# An Overview of the Evidence Available to Reduce Health Inequalities in Three Key Areas: Pre-conception, maternity and children; premature mortality; and Ageing and dying well.

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*This report provides a summary of the key literature on reducing health inequalities. The purpose of this report is to support the decision making of the City CCG Reducing Inequalities Committee (RIC). This is not a systematic review – it may have missed key pieces of evidence and has not assessed the quality of the evidence reported. Please note that a lack of evidence, or weak evidence means that more research is needed, it does not mean that an intervention is not effective.*

## 1. Executive Summary:

### 1.1 Background

Areas with high levels of child poverty tend to have: poorer levels of child development, school readiness and educational attainment, high levels of obesity, more high risk behaviours, poor quality, overcrowded unfit and noisy housing, busy, polluted roads with low walkability, poor quality green spaces for play and exercise, high fast food outlet density and food deserts, more looked after children, poor performing schools and higher school exclusion rates, higher levels of youth crime and lower entry into further education, training or employment [1]. These wider determinants, and inequalities in these, damage child health, cause clustering of unhealthy behaviours, impair life opportunities and increase longer term morbidity risk [1]. Addressing them can improve health outcomes [2], but poor health has often been attributed to bad choices rather than framed as the product of complex systems and so public health interventions often seek to directly influence behaviours rather than addressing the conditions that drive them and in other ways directly affect health [3]. There is increasing focus on how to solve these inequalities [4], shifting the emphasis from deficits to harnessing of community assets, recognising the lived experiences and resourcefulness of disadvantaged communities, working 'with', rather than delivering 'to' people, and applying systems thinking principles to examine poor and unequal health "as outcomes of a multitude of inter-dependent elements within a connected whole" [5].

### 1.2 Key Messages for Reducing Health Inequalities

#### 1.2.1 The importance of prevention and early intervention

Three recent national reports [6-8] have highlighted the importance of early life prevention and maternal and child health to avoid negative health and social and emotional outcomes in later life. However, we have a long way to go before effective early intervention is available to every child or family who needs it. Part of the reason for this is that the current system holds back early intervention, through a combination of funding pressures, short-term planning, fragmented responsibilities, not using evidence in decision-making, and gaps in understanding what works. City CCG should work with its' partners and policy makers to shift these barriers across the system.

A recent report from the Institute of Fiscal Studies has shown that Sure Start children centres significantly reduce hospital admissions for children, and have a huge cost saving to the NHS [9]. These findings were only significant in deprived areas, suggesting that this service is able to reduce health inequalities. This report recommends that funding cuts to children's centres are reversed in order to enhance the health outcomes of children in poor areas.

### 1.2.2 The importance of addressing poverty to avoid increasing inequalities

Interventions that have been implemented to improve health and wellbeing can lead to an increase in inequalities if effectiveness, provision, access, uptake or compliance are poorer among people living in the most disadvantaged circumstances [10]. It is important to ensure that interventions can be accessed by, and are attractive to, people living in poverty, and if they are not, that the barriers to attendance are addressed directly (e.g. through financial / benefits advice and quality housing). Evaluations must also answer equity questions, for example to understand which groups of the population are taking part and benefiting and understand why others are not.

It is also important to consider the economic impact of poverty; the health costs across the life course which are a result of adverse childhood experiences are unsustainable [11]. Therefore it is paramount we address the roots of the problem in childhood with interventions that are implemented population wide but which also address the more vulnerable with targeted support [12].

### 1.2.3 The importance of improving the evidence base of public health interventions

As noted above, there is strong evidence for the benefits of prevention, early identification and intervention on reducing negative health, social and emotional outcomes across the life span (including early mortality and living and dying well).

The biological determinants and medical interventions of these diseases are well evidenced, and we have not included these in our review as they are already available through usual practice guidelines. Unfortunately, there is a paucity of robust evidence for effective interventions that tackle the social determinants of health. Locally developed interventions, or those that are feasible/acceptable to deliver locally, that fit the needs and outcomes of the RIC should be implemented. However, the evidence around wider determinants of health and barriers to accessing support must be considered as a part of this implementation and evaluation.

