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# **An evidence summary of health inequalities in older populations in coastal and rural areas**

Full report

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## Background

The long-term trend in life expectancy in the UK has been upwards. With this ageing population comes both opportunities and challenges and requires a 'comprehensive public-health response'[1]. Ageing, at a biological level, is the gradual accumulation of a wider variety of molecular and cellular damage. However, the experience of ageing is diverse, with some people having good physical and mental health whilst others are frail. How we age is strongly influenced by the environment and behaviours of the individual[1]. The way in which we age, and experience this, is determined by both positive and negative influences on our lives.

Older people in our society are particularly vulnerable to poverty and forms of social exclusion and there is a widening gap between older people with good pensions and a substantial minority who live in poverty[2, 3]. Amongst people aged between 46 and 65 years old, those in the highest 20% income bracket have a household income about 3-times greater than the bottom 20%. For people aged between 66 and 85 the difference is more than double. There are also diverse experiences in income and health inequalities shown in research that highlights the impact that geographical location can have on the lives of older people[3]. Where we live influences our health throughout our life and is highlighted in the 19-year difference for both men and woman in healthy life expectancy between the most and least deprived communities[4].

Older people comprise a large and growing segment of the population of rural and coastal areas[5]. The population aged 65+ will grow by around 50% in rural areas by 2039 with a negligible growth in population under 65, which will increase the ratio of older to younger people[6]. Age is a risk factor for loneliness and social isolation; those in rural or coastal areas may be at higher risk. However, inequality and social connections in later life have a sparse evidence base. In general, older people have tended to be neglected in research on health inequalities compared with people in other stages of life[7]. A key gap in knowledge and evidence which has been highlighted is solution-focused research on health inequalities for older people in coastal and rural areas of England[8].

This review is intended for local authorities, clinical commissioning groups and other health and care organisations to inform strategic planning, service design and commissioning, as well as the development of local community infrastructure. It seeks to increase the availability of evidence, and proposes practical considerations for health and social care system partners to support and promote work on productive healthy ageing.

## Aim

To provide an evidence summary on the health inequalities experienced by older populations in coastal and rural areas, together with a summary of key considerations in taking an asset-based approach in reducing inequalities and promoting productive healthy ageing in these areas.

## Objectives

To review the key determinants, nature and drivers of health inequalities experienced by older populations in coastal and rural areas.

To review the strengths, assets and sources of resilience of ageing populations in rural and coastal areas and how these can be effectively used to mitigate inequalities in ageing.

To review health and social care system interventions designed to reduce health inequalities and promote productive healthy ageing in rural and coastal areas, with assessment of effectiveness.

To assess the effectiveness of whole system approaches in this context. Whole system approaches involve co-ordinated policies and actions across individual, environmental and societal levels and across multiple sectors. They seek to empower communities by working across partnerships and sectors to maximise impact and remove system barriers.

To assess the opportunities and risks of digital technological advances in this context.

To identify gaps and other 'non-traditional' inequalities in healthy ageing, to inform future research.

## Method

A rapid evidence review supplemented with case studies. The review was registered with PROSPERO international prospective register of systematic reviews (CRD42019120977) and reported according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (<http://www.prisma-statement.org/>). As this was a rapid review the principles of Cochrane systematic reviewing were used but sifting and data extraction were restricted to 1 reviewer with a 10% sample check at each stage of the review to ensure accuracy and quality.

### Search strategy

The following databases and resources were searched in January 2019 order to identify both published and grey literature:

ASSIA: Applied Social Sciences Index and Abstracting service – a British service with international coverage good for the topics of social sciences, sociology, economics, politics, psychology, social work, health, human resource management, consumer behaviour and organisational change.

CINAHL: Cumulative Index to Nursing & Allied Health – provides authoritative coverage of the literature related to nursing and allied health.

Health Research Premium Collection via ProQuest: A searchable database with sub collections entitled: Family Health Database, Health & Medical Collection; Health Management Database, MEDLINE, Nursing & Allied Health Database, Psychology Database, Public Health Database.

PsycARTICLES: Contains full-text articles from journals published by the American Psychological Association, the APA Educational Publishing Foundation, the Canadian Psychological Association, and Hogrefe & Huber.

OpenGrey (<http://www.opengrey.eu/>): System for Information on Grey Literature in Europe.

NICE evidence search (<https://www.evidence.nhs.uk/>).

Websites: Age UK (<https://www.ageuk.org.uk/>), Elders Council (<http://www.elderscouncil.org.uk/>), Google Scholar (<https://scholar.google.co.uk/>).

One comprehensive search was used to provide literature for each study objective based on the key concepts outlined in Table 2. Keywords including proximity operators, truncation, filters and limits (see Table 2) were searched in abstract and searches limited to English Language.

**Table 1: Key concepts and search terms**

| Key Concepts               | Search terms   |
|----------------------------|--|
| Older populations          | age* OR ageing OR centenarian OR elder* OR later-life OR "late* life" OR mid-life OR "mid life" OR midlife OR middle-age* OR "middle age*" OR nonagenarian OR octogenarian OR old* OR senescent OR senior* OR sexagenarian OR veteran*<br>AND                  |
| Health inequalities        | "health inequality*" OR "health difference*" OR "health disparity" OR inequality* OR difference* OR disparity OR equity OR inequity OR welfare OR "social determinants of health" OR SES OR "socio economic status" OR SEP OR "socio economic position"<br>AND |
| Coastal or rural areas     | coast* OR countryside OR estuary OR foreshore OR harbou\$ OR port OR resort OR rural OR sea OR seaside*<br>AND   |
| UK and Republic of Ireland | Britain OR British OR English OR England OR GB OR "Great Britain" OR Irish OR "Northern Ireland" OR Scotland OR Scottish OR "United Kingdom" OR UK OR Wales OR Welsh OR "Republic of Ireland" OR Ireland OR Eire OR "Irish Republic"                           |

### Inclusion/exclusion criteria

Inclusion and exclusion criteria followed PICOCS criteria (participants, interventions, comparators, outcomes, context and study design). Literature was restricted to that published from 2000 onwards and written in the English language as translations services were not available (see Table 3). The rationale for inclusion of literature from 2000 was based on the intent to include a broad and rich assessment of the evidence spanning a sustained period. Although there have been changes in policy and digital interventions since 2000, literature which relates to the nature of inequalities in ageing and health in rural and coastal areas over this time period retains relevance.

**Table 2: PICOCS**

| Include   | Exclude  |
|---|--|
| <p>Participants: Men and women aged 50 years or older. Health and social care professional who work with older people or carers of older people</p> <p>This review used a broad definition of ageing which encompasses those from mid to later life onwards (c.50+)</p> <p>Studies which involve adults aged 18 years and over were included as long as they also involved adults aged 50 years or older and were analysed by age</p>   | <p>Men and women aged less than 50 years</p>   |
| <p>Interventions: Any (including individual, population or whole systems) or none</p>   |  |
| <p>Comparators: Any or none</p>   |  |
| <p>Outcomes: Health inequalities</p> <p>Unjust and avoidable differences in health which are socially determined by circumstances largely beyond an individual's control (including income, power, wealth, work, education, housing, access to services, cultural opportunities, discrimination)</p>  |  |
| <p>Context: Rural and coastal areas in the UK or Ireland</p> <p>Coastal: Any coastal settlement within a local authority area whose boundaries include UK foreshore, including local authorities whose boundaries only include estuarine foreshore. Coastal settlements include seaside towns, ports and other areas which have a clear connection to the coastal economy</p> <p>Rural: Office of National Statistics defines areas as rural if they fall outside settlements with more than 10,000 resident population</p> | <p>Rural or coastal areas outside the UK or Ireland</p> <p>Coastal cities</p> <p>Not a rural or coastal area</p> |



|   |                              |
|---|------------------------------|
| Studies where data from the UK was combined with data from other countries was included   |                              |
| Study Design:<br>Any empirical studies (both qualitative and quantitative) either published or grey literature. Including but not limited to Meta-analysis, Systematic reviews, Randomised control trials, Cohort studies, Cross sectional studies, Retrospective/historical cohort studies | Opinion pieces or editorials |

## Study selection

An initial screening of titles and abstracts against the inclusion criteria was made to identify potentially relevant papers. Full papers of those selected as relevant were then screened. The first 10% of the sample was checked at each stage.

## Quality assessment

Evaluating how well a study has been conducted is essential to determine if the findings are relevant to practice. Making this assessment can be difficult depending on how well a study is reported. Critical appraisal tools are available to help assess the quality of a study's methods and each tool is designed to be used with a particular methodology. Therefore, each study is rated against criteria for its specific methodology, such as qualitative research, and one methodology is not rated as better quality than another. The quality of each study selected for inclusion was examined using the most appropriate Critical Appraisal Skills Programme tool (for example, qualitative studies, cohort studies, case control studies and randomised controlled trials). For questionnaire based and controlled studies, the centre for Evidence-Based Management tools for critical appraisal were used. Grey literature, with no published study design, was not able to be subjected to quality assessment. The first 10% of the quality appraisal was checked. In order to guide the reader to the quality of each study the percentage of positive responses to critical appraisal tool questions is reported however completed Critical Appraisal Skills Programme tools for each study are available upon request.

## Data extraction

Relevant data was extracted using a standardised data extraction form available from the Centre for Reviews and Dissemination. The first 10% of the data extraction was checked.

## Data synthesis

A narrative synthesis was carried out.

