lessons, so he is able to take up employment outside of the area. The partnership employs a community development worker to work with local residents and support them in developing applications to the fund (90). Ewanrigg is a residential suburb in the town of Maryport, Cumbria, located in the Northwest of England. The Ewanrigg Local Trust is a voluntary organisation made up of local residents who are working with the wider community to ensure the Big Local fund is spent in the best way. Three primary goals were agreed through community consultations: transform outdoor spaces, set up a community café, and establish a community kitty (91). A community piggy bank was set up to allow individuals or groups to apply for grants of up to £1500 to spend on opportunities which will have a direct benefit on the residents of Ewanrigg (92). Such schemes allow residents to regain a sense of control over their life by having the opportunity to directly respond to the needs of the neighbourhood. Since September 2015, there have been over 45 successful applications which have provided support to a wide range of community needs. The grants have helped set up exercise classes, a community choir, a weekly bereavement group, support school trips, and establish local businesses.

An independent longitudinal study led by Lancaster University, Communities in Control, has been examining the health and health inequalities impacts of the Big Local programme since 2014. Evidence from a survey of 862 actively involved residents suggests that when communities work collectively to make their area an even better place to live, it is associated with better mental well-being and self-rated health. These positive associations were greater amongst women and participants with a lower education level. These findings suggest that increasing the collective control residents have over area-based interventions could improve their health effects and reduce inequalities if these are implemented in areas of greatest need. (93, 94)
- **Fit for the Future**

Gateshead Council shifted public health from being focused on interventions to a more grassroots approach working with communities on the issues that matter to them. Fit for the Future was originally developed as a place-based, community-led approach to address childhood obesity and wellbeing and implemented in Felling where life expectancy is lower than both Gateshead and England averages (95). At the time the programme was developed, 50% of children in Felling were living in poverty and 47% of year 6 children were classified as obese (96). Although there was a focus initially on childhood obesity, the community-led approach meant residents were able to drive the work to address issues that were important to them (95). The programme used a community-based participatory approach and worked with a community anchor organisation in the area whose staff are known and trusted within the community (95). The anchor organisation, Pattinson House, engaged with a group of local women to identify key determinants of obesity and actions needed to address them (95). Residents described major structural, environmental, social, and financial barriers that impacted their children’s ability to engage in activities which may be health promoting (96). Both parents and children described concerns over community safety which prevented children from playing outside. Reports of bullying, crime, traffic, drug paraphernalia, broken glass, fly tipping, anti-social behaviour, violence, threats, and intimidation coalesced to create an environment which resulted in high levels of stress and anxiety among residents (96). Pattinson House provided a safe and welcoming space for the community which offered children’s activities and opportunities for adults to develop social relationships with other members of the diverse community (96). For example, activities were held to encourage integration and challenge race or ethnic stereotypes among the wider community. An independent evaluation of the programme led by Teesside University found that residents who engaged with the activities in Pattinson House were able to influence decisions about issues that were affecting where they lived and reported improvements to community connectedness, mental wellbeing, and reductions in social isolation (96).
5.7 THEME 4: Targeting disadvantaged communities

A place-based effort to address health inequalities must also include targeted attention to the different communities that make up the population of a place. Targeting disadvantaged communities within efforts to improve health is a means of adjusting the scales to provide services and resources more equitably. Moreover, it also recognizes that the composition of a place is not homogenous or static (28): policies, programmes, and services designed for an entire area may not equally benefit all people and different communities with distinct needs, assets, and barriers will change over time.

5.7.1 Evidence

A pattern of evidence arising from three umbrella reviews indicates that universally applied programmes which do not also target disadvantaged communities or account for their needs, assets, and barriers to health are less effective in reducing health inequalities and may even widen them. A systematic review of universal-school based interventions found that while there is the assumption that universally implemented programmes will reach all socioeconomic groups and have universal impact, the evidence indicates otherwise with many universal programmes widening inequalities, particularly when they were solely education-based initiatives which tend to place higher responsibility on programme recipients (61). Notably, a review examining universal policies on obesity-related behaviours in disadvantaged groups reported that the 2 universal policies (out of 4) which had positive impacts were low-agency in design (a policy requiring physical education participation for graduation from secondary school and a children’s fitness tax credit) (74). Studies assessing the impact of a national information campaign to promote pre-conception folic acid use found that while the universally disseminated posters and advertisements were associated with a long-lasting widening of inequalities by education level and ethnicity, this was not observed in the included local campaign which was targeted at women of low-socioeconomic status (62). Similarly, findings on immunisation campaigns from a different review observed no reductions in immunisation inequalities from universal campaigns or reminder and recall systems, but did observe reduced inequalities by ethnicity or SES when they were paired with interventions targeted at disadvantaged groups (62). When currently implemented interventions are recognised as increasing inequalities, adding targeted interventions may rectify this impact. For example, while workplace interventions for health behaviours are often more effective in high-income workers thereby entrenching inequalities, evidence of reduced health inequalities has been documented in physical activity interventions targeted at low-income workers (73).

The efficacy of targeting disadvantaged groups is also shown in reviews of studies which do not also assess them with a universal intervention comparison. Housing improvements interventions with the largest effects and reductions in inequalities were aimed at vulnerable and low-income groups (72, 97). Provision of benefits to disadvantaged groups may also reduce health inequalities, such as food subsidy programmes for women of low-socioeconomic status which were found to reduce inequalities in food and nutrient uptake and in mean birthweight (62). This umbrella review also found positive equity impacts for a nutrition education programme which included community outreach for low-income communities and educational campaigns aimed at increasing reproductive-age cancer screening among disadvantaged communities (62).

5.7.2 Case study examples

The Wirral health-related worklessness programme and the New Deal for Communities demonstrate examples of positive effects and promising practice in terms of targeting disadvantaged groups. The
Wirral programme focused on supporting people who were out of work due to ill health, and the New Deal for Communities programme was focused in areas of high disadvantage.

- **New Deal for Communities**

  New Deal for Communities (NDC) was launched in 1998 and was one of the most intensive and innovative area-based interventions ever introduced in England. The programme was designed to transform 39 deprived neighbourhoods, chosen from a list of the country’s 2000 most deprived areas. Over 10 years, each area comprised of around 9,900 people. The programme also sought to rectify criticism of previous regeneration schemes (such as the Single Regeneration Budget) over a lack of ethnic diversity by including specific goals to engage with minority ethnic communities (98). The 39 areas (NDC partnerships) implemented local regeneration schemes funded by, on average, £50million of programme spending. The programme had six key objectives:

  - Transform the 39 areas over 10 years by achieving holistic change in relation to three place-related outcomes; Crime, Community, Housing and physical environment, and three people-related outcomes; Education, Health, and Worklessness
  - ‘Close the gaps’ between the 39 areas and the rest of the country
  - Achieve value for money transformation of the neighbourhoods
  - Secure improvements by working with other delivery agencies, such as the police, Primary Care Trusts (PCTs), schools, Jobcentre Plus (JCP), and their parent local authorities
  - Place the community ‘at the heart’ of the initiative
  - Sustain a local impact after NDC programme delivery.

  Between 1999-2000 and 2007-08, the 39 NDC partnerships spent a total of £1.7billion on some 6,900 projects or interventions. A further £730million was levered in from other public, private, and voluntary sector sources. NDC partnerships developed, with partner agencies, a range of interventions, designed to support locally-developed strategies that encompass the six place- and people-related outcomes. An independent evaluation of the programme by Sheffield Hallam University found that between 2002 and 2008, NDC areas saw an improvement in 32 of 36 core indicators spanning crime, education, health, worklessness, community and housing, and the physical environment; for 26 out of the 27 indicators where significance testing was possible, this change was statistically significant. The biggest improvements were for indicators showing how people feel about their neighbourhoods; residents recognised change brought about by the NDC Programme and were more satisfied with their neighbourhoods as places to live (99). More recently the NDC programme has been suggested as a framework for supporting local regeneration through the levelling up agenda, although acknowledging the current focus on centralised funds secured through competitive bidding may be problematic (100). Indeed, it is possible that such bidding processes widen inequalities as success can be affected by the capacity of local authorities to apply for funds, while frequent bidding for various pots of funding can put a strain on staff or require additional staff to be hired (101).
Wirral health-related worklessness programme

Wirral Council recognised the relationship between health and productivity with evidence showing the positive benefits of employment on individuals, their communities, and wider society (102). Unemployment due to ill health was a priority issue for Wirral council as the proportion of people claiming out of work benefits, employment support allowance, and incapacity benefit were higher in the area than the national average. Moreover, the area had, in 2016, one in ten working age residents out of work due to health conditions, compared to the national average of one in seventeen. The council developed an intervention that adopted an asset-based approach to deliver upstream solutions targeted at those people not in employment and hardest to reach. The Health-Related Worklessness Programme was jointly commissioned by the Public Health and Investment teams within the council and adopted an asset-based approach to deliver upstream solutions that supported people to address challenges in their lives and was independently evaluated by Liverpool John Moores University (99). The multi-faceted programme had three main workstreams: 1. Driving Change: Leadership, training, and key professionals; 2. Community Connectors: 1-1 support for individuals to encourage access to existing services, groups, and networks; 3. Non-medical Therapeutic Recovery Service: interventions to people with low level mental health conditions (103). In order to reach those most in need of this programme, the community connectors would go door to door to engage with the community and reach those who were isolated, vulnerable, and wary of authority figures (103). People who engaged with the programme reported positive outcomes in terms of feeling more confident to engage with their local community, gaining new skills and employment, improvements in mental wellbeing, and providing a sense of purpose (103). This case study highlights the importance of targeting resources to those most in need but also working in partnership with community connectors who are known and trusted within neighbourhoods.
5.8 THEME 5: Matching of resources to need

The process by which resources - be they funding, staff time, or strategic priority - are distributed is crucial to ensuring that those areas with the greatest needs are given more. This involves both a measure of need and a mechanism to allocate accordingly. If resources are simply allocated based on the head of population, disadvantaged areas will find it impossible to catch-up.

