Rural health inequalities

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Midlands Decision Support Network

Contents

Chapter 1

Introduction and context

i. What are health inequalities?

ii. The Marmot Review

iii. The NHS and government response to health inequalities

What are health inequalities?

Health inequalities are defined by NHS England (2023) as “**unfair and avoidable differences in health across the population, and between different groups within society**”. These include “**how long people are likely to live, the health conditions they may experience and the care that is available to them**”. NHS England recognise the intersectional nature of wider determinants of health, which can combine to mean that **some individuals or groups experience worse care than the general population**. In the UK those most likely to experience health inequalities currently are those living in areas of **high deprivation**, those from **Black, Asian and minority ethnic communities** and people from **inclusion health groups** (NHS England, 2023).

The World Health Organization (2018) outline that disparities in health status between different social groups occurs in all countries. With individuals in lower socio-economic groups at higher risk of poor health.

WHO define health inequalities as “**systematic differences in the health status of different population groups**”, which have a negative impact on both individuals and wider society. They argue that these inequalities can be reduced by government policies.

The Kings Fund (2022) provide examples of recognised health inequalities within the UK. They outline the link between deprivation and life expectancy, known as the **social gradient in health**. They also highlight (using ONS data) that **people living in the least deprived areas are likely to have 20 years longer in good health** than those in the most deprived areas. Further to this **people in the most deprived areas are over three times more likely to die from avoidable causes**. Additionally, **deprivation increases the likelihood of an individual suffering from multiple long-term health conditions and/or mental ill-health**.

The Marmot Review

Fair Society, Healthy Lives (Marmot et al, 2010) is a report from an independent review chaired by Professor Sir Michael Marmot, looking at ways to reduce health inequalities in England. Marmot recognised that **health inequalities were shaped and driven by social inequalities**. Equally, he recognised that health inequalities impact on not only individuals and their communities, but wider society and the economy. As such, Marmot suggested that a **combined effort between "local government, the NHS, the third and private sectors and community groups"** was required to successfully tackle health inequalities. Additionally, he highlighted that for national policies to work, they must be coupled with effective local delivery systems that include **participatory decision-making with individuals and local communities**.

The six priorities suggested by Marmot were to:

- **Give every child the best start in life**
- **Enable all children young people and adults to maximise their capabilities and have control over their lives**
- **Create fair employment and good work for all**
- **Ensure healthy standard of living for all**
- **Create and develop healthy and sustainable places and communities**
- **Strengthen the role and impact of ill health prevention**

Ten years on from The Marmot Review, Professor Sir Michael Marmot produced a report commissioned by The Health Foundation (2020), considering the progress made in relation to tackling health inequalities in England. He suggested that rather than narrowing inequalities**, the health gap between wealthy and deprived areas had grown**. **Improvements in life expectancy had stalled** for the general population, and even declined for women living in the most deprived communities (outside of London). **Time spent in poor health was found to be increasing**. Geographical differences were also identified, with deprivation having a greater of an impact on health in the North East than London. Marmot concluded that for almost all of the recommendations made in the original report, England has been heading in the wrong direction. In response he called for the establishment of a highly visible health inequalities strategy, with clear targets.

The NHS and government response to health inequalities

The NHS has responded to the ongoing challenge of health inequalities through a number of interventions and initiatives.

Most recently NHS England (2023) have launched **Core20PLUS5**, aimed at informing action to reduce healthcare inequalities at a national and system level. The 'Core20' refers to the **most deprived 20%** of the national population. 'PLUS' refers to **population groups identified at a local level as experiencing inequalities**. The '5' refers to the five clinical areas identified as requiring accelerated improvement; **Maternity; Severe mental illness; Chronic respiratory disease; Early cancer diagnosis; Hypertension case-finding and optimal management and lipid optimal management.**

The key priority areas outlined by NHS England (2021) during the Covid-19 pandemic to underpin the work of the National Healthcare Inequalities Improvement Programme (HiQiP) were to:

- **Restore NHS services inclusively**
- **Mitigate against digital exclusion**
- **Ensure datasets are complete and timely**
- **Accelerate preventative programmes that proactively engage those at greatest risk of poor health outcomes**
- **Strengthen leadership and accountability**

Consecutive UK governments have made sustained attempts at tackling health inequalities. In 2021 the Office for Health Improvement and Disparities was established, with the remit of improving public health policy across England. The office has a specific focus on **identifying and addressing health disparities for groups who experience health inequalities**. This includes **preventable risk factors** for ill health such as tobacco, obesity and harmful use of alcohol and drugs.

The Office for Health Improvement and Disparities (2022) has published guidance on how health and care professionals can best apply the All Our Health (2019) framework to help to tackle inequalities. The framework advocates for **collaborative, evidence-based interventions that can be incorporated into everyday practice**.

Chapter 2

Rural health inequalities

i. What are rural health inequalities?

ii. Latest policy: The Department for Environment, Food and Rural Affairs

iii. Rural health inequalities and drivers diagram

What are rural health inequalities?

Although there is no universal definition of ‘rural’, we have adopted the UK Government (2016) definition as areas that “**fall outside of settlements with more than 10,000 resident population**”. This accounts for 90% of England, with 17% of the total population living in local authorities defined as rural (Department for Environment, Food & Rural Affairs, 2021).

Perceptions of rural living as healthier, ignore the deprivation, isolation and social exclusion experienced by many people living in rural areas. Often with less access to services that can offer relevant support.

The Covid-19 pandemic and cost of living crisis have exacerbated inequalities experienced by those living in rural areas (Nuffield Trust, 2020). The economies of seasonal, tourist locations have been heavily hit. The housing stock in rural areas is larger, older and less energy efficient, making them expensive to heat and leading to fuel poverty.

NHS England (2018) outlined that “Where these characteristics (older age group, rural location and socio-economic disadvantage) coexist there is likely to be intersectionality where complex determinants of health **relate, intersect and reinforce** each other leading to delayed diagnosis, poor quality of care, higher mortality and greater inequality”.