## International literature

In addition to the rapid review of the national literature we conducted a rapid review of the international literature focusing on the last 2 years (14/2/17 to 14/2/19). Search terms and inclusion criteria were as above but excluded the UK and Republic of Ireland. The focus of the international literature search was to identify interventions designed to reduce health inequalities and promote productive healthy ageing in rural and coastal areas, with assessment of effectiveness and cost-effectiveness. Therefore, the following search terms were also included: intervention\* OR program\* OR treat\* OR scheme\* OR guide\* OR project OR schedule OR information OR plan\* OR regimen OR policy OR action OR effective\* OR “cost effective\*” OR intervene OR efficacy.

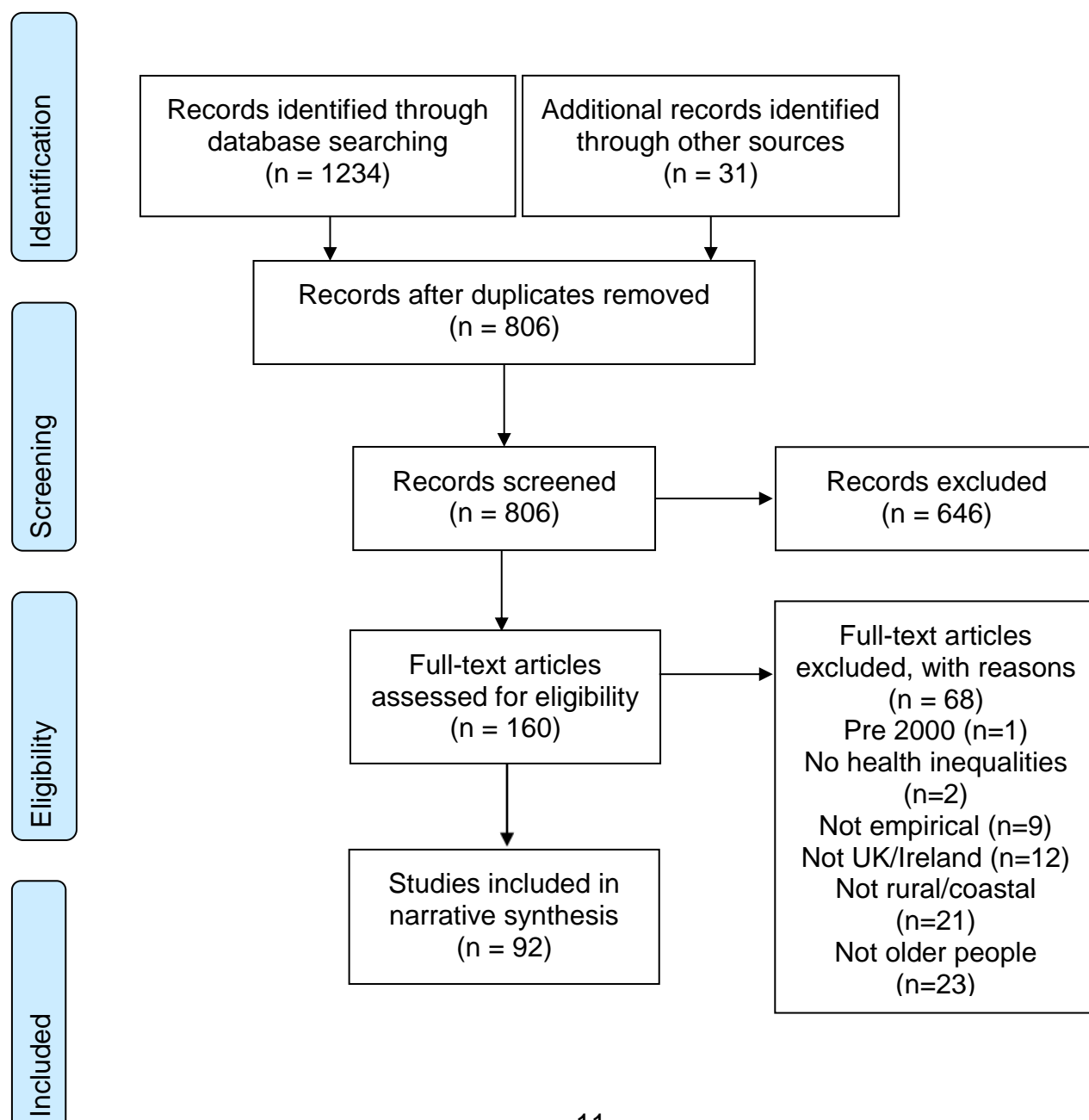
## Case studies

Area based case studies were identified from the literature and woven throughout the synthesis. Sampling was purposive in order to ensure variation in geography and characteristics of areas including rural versus coastal areas and coastal areas with an industrial background as well as seaside towns. The case studies were extended, in order to provide more relevant detail, with in-depth qualitative interviews with the research teams that developed the examples in the first place. These consisted of up to 2 telephone interviews with research teams per case study. All interviews were digitally recorded and transcribed verbatim and subject to thematic analysis. Ethical approval for qualitative interview based case studies was granted by the University of Northumbria in December 2018 (ref:13201)

## Results: UK and Ireland

Initially 806 unique records were identified which were screened against the inclusion/exclusion criteria and 646 were removed as they met the exclusion criteria. In total 160 full texts were then assessed for eligibility and 68 excluded for the following reasons: sample did not include people over the age of 50 years (n=23); rural or coastal area not covered in the sample (n=21); study not based in an area of the UK or Ireland (n=12); opinion piece (n=9); study did not include health inequalities (n=2); record was published prior to 2000 (n=1). Ninety-two articles met our inclusion criteria and are included in this report (see Figure 1).

**Figure 1: PRISMA Flow Diagram UK and Ireland**



The majority of the studies were based in England (n=41) followed by: Scotland (n=16); Ireland (n=11); Northern Ireland (n=8); England and Wales (n=7); Wales (n=5); England, Scotland and Wales (Britain) (n=3); England and Ireland (n=1). The majority of studies focused on making a comparison between those living in rural areas with those living in urban areas (n=48) although many did just focus on 1 or more rural areas (n=25) and some studies focus on areas that were both rural and coastal (n=10) with 3 studies comparing those living in rural and coastal areas with those living in urban areas (n=3). Only 5 studies focused on those living in coastal towns (n=5) while 1 study focused on those living in both rural and urban areas but did not compare or contrast the 2 (n=1) (see Annexe). Studies were generally of good quality (scoring 70% or more in quality assessment) although there was a small number of poorer quality studies (n=14) and studies (with no published study design) where quality could not be assessed (n=15). Poorer quality studies and those that could not be assessed tended to be found in the grey literature.

A narrative synthesis of the findings from the included studies is structured around the 5 objectives of the review: key determinants, nature and drivers of health inequalities experienced by older populations in coastal and rural areas; strengths, assets and sources of resilience (such as neighbourliness) of ageing populations in rural and coastal areas and how these can be effectively used to mitigate inequalities in ageing; health and social care system interventions designed to reduce health inequalities and promote productive healthy ageing in rural and coastal areas, with assessment of effectiveness; effectiveness of whole system approaches in this context; opportunities and risks of digital technological advances in this context. Findings are also structured around location (rural or coastal) where possible.

## Key determinants, nature and drivers of health inequalities

### Nature

Thirty-five of the included studies examined to some extent the nature of health inequalities experienced by older populations in rural and/or in coastal areas.

### Mortality

Eleven studies examined rates of mortality or length of life between those living in rural compared to urban environments [9-19] with 1 study also including coastal environments[15]. Most of the studies showed that rates of mortality in the general population increased with increasing levels of urbanisation and that those in the (most rural of) rural areas experience better health [9-12, 14, 16, 18, 19]. However, in contrast, one study that focused specifically on those aged 65+ years reported that health inequalities were greater in rural areas[13] while another reported persistent inequalities in both major cities and isolated rural areas particularly in more coastal, peripheral and

border areas[15]. Finally, 1 study reported that while the relative risk of Ischemic Heart Disease mortality was similar in rural and urban areas the relative risk of mortality was higher in remote rural areas[17].

Three studies looked at mortality[9], premature mortality[10] and alcohol-related mortality[18] in England and Wales. All 3 studies found lower (premature/alcohol-related) mortality in rural areas[9, 10, 18]. Survival analysis of the Office for National Statistics longitudinal study in England and Wales demonstrated a clear urban-rural mortality gradient, with the risk of dying increasing with each level of urbanisation regardless of the age group (20 to 64 years or 65+ years)[9]. Once the models were adjusted for individuals' socio-economic characteristics, the variation across the urban-rural continuum reduced substantially, although the gradient persisted. Females were found to be influenced more by their surrounding environment and males by their socio-economic position, although both experienced lower mortality in rural compared to urban areas[9]. Jones and Lake (2003) examined premature mortality in England and Wales and found male premature mortality rates (aged 50 to 64 years) fell with increasing rurality for individuals of all socioeconomic status[10]. The most deprived individuals benefitted most from residence in increasingly rural areas and similar trends were observed when premature mortality was subdivided by the major causes of death[10]. Female premature mortality rates (aged 50 to 59 years) demonstrated similar trends but the differences between urban and rural areas were less marked[10]. In a study of alcohol-related mortality across England and Wales, rates were higher in men and increased with increasing age, generally reaching peak levels in middle-aged adults. The 45 to 64-year age group contained a quarter of the total population but accounted for half of all alcohol-related deaths. People living in urban areas experienced higher alcohol-related mortality relative to those living in rural areas, with differences remaining after adjustment for socioeconomic deprivation[18]. In another study of alcohol-related mortality, this time in Northern Ireland, with 720,627 people (aged 25 to 74 years) risk of alcohol-related mortality was lower in rural than urban areas, but the cause was unknown[19].