5.8.1 Evidence

When approaching funding and resource allocation, there is evidence that allocation strategies or formulas should be determined according to need. This type of funding formula was integrated in the English health inequalities strategy implemented between 1997 and 2010. Recent research on the effectiveness of this strategy, particularly with its emphasis on reducing geographical inequalities in health and life expectancy, points to the successes associated with allocating resources according to need. A time trend analysis of the health inequalities strategy found an associated decline in geographically unequal life expectancies compared to increasing inequality both before and after the strategy’s implementation (104). The gap in male and female life expectancy in between the most deprived local authorities and the rest of England was smaller in 2012 by 1.2 and 0.6 years smaller, respectively, than would have been the case if trends in inequalities before strategy implementation had continued (104). Another study specifically found that allocation of NHS resources proportionate to geographic need – with more deprived areas receiving more resources – was associated with decreased inequalities in mortality from causes amenable to healthcare (105). For each £1.00 of new resources allocated to deprived areas there was a greater absolute improvement in healthcare amenable mortality compared to each £1.00 of new resources allocated to affluent areas (105). It is important to note that this was also situated within the context of increasing resource provision as both deprived and affluent areas received increased resources per capita each year throughout the strategy implementation (105). Thus, it is likely that while efforts to address health inequalities will require increased resources and funding across the board, it is also imperative that they be allocated proportionate to need.

5.8.2 Case study examples

The South Tees Local Delivery Pilot and the Cambridgeshire and Peterborough Strategy provide examples of initiatives that focus resources proportionate to need. Although these initiatives offer universal provision of services, they have also embedded strategies to ensure those in greatest need are identified and receive greater support.
**South Tees Sport England Local Delivery Pilot**

Local Delivery Pilots are four-year programmes funded by Sport England which aim to take a whole-systems and population wide approach to increasing physical activity (106). South Tees was selected as one of 12 Local Delivery Pilots and developed the “You’ve Got This” programme to implement their vision of ‘An active life as a way of life’ (107). South Tees as an area comprises two neighbouring unitary authorities, Middlesbrough and Redcar and Cleveland, where joint working is a key feature due to many agencies and services specifically serving the area: including: NHS South Tees Clinical Commissioning Group; South Tees Hospitals NHS Foundation Trust; and the South Tees G.P. Federation. Public leisure facilities are managed by Everyone Active on behalf of both boroughs (107). The You’ve Got This programme offers a universal provision to increase physical activity but also identified geographical areas within the South Tees that experience the greatest inequalities based on 2015 indices of multiple deprivation: North Ormesby (ranked 2nd); Grangetown (6th); Brambles and Thorntree (10th); and South Bank (182nd). Although these areas had been involved with previous initiatives such as the Single Regeneration Budget and the Neighbourhood Renewal Fund, these had not created lasting change (107). Therefore, the You’ve Got This programme is providing extra resources within these neighbourhoods to increase physical activity and improve health in areas of greatest need within the diverse communities of the South Tees region (108). The programme is currently being independently evaluated by Sheffield Hallam University (109).

**Cambridgeshire and Peterborough Strategy**

In 2020, Cambridgeshire and Peterborough Clinical Commissioning Group (CCG) led the development and implementation of a Health Inequalities Strategy. In the lead up to their strategy, the team looked at the funding of primary care across the locality and found that practices in more affluent areas tended to have a slightly higher income. The CCG had traditionally allocated its discretionary funding per head of population (i.e. the same amount given to each person with a certain condition irrespective of need). The strategy recommended that the CCG allocate funding proportionate to need. Therefore, a simple local formula was developed to weight spending decisions by the Index of Multiple Deprivation, meaning that more deprived areas would receive more funding. For the first time, the CCG applied this formula to a Diabetes Locally Enhanced Service and Tier 3 Weight Management services. The result was that those practices with a high prevalence of diabetes and high deprivation score received more funding, compared to those practices with a low prevalence of diabetes and low deprivation score. (110) An evaluation of the impact on inequalities in diabetes care is planned for 2022.

5.9 Cross-cutting case studies

Two cross-cutting case studies illustrated all five themes. These were the National Health Inequalities Strategy in the early 2000s and Marmot Cities, as shown below.
5.9.1 National health inequalities strategy

Government health inequalities policy in the 2000-2010 period was shaped by the Acheson Inquiry (1998) into health inequalities which led to the implementation of a national health inequalities strategy in England. The strategy focused specifically on: supporting families, engaging communities in tackling deprivation, improving prevention, increasing access to healthcare, and tackling the underlying social determinants of health. This case study presents an example of a multi-faceted approach to tackling inequalities in health across all five themes drawn from the evidence review.

Healthy by default and easy to use initiatives
The strategy was a national programme of easy-to-use initiatives across key areas of the social determinants of health. For example, the strategy increased levels of spending on a series of social programmes, such as the introduction of the national minimum wage, increased expenditure for the NHS, tax and benefit changes, interventions to improve education, housing and employment, and area-based interventions (104, 111).

Long-term multi-sector action
One of the key levers for the delivery of this ambitious strategy was to embed new ways of working across government at all levels, locally, regionally, and nationally, to develop a programme that extended social justice, addressed poverty, and tackled health inequalities (112). The strategy was delivered by the NHS, local authorities, and local charities, in addition to engaging with the private sector and target populations (111, 112).

Targeting disadvantaged communities
The strategy aimed to reduce the life expectancy and infant mortality gaps between the 20% most deprived local authorities (so-called Spearhead areas) and the English average by 10% in 2010. To achieve this the strategy focused resources in areas of disadvantage and proportionate to need.

Matching of resources to need
A health inequalities weighting was added to NHS funds and geographically distributed so that areas of higher deprivation received more funds per head to reflect their higher health needs. Moreover, Sure Start Children’s Centres and the New Deal for Communities Programme were focused in areas of greatest need (104, 105, 111).

Locally designed focus
Health Improvement Programmes, Health Action Zones, and Healthy Living Centres were also introduced as a range of locally designed and delivered activities. For example, Health Action Zones were focused on working collaboratively with public, private, and voluntary organisations to identify and address local public health needs by reshaping health and social services to meet community needs (113, 114).

Impact
Independent academic evaluations of this strategy found reductions in health inequalities were broadly achieved by 2010 (104, 105, 111). Inequalities in life expectancy declined during the strategy period, reversing a previously increasing trend. By 2010, the gap in life expectancy was 1.2 and 0.6 years smaller for men and women, respectively, than it would have been if the trends in inequalities before the strategy had continued (104). Similarly, the gap in infant mortality rates between the most deprived local authorities and the rest of England narrowed by 12 infant deaths per 100,000 births per year from 2000-2010 (111). Between 2001 and 2011, the gap in mortality...
amendable to health care (i.e., mortality that can be prevented given timely, appropriate access to high quality care (115)) between the most and least deprived local authorities fell by 35 deaths per 100,000 for men and 16 deaths per 100,000 for women. Each additional £10 million of resources allocated to deprived areas was associated with a reduction of four male and two female deaths per 100,000 (105).

These findings suggest that a national policy which combines different levels of interventions, from neighbourhood and community factors through to NHS funding changes, delivered by the NHS, local authorities, and charities can significantly reduce health inequalities.
5.9.2 Marmot Cities

Healthy by default and easy to use initiatives
In 2013 after public health duties were moved from the NHS to local government, Coventry City Council adopted the title ‘Marmot City’, applied local powers, and collaborated with partner organisations to implement the Marmot Principles. Greater Manchester sought to do the same in 2019 and became the first Marmot City Region, building on Coventry’s work. These two examples demonstrate a healthy by default approach to reducing inequalities by implementing the Marmot Principles at the strategic level and ensuring all policies are designed to tackle inequalities in the social determinants of health.

Long-term multi-sector action
Although this approach did not attract additional resources and was implemented while local authority budgets were being drastically reduced, Coventry City Council adopted asset-based working and built on existing relationships with external partners, the public, and the voluntary and community sector to create a steering group of senior leaders across the city. This leadership and title of Marmot City have influenced decisions made about housing, planning, transport, licensing, regulation, and procurement. Moreover, this strategic commitment has provided leverage to embed health equity in all policies across multiple sectors and created a shared vision to address social injustice (116).

The ten district councils that make up Greater Manchester had historically collaborated on issues that affected the region such as transport and regeneration, but in 2011 this partnership was formalised legally through the formation of the Greater Manchester Combined Authority (GMCA). By 2014, all ten council leaders signed up to devolving power to the GMCA and by 2016, Greater Manchester was the first region in England to have delegated control of the health and social care budget (117). Additional delegated controls have recently been agreed to cover fire and rescue, transport, planning, and criminal justice. Against this backdrop of delegated powers and unified public services, designed using earlier Marmot principles, GMCA sought to develop these principles further and incorporate new approaches highlighted in Health Equity for England: The Marmot Review 10 years on. While evaluations are still to take place, this long-term, multi-sector approach combined with increased powers from devolution provide a clear example of promising practice for GMCA to deliver effective action on the social determinants to improve population health and reduce inequalities (117).

Targeting disadvantaged communities
The overarching approach for delivering the Marmot Principles is that of proportionate universalism. This means that services are provided universally across the population but at a scale and intensity that is proportionate to the levels of disadvantage (118). Coventry recognised that previous attempts of community development and regeneration had not sufficiently reduced inequalities despite the area previously receiving funds as a Spearhead City and Neighbourhood Renewal (105). Although these funds had been targeted at deprived wards, they comprised of hyper-local level interventions that were isolated from the wider systemic forces that drive inequalities (116). Coventry, therefore, adopted a proportionate universalism approach that moves away from the hyper-local targeting that often fails to reach those in greatest need. For example, since becoming a Marmot City, Coventry developed Family Hubs as a universal service accessible to all but located in more deprived areas (116).

Matching of resources to need
One example of proportionate universalism in Greater Manchester concerns the Early Years Delivery Model (EYDM) which is an integrated service underpinned by specialised and
preventative services. The EYDM harnesses the universal reach of maternity and health visiting services as a method of identifying vulnerable parents and infants (117). This programme of early identification ensures families receive proportionate, multi-agency, tailored services proportionate to levels of need (117). This approach has shown promising results (independently evaluated by the Institute of Health Equity); despite high levels of deprivation and rates of child poverty in parts of Greater Manchester, attainment in early years has improved with 68.2% of children achieving a good level of development in 2018/19 compared to 47.3% in 2013 (117). Moreover, the number of children eligible for free school meals achieving a good level of development at the end of reception has improved by 4% since 2015/16, representing a faster improvement rate than England as a whole (117). These figures represent a narrowing of the gap between Greater Manchester and the England average for school readiness (119), indicating that a proportionate approach implemented across multiple sectors can reduce inequalities in early years educational attainment.

Locally designed focus
In both Coventry and Greater Manchester there is a strong place-based approach to implementing the Marmot Principles which is locally designed around people and their needs. In ensuring community needs are addressed, each area has developed partnerships with voluntary and community agencies, as well as NHS services, that are embedded and trusted within communities (116, 117).