From our initial searches and mapping of reports the following themes emerged as recognised drivers of rural health inequalities:

- **Patients and services being more geographically dispersed**
- **Funding and increased costs**
- **The demography of rural areas**
- **Digital exclusion**
- **Lack of transport**
- **Housing and fuel poverty**
- **Deprivation, isolation and social exclusion**
- **Workforce issues within the NHS**
- **Climate change**
- **Coastal issues**

Latest policy: The Department for Environment, Food and Rural Affairs

The UK government recognises the existence of rural health inequalities and has, over the last few decades, made a sustained effort to tackle inequalities through policy. However, inequalities persist, and in some cases have widened (Marmot et al 2020). A recent debate in the House of Lords (2023) and accompanying briefing provides the most up-to-date summary of the current government's progress and future priorities regarding rural health inequalities.

The Department for Environment, Food and Rural Affairs (2021) (Defra) have published a report on '**rural proofing**' policy in England. In the report Defra highlight how the government's own policy decisions can influence health services in rural areas. The implementation of **5G networks** is one area outlined with the potential of supporting the delivery of rural health services. The Digital Inclusion Innovation Fund is highlighted as supporting **digital skills training**, particularly for older and disabled people. The document also outlines the role of **NHS funding allocations** (independent of the government) and the challenges faced regarding **workforce recruitment and retention**.

Defra's (2022) second report on 'rural proofing' focused on the government's **twelve 'levelling up missions**'. The mission relating to health includes action through the following policies:

- The **Pharmacy Access Scheme** – A £20 million commitment towards supporting pharmacies to stay open so that they can provide accessible primary care.
- The NHS **Community Pharmacist Consultation Service** – Aimed at facilitating same day appointments community pharmacists for minor illness or urgent supply of regular medicine.
- The **Targeted Enhanced Recruitment Scheme** – A £20,000 salary supplement aimed at attracting GPs areas where training places have been unfilled for multiple years (including rural communities).
- The development of **Integrated Care Strategies** – Aimed at involving rural communities and their representatives in decision making to ensure local needs are considered.

Rural health inequalities and drivers diagram

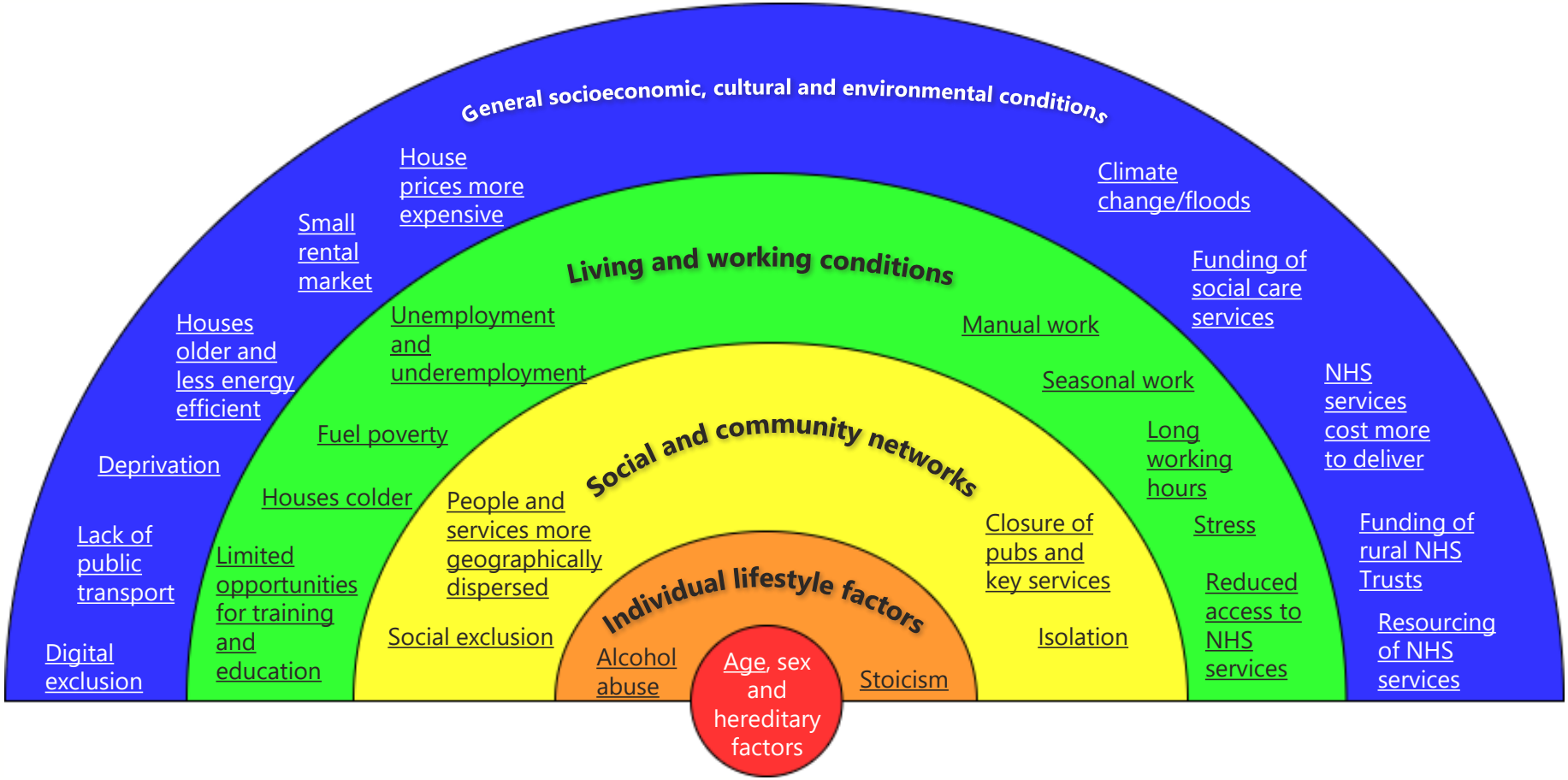
The rural health inequalities diagram on the following page has been adapted from Whitehead and Dahlgren's (1993, as cited in 2007) model for the social determinants of health. The model intends to illustrate the **fixed factors of age, sex and hereditary features** and how they are **surrounded by influences** that are, at least theoretically, modifiable by policy.