These findings were corroborated in another study examining the variations in morbidity and mortality between urban and rural areas in Northern Ireland in the general population[11]. This study found an increasing gradient of poorer health from rural to urban areas with differences in death rates between rural and urban areas evident for most of the major causes of death but greatest for respiratory disease and lung cancer[11]. The authors concluded that urban areas were less healthy than rural areas and that the association with respiratory disease and lung cancer suggests that pollution may be a casual factor[11]. A further study, by the Department for Environment, Food and Rural Affairs (Defra), examined mortality rates in the general population in England in urban areas but compared these to different types of rural settlements (Town & Fringe and Village & Dispersed)[12]. The results showed that at Census 2001 the age profile of those living in rural areas was generally older when compared to urban areas and while mortality rates were higher in urban areas compared to rural areas, within

rural areas those living in the town and fringe settlement types had higher mortality rates than those living in village and dispersed areas. There was no conclusive difference in urban and rural areas between the rates of mortality and fatality from acute myocardial infarction and access to emergency medical services[12]. The authors concluded that life expectancy was higher in rural areas than urban areas for both males and females and that within rural settlement types, life expectancy was higher in village and dispersed areas than town and fringe areas[12]. This finding was borne out in an analysis of the number of centenarians (persons who live to (or beyond) the age of 100 years old) living in rural or urban areas in the west of Ireland which showed a concentration of centenarians in rural (isolated) counties[14].

In another study, examining the risk of 4 health outcomes (hypertension, all-cause premature mortality, total hospital stays and admissions due to coronary heart disease (CHD)) in the population (up to the age of 74) in Scotland, older age was strongly associated with an increased risk of all 4 outcomes. After adjustment for individual and practice characteristics, no consistent pattern of better or poorer health in people living in rural areas was found, compared to primary cities. However, individuals living in remote small towns had a lower risk of a hospital admission for CHD and those in very remote rural had lower mortality, both compared with those living in primary cities[16]. In contrast, a study of health inequalities (using all-cause mortality) amongst older people (aged 65+ years) in remote rural Scotland reported that health inequalities were greater in rural rather than urban areas for both males and females[13]. In another study of 27,681 deaths in Ireland, higher rates of mortality were found in the major cities but also in isolated rural areas, particularly in more coastal, peripheral, and border areas[15]. A further study reported that while the relative risk of Ischemic Heart Disease mortality in remote rural areas of Scotland was similar to that of urban areas in patients aged 40 to 74 years, the relative risk of a continuous hospital stay was significantly lower and the relative risk of mortality was higher in remote rural areas[17]. The authors conclude that low standardised ratios of Ischemic Heart Disease continuous hospital stays and mortality in remote rural areas mask health problems among rural populations[17].

These findings are corroborated in a report by Public Health England (PHE) and the Local Government Association (2017) on health and wellbeing in rural areas which states: “overall, health outcomes are more favourable in rural areas than in urban areas but broad brush indicators can mask small pockets of significant deprivation and poor health outcomes. There is an absence of detailed statistical information on health outcomes in rural areas, as national statistics often do not reveal differences within small areas”[8].

## Physical health

Nine studies investigated the effect of rural or urban living on incidence of physical health conditions[20-28] while 3 studies examined the association between physical

health and coastal areas[29-31]. Four studies found better physical health in rural older adults[20-22, 28], 2 found somewhat mixed results[23, 24] and 6 reported worse health, 3 in rural areas[25-27] and 3 in coastal areas[29-31].

Studies in Scotland have found rural older adults (aged 65+ years) to have better lung function than urban older adults[20] and that living in rural areas is associated with a lower prevalence of asthma, but not other chronic respiratory disorders, and a lower prevalence of some respiratory symptoms (including wheeze) in adults (aged 16 to 75+ years)[21]. Although the prevalence of Chronic Obstructive Pulmonary Disease (COPD) or emphysema did not differ between rural and urban areas, rural residency appeared to be associated with better health status among subjects with these conditions[21]. Rates of lung cancer were also higher in urban compared to rural areas in the general population (aged >30 to 101 years) and all the significant clusters of cases of lung cancer were located in the large urban centres of Scotland. Smoking behaviour did account for much of this urban excess in lung cancer, although it did not explain the entire effect. These results suggest that there are urban effects that influence the incidence of lung cancer that are not explained entirely by smoking behaviour. Possible explanations include the variations in exposure to air pollution, occupational differences and the legacy of selective migration between urban and rural areas[22].

Two studies based in England produced more mixed findings[23, 24]. In a study to assess differences in English general practice presentations of allergic and infectious disease of the general population including older participants, those living in conurbations or urban areas were more likely to consult a general practice for allergic rhinitis and upper respiratory tract infection. Both conurbation and rural living were associated with an increased risk of urinary tract infection. Living in rural areas was associated with an increased risk of asthma and lower respiratory tract infections[24]. There were also mixed findings in a study by Judge et al. (2010) which examined inequities in access to hip and knee replacement in patients (aged 50+) throughout England an 'n'-shaped curve was identified, with people aged 50 to 59 years and those aged 85 and over receiving less total hip replacement and less total knee replacement surgery than people aged 60 to 84 years. For total knee replacement in patients, those in urban areas got higher provision relative to need, but for total hip replacement it was highest in villages/isolated/rural areas[23]. In a similar study, this time in Northern Ireland, the incidence of primary elective total hip replacement was significantly greater in rural populations than in urban ones for populations age 20 to 90+ although this was not necessarily calculated relative to need[28].

Conversely a study in the Rosses (a coastal area of North West Ireland) found a high prevalence of hypothyroidism in women in particular those aged 50+ years compared to Irish national rates[29]. The reason for this was unclear although it may reflect high levels of opportunistic screening[29]. In another coastal based study, the incidence of Mesothelioma (a type of cancer) was found to have increased in South East England, particularly for men aged over 70 years old. The highest incidence occurred along the

Thames and its estuary, reflecting areas of asbestos use in shipbuilding and industry in the past[30]. In addition, in Scottish general practice patients aged 55 and over there was some evidence to suggest that the prevalence of widespread musculoskeletal pain increased with increasing rurality, although the magnitude of this was slight. No large or significant differences were observed with any regional musculoskeletal pain conditions[25]. In England and Wales, campylobacter (the most common bacterial cause of gastroenteritis) is increasing in older people, particularly men, with the largest increase in people over 50 years of age. In a study of 1,109,406 cases a higher prevalence was identified in rural communities[26]. There was also a higher proportion of older men (65+) found in a rural area of Ireland compared to an urban area of Ireland with long-term urinary catheters[27].

In a brief analysis of economic and social data at a local authority level to better understand the extent to which coastal communities are among the worst ranked parts of the country in terms of earnings, employment, health and education, the social market foundation reported that of the 20 local authorities in England and Wales with the highest proportion of individuals in poor health, 10 were in coastal communities[31]

## Mental health

Six studies examined the association between mental health and area of residence[32-37]. Two studies reported poorer mental health among older people[33] and older carers[37] in rural areas, 1 reported poorer mental health among older people in coastal areas[35] and 1 reported poorer mental health in both rural, coastal and city centres[36] while 2 studies reported poorer mental health among older people in urban areas[32, 34]

Corcoran in her report to the House of Lords Select Committee (2018) stated that coastal towns tend to be characterised by an ageing population of long-term residents or incoming retirees and a transient younger, marginalised group[35]. Her research has revealed that living in coastal towns can effect individuals' healthy life expectancy, with particularly high levels of both common and serious mental health difficulties[35]. Some common patterns have also emerged in suicide rates in England and Wales in those aged 15 to 64+ years. High rates have been identified in remote and coastal areas as well as in central parts of cities[36]. For both firearm assisted suicide (FAS) and non-firearm assisted suicide (n-FAS) in the Republic of Ireland the deceased (aged 10 to 79 years) were predominantly male, living in a rural setting and not-married. However, this profile was more salient in the FAS group. In comparison to the n-FAS group, a greater proportion of the FAS victims were male from a rural setting and agri-employed (farmers, relatives assisting farmers, farm labourers, farm managers or fishermen)[33]. In addition, male carers (aged 19 to 88 years old) living in urban areas of Wales reported better mental health than male carers in rural areas and female carers in both settings[37].



Urban deliberate self-harm rates in England have been found to be substantially higher than rural rates amongst both males and females aged between 15 and 64 years. There was little difference between urban and rural rates for patients aged 65 years and over[32]. In addition, a large between-country variation was found in female urban prevalence of depressive disorder, with Ireland (Dublin) and the UK (Liverpool) having a remarkably high rate compared to Finland and Norway. The women (aged 18 to 64) in these same countries showed a significant urban/rural difference, whereas in men and in the total sample this difference was non-significant. There was a remarkable urban preponderance in comparison to the corresponding rural site in the female prevalence of depressive disorder in the UK and Ireland compared to Finland and Norway[34].