Impact
An evaluation of Coventry’s approach in 2020 found that while it may be too early to see reductions in health inequalities, and attributing health trends to being a Marmot City is problematic, Coventry was defying national trends on several measures of inequalities in health: “Inequality in female life expectancy at birth was similar in 2016-18 (8.3-year difference in life expectancy between the most and least deprived deciles) as in 2010-12 (8.4 years), defying a national trend of widening inequality, from 6.8 to 7.5 years, over this period. A similar pattern is true of inequality in male life expectancy, which reduced by 0.5 years from an 11.2 to a 10.7-year gap, over a period in which inequality widened by 0.4 years nationally. One composite measure of change is the Index of Multiple Deprivation, a relative measure which ranks every neighbourhood in the country by indicators of deprivation. Between 2015 and 2019 the number of Coventry neighbourhoods that are among the 10% most deprived in England reduced from 18.5% to 14.4%.” (116)

Greater Manchester had developed their model of unified public services based on the Marmot Principles outlined in Fair Society, Healthy Lives (120) and decided to expand this further to incorporate new approaches drawn from the 2020 updated Health Equity in England: The Marmot Review 10 years on (121). Although it is too early to evaluate the effect of becoming a Marmot City Region, implementing the Marmot Principles from 2010 appears to be having positive effects on the social determinants of health, particularly in relation to educational attainment as outlined above. Moreover, employment rates have increased and unemployment has fallen more than the national average (118)
6 Discussion

6.1 Summary of findings

Here we present a practical, evidence-based framework describing what works to level up health. The principles are designed so that they can inform national, regional, and local policy and should be used in combination to develop and design policy and services. The key themes are: 1) healthy-by-default and easy to use initiatives; 2) long-term, multi-sector, multi-component action; 3) locally designed focus; 4) targeting disadvantaged communities; and 5) matching of resources to need. For those familiar with the health inequalities literature, these are not new principles, but this is the first time they have been brought together in a levelling up for health framework. There has been much written about levelling up and levelling up health specifically; the added value of this framework is that it is based on decades of research.

6.2 What this means

First, and most importantly, the evidence and case studies show that progress on closing the gap is possible. The previous cross-government health inequalities programme reduced the socioeconomic gap in life expectancy by six months and improved overall life expectancy – both levelling up and improving overall population health (104). This was only achieved through sustained, multi-component, and cross-government action over more than 10 years. The previous strategy also resulted in a reduction in the infant mortality inequalities and healthcare-amenable mortality; it shows that with commitment and resources meaningful change is possible.

Second, we must avoid reaching for simple solutions to complex problems (122). Health inequalities have arisen over decades, if not centuries, and have multiple different facets, but tend to have the same root cause: an unequal distribution of the wider determinants of health. There is no one initiative or programme that will address this unequal distribution of resources, opportunity, wealth, education, and power, but rather a multi-level, multi-component programme sustained over the long term is needed. For example, the successes in reducing smoking cessation prevalence have arisen from long-term, multi-level, multi-component, and evidence-based interventions. The lag period of years, and sometimes decades, between health interventions and objective health outcome improvements means that progress is not always immediately obvious. Levelling up health is not a short-term endeavour or something that can be achieved within an election cycle, but rather a long-term, cross-party commitment. Short-termism and hyperbole around possible short-term health inequalities achievements risk disenchantment and fatalism (123).

Third, in the framework, we have avoided highlighting specific domains, such as housing, welfare, employment, or education, but rather identified the guiding principles and transferrable evidence which could be applied in any government department, local authority, public health body, or NHS organisation. This is because levelling up health requires an equity-in-all approach with every sector at every level doing what they can. More work is now needed to set out the strategic priorities for the new Office for Health Improvement and Disparities to identify which programmes and interventions are likely to have the greatest impact on levelling up health.

Fourth, the themes described in the framework are upstream principles that focus on structural changes that do not require individuals or communities to use much resource or effort to harness the health gains. In the past, there has been a tendency to start with these upstream factors but end up with downstream policies focused on behaviour change, such as untargeted information publicity campaigns (124, 125). This so-called lifestyle drift occurs because it is easier to design and deliver programmes focused on providing information, warning of risks, and offering services, than
addressing the social structures and resources that dictate the health of places and individuals. Our evidence review and case studies have also demonstrated the importance of being attentive to local needs and involving communities in designing policies.

Fifth, the framework sets out principles to level up health, but it also shows what initiatives are likely to widen inequalities too. For example, high agency downstream initiatives are more likely to increase inequalities. Fluoridation of water is a low agency intervention which benefits everyone, whereas an individual weight management programme is likely to involve multiple steps and may only benefit those that are able to complete all steps (126). Another example is that top-down interventions which assume a one-size-fits-all approach and fail to engage with local communities, especially communities with bespoke needs, are likely to increase inequalities. We also found evidence that competitive bidding for public funds may lead to inequalities because those areas who are better at responding to opportunities, for example because they have a dynamic leadership team, are more likely to be successful than those already left behind areas. Competitive funding can also restrict the possible uses of public funds meaning that local areas cannot necessarily invest in the communities with the greatest need.

Finally, this framework sets out evidence-based guiding principles to level up health, but has not described what success would look like, except in general terms. The government have committed adding an additional five extra years of healthy life by 2035 and narrowing the gap between rich and poor, although these ambitions have been made more difficult because of the pandemic. While the use of targets has been debated and are not a panacea, they do have the advantage of bringing people together in pursuit of one goal. A set of targets setting out the short-term (e.g., resource allocation and participation in preventative activities), medium-term (e.g., reduction in smoking and high blood pressure), and long-term (e.g., reduction in cardiovascular pre-mature mortality) may be useful in bringing consensus to the levelling up for health agenda.

6.3 Strengths and limitations of this report

This rapid review assessed evidence from a broad range of umbrella reviews, systematic reviews, primary studies, and grey literature which all covered a variety of domains related to health inequalities. The methodology used enabled a high-level analysis of themes and principles which might impact levelling up health efforts. For the first time, this report brings together a set of practical principles for taking action to level up health that is based on an expansive evidence base. Furthermore, the framework is applicable at many levels from national to local governments and across sectors from non-profit organisations to community institutions. As the principles are broad in scope, they can be applied to any effort to reduce health inequalities and are not constrained by any one domain. The framework is also highly relevant to policy making.

There was a general gap in the evaluation of how interventions impact health inequalities and availability of data. Many of the umbrella and systematic reviews reported a limited number of studies which included data collection and differentiation of results by level of disadvantage. This was also further limited by a lacking consensus on how to define and measure disadvantage and health inequality outcomes as well as a sparsity of reporting on area-level inequalities which was the remit of this report. Examining inequalities by ethnic group or gender were beyond the scope of this report, but many of the principles still apply. Of the studies and reviews which did report on health inequalities by disadvantage most reported inequalities by either socioeconomic position, income level, education level, or ethnicity. This results in an incomplete picture of health inequality impacts and does not address the nuanced and varied pathways of health inequalities nor how individuals with intersecting vulnerabilities may be particularly affected. Another limitation arose from the nature of conducting a rapid review by including many levels of evidence gathering. Due to the time constraints, a formal quality assessment was not undertaken. At each level, from primary studies up
to umbrella reviews, there was a varying degree of quality research which proved difficult to disentangle and may have impacted an assessment of the evidence base overall. This was also impacted by the diversity in study designs, methods, and analyses throughout the included literature. While it was not within the scope of this review, this also would have limited the ability to identify specific interventions and determine their likely impact levels. A further limitation was presented in the diversity of timespans during which intervention outcome was assessed. As health inequalities are a complex problem, it is unlikely that shorter-term evaluations would have captured the true impact of interventions. Finally, as with all rapid reviews it remains possible that some evidence was not captured under the search strategy, although this may have been ameliorated to a degree by the inclusion of additional key literature.

6.4 Research recommendations

There is general consensus in the academic literature about the types of programmes and interventions which are likely to reduce inequalities. More detailed evidence is needed on the impact of specific programmes on inequalities. To date, most research studies or evaluations have not included an assessment of the impact on health inequalities (127, 128). For example, while many studies report ethnicity and socio-economic status in the baseline characteristics of participants, few analyse the results by these groups to show the distribution of the effectiveness by these groups. Future research studies should include an assessment of how the beneficial, or negative, impact of interventions is distributed across socio-economic and disadvantaged groups.

Evaluation remains inadequate. One of the biggest mistakes of the previous health inequalities strategy was a lack of evaluation. While we do have a handful of studies that show the positive overall impact of the strategy, much of the information have been lost about why it was successful and what the most impactful aspects were. For example, at one time during the 2000s there was a national programme of health equity audits but we do not know the impact of this programme or if health equity audits are effective in reducing health inequalities. It is imperative that future levelling up programmes are robustly evaluated, and the findings published for future decision-makers.

There is an increasing recognition of the importance of understanding how multiple interacting aspects of disadvantage combine to lead to poor health; this is known in the academic literature as intersectionality (129). As described in previous sections, compositional factors, such as gender, ethnicity, age, income, and employment, are reflections of social relationships. These relationships affect and are affected by individuals, operate in tandem, and often their combined outcome is something qualitatively different than simply their sum. Hence, individuals’ social position, experience and health is affected in expected but also unexpected ways (130). To understand levelling up health, we need to account for the fact that individuals are entangled in a complex matrix of social relationships where individual level factors interact with the local context and macro conditions (131) and examine the crucial impact of interactions between different dimensions of inequality such as socio-economic status and gender.

There remains an imbalance in the data and evidence base; with a predominance of inequalities information focusing on describing the problem of inequalities rather than finding solutions. For example, there are good resources which help local systems understand health inequalities, such as PHE Fingertips tool, the new NHS England Health Inequalities Improvement Dashboard, and the Evidence Hub by the Health Foundation. A Health Equity Evidence Centre is needed which focuses on developing the evidence base for what works to address inequalities. Ideally this would both build a library of published and grey literature of evidence-based interventions as well as publishing
regular policy briefings. The task could be assisted with the use of machine learning techniques to navigate large and complex fields of literature.

Finally, there remains a large gap between research and practice. Researchers need to focus energies on producing useful evidence for local decision-makers. Too often produced evidence proposes a one-size-fits-all approach, ignoring local data and information. Previous studies have found that local decision-makers value this local evidence and without acknowledging it, researchers risk their findings being disregarded as out of touch. **Local and national teams also need more support identifying the transferable evidence from research to take an evidence-based approach.**

6.5 **Policy recommendations**

We have the following policies recommendations arising from this report:

1. Levelling up health should be a core part of the cross-government levelling up activity.

2. A long-term, cross-government Levelling Up for Health or Health Inequalities Strategy is needed to drive national, regional and local action.