The first layer of the model displays **individual lifestyle factors**, which are dictated by personal behaviours. In relation to rural areas this can include alcohol abuse (MacDiarmid, 2020) and other 'diseases of despair' common in rural communities with few opportunities for economic or social progress.

The second layer of the model displays the influence of **social and community networks**, which can be limited in rural areas with smaller, geographically dispersed populations. Recent decades have seen the closure of social destinations, such as pubs and key services, such as post offices (Public Health England, 2017). This has reduced opportunities for (particularly older) people living in rural areas to socialise, leading to isolation and social exclusion, which can contribute to poorer health (Donnelly et al, 2019), Richardson et al, 2018).

The third layer captures how an individual's health is influenced by **living and working conditions**. In rural areas this can include: homes that are not energy efficient (Public Health England, 2017); physically demanding work which can be stressful, seasonal and/or low paid (Centre for Better Ageing, 2021); unemployment (Centre for Better Ageing, 2021); limited access to health and other key services (The Rural Service Network, 2021).

The fourth layer depicts the wider, societal **socioeconomic, cultural and environmental conditions** that influence population health. This is relevant to rural communities in the form of: digital exclusion; lack of public transport; pockets of deprivation; limited and more expensive housing market; consequences of climate change (Paavola, 2017); funding and resourcing of social care services (The Rural Service Network, 2021); funding and resourcing of NHS services.



Adapted from: Whitehead, M., & Dahlgren, G. (1991)

Chapter 3

Drivers of rural health inequalities

i. Patients and health services more geographically dispersed
ii. Funding and increased costs
iii. Ageing population
iv. Digital exclusion
v. Transport
vi. Housing and fuel poverty
vii. Deprivation, isolation and social exclusion
viii. NHS workforce
ix. Climate change
x. Rural and coastal
xi. Future evidence analysis

Patients and health services more geographically dispersed

One primary factor driving health inequalities in rural areas is patients and health services being more geographically dispersed than in urban settings.

Public Health England (2017) highlight that people in rural areas often have **worse access** to health, public health and care services. They also recognise that the **longer distances** that patients are expected to travel, the less likely they are to engage with services ('distance decay'). They call for the development of '**rural hubs**' that can provide a wide range of services.

The Rural Service Network (2021) highlight that the average minimum travel time to a GP surgery and hospital is **significantly longer** in rural areas compared to urban areas. They call for the consideration of accessibility when hospitals reconfigure their acute and emergency services. They also advocate for the establishment of '**health hubs**' to provide a range of services away from main hospitals sites.

The Department for Environment, Food & Rural Affairs (2023) identify that in 2019 **only 80.9% of people living in rural areas had a GP within half an hour's** travel (public transport and walking), compared to 99.8% of people in urban areas.

The APPG Inquiry by the National Centre for Rural Health and Care (2022) recognises the difficulties faced accessing health and care services by many rural populations. They argue that this includes problems accessing: **maternity care** for parents; **community services** for children and young people; **primary and secondary care** for people of working age; and **health and social care** services for older adults.

NHS Providers (2021) highlight the difficulty in delivering community services to a small population based across a large geographical area. They suggest that where there are challenges in relation to access, **community and primary care** services should **coordinate** to be able to provide services effectively in a way that is convenient to patients.

The Centre for Mental Health (2020) identified the '**significant barriers**' faced by children (aged 8-13) in remote areas in accessing services that strengthen **protective factors** for mental health. This was particularly the case for children living in poverty and those facing intersectional disadvantages.

Patients and health services more geographically dispersed – recent studies

There is a consensus in the evidence that geographic dispersal of patients and health services in rural areas contributes to inequalities in access.

An analysis by Todd et al (2015) found that **only 19.4% of people living in rural areas were within a 20 minute walk of a G.P** premises. This compares to 94.2% in urban areas. Similarly, a cross-sectional study by Bauer et al (2018) found that spatial **G.P accessibility was lower in rural areas** than in urban areas.

Analysis by Olsen et al (2022) explored the concept of 20-min neighbourhoods, where vital services are within a 10-min walk, which the Scottish government had committed to apply nationwide. They found that only 5% of people in rural areas had access to all 10 domains, compared to 28% in urban areas**. Access to primary health care facilities was one of the domains that was less likely to be met**.

Emerson et al (2018) carried out analysis of geographical access to critical care services in Scotland. They concluded that there is good access to critical care services (around 45 mins drive), but there remain some disparities. **Very remote rural areas had poorer access** than in less remote areas.

A mixed methods study by Tozer et al (2019) outlined that rurality is a key factor in accessing neurological care. They found that **patients in rural areas face long travel times and waiting lists**.

There is some evidence to suggest that despite poor access, mortality rates and service provision are not always impacted.

A review by Chambers et al (2020) found no evidence to suggest that, for general populations, increased distance/travel time to urgent and emergency care facilities (as a result of reconfiguration) affected mortality rates. One paper (Knowles et al, 2018) found evidence of an increased burden on ambulance services.

Analysis of emergency general surgery (EGS) admissions in Scotland by Wohlgemut et al (2022) found that EGS patients from rural areas **had lower odds of mortality** than patients from more urban areas.

A systematic review by Ryan-Ndegwa et al (2021) found evidence to suggest **that increased rurality in England is associated with greater provision relative to need** in hip replacement surgery. As were longer road travel times for care.

Funding and increased costs

Providers in rural areas face higher costs than those operating in urban areas. The Nuffield Trust (2019) capture the costs associated with delivering health care in rural areas and the adjustments made to NHS financial allocations as a response. Despite this 'unavoidably small' sites continue to underperform in terms of length of waiting times/stay and finances.

Similarly, Public Health England (2019) found evidence to suggest that equitable outcomes cost more in rural areas due to factors such as **remoteness** and **limited economies of scale**.