## Neurological health

Six studies examined neurological health and its association with residency type[38-43]. Four studies found an increased rate of neurological conditions (Acquired Brain Injury, Cognitive decline, Cognitive impairment, Cognitive disorders) in rural areas[38-40, 43] although 1 of them found no urban-rural difference in dementia[40] which was confirmed in a fifth study[41]. One study reported a lower incidence of a neurological condition (Parkinson's disease) in rural areas[42]

A study in the west of Ireland found significantly more patients (aged 18 to 65) with Acquired Brain Injury in rural areas than urban areas. Traumatic brain injuries and tumours were more common in rural areas whilst haemorrhage and infection were noted more in urban settings[38]. Urban Irish residents aged 50+ years also showed better performance than rural or other settlement residence groups for global cognition and executive functions after controlling for covariates. Childhood urban residence was associated with a cognitive advantage especially for currently rural participants[39]. Higher prevalence of cognitive impairment was also found in older adults (aged  $\geq 65$  years) living in rural areas in England, but these differences were not observed for dementia[40]. This finding in relation to dementia was confirmed in a study of 1547 community dwelling people (aged 43 to 98 years) where there were no urban/rural differences[41]. Prevalence rates in rural Wales adjusted to an index UK population also showed lower rates of parkinsonism and Parkinson's disease for a rural compared to an urban population[42]. Poor quality of micro-scale environment in England (such as graffiti and broken windows) was associated with cognitive disorders in people aged 65 or above and the direction of association differed across urban and rural settings. Higher odds of cognitive disorders were found in rural settings, although living in a poor quality environment was associated with nearly twice higher odds of cognitive impairment in urban conurbations but lower odds in rural areas[43].

## Determinants and drivers

Thirty-six studies examined the determinants and drivers of health inequalities experienced by older populations in rural areas[8, 25, 27, 44-74] and coastal areas [30, 35, 68, 72]. Determinants and drivers include:

- mobility[44]
- exclusion, marginalisation and lack of social connections felt by certain groups such as LGBT+ or those who are divorced or living alone[45, 46, 49]
- being socially detached[25, 50, 51]
- lack of access to health[8, 27, 57, 64] and other community based services[52, 53, 72] which, in turn, can also contribute to becoming socially isolated
- equitable outcomes costing more in rural areas[8, 54, 59-62, 70]
- financial difficulties experienced by older people themselves in rural areas including fuel poverty[8, 69, 72] and housing issues[8, 35], different types of treatment provided in rural areas (but not delays in treatment)[56, 66] although 1 study found no differences in rural and urban disease management[55]
- more emergency and elective hospital treatment in rural areas[74]
- workforce challenges facing the NHS and social care in rural areas such as recruitment, retention and development[58-62]
- lack of transport [8, 63, 64, 74] and distance from services[8, 57, 65, 68] which again can contribute to feeling isolated
- lack of awareness of certain conditions or services[67, 71, 72]
- already poor health[72]
- perception of others[72, 73]
- lack of community support [8]
- seasonality and weather which could affect some recreational activities[72]
- certain environmental conditions particular to coastal areas[30] and finally lack of physical activity[47]

No differences were found in fruit and vegetable consumption between rural and urban older people[48].

In a study conducted by Riva et al. (2011) consideration was given to residential mobility – reflecting the movement of people between areas of England – between 1981 and 2001 and inequalities in mortality between urban and rural areas. Residential mobility accounts for about 30% of the overall health advantage of rural areas compared to urban locations. Individuals who were residentially mobile between urban and rural areas were relatively healthier than long-term urban residents, with better mortality outcomes among rural in-migrants. In age-stratified analysis, individuals of working age (20 to 64 years) moving out of rural areas, and individuals of retirement age (65 years and older) moving into rural areas, were shown to be healthier[44].

Residential mobility may be ‘indirectly health selective’ when it is associated with a variable also associated with health, such as socioeconomic status. For example, individuals with lower socioeconomic status (a predictor of poorer health) might be more likely to move towards more deprived urban areas (downward sociogeographic mobility); this will tend to reduce ill-health in the areas of origin and to raise mortality and morbidity rates in destination areas. Conversely, in areas with worsening socioeconomic conditions, wealthier and healthier people might be moving to less deprived places (upward mobility) leaving behind people in worse health who live in increasingly poorer areas from which they cannot afford to move.

Residential mobility might also be ‘directly health selective’ if it occurs for health reasons, for example among people with poorer health seeking better accessibility to health care services. Frail older adults are also more likely to move closer to family members and care institutions, or into housing that better meets their needs, by downsizing to smaller properties, or moving to sheltered housing or residential care facilities that are often located in relatively affluent areas. These types of directly health selective migration will increase mortality and morbidity rates in destination areas – such as urban locations with more housing suited to older people’s needs and close to health facilities, while in areas of origin a more favourable health profile may result. Some residential mobility may be both directly and indirectly related to health. For example, the tendency for older people, in early retirement and in relatively good health, to sell their property in the city to move to the countryside might reflect their search for a good environment for their healthy, active retirement, as well as economic motives to release equity held in an urban property. Such moves also influence the geographic pattern of health inequalities[44].

One study identified how the perceived health and wellbeing benefits of rural living were moderated by inequalities related to sexual orientation, marital status, and childlessness. The positive image of the rural idyll was generally expressed by participants in the study, although moderated by particular experiences of certain individuals. Older women felt stigmatised when they could not be identified as wives or mothers, leading to various levels of social exclusion and marginalisation. Similar feelings were present among men who identified as gay or who were divorced. For both men and women, such characteristics are seen to deviate from normative ideas of what constitutes the rural idyll. The perceived benefits of rural living could not compensate for the negative impact on health and wellbeing from the stress stemming from such exclusion and marginalisation[45]. Similar findings were reported in 2 studies which reported that living in a rural area can have an impact on older people’s social connections, particularly among older LGBT+ people[46, 49] as most LGBT+ social spaces exist only in urban areas. Some older lesbian and gay men living in rural areas prefer to remain hidden due to concerns over intolerance where they live [46].

A number of studies identified a lack of social contact as a key driver to health inequalities by older people in rural areas[25, 50] Jivraj et al. (2016) considered social activities as well as social contacts. The authors found that older age, residence in a rural area, and poorer health were associated with persistently lower social connections over time[50]. Older adults (aged 50+) living in a rural area in England had a greater risk of being socially detached than those living in urban areas. This is likely to reflect the fact that fewer social opportunities are available in rural areas, because there are fewer people and places to visit, which also means people are more vulnerable to becoming socially detached. Access to facilities will also be more difficult for those living in rural areas and may deter people from engaging socially even when they have means of transport[50]. This finding was echoed in a study in Scotland[25] which identified risk factors for widespread musculoskeletal pain in rural areas as similar to those seen in urban settings, including markers of general health, mental health and also aspects of social contact. It may be, however, that social networks are more difficult to maintain in rural settings, and clinicians should be aware of the negative effect of perceived social isolation on pain in rural areas[25]. Another study identified older English rural patients (aged over 60) with schizophrenia as being more socially isolated than urban patients[51].

Other drivers related to lack of access to health and other community based services in rural areas[27, 52]. For example the anomaly in long term urinary catheters rates which were higher in older men aged 65+ in a rural area of Ireland compared to an urban area of Ireland may be a proxy for lack of access to basic Urology services[27] although rural dwellers, with rheumatoid arthritis in the Highlands of Scotland, do not appear to be disadvantaged in regards to their disease management in comparison to the urban population[55]. Another study examined differences in treatment of colorectal and lung cancer for deprived and outlying, rural patients compared to urban patients in the north and northeast of Scotland[56]. Campbell et al (2002) found that while rurality may have a minor impact on modalities of treatment for colorectal (but not lung) cancer with less radiotherapy among outlying patients, it does not lead to delays between referral and treatment for either, with colorectal cancer treatment actually quicker for outlying patients[56].

Delays in referral to renal specialists for patients aged 20 to 80+ years with raised serum creatinine (a marker of kidney disease) levels were also significantly shorter those living in rural areas of Northern Ireland[66]. In Somerset, older populations in rural areas were found to have more emergency and elective hospital treatment however this finding was thought to be as a result of risk aversion behaviour of GPs[74]. Distance from services are key as this is another driver of health inequalities experienced by older populations in rural areas. In a study of hypothetical NHS scenarios it was found that centralisation of hospital services in Wales would reduce geographical access for rural older (75+) people[57]. One study which examined calls to an out-of-hours co-operative with 4 centres in 1 mostly rural Health Board in Northern Ireland found that while older patients were more likely to be seen by the GP, each kilometre from the

centres reduced the likelihood of seeing the GP[65]. Access to primary and secondary care in South West England were most difficult in rural and coastal areas. In these areas straight-line distances underestimate true travel distance, reflecting sparse road networks and geographical barriers such as hills, rivers and coastline. The proportion of over 65 year olds increased slightly with straight-line distance from hospitals: more remote wards had a slightly higher proportion of residents over the age of 65, but there was considerable variation within deciles of remoteness, and the observed difference was small[68].

Transport services are also important drivers. Those responding to a survey (aged 15 to 90+ years) in rural England were primarily concerned with healthcare provision and being dependent on private transport, and questions of accessibility were pertinent[64]. Older people in rural Lincolnshire also noted that the ability to get out and about can be a problem, and this lack of mobility contributes to isolation[63]. The private car was the most preferred mode of transport and many of the older people interviewed appear to be unaware of the range of transport options available to them[63]. For older women living in rural villages in Somerset, there was a marked difference in their ability to spend their time as they liked, possibly linked to a lack of personal transport if their husbands or partners had passed away or no longer drove[74]. While community transport services in England play a vital role in rural communities, many older people are confused or unclear about what these services do, how they can be used, and how to access them. This suggests that these services are often poorly publicised and underused in some areas of the county and therefore those most likely to benefit from them may be the ones least likely to use them[63].