3. A clear vision for levelling up health and what success would look like is needed informed and supported by an agreed set of metrics.

4. National and local policies to level up should be informed and checked against the evidence-based principles outlined above.

5. Local areas supporting the levelling up agenda need the adequate resources to effect change, working closely with local communities.

6. A prioritisation process should be undertaken to identify a set of cross-government priority domains and actions (e.g. housing, education, or welfare) which are likely to have the greatest impact on levelling up health. This may include a combination of stakeholder engagement, literature review and data analysis to identify those domains which are likely to have the biggest impact in the short, medium and long term.

7. Allocating resources in proportion to need should be used for distribution of public funds rather than competitive bidding.

8. There is a need to broaden the public narrative on health outcome disparities from being perceived as a predominantly health service issue (dealing with the impact) to a social/structural issue that everyone needs to invest in. This could be a facilitated through a public conversation on levelling up health.
7 Conclusions

The pandemic has exposed and exacerbated health inequalities. It is paramount that health is placed as a core component of the levelling up agenda. Here we present a set of guiding principles to inform levelling up health: 1) healthy-by-default and easy to use initiatives; 2) long-term, multi-sector, multi-component action; 3) locally designed focus; 4) targeting disadvantaged communities; and 5) matching of resources to need. These principles are evidence-based and supported by real-life case studies. The pandemic has highlighted the extent of health inequalities. So, if we do not act now in levelling up health across the country, then when?
8 References


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27. MacIntyre S. Deprivation amplification revisited; or, is it always true that poorer places have poorer access to resources for healthy diets and physical activity? International Journal of Behavioral Nutrition and Physical Activity. 2007;4(32):1-7.
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9 Appendices

Appendix 1: MEDLINE Search strategy
Appendix 2: Tables of included studies and grey literature
Appendix 3: Full list of identified case studies
Appendix 1: MEDLINE Search strategy

1 ((overview$ or review or synthesis or summary or Cochrane or analysis) and (reviews or meta-analyses or articles or umbrella)).ti. or "umbrella review".ab. or (meta-review or metareview).ti,ab. 6193

2 Residence Characteristics/ or Environment design/ or exp Marital status/ or neighbo?rhod*.ti,ab. or rural*.ti,ab. or inner?city.ti,ab. or housing instability.ti,ab. or housing insecurity.ti,ab. or housing strain.ti,ab. or housing security.ti,ab. or mortgage problems.ti,ab. or foreclosure.ti,ab. or eviction*.ti,ab. or housing loss.ti,ab. or home repossession*.ti,ab. or home ownership.ti,ab. or (repossess* adj3 hous*).ti,ab. or (repossess* adj3 propert*).ti,ab. or mortgage delinquency.ti,ab. or mortgage arrears.ti,ab. or mortgage debt*.ti,ab. or overcrowding.ti,ab. or (living adj1 (outside or inside or near* or adjacent)).ti,ab. or (household adj2 size).ti,ab. or (marital status or marriage status).ti,ab. or (widow* or cohabit* or divorce* or single parent* or live* alone).ti,ab. 288538

3 Cultural Deprivation/ or Acculturation/ or Culture/ or Cross-Cultural Comparison/ or Cultural Characteristics/ or Cultural Diversity/ or Language/ or "Transients and Migrants"/ or exp "Emigrants and Immigrants"/ or Minority groups/ or Minority health/ or Prejudice/ or Racism/ or Xenophobia/ or Social Discrimination/ or exp Race Relations/ or exp Ethnic Groups/ or exp Continental Population Groups/ or Refugees/ or minorit*.ti,ab. or migration background.ti,ab. or racial.ti,ab. or racism.ti,ab. or ethnicity.ti,ab. or race.ti,ab. or ethnic*.ti,ab. or non?English.ti,ab. or language other than t.i,ab. or latino*.ti,ab. or latina*.ti,ab. or hispanic*.ti,ab. or whites.ti,ab. or caucasian*.ti,ab. or non?white.ti,ab. or Torres Strait Islander.ti,ab. or aboriginal.ti,ab. or native american.ti,ab. or inuit.ti,ab. or eskimo.ti,ab. or first nation*.ti,ab. or indigenous.ti,ab. or english as a second language.ti,ab. or foreign language.ti,ab. 755621

4 Occupations/ or Unemployment/ or occupations.ti,ab. or unemployment.ti,ab. 47802

5 exp Educational status/ or Education/ or Schooling.ti,ab. or educational status.ti,ab. or (education* adj2 level?).ti,ab. or ((higher or better or worse or less) adj educated).ti,ab. or ((higher or better or worse or less) adj level? of education).ti,ab. 131123

6 Religion/ or religi*.ti,ab. 47654

7 Social determinants of Health/ or Psychosocial Deprivation/ or Sociological Factors/ or Working Poor/ or Hierarchy, Social/ or disparit*.ti,ab. or inequalit*.ti,ab. or inequit*.ti,ab. or equity.ti,ab. or deprivation.ti,ab. or gini.ti,ab. or concentration index.ti,ab. or Socioeconomic Factors/ or Social Welfare/ or exp Social Class/ or exp Poverty/ or Income/ or Social class*.ti,ab. or social determinants.ti,ab. or social status.ti,ab. or social position.ti,ab. or social background.ti,ab. or social circumstance*.ti,ab. or socio-economic.ti,ab. or socioeconomic.ti,ab. or sociodemographic.ti,ab. or socio-demographic.ti,ab. or SES.ti,ab. or disadvantaged.ti,ab. or impoverished.ti,ab. or impoverished.ti,ab. or economic level.ti,ab. or assets index.ti,ab. or income*.ti,ab. 642636

8 Social Stigma/ or social capital/ or Social Control, Informal/ or exp Social Support/ or exp Social Environment/ or Trust/ or Social conditions/ or Social isolation/ or Social marginalization/ or Anomie/ or social participation/ or social exclusion.ti,ab. or (social adj (capital or cohes* or organis* or organis*)).ti,ab. or (community adj3 (cohes* or participa*)).ti,ab. or ((neighbourhood or neighborhood) adj cohes*).ti,ab. or social relationships.ti,ab. or social network*.ti,ab. or collective efficacy.ti,ab. or civil society.ti,ab. or informal social control.ti,ab. or neighbo*rhood disorder.ti,ab. or social disorgan?ation.ti,ab. or anomie.ti,ab. or
social support.ti,ab. or social participation.ti,ab. or trust.ti,ab. or emotional support.ti,ab. or psychosocial support.ti,ab. or community capital.ti,ab. or neighborhood cohesion.ti,ab. or social influence.ti,ab. or (soci*context* or soci*-context*).ti,ab. 275159

9 Health Status Disparities/ or Health Services Accessibility/ or Health Equity/ or health care disparit*.ti,ab. or health care disparit*.ti,ab. or health status disparit*.ti,ab. or health disparit*.ti,ab. or health inequalit*.ti,ab. or health inequit*.ti,ab. or medically underserved.ti,ab. or (digital adj3 (exclud* or exclud* or access* or divide)).ti,ab. or exp digital divide/ 113520

10 ((Gypsy* or gypsies or gipsy* or gipsies) not (moth or moths)).ti,ab. 1838

11 (Roma or romas or romany or romanis or romanies or romanian).ti,ab. 4581

12 (circus* or (bargee* or canal boat* or barge* or boat-dwell*)) or (pavee* or minceir* or lucht* or luchd* or itinerant*) or (travel?er* and (communit* or family or families or irish or ireland* or eire or wales or welsh or scottish or scotland* or highland* or norwegian* or norway* or newage or new-age or itinerant* or minorit* or ethnic* or halting site* or caravan*)) or (travel?ing adj5 (communit* or family or families or irish or ireland* or eire or wales or welsh or scottish or scotland* or highland* or norwegian* or norway* or newage or new-age or itinerant* or minorit* or ethnic* or site* or caravan*)).ti,ab. 3921

13 ("population level" or "population based" or "population oriented" or "community level" or "community based" or "community oriented" or "community oriented") adj8 (intervention$ or prevention or policy or policies or program$ or project$).tw. 26088

14 (health adj8 (intervention$ or prevention or policy or policies or program$ or project$)).tw. 254766

15 ((health care system or social care) and (funding or financial or pooling or insurance or insured or provider or provision or tax or taxation or budget or pay or commission or purchasing or purchaser or market or marketisation or privatisation or marketization or privatization) and (equity or socioeconomic or socio-economic or equality or ses or SES or deprivation or deprived or education or income or poverty or poor or unemployed or social class or occupation)).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] 3658

16 (health or wellbeing or well-being or mortality or "life expectancy" or morbidity or disease or incidence or prevalence or illness or death).mp. 9292151

17 Health Status/ or Health Status Disparities/ or Morbidity/ or Mortality/ or Incidence/ or Prevalence/ 724871

18 16 or 17 9292151

19 (Econom* factor or Econom* determinant or Econom* growth or econom* development or macroeconom* or macro econom* or economic integration or economic globalization or economic globalisation or Transitional Econom*).tw. 13347

20 (market structure or market design or pricing or freemarket or free market or market* Competition or Monopoly or Oligopoly or financial markets or trade policy or international trade or international factor movements or international business or Remittances or international finance or financial transactions tax or taxation or tax evasion or evasion of tax or tax avoid* or marketing or advertising or antitrust or trade or business cycle or business fluctuation or remittances or externalities).tw. 92507

21 (economic institutions or multinational firm* or central bank* or Banking or banks or depository institutions or business economics or IMF or WTO).tw. 17549
22 (money supply or credit supply or supply of credit or interest rate* or rate* of interest or financial policy* or financialisation or financialization or financial services or financial institutions or financial crisis* or corporate governance or corporate finance or fiscal or lending or debt or micro finance or mortgage* or monet* or inflation or deflation or structural adjustment or trade deficit or budget* deficit or investment or economic recession or currency* or price level or monetary or international lending or foreign aid or national budget or national deficit or national debt or capital).tw. 109232