NHS Providers (2021) also recognise '**structural deficits**' faced by some rural acute trusts. Acute providers are expected to meet the level of quality of services as urban trusts, whilst not having the **levels of activity** which attract sufficient levels of funding through payment-by-results.

The Welsh NHS Confederation (2018) recognise that some services in rural areas need to be provided across **multiple sites**, requiring input from a greater number of health and care staff per head than in more densely populated urban areas.

The Nuffield Trust (2020) highlight that the financial position of many rural and remote services has been disproportionally impacted by the COVID-19 pandemic. They suggest that **debts** have been accrued over time partially due to **like-for-like activities costing 8% more** in rural hospitals. They argue that policy makers are risk-adverse to making substantial changes to funding and as such, **population needs** and **unavoidable costs** are not accurately accounted for.

The Rural Services Network (2019) have called for fair allocation of funding to rural areas, that accurately reflects **patterns of demand** and the **costs** associated with providing services in sparsely populated areas.

The National Centre for Rural Health and Care (2022) argue that **accurate data** is required to effectively plan rural health services. They suggest that current data collection mechanisms that work in urban areas are unsuitable for less densely populated areas. This can result in rural services being **underfunded** and rural residents receiving **a lower level of care** than elsewhere.

Funding and increased costs – recent studies

The evidence confirms that many services cost more to provide in rural areas.

Byrne et al (2022) used cost-consequence analysis to evaluate stroke early supported discharges (ESD). They found that **service costs per patient were highest in more rural areas.**

A retrospective analysis of Scottish population death records linked to acute inpatient care episodes was conducted by Geue et al (2016). They found that **patients from remote and very remote areas incurred higher costs in inpatient end of life care.** They suggest that this is due to longer lengths of stay and advocate for alternative care provision as a potential solution.

An analysis by Kontopantelis et al (2018) explored the relationship between chronic morbidity, deprivation and primary medical care spending in England in 2015-16. They found that at a regional level, morbidity was modestly associated with practice funding. **Practice funding was highest in rural areas** due to smaller list sizes and similar staffing levels.

There is little evidence to suggest that closure or merger of smaller hospitals has been effective.

A review by Vaughan et al (2020) explores the feasibility of maintaining smaller, rural and remote hospitals. They argue that the **closure and merger of smaller hospitals has not historically resulted in lower system level costs or efficiencies.** Further to this they suggest that closures have caused harm to patients, increased burdens on the system and contributed to increased deprivation and health inequalities.

There is some evidence to suggest that where NHS resources are being targeted towards deprived areas, they are leading to a reduction in inequalities.

Barr et al (2014) conducted a longitudinal ecological study to explore the impact of NHS resource allocation policy on health inequalities in England between 2001 and 2011. They found that the NHS health inequalities policy of **targeting increased resources at deprived areas** had successfully led to a reduction in absolute health inequalities from causes amenable to healthcare.

Ageing population

The rapidly ageing populations in many rural areas is one of the greatest challenges to health service provision. A **higher proportion of rural populations are over the age of 65** than in urban areas (25.4% vs 17.1%) (Department for Environment, Food & Rural Affairs, 2021). This is projected to reach 31.6% by 2041 (National Centre for Rural Health and Care, 2022). This is caused by a combination of older people retiring to rural areas and younger people leaving to pursue education and/or work in cities.

The Nuffield Trust (2019) found evidence for **patients underutilising health care services** and then being **more ill when they do utilise services**. Public Health England (2017) highlight that many of these older people have a greater need of health and care services, with a large number experiencing **multiple chronic conditions**.

The recent All-Party Parliamentary Group with the National Centre for Rural Health and Care (2022) highlighted that the marginal adjustments to urban funding models for health and social care have not fully accounted for the additional **demographic and logistical challenges** faced by rural areas.

Public Health England (2019) reviewed the evidence on health inequalities in older populations in rural and coastal areas. They identified the following determinants and drivers of health inequalities: mobility, social exclusion and isolation, lack of access to health and community-based services, equitable outcomes costing more, deprivation, more emergency and elective treatment, NHS workforce challenges, lack of service providers, lack of transport, lack of awareness, existing poor health, seasonality, environmental conditions.

Public Health England (2017) highlight that **social isolation** is commonly experienced by older people living in rural populations. They suggest that this is due to a number of factors including the closure of shops and pubs, as well as the increase in internet-based communication. Green and Bramley et al (2018) suggest the **declining number of GPs** in rural areas has also reduced the support available to vulnerable older people.

The Department for Environment, Food & Rural Affairs (2019) have made specific calls for research and evidence on demographic change in rural areas, including the implications from increased demand on health and care services.

Ageing population – recent studies

There is evidence to suggest that barriers exist for older people accessing primary care in rural areas.

A realist review conducted by Ford et al (2016) concluded that **socio-economically disadvantaged older people in rural areas face personal, community and healthcare barriers when accessing primary care**. To help to overcome this it is suggested that they are given logistical support, such as transport and adequate time with professional staff.

Ford et al (2018) found, from their qualitative study, that for socio-economically disadvantaged older people in rural Norfolk, a perceived **social contract** existed between themselves and their G.P. The nature of the contract meant that they would not unnecessarily bother their G.P and in return they would receive prompt treatment when they were unwell. They felt that this was often breached when telephone lines were engaged or there were no available appointments.

There is also evidence to suggest that despite the perception that they are healthier, rural settings can often be challenging environments for older people to live in.

Hicks et al (2021) interviewed older men with dementia about their experiences of rural life. They found that whilst the men experienced the benefits of rural living in terms of living in a natural environment, they also faced **challenges in terms of the physical environment and lack of awareness of dementia amongst the wider community.**

A mixed methods study by Lee et al (2022) explored the potential for neighbourhood planning (NP) to support the ageing well agenda and wellbeing goals in rural areas of England. They found that NP had the potential to support ageing well in rural communities, however **currently in practice, there is little evidence of well-being or age-friendliness being considered in the physical or social planning of neighbourhoods**.