Changes to the provision of Post Office services in rural areas of England – that is, branch closures with a mobile replacement – indirectly impacted on older people (65 years and over) by creating a perceived loss of a social meeting place. This restructuring consequently has an indirect negative impact on older rural residents' access to social contacts as well as on their engagement in activities out in public[52]. According to a report by Rural England, a number of services in England are struggling to maintain levels of provision in rural areas, 2 services currently at particular risk are rural bus services and rural bank branches[53].

An All-Party Parliamentary Group for Rural Services (2010) completed an inquiry into the funding formulae used to allocate resources for health[54]. They concluded that achieving equitable outcomes costs more in rural areas, for a variety of reasons relating to remoteness and limited economies of scale. For example, private and NHS costs associated with uptake of screening for abdominal aortic aneurysm for men aged 65 to 74 years old in the Highland and Western Isles of Scotland were found to be highest in very remote settings[70]. In addition, the older age profile in rural areas increases the cost of providing adequate healthcare for rural populations. The funding formula at the

time actually provided less money per patient for those who happen to live in a rural rather than an urban area[54].

According to Green and Bramley (2018) there are also workforce challenges facing the NHS and social care in rural England. Sparser and smaller populations, higher employment rates, lower unemployment rates, an older population and relatively fewer younger people pose challenges for recruitment, retention and workforce development in rural areas[58]. Rurality was identified as 1 of 5 predictors of problems relating to home care supply in England by Jefferson et al (2018)[59]. The rurality of a home care provider's location created financial pressure on domiciliary care companies because of the additional travel time that needed to be paid to care workers. In some instances, home care providers had deliberately moved out of rural locations due to the unsustainable costs associated with paying staff travel time, which were not sufficiently reimbursed by local authority contracts. In some rural areas or areas of high employment, the challenge was to recruit enough workers in competition with other sectors paying higher wages, offering more stable employment or easier working conditions[59].

According to Rural England (2017) rural areas are facing some specific, or particularly acute, challenges related to demographics, service provision and costs in relation to social care at home[60]. This is because older people make up a significantly higher percentage of the total population in rural areas. The percentage of the population aged over 85, the group most likely to need care, is also markedly higher in rural areas than in urban. Lower population density impedes economies of scale resulting in higher per unit costs for service delivery. The distance from providers to rural service users involves higher travel costs, opportunity costs and unproductive time for staff. In rural areas businesses providing domiciliary social care reported issues relating to staff recruitment and/or retention[60]. Scottish Territorial Health Boards in the more remote and rural locations also point to the challenges in provision of accommodation for staff and sub-optimal transport. Transport costs and time spent in travel for work compounded difficulties.

There was evidence that national problems in recruitment of some specialist staff are more keenly felt in rural areas. In rural areas it can be difficult for people to gain experience and access continuing professional development, meaning that Health Boards are all the more dependent upon recruitment to obtain specialist staff[61]. According to the Nuffield Trust (2018) in a rapid review of the impact of rurality on the costs of delivering health care, unavoidable costs of providing health care in rural and remote areas suggests possible issues related to:

- difficulties in staff recruitment, retention and overall staff costs
- higher travel costs and unproductive staff time
- the scale of fixed costs associated with providing services within, for example, safe staffing level guidelines

- difficulties in realising economies of scale while adequately serving sparsely populated areas[62]

According to a report by PHE and the LGA reductions in resources to care for the older rural population, issues of access to health and care services, travelling and transport issues and lack of community support in some areas contribute to pressures on local government and the NHS to take a place-based approach to health needs[8].

Finance was also an issue for older rural populations themselves. In the same document by PHE and the LGA it was reported that financial poverty in rural areas was highly concentrated amongst older people[8]. Two of the 3 English rural study areas in the Rural Network report (with a good proportion of older people) reported that fuel disadvantage was having a deep impact affecting more than 70% of rural households and in the third area affecting 1 in 3 rural households. Fuel-disadvantaged households in the study areas were more likely to have a household member with health problems than those households not living with fuel disadvantage[69]. According to Corcoran the quality and condition of private rented accommodation as well as tenure arrangements are significant issues in coastal towns which is associated with social isolation and the experience of loneliness. Housing quality is important for both physical and mental health. Determinants such as inadequate temperature and heating plus the presence of mould and allergens can lead to poor health and low wellbeing[35]. According to PHE and the LGA, housing in the most rural areas is, on average, less affordable than in other types of area. Rural house prices are 26% higher than in urban areas and there is much less housing association and council housing (12% of rural housing stock is social housing compared with 19% in urban areas). Older rural housing stock is also less energy efficient and more expensive to heat[8].

Lack of awareness may also contribute to drivers of health inequalities experienced by older populations. Lack of awareness of Atrial Fibrillation was associated with rural location in adults aged 50+ years in the Republic of Ireland[67]. In a qualitative study of residents aged 65 years and over in a remote and rural area of Scotland, residents were unaware of the role of pharmacists in the review of medicines which was perceived to be the remit of the doctor, with pharmacists seen as valuable suppliers of medicines only. There may be an unmet educational need, amongst residents, with regard to awareness of the role of pharmacists, the services they can provide and the benefits which may be experienced as a consequence of engagement[71].

An evaluation of the Dorset Stepping into Nature project found information and opportunities for engaging in the natural environment for older people were fragmented and limited. There were a number of barriers/enablers to accessing the natural environment including:

- accessibility
- seasonality and weather



- information
- cost
- health
- those related to dementia and perception of others

The authors highlighted that the language used to promote inclusive activities was important and could greatly influence the number of people taking part[72]. Perceptions of others were also pertinent in a study of residential care environments (both rural and urban in Wales) in which LGBT+ identities were neglected in comparison to the needs and preferences of other residents in adults aged 50 to 76 years. Residents were perceived as heterosexual by the care staff and managers who could be more attentive and responsive to the sexual biographies of all residents[73].

## Case study: Stepping into Nature

### Background

'Stepping into Nature' is a project led by Dorset Area of Outstanding Natural Beauty (AONB) using Dorset's natural and cultural landscape to provide activities and sensory-rich places for older people, including those with dementia and their carers. This project supports them to access and enjoy rural landscapes, wildlife and culture. The pilot has now been completed and a larger £320,000 3-year study (2017 to 2020) has now commenced, funded by the National Community Lottery project.

### Intervention

The project has 3 main delivery aspects:

1. Work with local organisations such as Dorset Wildlife Trust, Dorset Forest School & Dorset History Centre to support and fund the delivery of inclusive activities inspired by or within nature.
2. Providing funding for communities and organisations to help create more inclusive, accessible and enjoyable green spaces.
3. Training for staff and volunteers, particularly those within environmental organisations, to become dementia friendly.

One of the Project Officers on the study highlighted key aims of the project and how it is being evaluated:

"Now we're running a 3-year project, to 2020, actually engaging older people and those living with dementia in outdoor activities, through a consortium of partners who deliver said activities. We're working with Public Health Dorset to evaluate that, the wellbeing benefits from that. Our key aims are to increase physical and mental wellbeing, to reduce social isolation and loneliness, to increase confidence and motivation for people to access the countryside individually and separately, and to increase skills and knowledge basically.



That's been running since April 2017 to now, so we're coming to the end of our second year. For the evaluation side of it we are carrying out activity feedback, satisfaction feedback, after each activity. We're also carrying out interviews for people that have been highlighted in our framework. Qualitative interviews with people. Participation observations as well, direct participation observations."

## Impact

The pilot evaluation highlighted 3 themes which are critical in terms of improving access to the natural environment for older people: access; inclusion; and innovation:

Access – car sharing, better bus services, wider access to information about what is available, more gravel pathways.

Inclusion – involve young people in older adult's groups, offer choice of activities (e.g. singing or listening to others sing), opportunities for one-to-one activities, develop facilities with multi-purpose use.

Innovation – learn from the success of other initiatives, include access to animals, build a sensory garden and involve those with dementia.

The interviewee provided more information about 1 of the key preliminary findings of the full evaluation: partnership with providers from the local area. Involving providers in the project resulted in breaking down barriers and provision of a service that was accessible for older people.

"By us giving them support, and we do fund them as well at the moment, it's enabled them to gain that experience and skill and confidence to be able to then put those activities on. So they are key, because they're the ones that are delivering the activities."

The pilot identified that engagement with providers may have been hindered due to lack of capacity or understanding surrounding dementia. Increased awareness of Dementia made services more readily accessible:

"From a provider point of view, from somebody delivering the activities, we found that they weren't sure what to expect from that audience. Some people didn't want to be involved, because they didn't feel like they had the capacity or knowledge. It was after, just, a simple bit more understanding, dementia awareness, that people were like... I think people didn't realise that it didn't take a lot to engage with that audience, it wasn't a... There weren't massive specifics, it was just about supporting somebody and being there and knowing if anything happened."

## Learning points and key messages

1. A focus on access, inclusion and innovation is necessary to make improvements in access to the natural environment for older people.

2. In order to engage older people in activities it is key to have providers from the local area on board.
3. It is important to ensure that providers feel equipped and comfortable to manage the needs of older people, especially those with dementia.

Certain environmental conditions may act as drivers of health inequalities experienced by older populations. Particularly areas of asbestos use in shipbuilding and industry in the past along the Thames and its estuary may be the reason for an increase in mesothelioma (a type of cancer) in South East England, particularly for men aged over 70 years[30].