These interventions must be evaluated in order to add to the evidence base of what works. Indeed, the agenda has been set to prioritise research in this field, particularly in preconception, prevention and early intervention. Bradford, with its strong research links and additional RIC funding, is in a strong position to add significantly to this evidence base.

### 1.2.4 The Importance of System-Wide intervention and evaluation

Across the academic world there is a move from focusing on behaviour change at an individual level to influencing wider systems change [3-5]. Interventions to address specific behaviours have some evidence of effectiveness, but unless these interventions are implemented within systems that address the wider environmental, economic and social factors, they will have only limited success. For example patients/parents may well understand the benefits of physical activity on health, but if there are no safe green spaces available or accessible; or if gym memberships are too costly, then their ability to engage in physical activity is blocked.

Our review of the literature has identified a number of system-wide issues that, if addressed, could impact upon multiple needs identified by the RIC. These are:

1. Address the barriers to uptake of health care by tackling poverty
2. Improve housing quality (e.g. damp and fuel poverty) to decrease the number of respiratory illnesses requiring medical attention
3. Encourage the uptake of physical activity through clear messaging and interventions
4. Provide safe green spaces to increase physical activity and exercise
5. Reduce pollution to decrease the number of respiratory illnesses requiring medical attention.
6. Improve access to and continuity of healthcare through a reduction in locum Drs and ensure that staffing levels match the demand in the area (e.g. ensuring timely and appropriate screening to enhance early detection of CVD, Diabetes and provision of treatment).
7. Remove multiple barriers to accessing healthcare by addressing cultural, logistical, financial and language needs of the community.
8. Consider whether a community is ready to engage with interventions on a particular issue.
9. Take a multi-disciplinary and multifaceted approach to care, including the use of community assets to support complex conditions.
10. Provide clear health messages that are delivered consistently by all health professionals and volunteer groups.
11. Consider changes to policy to enable wider targeting of interventions and messaging through schools, religious settings, the community and physical environment which may enhance the impact of individual behaviour change interventions
12. Reduce social isolation to improve health outcomes.

## 2. Introduction to the Review

This evidence review has searched for evidence of effective ways to reduce health inequalities in the three key themes of interest of the RIC. Within each of the three themes there has been a focus on specific conditions or diseases which have been identified by the RIC as being of particular interest due to the prevalence in the Bradford City CCG area:

1) **Pre-conception, maternity and children**
    a. Infant mortality
    b. Childhood obesity
    c. Respiratory morbidity
2) **Premature mortality**
    a. Cardiovascular
    b. Respiratory
    c. Cancer
3) **Ageing and dying well**
    a. Frailty
    b. Dementia
    c. End of life care
    d. Social isolation

This evidence review intended to present the findings for each of the three life stages separately. However, it became apparent that, whilst there is strong evidence for medical and healthcare interventions, there is a paucity of evidence based interventions targeting behavioural/social determinants of health inequalities. Instead, we have presented key areas where intervention may prove beneficial across multiple themes/diseases that are being targeted by RIC. Many of the above conditions are interlinked and many solutions are consequently overarching in addressing more than

one condition. This review was undertaken in May-June 2019. The search strategy for this review can be seen in Appendix 1. Literature searches were undertaken in Cochrane and CINAHL. Grey literature was also searched, including Google Scholar and the reference lists of included papers. Due to the time limited nature of this review, an extensive search strategy was not developed rather key terms were used. For example, “inequalities”, “interventions”, “reduction” and “childhood obesity”. And the included papers were not quality appraised. Papers were excluded if they were in a language other than English, were a health/medical intervention or conducted in a country that is not wholly comparable to the UK. It is acknowledged that due to the search strategy outlined above, not all relevant papers will have been identified.