A review by Paavola (2017) found that food borne diseases, such as campylobacter, are more common in rural areas and amongst older age groups. Additionally **older rural populations are more likely to have their care disrupted certain types of extreme weather**. They also suggest that **climate change can aggravate pre-existing medical conditions in older people.**

Digital exclusion

Digital exclusion is another driver of health inequalities in rural areas. This is due to a number of factors including: (lack of) infrastructure, access to technology, and older populations being less familiar with using digital tools.

The Department for Environment, Food & Rural Affairs (2023) highlight that in 2020 the **lowest average broadband speeds were found in mainly rural areas** (51 Mbit/s), which is significantly slower than the average in urban city and town areas (84 Mbit/s). 1.2% of premises in mainly rural areas could not access services with download speeds of at least 10 Mbit/s and upload speed of at least 1 Mbit/s (vs 0.3% urban city and town). There was also an inequality in access to superfast broadband coverage (90% mainly rural vs 97% urban city and town)

Public Health England (2019) found evidence to suggest that whilst technology has the potential to enhance assessment, treatment and monitoring in rural areas, there are also **barriers in terms of broadband coverage and older people being unwilling to unable to engage with technology** (including telehealth and telephone advice lines).

Public Health England (2017) outlined that the establishment of **high speed broadband and mobile phone networks has not benefitted rural populations**, and has in fact exacerbated the inequalities faced. They suggest that this is particularly problematic as the internet has the potential to provide some solutions to rurality and sparsity. Age UK (2021) agree, recognising **rapid digitalisation as a potential driver of inequalities for older people**. Calling for older people to be supported to develop digital skills through local Voluntary, Community, and Social Enterprise (VCSE) organisations.

The University of Central Lancashire (2022) have shared how apps have helped to improve access to mental health talking therapies in rural Lancashire. They recognise however that the success of such innovations is **limited by the connectivity issues** that many people in rural locations face. They call for an acceleration of digital uptake and training for digital health skills for the clinical workforce.

The Rural Service Network (2021) has called for the government to formalise its commitment towards **rolling out full fibre broadband networks by 2025**.

Digital exclusion – recent studies

The evidence supports the idea that technology can help to overcome some rural health inequalities, however its impact is mediated by connectivity and digital literacy.

Currie et al (2015) explored attitudes towards the use and acceptance of eHealth technologies amongst older adults living with chronic pain in remote Scotland. They found that eHealth technologies were more likely to be accepted if they were not perceived to be replacing in-person care. They suggest that eHealth technology will become more prevalent once people are **more digitally literate and broadband services are improved** in rural areas.

A qualitative study by Potts et al (2021) looked at the potential co-design of chatbots to support mental wellbeing of people living in rural areas. Through conducting workshops across Northern Ireland, Ireland, Scotland, Finland and Sweden they found that chatbots do have the potential to play a role in supporting people with mental health needs. This is particularly relevant to rural areas with long waiting lists and geographically dispersed populations. However, limitations exist due to **lack of broadband coverage**, which can prevent equal access to mental health care support.

An integrative review by Calleja et al (2022) explored the potential for health practitioner education via telehealth with videoconferencing (VC). They found evidence to suggest that where it is used, telehealth education is well received and supported. However, utilising such technology is reliant upon **internet connection** (which can be poor in rural areas) and **clinicians' ability to operate equipment**.

Philip et al (2017) carried out a review to explore the 'digital divide' in Great Britain. They found evidence to suggest that an **urban-rural divide remains** and that **digital connectivity and Internet services are poorest in deeply rural areas**. Broadband **speeds are also lower** and **superfast broadband is less likely to be available**. They suggest that in some cases this is preventing individuals from accessing health information relevant to the medical condition that they live with. Uptake of broadband is similar in rural and urban areas where broadband is available. Satellite broadband is considered as one alternative, however this is currently more expensive.

Transport

Transport, and in particular lack of public transport, is a key driver in terms of health inequalities in rural areas (National Centre for Rural Health and Care (2022). Now the average minimum travel time to hospital is around one hour in rural areas, compared to half an hour in urban areas (National Centre for Rural Health and Care (2022).

Public Health England (2017) recognised access to **transport as a key factor having a disproportionate impact on people's health in rural areas**. They also highlight the wider need for transport in rural areas to open up access to education, employment, social and leisure activities. They call for the further consideration of "outreach, mobile services, localised delivery and telehealth techniques" to reduce the amount of travel that is necessary to access services.

Age UK's (2017) Painful Journey report captures the **difficulties many over-65s face in travelling to hospital appointments**. They suggest that where bus routes are cut in rural areas, this passes social and economic costs onto the NHS or care system, with older people unable to access preventative medical care or remain socially engaged.

The Centre for Mental Health (2020) present evidence to suggest that **poor public transport contributes to negative wellbeing in adults, and in particular children, in rural areas**. They are then faced with further travel to access statutory mental health services.

The Rural Service Network (2021) suggest that the government utilises its Bus back better (Department for Transport, 2021) strategy to improve current routes and restore former routes. They argue that this should be coupled with the expansion of the Rural Mobility Fund (Department for Transport, 2021) to support **community transport solutions** for smaller rural settlements. In another report Rural England (2022) highlight that bus use in rural areas has been slow to return to pre-pandemic levels.

The recent All-Party Parliamentary Group with the National Centre for Rural Health and Care (2022) recognised that poor public transport networks in rural areas **not only impact on patients, but also staff travelling to work**. Making cars essential and limiting the potential workforce.

Transport – recent studies

The evidence supports the notion that limited public transport networks in many rural areas reduce access to healthcare (and other key) services.

Analysis by Jo et al (2021) found that the majority of the population of Great Britain had some access to a form of public transport and that NHS dental clinics were generally within 4-800 metres of a public transport stop. However, **a significant proportion of rural residents had no access to public transport** (Scotland 40.7%, England 33.7%, Wales 38.3%). Only a minority of rural residents had access to a 'optimal' bus stop (Scotland 4.9%, England 7.5%, Wales 14.6%).