In terms of lifestyle behaviour, Barrett et al (2016) found adults (aged 18 to 69) living in rural locations in the Republic of Ireland to be less physically active than those located in urban areas. The difference in activity levels between the locations was accounted for by differences in walking. The median walking time of rural participants was less than 10 minutes walking per day. This compares with a median of 30 minutes of walking per day for the most active, urban deprived sample[47]. Appleton et al (2009) found no rural or urban differences in patterns of fruit and vegetable consumption in older individuals (65+) in Northern Ireland with older individuals consuming about 4 portions of fruit and vegetables per day[48].

## Strengths, assets and sources of resilience

Sixteen studies examined strengths, assets and sources of resilience in ageing populations in rural [14, 37, 43, 48, 52, 53, 64, 75-83] and 1 coastal[79] areas and how these can be effectively used to mitigate inequalities in ageing. Key sources were:

- community based social networks[75, 78, 79] and a sense of community[14, 64]
- community services[52, 53]
- family[77, 78]
- neighbours[64, 77]
- home-grown fruit and vegetables[48]
- access to a car[76] or other form of transport[80]
- environmental factors such as less crime[64, 81], more green space[81] and better quality street level conditions[43, 81]
- certain health and social care services such as home visits[79, 82], sitting services[37] and trained and experienced palliative care nurses[83]

A sense of community and community networks appear to be a vital asset. In a qualitative study of people aged 65 years and older community-based social networks instigated trips outdoors for rural participants while family ties mostly led to trips outdoors for urban-living participants. Having social contacts in the community may lead to a larger overall social network than if an older person relies only on family contact

alone[75]. A sense of community is also thought to contribute to longevity and the pockets of centenarians found in isolated areas of Ireland[14]. Social isolation has been associated with poor prognosis in schizophrenia but rural living was associated with greater frequency of social contacts (family visits, social visits and planned social activities) in patients (aged 18 to 64) suffering from schizophrenia in Britain[78]. Older patients (aged 60 to 79) and care professionals on an island off the west coast of Scotland (which is classed as very remote rural and coastal) believed in-person care (home visits) by a health or social care professional promoted the general well-being of older patients with pain. Older patients (who were all female in this study), their spouses and carers valued the sociability of the home visit[79].

Community services such as the Post Office were found to be essential in rural areas in order to create social meeting places, access to social contacts as well as engagement in activities out in public[52]. Older age groups are more likely to be users of locally based commercial services in rural areas, such as convenience stores, thus helping them to survive while retired people who remain in good health are also likely to make up a good proportion of the volunteers engaged with providing community-run services[53].

Family and neighbours also appear to be important. In a study in Northern Ireland living alone was found to be less common in rural areas[77] and as a result care home admission was more common in urban and intermediate areas than in rural areas. People in rural areas experienced better family support by living as part of 2 or 3 generation households. Even after accounting for this difference, older (65+ years) rural dwellers were less likely to enter care homes; suggesting that neighbours and relatives in rural areas provide more informal care; or that there may be differential deployment of formal home care services[77]. Respondents (aged 15 to 90+ years) to a survey in rural England reported that they lived in communities that were marked by mutuality and cooperation, neighbours trusted one another and trust was a common currency[64].

Access to fresh fruit and vegetables is also a key asset of rural areas. The absence of differences in rural and urban fruit and vegetable consumption in older individuals (aged 65+ years) in Northern Ireland is thought to be a reflection of the availability of fruit and vegetables in rural areas as a result of home-grown produce, local sellers and local markets[48]. This is echoed in the research, mentioned above, locating pockets of centenarians in isolated areas of Ireland where agriculture is dominant and food is sourced locally[14].

Access to a vehicle also appears to be important. Having no access to a car was related to a considerable health and mental health disadvantage particularly for older people who live alone in Northern Ireland. Rural–urban health and mental health differences were found to be mediated by access to a car. The findings of this research support approaches that emphasize the importance of autonomy and independence for the well-being of older people (aged 65 and over) and indicate that not having access to a car can

be a problem for older people not only in rural but also in intermediate and urban areas, if no sufficient alternative forms of mobility are provided[76]. 'Rural Wheels', is a voluntary medical transport scheme which was introduced to overcome the closure of branch surgeries and to provide access to a new medical centre in rural England. This scheme was run almost entirely by older people who were deep into their retirement and it played an important role in the welfare of rural residents, particularly older women[80].

Environmental factors pertinent to rural areas also act as a source of resilience. Respondents (aged 15 to 90+ years) to a survey in rural England reported that they lived in communities where fear of crime was not widespread, and people felt safe not just in their own homes but the villages and towns in which they lived[64]. This is borne out by the Cognitive Function and Ageing study which reported that communities in urban conurbations generally had high crime, low proportion of green space with worse quality of street level conditions than did communities in rural areas[81]. Indeed, poor quality of micro-scale environment in England (such as graffiti and broken windows) was associated with nearly 20% increased odds of depressive and anxiety symptoms in people aged 65 or above while the direction of association for cognitive disorders differed across urban and rural settings. Although higher odds of cognitive disorders were found in rural settings, living in a poor quality environment was associated with nearly twice higher odds of cognitive impairment in urban conurbations but lower odds in rural areas[43].

Certain services also played a role in mitigating health inequalities in rural areas. When high home visiting practices in rural Ireland were compared to low visiting rate practices, patients tended to be older and calls were 12-times more likely to be doctor initiated or classified as routine. Home visits are not only appreciated by patients but are also a valuable tool in primary care, allowing general practitioners to gain useful insights into a patient's living conditions including their family and social supports. Home visits also provide an important service for the elderly and the house bound[82]. This was corroborated in the study (mentioned above) of older (aged 60 to 79) patients and care professionals in rural/coastal Scotland where home visits by a health or social care professional promoted the general well-being of older patients with pain with older patients, their spouses and carers valuing the sociability of the home visit[79]. In another study a sitting (befriending) service provided in both rural and urban locations was linked to better carer mental health [37]. Finally, for nurses', working in care of older people settings in 1 rural region in Ireland, level of palliative care knowledge increased and attitudes become more positive when they had completed the European Certificate in Essential Palliative Care (ECEPC) and had increasing years as a registered nurse[83].

## Health and social care system interventions

Three studies assessed the effectiveness of a health and social care intervention designed to reduce inequalities and promote productive healthy ageing in rural [84-86] and coastal [84] areas. Examples include:

- Mobile Me [84], which showed evidence of effectiveness although the study was of relatively poor quality
- a Liaison Psychiatric Nurse, which showed a trend towards improvement [85]
- village services (6 community-based services and activities provided to help meet the needs of older rural residents, namely lunch clubs, welfare rights information and advice services, befriending schemes and community warden support), which were found to promote social inclusion although older men were often reluctant to engage [86].

These latter 2 studies were of good quality [85, 86]. One trial is currently underway of a new community service provided by the Royal Mail to help tackle loneliness in a coastal town [87]. Other interventions which were identified in the literature [80, 88-93] but were not subjected to a formal assessment of effectiveness included:

- Active Norfolk's Dance to Health [88], Rural Wheels [80]
- Personal Budgets [89]
- village 'agents' [92], dementia-friendly communities [93] and a number of other initiatives [92] – including those run by Age UK [91].

### Mobile Me

Mobile Me was a 10-week sport intervention delivered free to residents aged 65 years and over in 51 sheltered housing and care home sites in Norfolk between October 2015 and December 2017. Norfolk is a largely rural county with half of its overall boundary being coastal. The primary intended outcome of Mobile Me was a reduction in inactivity. Secondary outcomes were to improve functional status, well-being and social interaction, and to reduce sitting time, fall-risk and loneliness. A pragmatic, mix-methods evaluation reported that sedentary behaviour in the intervention group reduced. Physical activity and sport also increased. Arm curl improved in the intervention group. Self-reported fear of falling reduced.

Qualitative feedback from professional stakeholders and residents suggest that residents felt less socially isolated due to Mobile Me, although scores on a loneliness scale did not improve. Scores on a wellbeing scale did improve. Mobile Me was cost effective in 3 out of 4 scenarios tested using the Sport England MOVES model. Mobile Me differs from many other physical activity programmes described in the literature as it is unstructured and low-intensity. Mobile Me provides an example of a different approach to engaging older people in physical activity [84].

## Case study: Mobile Me

### Background

Active Norfolk is an active partnership for Norfolk that works with organisations across the county and sector to improve opportunities for the people of Norfolk to be physically active, increase participation in sport and physical activity, and support people of all ages to lead healthy and active lifestyles.

According to the Active Project Officer the population of Norfolk is known to have a range of needs with pockets of high levels of economic deprivation, as well as rural and urban areas which, within rural areas can lead to social isolation, loneliness and health inequalities:

“Norfolk is quite a complex county in terms of you have both the issues that come with having a rather rural county, but also there are pockets of real urbanisation as well. Within those pockets of urbanisation there's quite high levels of economic deprivation and within some of the more rural areas, although they can be quite affluent in terms of people's income and earnings, there are quite high levels of social isolation, loneliness and health deprivation, especially as you get older. We have quite a few people that retire to the county and it is not uncommon for them to become widowed and without a wider support network around them, they can quickly become quite isolated and lonely.”

Active Norfolk has been involved in a number of initiatives that have looked at addressing the needs of their local population with their aim of increasing physical activity in later life, and have demonstrated the particular effectiveness of the Mobile Me intervention.

### Intervention

The aim of Mobile Me was to promote physical activity among older people in and around Norwich. The project comprised 10-week physical activity interventions, funded through Sport England's 'Get Healthy Get Active' initiative, delivered free to residents aged 65 years and over in sheltered housing and residential care sites in Norfolk between October 2015 and December 2017. Mobile Me was developed to overcome barriers to participation, and was delivered on-site in communal living areas.