# 3 Key Findings

## 3.1 Poverty

The importance of poverty for children’s health and development has long been recognised. Child mortality is highest in poor/deprived areas and children growing up in poverty have poorer physical health and are more likely to be overweight, are more likely to have behavioural and socio-emotional development problems, and have poorer cognitive development and education outcomes, than children growing up in more affluent households and areas [1, 13]. Child poverty is rising in the UK, and 30% of children live in poverty [14]. The Royal College of Paediatrics and Child Health’s State of Child Health report (2017) [15] was widely discussed last year [16]. It showed that impacts of poverty on children’s health are being felt by doctors, and that things appear to be getting worse. The report included results of a survey with paediatricians in the UK, showing concerns over income and food insecurity for children’s nutrition, and worry, stress and stigma for children’s mental health and emotional wellbeing. This reinforces previous studies, which have also highlighted the important pathways of parental stress and material deprivation [13]. Reports and academic papers have put forward a number of strategies to reduce child poverty, and to reduce the impact of child poverty on health and development [1, 17, 18]. These include:

- ensuring sufficient income for an adequate quality of life for families with children (e.g. Universal Basic Income / universal access to benefits and welfare advice / participatory budgeting);
- affordable housing;
- affordable and high quality early years childcare and early years services;
- supporting parents into employment;
- supporting all children to access a healthy diet;
- high quality home visiting and universal services;
- support to families though parenting programmes, children’s centres and support and services during pregnancy.

## 3.2 Housing

We are seeing the impact of fuel poverty leading to poor housing conditions which can impact children’s health. There is a positive association between mould in the home and wheeze, although genetic factors can make children more susceptible [19]. Given the lifelong impacts of childhood respiratory conditions it is important to consider the future economic impact and how we can prevent that. For example, government investing in improving homes by adding

ventilation or central heating have proved to be cost effective solutions when comparing the improvement in asthma and quality of life in children [20].

## 3.3 Encouraging Physical Activity

Sedentary lifestyles are growing increasingly under the spotlight for causing chronic disease and premature mortality. As early intervention is often key, one must consider promoting more active lifestyles for children. Research shows it is important to limit sedentary behaviours and encourage a healthier more active lifestyle [21]. However when looking to promote more active lifestyles, it is equally important to consider the challenges for parents and patients. For example if safe green spaces are not available or accessible for families, parents may prefer to keep their children indoors [22]. It may be that smaller steps are taken through interventions such as: changing practices in the home encouraging (e.g. no TVs in children's bedrooms or while eating family meals; educating people on what counts as physical activity - it isn't necessarily about spending hours in a gym but being active (e.g. going for a walk or playing with your children); encouraging whole family activity which could improve parent's health and instil the importance of activity in children at an early age. These small changes could have a positive impact on health while public health/policy tackles wider socio-ecological challenges.

A lot of jobs now require significant periods of time sat at desk. Therefore it could be beneficial to work with employers to invest in workspace adjustments. One popular solution is adjustable desks which allow people to stand while working at their desk [23]. Evidence suggests improvements in health outcomes and therefore could reduce a future economic health burden.

Physical activity can also improve the prognosis of frailty [24]. One systematic review found that long-term high intensive exercise programmes for the moderately frail were impactful on frailty [24]. Home based exercise programmes have been shown to reduce moderate frailty, but not severe frailty [25]. Clegg et al (2012) suggest that home based exercise could be a widely applicable intervention [25].

## 3.4 Access to Safe Green Spaces

When encouraging people to increase their physical activity it is important to consider options available to people including access to spaces to partake in exercise. Exercise requires leisure time, a luxury some are not afforded, or a costly gym membership or babysitting for children. Green spaces in communities have been shown to encourage walking and improve health outcomes; the biggest impacts of this are seen in the most deprived areas however [26], further research is required to fully understand the relationship. It is important to consider green spaces in urban areas as they have the potential to positively impact many areas of families' wellbeing.