A review of contemporary letters, newspaper articles and government reports by Quinn et al (2021) explored the historical and present-day role of transport and telecommunications technology in the Scottish Highlands and Islands Medical Service (HIMS). They found that whilst historically the development of the transport and telecommunications industry had supported HIMS, **poor transport infrastructure remains an issue** for many rural areas today.

A review by Mackett and Thoreau (2015) explored social exclusion and how transport contributes to it by providing barriers to access. They found that **transport is a key factor in the prevalence of social exclusion**, limiting access to opportunities. Additionally, they suggest that **by improving transport it is possible to improve access to opportunities for people experiencing social exclusion to develop healthier lifestyles**.

A qualitative study by Fixsen et al (2020) looked at stakeholder "buy-in" to social prescribing (SP). They found **that lack of transport** was a barrier for clients in rural areas, who struggled with the practicalities of travelling long distances to access classes or facilities.

Gaber et al (2020) carried out interviews with 128 older people with and without dementia in urban and rural areas of the UK. They found that concession **travel passes supported out-of-home participation**, helping older people to overcome some of the financial and logistical challenges of using public transport. They suggest that this, in turn, can result in health benefits through increased physical activity and social engagement.

Housing and fuel poverty

The profile of housing in rural areas is another driver of health inequalities. Housing stock in rural areas is generally **older, larger, more expensive and less energy efficient** than in more urban areas. Houses are also more likely to be off-grid or have solid walls, increasing the residents' likelihood of experiencing **fuel poverty**. Additionally, homes that were once suitable for an individual, may become hazardous as they and their home ages.

Public Health England (2017) highlight that a higher proportion of homes in the most rural areas are considered '**non decent**', than in more densely populated areas (50% most rural, 30% urban). Houses in the most rural areas are also much more likely to be considered '**very energy inefficient**' than in urban areas (50% most rural, 7% urban).

The Rural Services Network (2019) detail how affordable rural housing stock has been eroded over time. This has occurred through a combination of social housing sold through the **Right to Buy** policy and high demand for **second homes and holiday lets**. This has been exacerbated by a change to planning policy that **no longer requires small development sites to include a proportion of affordable homes**. They call for a dedicated rural housing programme, supported by grants, and the replenishing of social housing stock.

The Department for Environment, Food & Rural Affairs (2023) highlight that in 2022, house prices in predominantly rural areas were less affordable to local population than in predominantly urban areas. They also suggest that a higher proportion of housing is being used as second homes (1.8% vs 0.9%). Additionally, they identify that in 2020, 12% of households in rural areas were considered fuel poor (Defra, 2023). The average **fuel poverty gap** (the reduction in fuel costs needed for a household to not be in fuel poverty) was found to be **significantly greater** for households in rural areas (£388) than in urban areas (£193).

A report written by researchers from the University of Kent and the University of Southampton (2023) explored the 'hidden crisis' of rural homelessness in England. They found that rural homelessness was a growing problem, with a **24% increase in rural rough sleeping** in the past year. Reasons for this included high housing costs, reduced local authority funding and lack of support services.

Housing and fuel poverty – recent studies

The evidence confirms that many rural homes are at risk of fuel poverty.

An analysis by Roberts et al (2015) looked at the difference between rural and urban areas in terms of fuel poverty. They highlight that the UK government has committed to tackling fuel poverty, recognising the impact it can have on physical and mental health. Analysis of data from the British Household Panel Survey (1997-2008) indicated that **associated factors to fuel poverty in rural areas include; living in private rental accommodation, living in a flat and having more children**. They suggest that private rental is a factor due to the smaller nature of the private rental market in rural areas and therefore less pressure on landlords to ensure that properties are energy efficient.

Mould et al (2017) carried out a meso-scale study in Scotland to look at hidden geographies and socio-economic influences on fuel poverty. They reported findings suggesting **that low income rural households were spending more on energy** than those living in urban areas and that **rural households on lower incomes may spend more on heating** than those on higher incomes.

One study found that household energy efficiency did not reduce hospital admission rates.

An analysis by Sharpe et al (2019) explored the impact of household energy efficiency on hospital admissions. Contrary to their hypothesis they found some evidence to suggest that **higher average area-level energy efficiency ratings were associated with an increase in hospital admission rates**. They did however recognise that this could be a result of methodological limitations of the study.

Another study outlined that the scarcity of good quality, affordable housing was likely to become more acute during the COVID-19 pandemic.

A case study by Gallent et al (2022) outlined the impact of the COVID-19 pandemic on the housing market in rural Brecon Beacons. They found that **during 2020-2021 large numbers of people moved into or purchased second homes in rural areas** that already had very limited housing stock, inflating house prices further. They suggest that this is likely to continue as digital connectivity improves in rural areas, opening areas up to ‘digital nomads’ (who can work from anywhere).

Deprivation, isolation and social exclusion

Deprivation, isolation and social exclusion are all experienced by some people living in rural areas. This is not always obvious from data, and small pockets of deprivation are often '**hidden**'. This makes it difficult to design services that meet the needs of these groups.

Public Health England (2017) identify that social isolation, which older people in rural areas are particularly at risk of, can lead to "**poor health, loss of independence and lower quality of life**". They suggest that causes include demographic changes and closures of local shops, post offices and pubs in rural areas. These limited social networks can reduce the likelihood of people overcoming their experience of disadvantage.

Age UK (2018) report that when older people are given the opportunity to take part in activities that promote their health, they feel less isolated. However, older people in rural areas often struggle to access these services. Age UK also highlight the role of **Village Agents**, who can design community initiatives and signpost to relevant services.

The Centre for Better Ageing (2021) highlight the limited availability of fulfilling employment in rural areas. **Work is often seasonal, low paid and low skilled**. The physical nature of much of the work makes it inappropriate for people at older ages, leading to low employment rates in older adults.

The Department for Digital, Culture, Media and Sport (2018) commit to tackling loneliness in rural areas by supporting **community infrastructure**, through opening up community spaces and improving transport networks.

The Department for Environment, Food & Rural Affairs (2023) highlight that deprivation in rural areas of England is dispersed, but most prominent in the **East coast** of England, in **former mining communities in the North** of England, and in the **South West** of England.