### Impact

The primary outcome of the project was a reduction in inactivity. Secondary outcomes were to increase functional status, well-being and social interaction. In doing so the project also sought to reduce sitting time, fall risk and loneliness.

The intervention was evaluated in collaboration with the University of East Anglia and Active Norfolk, and demonstrated a reduction in sedentary behaviour, together with an increase in physical activity and sport. Self-reported fear of falling reduced, and wellbeing increased.

In addition, 1 of the benefits for Active Norfolk was being able to develop a working relationship with local housing providers in their area:

“This has also led to us then building up a partnership relationship with some of the housing providers that have been involved in Mobile Me. We've done further legacy work off the back of the project, around them becoming deliverers or their staff becoming deliverers and building physical activity into their strategies and their outcomes and agendas.”

Active Norfolk is keen for work to continue after funded projects have ended and secure the legacy from the project:

“The research report has now been released for that, but the legacy work for it, in terms of working with the partners to embed physical activity in their strategies and outcomes and working with them around building it into part of their culture continues. So it's more around the legacy work of that project now [...] Mobile Me gave us an introduction to the physical activity and sport arena for older people in Norfolk...So that project really enabled us to build a foundation to work on and gave us some learnings and allowed us to build relationships within the relevant sector.”

The project has given the organisation the opportunity to take forward learning from the work:

“Our experiences of delivering activity sessions for people with moderate to advanced dementia enabled us to get a really deep understanding of how that works and what needs to be done in terms of successful delivery for that. So we are working on developing some best practice guidance around how we found our experiences with that.”

Active Norfolk was able to take this learning around the importance of physical activity for people with dementia and work with other organisations, for example local libraries, and Age UK, to see how physical activity could be built within their organisational culture.

### Learning points and key messages

1. Mobile Me provides an effective model of fun, accessible, social activity as a gateway into physical activity for older, inactive people.
2. There is potential to consider how, and whether, some individuals can be progressed to higher levels of activity and towards meeting government guidelines, without losing the ethos of the programme – as well as how residents can be encouraged to break up sedentary time.
3. Work with organisations to raise awareness of the benefits of physical activity for older people, and provide practical help supporting these organisations to embed physical activity within their services.
4. Resident-volunteers within sheltered housing sites have skills and experience in delivering activities to their peers; consider whether they can be further supported and encouraged to maintain, or extend, programmes.



## Liaison psychiatric nurse

A pragmatic randomised controlled trial examined the effectiveness of a liaison psychiatric nurse who assessed participants, formulated a care plan for treatment of their depression, ensured its implementation through liaison with appropriate agencies, and monitored participants' mood and response to treatment for up to 12 weeks in inpatients aged 65+ in rural East Anglia. Participants in the intervention group were more satisfied with their care, but no significant differences in depressive disorder, depression rating or quality adjusted life weeks gained were found between groups. However, there was a trend towards improvement in the intervention group and effect sizes were higher in the subgroup with depressive disorder[85].

## Village services

In a qualitative study of village services in 3 rural areas of England (6 community-based services and activities provided to help meet the needs of older rural residents, namely lunch clubs, welfare rights information and advice services, befriending schemes and community warden support) were found to promote social inclusion by enhancing older rural residents' (aged 58 to 93) access to the resources, rights, goods and services that encourage social interaction and meaningful participation in community life. It was clear, however, that the overwhelming majority of users of village services were female and that older men were often reluctant to engage with the services on offer[86].

### Case study: village services

#### Background

This evaluation of village services across a range of locations, focused on social inclusion and how geography can constrain people from meaningful participation in the community, as explained by the University evaluator:

“The various branches of Age Concern joined together and funded this piece of work; they wanted to look at the social exclusion of very old people in deep rural communities. For me, it was actually quite interesting because I've done a lot of work about social exclusion before, but mainly with people like asylum seekers, very marginalised groups of citizens. I had never considered the rurality aspect of it before.”

#### Intervention

This project explored the impact of village services on the lives of people aged 70+ living in rural England. Village services refer to 6 community-based services and activities that were provided to help meet the needs of older rural residents. These included lunch clubs, welfare rights information and advice services, befriending schemes and community warden support.



These village services were being provided in rural areas across 3 regions in England. The idea behind village services is that they promote social inclusion for older people by giving older rural residents' access to resources, rights, goods and services that encourage social interaction.

### Impact

Village services can be seen as 'low-level' services or interventions. However, often these gatherings bring other opportunities within them, which can increase their impact:

"I remember visiting a luncheon club in a small, tiny village hall in this little hamlet... They came together, they talked, they chatted, but they also had the things like a mobile chiropodist who would rock up at this thing in their little van and do quite mundane things like cut old peoples' toe nails; there was also a hairdressing service, and the value that was obvious from many of these interventions were essentially, the social value of it, it overcame its isolation. These low-level interventions, as we call them, actually kept people out of hospital because many old people trip and fall when they get problems with their feet, etc. So, there was a social aspect of the value of these services. You could pick up from some of the stakeholders, as well, the real value that they placed on these services."

The interventions sought to reach those who might be affected by social isolation or deprivation, which can be hidden in rural places:

"I had some interesting days in some very nice idyllic places where some of the older people were very isolated, some were very poor. So, it opened my eyes around issues around exclusion in rural communities, and the value of some of these quite low-level sort of interventions, and the dynamics of funding these things in these particular locations."

The role of village services in addressing social isolation particularly following bereavement was highlighted by the University evaluator, who described the experience of a resilient woman living in a rural community after losing her husband:

"She talked about having an idyllic life. She was a very fit woman for her age, you know, physically, but the isolation that she had after her husband died really struck home to me that this was an issue, and that the dynamic was these things (village services) need funding."

The majority of older people who use these village services are women. The research found that older men are reluctant to engage with these types of services. The older residents, when they became aware of the research, were concerned that these services would be taken away:

"The biggest concern at the time from most of the old people themselves was, "You're not going to stop doing this, are you?" That was the first question. They thought we were evaluating things in order to get rid of them. We were very clear from the outset – we suspected that might be the case – that we were not doing that, and we explained what we were doing."

### Learning points and key messages

1. Local residents found these low level services important for them in accessing other services (for example chiropody).
2. Village services have an important role in encouraging social interaction and addressing social isolation.
3. Providers of village services need to find new ways of engaging with older men in rural areas.

### Case study: Men's Sheds

#### Background

In the UK, 20% of the population are men aged over 65 years. Men have a tendency to engage in more risky health behaviours than women and their mortality rates are higher. Loneliness and social isolation are also common in this age group, and are known to be associated with poorer health outcomes. Older men find it harder than women to make friends later in life, and are less likely to join community based social groups. They also use fewer community health services than women, and are less likely to participate in preventive health activities. Older men may be more vulnerable to physical and mental ill-health due to their reluctance to engage with services and activities[94].

#### Intervention

Men's Sheds is an intervention originally from Australia, but growing rapidly across the UK. It provides a safe space for older men to participate in purposeful physical activities on a voluntary basis. Sheds provide a space where older men can meet, socialise, learn new skills and take part in activities with other men. The aim of Men's Sheds is to improve physical, emotional, social and spiritual health and well-being in addition to alleviating loneliness or social isolation. Men's Sheds may also engage men in informal adult learning activity, provide health related information or signpost to relevant services. Men's Sheds can be funded by third and private sector organisations but can also be voluntary run and self-sustaining, all are tailored to their local context and so are not standardised. There are 488 open Men's Sheds in the UK while another 145 are in development.

#### Impact

A team from the Universities of Lancaster, Liverpool (LiLaC) and York undertook a systematic review of the evidence for the effectiveness of Men's Sheds and other social activity initiatives at influencing health and wellbeing amongst for older men.

There was some evidence from the review that gendered interventions including Men's Sheds had a significant effect on the physical health of older men. There was some evidence of a positive effect on the mental health of older men and some evidence of the beneficial effects of interventions on older men's wellbeing. However, there were limitations to the available evidence and a lack of robustness.

Overall, the findings indicate that Men's Sheds and other gendered interventions provide an array of other benefits for older men including:

- learning new skills sharing knowledge
- a sense of purpose and personal achievement
- the opportunity to meet and interact with others and the alleviation of social isolation

Sheds can also signpost older men to other health and welfare services.

### Learning points and key messages

1. There is evidence that Men's Sheds have a positive effect on the physical health, mental health and wellbeing of older men
2. Men's Sheds are community spaces for men to connect, converse and create, and may play a vital and valued part in the lives of some older men
3. It is estimated that 11,712 men in the UK are benefitting directly from Men's Sheds.

## Dance to Health

Active Norfolk has taken the lead in bringing an innovative falls prevention approach to Norfolk – Dance to Health with the aim of reducing the number of falls in order to improve lives and reduce pressure on local services[88]. Dance to Health is a pioneering nationwide falls prevention dance programme for older people. It combines evidence-based physiotherapy with the creativity, expression and energy of dance. Norfolk is a largely rural county with half of its overall boundary being coastal. While the effectiveness of the intervention was not formally evaluated, participants (adults aged 65+) were asked to feedback their experiences of the sessions. Methods for obtaining feedback were unclear. Participant enjoyment of the sessions was reported as being overwhelmingly positive.