Urban areas have disproportionate rates of obesity [27]. One way to address this could be the introduction or improvement of green spaces. The lack of urban green spaces is considered by some to be an 'environmental injustice' [28]. Before developing green spaces or projects that use them, it is important to understand how communities use green spaces [26]. Involving communities in the development of urban green spaces could instil a sense of ownership and increase their utilisation [29]. There is evidence to demonstrate that urban green spaces do positively impact physical and mental health but it is a complex relationship with many compounding factors [30]. Improving greenspaces can have a positive impact not only on health but also the aesthetics of the space and economically.

## 3.5 Reducing Pollution

The built environment, including transport and urban design, does have an impact on respiratory health [31]. One German review found that traffic and green spaces were the biggest influence on respiratory health [31]. Outdoor air pollution is a global concern. There is a link between traffic pollution, the main source of outdoor air pollution and deprivation [32].

It is important to acknowledge that the impacts of pollution or the built environment on respiratory health are multifaceted and have a complex causal relationship [30]. Consequently it is paramount that there is investment, both in resources and a cultural shift, needed from the government, health and communities as change is needed at both a policy and individual behavioural level.

## 3.6 Access to High Quality HealthCare:

Research suggests that services are less accessible in more deprived areas. The British Medical Association has recently highlighted that CCG's in the most materially deprived parts of the country are more reliant on locums, and that this leads to variations in continuity of care.
CCG data indicates a negative correlation of NCDs and avoidable mortality with the level of GP provision, CCG's with higher levels of NCDs and avoidable mortality tend to have lower levels of primary care provision.
Equitable access to services is paramount in reducing adverse health outcomes, and continuity in care enhances recovery and outcomes. Research has shown that the health care system has the biggest role in inequalities in cancer care compared to tumour and patient factors [33]. A focus should be placed on access and knowledge of services so patients' access them as soon as possible but also ensure the services they access are appropriate [33]. Reducing the number of locum GPs and ensuring the workforce is available to meet the demand of patients' needs is critical.
When considering infant mortality one must examine the health care mothers receive and the impacts on infant outcomes. It is important expectant mothers, especially those considered 'at risk', have access to high-quality antenatal care through antenatal courses or continuity of care models.

Telemedicine has the potential to improve access and reduce costs of healthcare. Research has shown that the use of telemedicine in the management of heart failure had similar health outcomes from face-to-face or telephone delivery of care [34]. It was also concluded that it had a greater decrease in blood pressure in those who were allocated telemedicine compared to usual care [34]. However as this is a relatively new development in the world of healthcare more research is required in to the long term impacts, including the acceptability for patients for telemedicine to be implemented. For example the use of skype consultations requires the patient to have access to the technology and reliable internet connection which cannot be presumed of all patients therefore it must be treated with caution and equitable access must be ensured.

## 3.7 Reducing the barriers to accessing services

It is paramount that barriers to accessing services, including financial, logistical, language and administrative barriers, are addressed to ensure maximum utilisation [35] and avoid the risk of increasing inequalities [36]. For example, research has shown a paradox in terms of treatment and prevalence of asthma among children, with south Asian children having a significantly lower rate of asthmatic symptoms and of clinician-diagnosed asthma than white children, but a significantly increased risk of admission for asthma. Netuveli et al (2005) suggest potential reasons for these disparities including differences in health seeking behaviours and difficulties in accessing high quality services [37].

**Comment [JD1]:** (https://www.bbc.co.uk/news/uk-england-36497621).

**Comment [JD2]:** See workforce report.

Attending services that are not close to home and that require transport costs can have an impact on engagement. Consideration of optimal locations for delivery of services in deprived areas is important. For example, home based rehabilitation for CVD has been found to have a similar impact to centre based, thus negating access issues [38].

It is important to acknowledge the cultural differences when health or social care professionals are interacting with people. Language and lack of culturally competent screening tools are considered main barriers for people in accessing a diagnosis or treatment [39]. For example the language used in diagnosis and after care is very important and so one must consider the impact if this is being explained to a patient in their second language. There are also differences in the understanding of dementia, with some communities accepting memory loss as a natural part of adding or stigmas around mental illness are both cited as reasons for cultural differences in health seeking behaviours surrounding dementia [40].