23 (Scope of Government or Social Security or underground economy or welfare programs or entrepreneurship or non profit or nonprofit or informal econom* or land ownership or land reform or shadow econom* or informal econom* or alternative econom or informal sector or urban econom* or regional econom* or rural econom* or Nationalization or Nationalisation or Privatisation or Privatization or Government Expenditure* or Size of Government or social enterprise* or public enterprise* or private enterprise* or Land Ownership or ownership of land or Land Tenure or Land Reform or public investment or Property rights or Open Econom* or subsid* or public good or cooperative enterprises or Welfare state).tw. 50381

24 (Firm Objectives or objectives of the firm or objectives of firms or organization of firms or organization of the firm or organisation of firms or organisation of the firm or Firm Organization or Firm Organisation or Firm Behavior or Firm Behaviour or behaviour of firms or behaviour of the firm or behavior of firms or behavior of the firm or retirement or compensation package* or trade union or labor managed firm* or labour managed firm* or Worker* Rights or rights of workers or employee managed firm or employee owned Firms or firm performance or wage* or Human Capital or income* or employment or unemployment or enterprises or entrepreneur* or labor demand or labour demand or demand for labor or demand for labour economics or labour economics or labor supply or labour supply or supply of labor or supply of labour or labor discrimination or labour discrimination or cost of labor or cost of labour or labor cost* or labour cost* or labor mobility or labour mobility or labor market or labour market or labor standards or labour standards or labor force size or labour force size or size of the labor force or size of the labour force or labour force structure or labour force structure or structure of the labor force or structure of the labour force or labor management relations or labour management relations).tw. 233325

25 (resource distribution or distribution of resources or economic justice or externalit* or Gross Domestic Product or gross national income or industrialisation or industrialization or industrial structure or industrial policy or industrial ecology or poverty or wealth or economic inequality* or production of goods or production of services or means of production or consumption of goods or consumption of services or pattern* of consumption or productivity or manufacturing or startups or social status).tw. 177249

26 (socialist or socialism or Public Economics or Welfare Economics or environmental economics or ecological economics or Marx* or Keynes* or Neoclassic* or capitalism or capitalist or neoliber* or political economy or economic austerity or (economic recession or degrowth)).tw. 10291

27 Socioeconomic Factors/ or Income/ or Employment/ or Poverty/ or Social Class/ or Economics/ 302716

28 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 833237

29 18 and 28 482599

30 Income/ or Social Welfare/ or Social Security/ or Financial Support/ or Public Assistance/ or Financing, Government/ 72536

31 (welfare or poverty or low income or standard of living or minimum wage* or minimum salar* or debt relief or income support or income maintenance or cash transfer* or deprivation or social exclusion or social inclusion or social protection or public assistance or social assistance or disability insurance or disab* NEAR insurance or social securit* or safety NEAR net* or pension* or old age or
retirement benefit or social assistance or social insurance or micro NEAR insurance or disabilit* NEAR grant* or disabilit* NEAR benefit* or social NEAR health NEAR protection* or sickness or long term ill* or work NEAR injur* or employment NEAR injur* or work compensation or health insurance or child benefit or lone parent or single parent or parental leave or maternity leave or paternity leave or family benefit or family polic* or food stamp* or food subsid*).tw. 289187

32 (unemployment or workless* or jobless* or income support or jobseekers allowance or employment status or full employment or labour market polic* or labor market polic* or vocational train* or vocational education or vocational rehabilitation or economic activity or welfare).tw. 64336

33 30 or 31 or 32 364389

34 (inequality or inequalities or equality or inequity or inequities or equity or disparity or disparities or gap or gaps or gradient or gradients or unequal or disadvantage* or variation* or socioeconomic or socio-economic or SES or disab* or poverty or deprivation or deprived or social determinants or underserved population* or minorit* or immigrant* or racial or ethnic*).tw. 1991559

35 33 and 34 155996

36 ((health or death or mortality or disease or ill* or morbidity or injur* or accident* or casualt*) and (traffic calming or traffic-calming or traffic or traffic speed or speed limit or speed reduction or speed camera or speed hump or road hump or roundabout or road design or road modification or road environment or street environment or 20 mph)).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] 63928

37 Gambling/ or gambl*.tw. 11067

38 ("physical* activ*" or sport* or walking or exercise or lifestyle or "life style" or "physical fitness" or "motor activi*") and ("low SES" or "low* socio*" or "low* income" or disadvantaged or inegal* or disparity or deprived or underserved or "low* educat*" or poverty or "social class" or equity)).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] 18572

39 exp Obesity/ or exp Body Weight/ or exp Body Weight Changes/ or exp Weight Gain/ or exp Weight Loss/ or (obese or obesity).tw. or overweight.tw. or weight.tw. or diet$.tw. or nutrition$.tw. or (physical$ adj activ$).tw. or exercise$.tw. or lifestyle$.tw. or (bmi$ or (body adj mass ind$)).tw. or (waist adj6 circumference$).tw. or ((weight adj2 (control or reduction) adj2 (advice or counsel$ or program$ or intervention?)) or (weight adj manag$)).tw. or ((overweight or obese or obesity) adj4 (Advice or counsel$ or intervention? or program$)).tw. 2320155

40 exp Smoking/ or exp Smoking Cessation/ or nicotine.tw. or cigarette$.tw. or (nicotine replacement therapy or NRT).tw. or smoking cessation.tw. or smok$.tw. or exp "Tobacco Use Cessation"/ or exp Smoking Cessation/ or (smoking cessation or (quit$ adj2 smok$)).tw. or ((reduce or reducing) adj3 ('tobacco use' or cigarette? or smoking or addiction)).tw. 367223

41 alcohol.mp. or exp Alcohols/ or exp Alcohol Drinking/ or exp Alcoholism/ or exp Drinking Behavior/ or drink$.tw. or beer.tw. or wine.tw. or ethanol.tw. or drunk.tw. or (addict$ or (alcohol adj2 (abus$ or misus$))).tw. or alcohol$.tw. or drunk$.tw. or intoxicat$.tw. 1240595

42 39 or 40 or 41 3617332

43 34 and 42 311355
Health Promotion/ or health promotion.ti,ab. or health behaviour.ti,ab. or health behavior.ti,ab. or (policy and (social or school or food or public or urban or environmental or fiscal)).ti,ab. or urban planning.ti,ab. or city planning.ti,ab. or built environment.ti,ab. or social environment.ti,ab. or physical environment.ti,ab. or cultural environment.ti,ab. or urban environment.ti,ab. or school environment.ti,ab. or neighbourhood.ti,ab. or community.ti,ab. or societal.ti,ab. or social interventions.ti,ab. or community interventions.ti,ab. or obesogenic environment.ti,ab. or individual level.ti,ab. or lifestyle.ti,ab. or individual.ti,ab. or tax$.ti,ab. or subsid$.ti,ab. or price$.ti,ab. or health education.ti,ab. or social marketing.ti,ab. or (diet and (advice or counselling)).ti,ab. or (exercise and (advice or counselling)).ti,ab. or weight management.ti,ab. or cash transfer$.ti,ab. or lifestyle counselling.ti,ab. or behavioural counselling.ti,ab. or behavioral counselling.ti,ab. or exercise on prescription.ti,ab. or exercise.ti,ab. or health trainer$.ti,ab. or school.ti,ab. or workplace.ti,ab. or campaign$.ti,ab. or (access adj1 facilities).ti,ab. or green space.ti,ab. or walk?ability.ti,ab. or food label$.ti,ab. or food advert$.ti,ab. 2298386

(BMI or Body Mass Index).ti,ab. or Body Weight/ or obesity.ti,ab. or obese.ti,ab. or overweight.ti,ab. or weight gain.ti,ab. or weight loss.ti,ab. or exp OBESITY/ or Body fat.ti,ab. or Fat mass.ti,ab. or Weight control$.ti,ab. or Weight maintain$.ti,ab. or Adipose tissue.ti,ab. or Skinfold thickness.ti,ab. or Waist circumference.ti,ab. or Waist hip ratio.ti,ab. or WHR.ti,ab. 867665

"Body Weights and Measures"/ 6717

45 or 46 871478

48 44 or 47 3023418

49 34 and 48 430648

50 ((communit* or citizen* or public* or minorit* ethnic* or stakeholder* or population* or neighbourhood or neighborhood) adj5 (engag* or develop* or empower* or involv* or participat* or collaborat* or consult* or partner* or forum* or panel* or jury or champion*)).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] 176489

51 (austerity or welfare benefit or welfare reform or Social assistance).mp. or exp Social Security/ or Social security.mp. or Income benefits.mp. or Income support.mp. or Income supplement.mp. or Income maintenance.mp. or Pensions/ or Conditional cash.mp. or Cash assistance.mp. or Unemployment benefit.mp. or Child Benefit.mp. or Tax credit.mp. or Family benefit.mp. or Family support.mp. or Conditionality.mp. or Poverty reduction.mp. or Housing benefit.mp. or Anti-poverty.mp. or Family allowance.mp. or Entitlement.mp. or Generosity.mp. or Disability benefit.mp. 30391

52 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 29 or 35 or 37 or 38 or 43 or 50 or 51 2395886

53 1 and 52 1206

54 limit 53 to yr="2007 -Current" 1145
### Appendix 2: Tables of included studies and grey literature