The Centre for Mental Health (2020) highlight that although data suggests that rural areas have a lower percentage of children living in 'absolute' low income households, some rural areas have similar levels of poverty as urban areas. These children then face the additional disadvantage of having **limited access to "leisure, transport, cultural life and educational and employment opportunities".**

Deprivation, isolation and social exclusion – recent studies

There is evidence to suggest that deprivation, isolation and social exclusion are all present in rural areas of the UK.

A research report by Wheeler et al (2021) found that many farmers experience **loneliness**, which is exacerbated by some farming cultures (such as **stoicism** and **long working hours**). Famers also reported feeling **socially and culturally isolated**, with little support from wider society.

A qualitative study from MacDiarmid (2020) found that in rural Scotland, factors such as isolation, unemployment and deprivation exacerbate the harms of alcohol. Some people described **alcohol filling the void that was previously filled with a profession**.

Walsh et al (2020) carried out a case study of 10 rural sites in Ireland and Northern Ireland to explore rural old-age social exclusion. The factors they identified as determining experiences of exclusion for rural-dwelling older people were: **individual capacities; lifecourse trajectories; place and macro-economic forces**.

There is some evidence to suggest that deprivation and isolation have an impact on mental health in rural areas.

A cohort study of 631 persons with first-episode psychosis (FEP) by Richardson et al (2018) looked at the association of environment with the risk of developing psychotic disorders in rural populations. They found that in rural East Anglia FEP rates varied by **deprivation, social isolation and neighbourhood-level racial/ethnic composition**.

There was mixed evidence on the impact of deprivation and rurality on people with a cancer diagnosis.

Smith et al (2020) carried out a population-based survey of men 18–42 months after prostate cancer diagnosis in the UK. They found that **deprivation and rurality had no greater impact on self-assessed health related quality of life**, than the general population. However, some variation in urinary and hormonal functional outcomes by deprivation was noted.

A retrospective case study by Donnelly et al (2019) found that several factors associated with social isolation were a recurring theme in patients who died early from colon cancer. These included **older age, deprivation and living in a rural area.**

NHS workforce

There are many challenges to building and maintaining an NHS workforce in rural areas, and this has a knock-on effect on service provision. Recruiting to rural areas, particularly those with high levels of deprivation, can be difficult. Equally, retention of staff is also a challenge, with many opportunities for training and career progression based in cities. The COVID-19 pandemic has exacerbated these workforce challenges in remote trusts (Nuffield Trust, 2020).

The Nuffield Trust (2019) highlight that **rural systems face extra costs compared to more urban systems in providing a unit of health care**. There are **difficulties in recruitment and retention** due to **remote hospitals being viewed as less desirable**. This leads to **a reliance on expensive agency staff**.

Green and Bramley et al (2018) highlight the lack of 'thinking rurally' in workforce planning in health and care. They suggest that for rural systems to overcome the recruitment and retention challenges that they face, they need to promote the benefits of NHS employment and build 'centres of excellence' in specific specialities or ways of working that are relevant to rural workers. NHS Providers (2021) agree, highlighting the vital role of trusts as **anchor institutions** in rural areas.

The Rural Service Network (2021) suggest that the NHS workforce plan should have a specifically rural element. They advocate for **pay bonuses and rural placements** in medical training, to tackle high vacancy and turnover rates.

The University of Central Lancashire (2022) highlight that the **traditional model for GP practices is no longer viable in many rural areas**, so alternatives, such as co-operative models are being utilised. They also argue that **specialisation of the medical workforce** nationally has had a negative impact on rural services, more reliant on generalists. One suggestion to ease the recruitment crisis is the potential for incentives for clinicians to take rural jobs, similar to the 'London Weighting'.

The recent All-Party Parliamentary Group with the National Centre for Rural Health and Care (2022) highlights that the workforce limitations are only likely to be further exposed as the proportion of older adults living in rural areas continues to grow. They call for **more training on a broader range of generalist skills** to better equip health and care professionals to meet the needs of rural populations.

NHS workforce – recent studies

There is evidence to suggest that recruitment and retention is a particularly acute challenge in rural areas of the UK, and that this has an impact on service provision.

Jones et al (2019) carried out a qualitative meta-analysis to explore barriers to nurse recruitment and retention in rural areas of high-income countries. Some key factors were identified:

- **Reduced access to health resources and support**
- **Perceived exacerbations for maintaining a rural nursing workforce**
- **Challenges of accessing continuous professional development (CPD) and clinical progression restrictions**
- **Challenges of community integration and socialisation**
- **Personal and family barriers to the rural lifestyle**

Evans et al (2023) carried out a scoping review of recruitment and retention in NHS dentistry in rural areas of the UK. They found that challenges around recruitment and retention were particularly pronounced in rural areas, resulting in **inequitable service provision.** They call for priority in support to given to rural areas to actively address inequalities.

Some potential solutions have been outlined.

Kumar and Brooke (2020) advocate teaching and training doctors in smaller hospitals in the UK. They argue that in rural areas this will allow doctors **to receive patient cases that they may not otherwise encounter** in medical school and **learn the generalist skills required for operating in more rural areas**.

Dowell et al (2015) found that **widening access to medical schools does have the potential to improve GP recruitment in under-served communities**, however it is unclear how best to implement this in practice.

There is however doubt from one study over how far improvements in recruitment can go to solving inequities in specialist care.

A qualitative study by Young et al (2022) found evidence of an inequality of specialist care services in terms of rurality. Although they acknowledge recruitment as a factor contributing towards this, they argue that **disparities would remain even if consult posts were filled in rural areas**.

Climate change

The effects of climate change can contribute to and exacerbate health inequalities in rural areas. Populations are more likely to be reliant on the agrarian economy, which is highly sensitive to changes in the climate and knock-on effects, such as flooding.

As part of the All Our Health initiative, the Office for Health Improvement and Disparities (2022) recognise that **people from deprived coastal and rural areas are at increased risk from floods and any resulting financial and livelihood loss**. Additionally, they highlight that elderly populations, such as those found rural areas, are most likely to suffer from the effects of extreme heat or cold.