There are significant barriers groups face when accessing end of life care which leads to inequitable services. Death and dying is enshrined in many cultural rituals, cultures deal with death very differently. For example the increasing medicalisation of death means many people die in hospital. People with large extended families can be discriminated against by strict visiting rules and lack of understanding by staff. Literature regarding options for people need to be more accessible in terms of being offered in a variety  languages but so people also have the opportunity to discuss their options with a health care professional. In recent years there has been a positive shift towards ending taboo's around talking about dying, yet there is still a long way to go. One effective intervention that has been implemented in some areas is introducing a role that can act as a link between the community and end of life care services to improve awareness and understanding of what they provide. There is some lack of understanding in the role of hospices among some communities. While there have been steps in improving access for more people to die at home it should not be presumed that this is what people want or indeed is suitable. Accessing end of life or palliative care can be seen by some as "giving up" whereas these services can offer so much more including emotional support and respite.

One would suggest implementing interventions, grounded on the current evidence base [41], tailored for specific groups to ensure they have access to appropriate services. For example one concern is that hospices cannot meet the religious and spiritual needs. This is a concern that could offer an opportunity for end of life care providers to work with communities and engage them to ensure culturally competent care. However it is important to consider the complexities in deliver culturally competent care in diverse communities [42].

There are differences in access to services and outcomes for migrant patients, including in pregnancy with migrant women having poorer pregnancy outcomes [36]. Countries with a more 'active' integration policy show a marked reduction these disadvantages [35]. An "active" attitude towards integration is defined as "steps are taken to acknowledge cultural differences and specific needs, completed by special forms of services" [35]. This European wide review concludes that action is required to promote integration and use targeted interventions [35]. Implementing a multi-dimensional policy to reduce the inequalities could see a reduction in infant mortality rates [35].

### 3.8 Assess the readiness of the community to engage in interventions

Providing the "right" or evidence based interventions to a community will not have an impact unless the community are ready to receive support for that issue [43]. Offering something to a community who are not ready to receive it can lead to wasted resources which would be better used in other ways

Communities experience many different stages of readiness and if the community is not aware about an issue, displays resistance to an idea, or does not see it as a priority, then they will not engage with an intervention on offer. Ideally, prior to implementing interventions, efforts should be made to understand the readiness of the community and to focus on improving their readiness where necessary. The Community Readiness Model (CRM) is a useful tool to assess the readiness of a community. It provides some approximation of the likelihood that a target community will tackle an identified issue. The purpose is not only to gauge where a community is, but to find ways to nudge it in the right direction.

## 3.9 Multi-Disciplinary Care

More people than ever are living with NCDs and there is more choice in managing one's own care. However, the quality of life experienced is dependent on local services and support. Due to the multifaceted nature of these NCDs, multi-disciplinary team are needed to provide holistic and effective treatments or interventions. Social prescribing could play an important role in tackling the underlying social determinants of NCDs. It may be appropriate to consider developing more tailored interventions for individuals, this may involve interventions from both health and social care settings [44].

Dementia friendly communities is a wide reaching initiative set up by Alzheimer's society in the aim of making communities more understanding, accessible and for people living with dementia to feel empowered. Dementia friendly communities have done a lot of good around the UK but it is acknowledges that these rely on resources from local government, business, communities and volunteers in order to make them work well and implement impactful change. Some research shows that there is also an under-representation from some marginalised groups [45].

## 3.10 Wider integration of interventions

While it is important to account for individual behaviours, these can be difficult to change, the need for wider targeted interventions including the school, community and physical environment may be required to circumnavigate this potential barrier [46]. DeBarr (2006) suggests this could take the form of PE standards and improved nutrition within schools [47]. This needs to be in conjunction with individuals, including parents and children, understanding which behaviours are not healthy but ensuring access to or knowledge of appropriate alternatives. Knopf et al (2016) found implementing a school based health centre in the United States improved educational and health outcomes for disadvantaged students [48].