#### Table 9.1 Summary of literature identified through database searches

<table>
<thead>
<tr>
<th>First author (year)</th>
<th>Aim</th>
<th>No. of included reviews</th>
<th>Domains covered</th>
<th>Key findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Garzón-Orjuela (2020)</td>
<td>Identify and synthesize strategies or interventions that facilitate the reduction of health inequalities</td>
<td>98</td>
<td>Wider economic, social, and policy and politics</td>
<td>The main strategies that facilitate the reduction of health inequalities focus on general health issues and the impact on healthy lifestyles. The authors describe as a first approach those strategies aimed at the area of policies with economic changes, such as the increase in tobacco taxes and community care in geographically remote areas. In their second approach they group strategies for reforms in work and housing. In their third approach they include those strategies that promote an equal distribution of risk factors using the universalization of care and access systems through telemedicine.</td>
</tr>
<tr>
<td>Macintyre (2020)</td>
<td>Examine systematic review evidence on the equity impact of population-level interventions intended to improve health, happiness and wellbeing for adolescents</td>
<td>140</td>
<td>Health behaviours</td>
<td>Some evidence suggests that pricing/taxation may be effective for targeting inequalities in youth smoking, and environmental change in schools may be more likely address inequalities compared to education-based strategies.</td>
</tr>
<tr>
<td>Carey (2019)</td>
<td>Conduct a systematic review of the evidence of personalisation schemes and their likely effects on inequality</td>
<td>6</td>
<td>Health care system</td>
<td>A range of factors were identified that were associated with better outcomes. These were: education, being employed, having capable networks and support, knowledge and skills in navigating complex systems, household income, knowledge of where to access information and the capacity to self-manage individual budgets. Based on their analysis the authors argue there is good reason to suspect that personalisation schemes are entrenching social inequity.</td>
</tr>
<tr>
<td>Author</td>
<td>Study Title</td>
<td>Page</td>
<td>Domain</td>
<td>Summary</td>
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<tr>
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</tr>
<tr>
<td>McCartney</td>
<td>Understand the extent to which political economy, and important aspects of it, explain differences in health outcomes within and between populations over time</td>
<td>58</td>
<td>Policy and politics</td>
<td>There was evidence that moving people to areas with lower poverty improves SRH, but that the impacts of re-generation programs in poor areas are mixed, with evidence of no greater improvement in mortality in regenerated areas. There is some evidence from a lower-quality review that higher social security payments to unemployed workers can reduce the negative impacts of unemployment.</td>
</tr>
<tr>
<td>Naik (2019)</td>
<td>Identify the evidence for the health and health inequalities impact of population-level macroeconomic factors, strategies, policies and interventions</td>
<td>62</td>
<td>Wider economic, policy and politics</td>
<td>The results indicated that action to promote employment and improve working conditions can help improve health and reduce gender-based health inequalities. This review found evidence that regulating the market for health-related goods through strong taxation and subsidisation is likely to be effective in improving health and reducing health inequalities. There is also evidence to support other interventions such as reducing availability or changing production patterns. There is evidence to support the role of welfare provision in mitigating the impacts of precarious work and of cash transfers and subsidies to improve health.</td>
</tr>
<tr>
<td>Thomson</td>
<td>Assess the effectiveness of community pharmacy-delivered public health services and assess how they impact on inequalities in health using PROGRESS-Plus characteristics</td>
<td>15</td>
<td>Healthcare system</td>
<td>The majority of the studies reporting health inequalities targeted interventions (i.e. interventions targeted towards people of low SES). Our review has also highlighted limited evidence that suggests some interventions have potential to increase health inequalities – potentially leading to so-called ‘intervention generated inequalities’. One such example was chlamydia testing, whereby older, more educated women, from less deprived areas were more likely to access the service.</td>
</tr>
<tr>
<td>Anderson</td>
<td>Investigate the potential impact of city-based action to Drugs and alcohol</td>
<td>5</td>
<td>Effective strategies:</td>
<td>Alcohol taxes, reducing outlet density, restrictions on days and hours of sale, reduce volume of advertising, sobriety checkpoints and random breath testing.</td>
</tr>
<tr>
<td><strong>reduce the harmful</strong>&lt;br&gt;use of alcohol amongst adults</td>
<td>Digital interventions were just as effective as face-to-face interventions in reducing alcohol consumption and related harm</td>
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<tr>
<td></td>
<td>Primary health care: positive impact of screening and brief advice programmes on alcohol consumption, mortality, morbidity, alcohol-related injuries, alcohol-related social consequences, healthcare resource use and laboratory indicators of harmful alcohol use.</td>
<td></td>
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</tr>
</tbody>
</table>

**Bird (2018)**<br>Assess relationships between the built and natural environment and health, concentrating on five topic areas: neighbourhood design, housing, food environment, natural and sustainable environment, and transport<br>117<br>Built environment, environmental, and housing quality/cost<br>Only four reviews eligible for inclusion focused on health inequalities; some positive results were reported, but the overall picture on associations between the built environment and health inequalities was inconclusive.

**Craike (2018)**<br>Examine: the effectiveness of interventions to improve physical activity among socioeconomically disadvantaged groups; the characteristics of effective interventions; and directions for future research<br>17<br>Physical activity<br>For preschool children, parent-focused family-based interventions in community settings were effective in improving physical activity.<br>For children, school-based interventions and policies were effective in improving physical activity among children from socioeconomically disadvantaged groups.<br>Only a small number of studies, mostly of high quality, focused on improving physical activity among adolescents from socioeconomically disadvantaged groups. Of these studies, few were effective at improving physical activity. Group-based interventions were generally not effective, and thus other approaches should be examined.
<table>
<thead>
<tr>
<th>Pierron (2018)</th>
<th>Analyse components and characteristics of effective interventions in parenting support and the extent to which the reviews took into account social inequalities in health</th>
<th>Social</th>
<th>Only half of the reviews had addressed the question of social inequalities in health. Proportionate universalism is a solution that was promoted by a number of reviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thomson (2018)</td>
<td>Examine the effects of public health policies on health inequalities in high-income welfare states</td>
<td>Policy and politics</td>
<td>Results were mixed across the public health domains; some policy interventions were shown to reduce health inequalities (e.g. food subsidy programmes, immunisations), others have no effect and some interventions appear to increase inequalities (e.g. 20 mph and low emission zones). In terms of fiscal approaches, this umbrella review has identified systematic review level evidence to suggest that taxes on unhealthy food and drinks, food subsidy programmes for low-SES women, and fiscal incentive schemes for childhood vaccinations are effective in reducing health inequalities. In terms of regulatory interventions, identified review level evidence of the effectiveness of controlling tobacco advertising, water fluoridisation, requiring proof of immunisation for school entry (to increase vaccination rates amongst the lowest SES groups), and regulating traffic speeds to reduce SES inequalities in child accidents (but not cycling accidents). In terms of mass education interventions, a national tooth brushing education programme was found to be effective in improving dental hygiene amongst children from lower SES backgrounds and a nutrition programme, targeted at low-income families, was shown to increase fruit and vegetable consumption. Reproductive cancer screening information campaigns were also demonstrated to decrease health inequalities. Concerning preventative treatment, universal and targeted vaccinations to indigenous and disadvantaged youth were effective in improving vaccination uptake. In terms of screening, there was evidence that population-wide programmes increased screening rates for reproductive cancers across all socio-economic groups.</td>
</tr>
<tr>
<td>Cauchi (2016)</td>
<td>Summarise the evidence reported in systematic reviews on the effectiveness of population-level childhood obesity prevention interventions that have an environmental component.</td>
<td>63</td>
<td>Environmental and health behaviours</td>
</tr>
<tr>
<td>---</td>
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</tr>
<tr>
<td>Haby (2016)</td>
<td>Identify the agriculture, food, and nutrition security interventions that facilitate sustainable food production and have a positive impact on health.</td>
<td>15</td>
<td>Social and environmental</td>
</tr>
<tr>
<td>Welch (2016)</td>
<td>Assess the effects of interactive social media interventions on health outcomes, behaviour change and health equity.</td>
<td>11</td>
<td>Health behaviours</td>
</tr>
<tr>
<td>Cairns (2015)</td>
<td>Examine the effects of 20mph zones and limits on health and health inequalities.</td>
<td>5</td>
<td>Infrastructure &amp; transport</td>
</tr>
<tr>
<td>Gibson (2011)</td>
<td>Identify what types of housing and neighbourhood.</td>
<td>5</td>
<td>Housing quality/cost</td>
</tr>
</tbody>
</table>
interventions have been reviewed systematically and how these relate to the different pathways between housing and health; establish what gaps exist in the systematic review evidence base on housing interventions; and consider what existing reviews can tell us about the impact of housing and neighbourhood interventions on health and health inequalities.

lead to reductions in the percentage of participants reporting depression and increases in the proportion reporting good or excellent health.
<table>
<thead>
<tr>
<th>Name of report, publishing organisation and year</th>
<th>Aims</th>
<th>Domains</th>
<th>Methods</th>
<th>Key findings/recommendations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tackling the wider social determinants of health and health inequalities: evidence from systematic reviews, Public Health Research Consortium, 2008</strong></td>
<td>Identify existing systematic reviews and relevant primary studies, and to use these to identify priorities for new systematic reviews and for new primary studies of interventions addressing inequalities in health.</td>
<td>Wider economic, social, and policy and politics</td>
<td>Systematic review of published and unpublished systematic reviews of interventions around the social determinants of health in high-income countries</td>
<td>In the reviews of employment interventions (such as changes to the organisation of work, and privatisation) there is evidence from primary studies that the effects of change are experienced differently by employees in different occupational categories. This suggests that the workplace may indeed be an important setting in which inequalities may be addressed.</td>
</tr>
<tr>
<td><strong>&quot;If you could do one thing...&quot;. Nine local actions to reduce health inequalities. British Academy for the humanities and social sciences, 2014</strong></td>
<td>Identify where, and how, the social sciences can contribute to reducing health inequalities</td>
<td>Policy and politics</td>
<td>Brought together a group of experts from across the social sciences, asking each to write a proposal focusing on one issue and one intervention that would reduce health inequalities and could be adopted by local authorities and health and wellbeing boards.</td>
<td>Nine recommendations for reducing health inequalities: 1. Introduce a living wage 2. Focus resources on early childhood 3. Implement 20mph limits where 30mph are currently in place 4. Take a 'health first' approach to tackling health-related worklessness 5. Use a form of participatory budgeting to make decisions on public health priorities and interventions 6. Utilise the substantive role of further and adult education in reducing social inequalities in health 7. Adopt local policies to improve the employment conditions of public sector workers 8. Implement locally based 'age-friendly environments' that facilitate improvements in the independence, participation, health and wellbeing of older people</td>
</tr>
</tbody>
</table>
9. Make good use of evidence of cost-effectiveness before choosing between competing interventions to reduce health inequalities

| Tackling Inequalities in the Early Years: Key messages from 10 years of the Growing Up in Scotland study, The Scottish Government, 2015 | Highlight how the study has contributed to the evidence base on children and families in Scotland, in particular on the extent of and how to reduce inequalities in outcomes in the early years. | Wider economic, Growing Up in Scotland (GUS) funded longitudinal study that is tracking the lives of two cohorts of children from across Scotland. Children in the older cohort (known as Birth Cohort 1 or BC1) were born in 2004/05 and at time of publication were around age 11. Children in the younger cohort (known as Birth Cohort 2 or BC2) were born in 2010/11 and at time of publication were around age five. | High quality early learning and childcare can help to reduce inequalities in cognitive development. | Supporting parenting skills can help protect against the impact of adversity and disadvantage. | The role of the health visitor, in providing one-to-one advice and support to parents, should be central in the efforts to tackle inequalities in the early years. |