The Lancet Countdown (2022) have published the most recent version of their annual report on the health and climate change. This edition focusses on the overlapping challenges of the impacts of COVID-19, Russia's invasion of Ukraine and climate change. The report highlights that many countries around the world, including the UK, have experienced **record temperatures** during 2021-2022. The result of this has been **floods** in both urban and rural areas across western Europe, with over 200 deaths as a result. Floods have also caused damage to health service buildings and infrastructure.

Data from the ONS (2022) captures the nature of rural environments in the UK, as both contributing to climate change (through greenhouse gas emissions from agriculture) and suffering from the effects of it (through floods and drought). They suggest that land use and agriculture accounted for 12% of all UK greenhouse gas emissions in 2020. They state that in 2022 the temperature was higher than average in all seasons, with significantly less rainfall than average, putting rural areas at danger from **drought**.

A report by Public Health Wales (2022) considers the simultaneous challenges presented by Brexit, COVID-19 and climate change, in relation to health and wellbeing for rural communities in Wales. They suggest that both patients and staff are likely to face disruption caused by flooding or extreme heat. Farmers and fishers are identified as at **increased risk of mental health conditions**, due to drought (and associated fears). Additionally, they highlight that people in rural areas are more likely to have their **energy lines or digital networks cut out due to weather conditions**, such as wind and lightning, impacting on any remote health service provision.

Climate change – recent studies

There is evidence of the impact of climate change on health in rural areas.

A review by Paavola (2017) highlights how social and health inequalities mediate the health impacts of climate change in rural areas. One example of this is the **prolonged pollen season**, with pollen exposure being highest in rural areas and Asthma being more prevalent amongst people of lower socio-economic status. Another example provided is the **increased prevalence of food borne diseases** in the UK. Campylobacter is highlighted as being more prevalent in rural areas and in areas with less social deprivation. Additionally, people in rural areas may not have the adaptive capacity to respond to emerging infections, as they only have limited access health care services and medical expertise. Paavola also identifies the more direct threats posed by climate change to the health and social care systems, in terms of the impact of **prolonged cold spells and flooding**.

Equally, reduced rainfall and the resulting drought is also a cause for concern for many rural farmers.

Austin et al (2018) found that in Australia **drought-related stress** (in relation to themselves, their families and communities) was experienced by many farmers. Increased remoteness was one risk factor identified, due to the increased frequency of drought and the smaller social networks.

Responses to climate change have also changed the ecology of rural areas.

Medlock and Leach (2015) highlight that **vector-borne diseases** have, as a partial result of climate change (and responses to climate change), become more common across Europe. They suggest that establishment of wildlife corridors in urban and rural areas contributes to the spread of Lyme disease, by encouraging the migration of tick-infested wildlife.

There are calls by some for a more holistic approach to tackling climate change.

Boyd and Parr (2020) explore the relationship between climate change and mental health. They argue that rural communities, such as those in Australia and Scotland, are most impacted by climate change. In response they advocate for the development of a positive **ecocultural identity,** that links human populations to the rest of the natural world.

Rural and coastal

Rural, coastal populations experience many of the same drivers of health inequalities as people living in other rural areas, however coastal areas also have some distinct challenges.

The University of Central Lancashire (2022) highlight that coastal towns and villages have some of the **highest levels of deprivation** in England. They suggest that **health outcomes are worse** than average in England, with particular challenges around mental health problems, homelessness and alcohol and drug problems. Dr Vincent Argent, Consultant in Rural Emergency Medicine at Dorset Rural County Hospital suggests that these challenges are exacerbated by **poor access** to health services, with people in coastal areas not having the same 360-degree catchment area as non-coastal residents.

The National Centre for Rural Health and Care (2022) APPG inquiry highlights the **seasonality** experienced in coastal areas, which impacts on population size, employment and pressure on local services. They found evidence to suggest that national delivery models and funding formulae were not suitable for coastal areas. In some cases the funding formulae did not even cover operational costs.

The Chief Medical Officer's (2021) annual report on the health in coastal communities includes a case study on rural coastal communities in Lincolnshire. These communities are characterised by seasonal low skilled, low wage work, high levels of economic inactivity and deprivation. Health outcomes are also poor, with the **highest emergency inpatient admissions in the county and high levels of premature mortality**. Years lived with disability are also higher than in non-coastal areas. Risk factors are present earlier in life, in the form of high rates of smoking at the time of delivery and teenage pregnancy, along with poor child oral health, lower MMR vaccine take-up and high levels of childhood obesity.

Age UK (2021) published a report on ageing in coastal and rural communities, with a focus on older men, older people from ethnic minorities, and older LGBTQ+ people. They found that the five issues facing all of these groups were:

- **Loneliness and social isolation**
- **The digital divide**
- **A lack of support networks**
- **Gaps in public transport provision**
- **Gaps in support for carers and people with dementia**

Future evidence analysis

This review has explored the key drivers of health inequalities in rural areas of England. Further work on actions and solutions might benefit decision makers in helping to understand how they might effectively address these inequalities.

The following themes could be explored in further evidence analysis:

- **Access** – How have other (comparable) countries tackled rural inequalities in access to healthcare?
- **Rural health hubs** – What do they look like in other (comparable) countries? What could they look like in England?
- **Learnings from the COVID-19 pandemic** – Activation of volunteers, setting up vaccine hubs in community spaces.
- **Tackling loneliness and isolation** – what is working (Pub is the Hub etc)? How does the NHS support this?
- **Funding/costs** – Learning from other public sector or private sector. How do they cope with remoteness and limited economies of scale?
- **Transport solutions** to improve access – Are there any good practice examples? Have they been effective?
- **Anchor institutions** – Look at good practice of other anchor institutions in rural areas. How do they tackle workforce shortages and support staff?
- **Rural workforce needs** – What skills are required to make a good rural doctor? How does the NHS ensure that doctors working in rural areas have these skills?

Chapter 4

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