There is strong evidence to suggest that involving parents in interventions has a positive impact in the outcome of the intervention. Reducing obesity early in childhood could begin with the parent's behaviour, such as including parents in interventions to support learning [22]. On a practical level interventions need to be flexible to encourage as many parents as possible to be involved [22] but also the mode of delivery is important as one review found the fear of being judged put them off [22].

Socioeconomic deprivation in childhood may make people more susceptible to negative effects of smoking and occupational exposure. Considering how the workplace can help to protect against this, and encourage other positive behaviours (e.g. health screening and physical activity) should be considered, but may require public health campaigns and occupational legislation (e.g. health and safety) [49].

## 3.11 Consistent and Clear Messaging

Ensuring access to appropriate information, advice and messaging is key to prevention and behaviour change. Increasing awareness around symptoms of NCDs and risk factors may help educate groups who typically present late for medical help. How the information is presented is key to promoting awareness, one review found evidence to support community based interventions as well as tailored interventions [50].

However evidence shows that this can vary from one professional to the next, or can be missed due to time pressures/lack of resources. For example, advice on improving damp in homes has been observed as conflicting from different sources with some encouraging families to keep windows open to improve ventilation while others advised them to keep windows closed to reduce allergens and to improve security [51].

Whilst healthcare professionals are often well trusted in delivering advice, due to restrictions of resources it is not always practicable to offer advice on important issues such as physical activity during a short consultation.

Solutions to these issues include: encouraging community and healthcare staff to work more closely together to offer suitable interventions [52]; the use of pre-screening reminders, general practitioner endorsement, more personalised reminders for non-participants, and more acceptable screening tests [53]. Understanding the cultural context of adverse health behaviours is important in developing interventions to reduce them. For example one review exploring the social context of smokeless tobacco use in the South Asian population found that due to the general cultural acceptance of smokeless tobacco the risks were less widely known [54].

## 3.12 The importance of reducing social Isolation

Social isolation is a multi-dimensional concept in that it is considered structural and functional, impacts mental and physical health [55]. Social isolation has been shown to increase premature mortality and increase chance of coronary heart disease and stroke [56]. Due to its wide reaching impacts, isolation is considered a public health issue [57]. The quality of social relationship has been shown to improve the prospect of survival [58].

In 2018 the Government launched the first national strategy to tackle loneliness [57]. By 2023 the government aims for all GP surgeries to be able to refer people experiencing loneliness to local groups or voluntary services. This mode of social prescribing should reduce the demand on the NHS while improving the quality of life for all people; this strategy is not just aimed at the elderly.

Group activities have proven effective in reducing social isolation [55]. Groups have been most effective when they involve active participation [55]. Social groups have proven effective when they target specific groups for example widowed, physically inactive or women [59]. Initiating tailored groups could improve the longevity of the programme.

Men's Sheds [60] is one example of a successful initiative that aims to tackle loneliness and isolation by providing spaces for people to engage in activities they enjoy. The underlying principle of this service is that men don't talk face to face but shoulder to shoulder. While Men's Sheds are now open to anybody it highlights the importance of providing spaces for social groups with similar interests who prefer to communicate in different ways and about different things. Men's Sheds was stared in Australia nearly thirty years ago and now has projects all over the world.

When introducing a time-limited intervention one must consider the long-term impact of the intervention. For example in implementing a group that fosters a good support network it would be hoped that this continues outside of the group. Groups that focus on improving self-esteem and increasing personal control have been shown to increase the long-term effects [59]. This sense of personal control could be extended to involving groups in the development or evaluation of the activities or intervention.

Just because individuals are speaking with people or have home visitors for example does not mean they will not feel isolated. Not all social contact has the same value [55]. For example the positive effects of one-to-one home visits have been inconclusive [59]. Therefor it is important to establish interventions that involve meaningful interactions and have a purpose; for example physical activity groups.


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