<p>| Using the Social Value Act to reduce health inequalities in England through action on the social determinants of health, Public Health England and Institute of Health Equity, 2015 | Explain what social value means, and how and whether it is used | Policy and politics | This assessment of the potential of the Act for action on health inequalities was informed by meetings with stakeholders and literature review of interventions. | Acting on social value is not only a responsibility but also an opportunity. It offers the potential to ensure that money spent by commissioners is spent in a way that reduces inequalities, improves health benefits to the population and, ultimately, saves money. |</p>
<table>
<thead>
<tr>
<th><strong>Health inequalities: What are they? How do we reduce them? NHS Health Scotland, 2015</strong></th>
<th><strong>Promote action to reduce health inequalities</strong></th>
<th><strong>Policy and politics</strong></th>
<th><strong>Evidence briefing produced by NHS Health Scotland in 2015. A (non-systematic) literature review</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reducing health inequalities: system, scale and sustainability, Public Health England, 2017</strong></td>
<td><strong>Identify best interventions, services or tools that can be used to reduce health inequalities.</strong></td>
<td><strong>Policy and politics</strong></td>
<td><strong>Updates the work of the former Health Inequalities National Support Team which in its time focused on systematically analysing and reducing health inequalities at scale in areas of greatest deprivation.</strong></td>
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<tr>
<td><strong>Undo fundamental causes of health inequalities by:</strong></td>
<td></td>
<td></td>
<td><strong>Population Intervention Triangle brings together the main mechanisms, which through such change can be achieved. The key elements are:</strong></td>
</tr>
<tr>
<td>- introducing an minimum income for healthy living, ensure welfare system provides sufficient income for healthy living a reduce stigma for recipients through proportionate universalism, more equitable participation in decision making, and active labour market policies such as apprenticeship schemes and subsidised childcare.</td>
<td></td>
<td></td>
<td><strong>- civic interventions: which make healthy choices easier. Includes targeted support and enforcement to extend the impact</strong></td>
</tr>
<tr>
<td>Prevent harmful environmental influences on health inequalities by: ensuring access to high quality green and open spaces, drink driving regulations, lower speed limits.</td>
<td></td>
<td></td>
<td><strong>- community engagement: extended to the most in need, not just those already enabled</strong></td>
</tr>
<tr>
<td>Mitigate the effects of health inequalities on individuals by: ensuring that services are provided in locations and ways which are likely to reduce inequalities in access (i.e. link to public transport routes).</td>
<td></td>
<td></td>
<td><strong>- effective services: delivered with system, scale and sustainability</strong></td>
</tr>
<tr>
<td>Service or Policy Mechanisms, Models or Approaches, Have Been Shown to Be Effective or Ineffective at Reducing the Inequalities That Are Known to Have an Impact on Childhood Obesity? Public Health England, 2018</td>
<td>A briefing document that aimed to summarise best available evidence on the approaches and interventions that may reduce the inequalities that impact on obesity in childhood.</td>
<td>Policy and politics, health behaviours</td>
<td>Non-systematic literature review of evidence produced from 01/01/2011 to 09/10/2018</td>
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<tr>
<td>Interventions that were effective in lower socioeconomic positions (SEP) groups include opportunities for physical activity (PA); free entry/transport to PA facilities; school policies on menus, after-school activities and local community programmes; education for children in kindergartens; healthy school meals. Agentic interventions (those that increase individual knowledge or skills to make healthier choices) for childhood obesity have been shown to increase socioeconomic inequalities; structural interventions show equal or greater benefit for lower socioeconomic groups.</td>
<td>Interventions that require individuals to use a low level of agency (i.e. use their personal resources) to benefit are likely to be most effective and most equitable.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Service or Policy Mechanisms, Models or Approaches, Have Been Shown to Be Effective or Ineffective at Reducing Inequalities in Access to Health and Social Care Services? Public Health England, 2018</th>
<th>A briefing document that aimed to summarise best available evidence on the interventions, models and approaches to reduce inequalities in access to health and social care services.</th>
<th>Policy and politics</th>
<th>Non-systematic literature review of evidence produced from 01/01/2010 to 30/09/2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Translation and interpreting services are an effective intervention for overcoming language barriers that prevent access. Outreach involving the delivery of services outside healthcare settings can be effective in increasing rates of healthcare use. Complex and inconsistent systems of service provision can further disadvantage target groups.</td>
<td>Interventions that require individuals to use a low level of agency (i.e. use their personal resources) to benefit are likely to be most effective and most equitable.</td>
<td></td>
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</tr>
<tr>
<td><strong>Which service delivery mechanisms, models or approaches have been shown to be effective or ineffective at reducing the inequalities that older people experience?</strong> Public Health England, 2018</td>
<td></td>
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<td></td>
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<tr>
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</tr>
<tr>
<td>A briefing document that aimed to summarise best available evidence on service delivery mechanisms, models or approaches that have been shown to be effective or ineffective at reducing the inequalities that older people experience.</td>
<td>Policy and politics</td>
<td>Non-systematic literature review of evidence produced from 01/01/2010 to 04/10/2018</td>
<td>Commonly used interventions that appear to reduce inequalities in older people include: supporting smoking cessation in deprived areas, initiatives to reduce alcohol consumption, better income distribution, and increasing levels of physical activity to combat loneliness and poor health. Greater public pension entitlement plays a crucial role in reducing inequalities in unmet medical need among older persons. People are more likely to take part if services and activities are easy to access, and making people feel welcome encourages them to keep on taking part.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Which service delivery mechanisms, models or approaches have been shown to be effective at reducing educational inequalities in early years?</strong> Public Health England, 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>A briefing document that aimed to summarise best available evidence on service delivery mechanisms, models or approaches that have been shown to be effective at reducing educational inequalities in early years.</td>
</tr>
<tr>
<td>Which service or policy mechanisms, models or approaches have been shown to be effective or ineffective at reducing inequalities in employment? Public Health England, 2018</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Social determinants of health and the role of local government, Local Government Association 2020</td>
</tr>
</tbody>
</table>
| Public health transformation seven years on. Prevention | Local Government Association 2020 | Policy and politics | Local Government Association 2020 public health annual report with case studies | Report highlights that asset-based community development (or 'neighbourhood') approaches support local people to identify and implement their own
| in neighbourhood, place and system. Local Government Association 2020 | public health annual report | solutions and are an important way of tackling health inequalities. Case studies in the report highlight where the 'Health in All Policies' approach has been successful: 
- Cheshire and Merseyside: health inequalities relating to cardiovascular disease and high blood pressure were reduced across Cheshire and Merseyside, which was attributed to the Champs Blood Pressure Reduction Strategy. |
|---|---|---|
| Digital technology and health inequalities: a scoping review, Public Health Wales, 2020 | Understand and offer advice on how equality politics can be promoted or risks mitigated in the design and use of digital technologies. Inform a theoretical framework for considering how lack of access, skills and motivation for using digital technologies (digital exclusion) could affect health outcomes. | Policy and politics 
Draws on existing literature to provide a framework for considering how lack of access, skills and motivation for using digital technologies could affect health outcomes. Literature Review. 
No evidence that conclusively establishes that digital exclusion is leading to worsening health inequalities, health services seeking to make best use of digital technologies must take into account: 
- The remaining barriers to using digital technologies that some groups face 
- Consider the access, use and engagement patterns in their local populations. |
| Using economic development to improve health and reduce health inequalities, The Health Foundation, 2020 | Provide a framework for practitioners to consider the interventions available and implement strategies most | Wider economic, This report contains case studies of economic development strategies which look beyond narrow financial outcomes as measures of success, and instead aim to enhance human welfare. In the short term, this research report recommends the government’s priorities should be: 
- Broadening the focus of economic policy beyond GDP. 
- Ensuring that the COVID-19 response measures do not lead to a widening of the attainment gap in educational outcomes. 
- Investing in lifelong education and skills development. |
- Introducing local and regional measures of equitable and sustainable economic development against which to assess progress in ‘levelling up’ opportunities across the country and between socioeconomic groups.
- Devolving more investment funding for cities and local authorities.

### Health Equity in England: The Marmot Review 10 Years On, Institute of Health Equity, 2020

| Explore what has happened to health inequalities and social determinants of health in the decade since the Marmot Review. |
| Provide in-depth analysis of health inequalities in England and assess what has happened in key social determinants of health, positively and negatively, in the last 10 years. |
| Set out an agenda for the Government and local authorities to take action to reduce health inequalities in England. |

**Wider economic, Agenda is based on evidence social, policy and practical action evidence from the Marmot Review, and enhanced by new evidence from the succeeding decade, including evidence and learning from practical experience of implementing approaches to health inequalities in England and internationally.**

| Increase levels of spending on early years. |
| Improve availability and quality of early years services, including Children’s Centres, in all regions of England. |
| Put equity at the heart of national decisions about education policy and funding. |
| Ensure everyone has a minimum income for healthy living through increases to the National Living Wage and redesign of Universal Credit. |
| Develop a national strategy for action on the social determinants of health with the aim of reducing inequalities in health. |
| Ensure proportionate universal allocation of resources and implementation of policies. |

### Coventry - A Marmot City.

**An evaluation of a city-wide approach to reducing health inequalities.**

Understand the strategic impact of the Marmot City approach in Coventry and the Marmot Review policy objectives have been pursued in Coventry. Data Early signs of changing the relationship with the community to co-produce solutions to local problems, but this needs to be embedded at a strategic level if
| **Institute of Health Equity, 2020** | impact on population outcomes | collection included semi-structured interviews with 30 participants most of whom were Councillors, senior leaders or managers of departments in the Council and in partner organisations. The evaluation also draws on numerous informal conversations, and on the contents of meeting minutes, strategies, plans and commissioning documents among other sources of information. Interviewees were sought who had been on the Marmot City Steering Group or who were in senior roles within teams or organisations involved with Marmot City activities. | Regarding population health outcomes, given the short time-scale and the complexity of the system the approach operates in, it is not possible to attribute health trends directly to being a Marmot City. Inequality in female life expectancy at birth was similar in 2016-18 (8.3 year difference in life expectancy between the most and least deprived deciles) as in 2010-12 (8.4 years), defying a national trend of widening inequality. A similar pattern is true of inequality in male life expectancy, which reduced by 0.5 years from an 11.2 to a 10.7 year gap in life expectancy, over a period in which inequality widened by 0.4 years nationally. Between 2015 and 2019 the number of Coventry neighbourhoods that are among the 10% most deprived in England reduced from 18.5% to 14.4%. |
| Inform future developments in Coventry | Provide information and insight for other areas who are developing system wide and integrated approaches to reducing health inequalities | Build Back Fairer In Greater Manchester: Health Equity and Dignified Lives, Institute of Health Equity 2021 | **Provide evidence and analysis for a broad range of stakeholders in UK and globally including for the Marmot Ten Years on work** | Wider economic, social, policy and politics The Build Back Fairer approach is based on an assessment of priority areas for action and required approaches in order to strengthen implementation and governance for health equity in the region. Specific recommendations in each of the social determinants of health include:
- **Prioritise children and young people.**
- **Rebalance spending towards prevention.**
- **Ensure proportionate universal funding.**

**Build Back Fairer In Greater Manchester: Health Equity and Dignified Lives, Institute of Health Equity 2021**

Provide evidence of the health inequality challenges the Greater Manchester City Region will face post-pandemic and to make recommendations to monitor and reduce them.
health areas are set out and relate to the social determinants in the Building Back Fairer framework.

| Women in the North. Choosing to challenge inequalities. Institute for Public Policy Research North, 2021 | Challenge thinking to fully understand how different inequalities interact with one another | Wider economic, political and social determinants. Analysis draws on the discussion from IPPR North’s International Women’s Day event in March 2021 and includes quotes and testimonials from some of the women that attended and spoke at this event. Conclusions also informed by a review of data and policy research about Covid-19 to date. | Income - As part of the recovery, leaders and policymakers across the North must explore what they can do to tackle low pay and its disproportionate impacts on women. |
Table 9.3: Other published key literature

<table>
<thead>
<tr>
<th>First author and year</th>
<th>Title</th>
<th>Aims</th>
<th>Domains</th>
<th>Study type</th>
<th>Key findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eyles 2012</td>
<td>Food pricing strategies, population diets, and non-communicable disease: a systematic review of simulation studies</td>
<td>Review simulation studies investigating the estimated association between food pricing strategies and changes in food purchases or intakes (consumption) (objective 1); Health and disease outcomes (objective 2), and whether there are any differences in these outcomes by socioeconomic group (objective 3).</td>
<td>Food availability, policy and politics</td>
<td>Systematic review</td>
<td>Most studies assessing absolute impacts for lower socioeconomic groups estimated that effects on food and nutrient consumption, and health and disease, would be pro-health. Relative impacts may also be greater for lower income groups, and thus food taxes and subsidies have the potential to be pro-equity.</td>
</tr>
<tr>
<td>Brown 2013</td>
<td>Equity impact of interventions and policies to reduce smoking in youth: systematic review</td>
<td>Assess the impact of individual-level smoking cessation interventions undertaken in Europe since 1995, on socioeconomic inequalities in adult smoking</td>
<td>Smoking</td>
<td>Systematic review</td>
<td>Low SES youth were more responsive to price/tax increases than high SES youth. The evidence suggests there is variation in the impact on smoking behaviour among youth of different ages within different SES groups. UK comprehensive smoke free legislation was associated with significant declines in second-hand smoke exposure in all primary school children and significant reductions in childhood asthma hospital admissions for all children, regardless of SES. As SES increased, the likelihood of full smoking restrictions in the home and/or car increased significantly, and this socioeconomic patterning remained stable. Evidence suggests that strict control of youth access to</td>
</tr>
<tr>
<td><strong>Barr 2014</strong></td>
<td>Investigate whether the policy of increasing National Health Service funding to a greater extent in deprived areas in England compared with more affluent areas led to a reduction in geographical inequalities in mortality amenable to healthcare.</td>
<td>Health care Longitudinal ecological study</td>
<td>Between 2001 and 2011 the increase in NHS resources to deprived areas accounted for a reduction in the gap between deprived and affluent areas in male mortality amenable to healthcare of 35 deaths per 100 000 population. Geographical inequalities in mortality from causes amenable to healthcare declined in absolute terms during the 10 year period in which NHS resource allocation policy was used explicitly “to contribute to the reduction of avoidable health inequalities.” Each £1.00 of additional NHS resource allocated to the most deprived areas was associated with greater absolute improvements in mortality amenable to healthcare than each £1.00 of additional NHS resources invested in more affluent areas.</td>
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<td><strong>Beauchamp 2014</strong></td>
<td>Identify interventions for obesity prevention that evaluated a change in adiposity according to socioeconomic position (SEP) and to determine the effectiveness of these interventions across different socioeconomic groups.</td>
<td>Health behaviours Systematic review</td>
<td>Studies that were shown to be effective in lower socioeconomic position participants primarily included community-based strategies or policies aimed at structural changes to the environment. Interventions targeting individual-level behaviour change may be less successful in lower socioeconomic position populations.</td>
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<td><strong>Durand 2014</strong></td>
<td>Evaluate the impact of shared decision-making (SDM) interventions on disadvantaged groups and health inequalities.</td>
<td>Policy and politics Systematic review and meta-analysis</td>
<td>SDM interventions significantly improved outcomes in disadvantaged groups: increased knowledge, informed choice, participation in decision-making, decision self-efficacy, preference for collaborative decision making and reduced decisional conflict.</td>
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</table>
The narrative synthesis indicates that disparities in knowledge, decisional conflict, uncertainty and treatment preferences between disadvantaged groups and more privileged populations tended to disappear post-intervention use.

<table>
<thead>
<tr>
<th>Cairns 2014</th>
<th>Weighing up the evidence: a systematic review of the effectiveness of workplace interventions to tackle socio-economic inequalities in obesity</th>
<th>Systematically review the effectiveness of workplace interventions in reducing socio-economic inequalities in obesity</th>
<th>Health behaviours</th>
<th>Systematic review</th>
<th>Most studies found no effects on inequalities in obesity—and a minority found increases, there was also some evidence of potentially effective workplace interventions especially in terms of physical activity interventions targeted at lower occupational groups.</th>
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<tr>
<td>Hillier-Brown 2014</td>
<td>A systematic review of the effectiveness of individual, community and societal level interventions at reducing socioeconomic inequalities in obesity amongst children</td>
<td>Systematically review studies of the effectiveness of interventions (individual, community and societal) operating via different approaches (targeted or universal) in reducing socioeconomic inequalities in obesity-related outcomes amongst children.</td>
<td>Health behaviours</td>
<td>Systematic review</td>
<td>Individual, community and societal-level interventions that aim to prevent obesity, treat obesity, or improve obesity-related behaviours (diet and/or physical activity) do not increase socioeconomic inequalities; many of the universal interventions have the potential to slow the widening of the obesity gap, and some of the interventions which are targeted at low SES children may be effective in decreasing obesity amongst lower socioeconomic groups.</td>
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<td>Brown 2014</td>
<td>Equity impact of European individual-level smoking cessation interventions to reduce smoking in adults: a systematic review</td>
<td>Assess the equity impact of interventions/policies on youth smoking.</td>
<td>Smoking</td>
<td>Systematic review</td>
<td>Lower-SES smokers were more likely to access NHS stop-smoking services but less likely to quit compared with higher-SES smokers. The evidence suggests that UK NHS services that target low-SES smokers achieve a relatively higher service uptake among low-SES smokers, which can compensate for their lower quit rates.</td>
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<tr>
<td>Study</td>
<td>Research Question</td>
<td>Methods</td>
<td>Findings</td>
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<td>Harris 2015</td>
<td>Can community-based peer support promote health literacy and reduce inequalities? A realist review</td>
<td>Social Systematic review</td>
<td>Successful peer-support programmes have the potential to reduce health inequalities by changing perceptions of social status.</td>
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<td>McGill 2015</td>
<td>Are interventions to promote healthy eating equally effective for all? Systematic review of socioeconomic inequalities in impact</td>
<td>Diet Systematic review</td>
<td>Interventions categorised by the “6Ps” modified version of the “marketing mix” framework demonstrated differential effects on healthy eating outcomes by socioeconomic position (SEP). “Upstream” interventions categorised as “Price” appeared most likely to decrease health inequalities, while “downstream” “Person” interventions appeared most likely to increase inequalities (this association weakened when only studies which reported significance values pertaining to SEP differential effectiveness were included).</td>
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<td>Moore 2015</td>
<td>Socioeconomic gradients in the effects of universal school-based health behaviour interventions: a systematic review of intervention studies</td>
<td>Health behaviours Systematic review</td>
<td>The review indicated that universal school-based interventions may narrow inequalities or make them worse. No interventions based solely on education reduced inequality, while all interventions which worsened inequality included educational components. By contrast, interventions which resulted in a narrowing of inequality included environmental change components.</td>
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<td>Croker-Buque 2016</td>
<td>Interventions to reduce inequalities in vaccine uptake in children and adolescents aged &lt;19</td>
<td>Health care Systematic review</td>
<td>Complex, locally designed interventions demonstrated the best evidence for effectiveness in reducing inequalities in deprived, urban, ethnically diverse communities.</td>
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</table>
years: a systematic review applied to vaccination and new vaccine programmes (eg, human papillomavirus in adolescents).

| Barr 2017 | Investigating the impact of the English health inequalities strategy: time trend analysis | Investigate whether the English health inequalities strategy was associated with a decline in geographical health inequalities, compared with trends before and after the strategy. | Public health regulation | Time trend analysis | The English health inequalities strategy was associated with a decline in geographical inequalities in life expectancy, reversing a previously increasing trend. Since the strategy ended, inequalities have started to increase again. |
| Griffin 2019 | Evaluation of intervention impact on health inequality for resource allocation | Demonstrate a method for conducting quantitative inequality impact assessment using available aggregate data. | Policy and politics | Economic evaluation | Fully implemented, the potential impact of all recommendations was a reduction of the gap in quality-adjusted life expectancy between the healthiest and least healthy from 13.78 to 13.34 QALYs. |
| Simpson 2021 | Effects of social security policy reforms on mental health and inequalities: A systematic review of observational studies in high-income countries | Provide a synthesis of observational literature on the effects on mental health and inequalities in mental health of social security reforms. | Welfare system | Systematic review | Policies that improve social security benefit eligibility/generosity are associated with improvements in mental health. Social security policies that reduce eligibility/generosity were related to worse mental health. Contractionary policies tend to increase inequalities whereas expansionary policies have the opposite effect. |
9.3 Appendix 3: Complete list of all case studies


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   cohesion and health and well-being: baseline survey results from the communities in control 
   English health inequalities strategy on geographical inequalities in infant mortality: a time-
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   improvement in a community-led area-based empowerment initiative: evidence from the Big 
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   strategy: Time trend analysis. BMJ. 2017. doi:10.1136/bmj.j3310
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