Participants identified the social element of the sessions as a key factor in their repeat attendance. Some participants reported on their own loneliness and how Dance to Health had given them somewhere to meet new people and develop personal relationships. Participants reported an increased confidence in their movements and independence. While some participants reported they preferred the dance elements of

the programme to the physiotherapy elements, the group recognised the importance of the combination of both in improving their physical health and independence. While some participants reported an initial increase in pain in some areas of their body due to unfamiliar movements, the majority of participants identified a reduction in pain as a positive aspect of the Dance to Health Programme. Participants expressed a demand for the sustainability of the programme[88].

## Case study: Dance to Health

### Background

Through a Falls Prevention Steering Group, Active Norfolk identified the need for falls prevention work in their county. Working in partnership with Norwich Clinical Commissioning Group they were able to bring a programme of dance to Norwich to benefit older residents. Active Norfolk and Norwich CCG had the opportunity to get involved in, and part fund, the Dance to Health project.

### Intervention

The Dance to Health model is an evidence-based falls prevention programme, combining physiotherapy with the creativity, expression and energy of dance. It combines traditional falls prevention techniques with 'fun, sociable and creative dance' sessions. These sessions are delivered by local creative Dance Artists.

According to the Active Project Officer Active Norfolk were able to work with Aesop's Dance to Health in an area they identified as a priority due to its high level of deprivation:

"It meant that we were able to have 6 projects run within the Norwich area. We worked with Dance to Health too as a funding partner on what we wanted prioritised and that was certain pockets of Norwich where there are high levels of income and health deprivation combined with higher populations of older people as well. So we allocated the areas that we wanted with them."

There are 2 programmes:

1. The Improvement Programme which is 50 hours of activity over a 6-month period delivered in weekly sessions;
2. The Maintenance Programme which provides ongoing weekly sessions to maintain strength and balance improvements.

The aim is for the Maintenance Programme to become an ongoing, self-run and sustainable group, run by attendees and other members of the local community. This project is currently ongoing. The project is:

“...split into phases. So we had 6 initial programmes that were called an intervention that run over a 6-month period. They then whittle down to 3 programmes that they call into a maintenance phase. So that initial 6 months is designed to tackle the fall prevention element and get people to a stage where they are no longer as much of a fall risk. Then they go into the maintenance projects [...] That is more about becoming self-sufficient so that it will be about supporting them to continue as a dance group that focuses on falls prevention [...] the aim is they would be an independent group that would just be self-sufficient and continue themselves.”

### Impact

Feedback from participants of their experiences of the sessions was overwhelmingly positive and highlighted participant enjoyment of the sessions, as well as the value of the social element of the sessions and increased confidence.

### Learning points and key messages

1. The social element of the dance sessions was a key factor in keeping participants motivated and attending regularly.
2. Dance to Health gave some attendees who reported feeling lonely a place to meet new people and to develop personal relationships.
3. The activity gave participants increased confidence in their movements and independence.
4. While some participants reported they preferred the dance elements of the programme to the physiotherapy elements, the group recognised the importance of the combination of both in improving their physical health and independence.
5. Participants expressed a demand for the sustainability of the programme in its current format.

One trial is currently underway of a new community service provided by the Royal Mail to help tackle loneliness in a coastal town[87]. Postmen and women in Whitby visit pre-selected volunteer participants while they are out delivering the mail. They will ask participants 5 questions on the doorstep to check on the individual's safety and well-being. This information will be passed on to the North Yorkshire County Council to organise further assistance if required. The service aims to help individuals access assistance at the earliest opportunity if necessary. This might include offering support to help them make simple changes to stay healthy or putting them in touch with an activity or group in their area.

### Other interventions

Rural Wheels' is a voluntary transport scheme, run almost entirely by older retired people, that was introduced to overcome the closure of branch surgeries and to provide

access to a new medical centre in rural England. In a case study, the authors report that this scheme played an important role in the welfare of rural residents, particularly elderly women [80].

In a qualitative study of participants from professional, community and voluntary organisation, personal budgets (a means of giving people more control over the public resources allocated for social care services) were proposed as giving potential flexibility for greater choice and control which might be appreciated by some older people in rural areas. However, there were concerns that local variations would affect the capacity to tailor support and to sustain developments[89].

In a qualitative action research project, community members in a remote and rural community in Scotland identified some positive aspects of being involved in a home care service co-production relating to sense of community, empowerment and personal satisfaction. However, negative impacts included increased feelings of pressure, strain and frustration among those who took part in the co-production process. Overall, the community was reluctant to engage with “transformative” co-production and traditional provider-user dynamics were maintained[90].

In a mapping exercise of the extent to which ‘hard to reach’ groups of older people, are the focus of local health and well-being strategies in England, Iliffe et al (2017) found strategies to counter rural deprivation included: recruitment of village ‘agents’ who would signpost (mostly older) residents with unmet needs to services and community resources, and also promote volunteering; commissioning housing providers to provide energy advice and to deliver an outreach service for older people; other initiatives aimed at reducing fuel poverty were specifically targeted towards older people living in rural areas. There was no data on the effectiveness of these strategies[92].

A dementia friendly community is: ‘A city, town or village where people with dementia are understood, respected and supported, and continue to live in the way they want to and in the community they choose.’ Since Autumn 2017, people of all ages from communities across East Durham (a mainly coastal region of the UK) have been working together with people affected by dementia towards making their communities’ dementia friendly. Facilitated by the Alzheimer’s Society dementia-friendly communities Coordinator working with the Senior dementia-friendly communities Officer, the project has identified local community leads, established dementia-friendly community steering groups and actively involved people living with dementia and carers in working together to become recognised dementia-friendly communities that are each unique and sustainable[93].

## Case study: dementia-friendly communities

### Background

The dementia-friendly communities (DFC) programme encourages everyone to share responsibility for ensuring that people with dementia feel understood, valued and able to contribute to their community. A dementia-friendly community is a city, town or village where people with dementia are understood, respected and supported ([www.alzheimers.org.uk](http://www.alzheimers.org.uk)), as explained by a DFC Coordinator in the North of England, supported by the Alzheimer's Society and a local charity:

“My role is to really work with people living with dementia and with communities across [location] to facilitate people affected by dementia, local organisations, businesses and services to work together with people living with dementia to take action to create communities that are inclusive, respectful and communities where people living with dementia can fully participate as they choose.”

### Intervention

The DFC Coordinator described a number of resources produced by the Alzheimer's Society dementia-friendly communities programme that can be used in order to support communities in becoming a recognised as a 'community working to become dementia friendly' and what the tangible outputs of this work might look like:

“So that [includes] forming a dementia-friendly community steering group, involving people living with dementia and raising awareness by becoming Dementia Friends and creating Dementia Friends Champions. Dementia Friends Champions can then lead Dementia Friends Information Sessions within communities to create people and organisations who are more understanding of the experience of living with dementia. Then, there are also many resources and publications to support organisations to become dementia friendly and decide on the actions they want to take. From developing a dementia friendly workplace and GP practice, through to developing a dementia friendly cinema, through to developing a dementia-friendly garden centre, and working with local schools and youth groups to create a dementia friendly generation.”<sup>1</sup>

The variability in outputs was related to the individual characteristics of the towns and cities using the DFC programme. Related to this individuality, was the need for a bottom up approach, driven by the community itself, in order to create a DFC:

“Dementia-friendly communities is very much about enabling people to self-determine the way in which they work. It belongs to them. The dementia-friendly community belongs to each community. So, for example, if you have a community where you'd identify someone to

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<sup>1</sup> <https://www.alzheimers.org.uk/get-involved/dementia-friendly-communities/how-to-become-dementia-friendly-community>



act as a steering group lead within that community, or people to act as a steering group, that may be people from the community centre, with people from the GP practice, or with people from a local school. Also, to identify people living with dementia, and carers who want to be involved in their dementia-friendly community.”

The need for those living with dementia to be involved in the development of DFCs was highlighted as essential:

“That’s the kind of core element within that, looking at the phrase, ‘nothing about us, without us’. All the changes and areas for action identified by each community are informed by people living with dementia and people affected by dementia. So, that might be their carers, family and friends. That’s the core element of the project. It’s really a social action project that enables communities to come together to make their community more accessible and inclusive.”

The coordinator spoke about a new DFC Rural Guide, designed to help all types of rural communities increase awareness of dementia and become more dementia-friendly. The guide, accessible via the Alzheimer’s Society website, provides community-led guidance and signposting to resources to help support people living with dementia and their carers to be included in all areas of community life:

“There is a rural dementia-friendly communities guide, which specifically looks up what some of the key opportunities in rural areas are, but also where there needs to be greater access, or greater inclusion. So, transport and also access to GP practices, community centres, dementia-friendly faith groups, looking at that rural community and working with people living with dementia and people affected by dementia to identify what the needs of that community are. Where there can be the most positive change and also social isolation, which is a key element of, again, working with communities to open up communities to people who may feel socially isolated. Saying, “You can live well with dementia, because you are supported by your community.”

## Impact

The rural guide suggests that the issues faced by those living with dementia, such as difficulties accessing their community, are compounded in rural communities, due to, for example, increased difficulty accessing transport, health and social care services and support. The guide indicates that the impact of dementia and rural isolation can have a negative effect on people’s quality of life and health. The DFC coordinator suggested what DFC might look like in a rural area, to overcome social isolation:

“Yes, transport you might develop, they might decide they want to create dementia-friendly bus services and taxi services. They might look at their local post office, how you can make that more dementia-friendly. You might look at local shops and the role that they play within that community, the community centre and the church, it very much shapes itself. It enables the community to shape its own community around what’s been identified within that community...”



“People who are driving taxis might be aware of the experiences of people living with dementia, and perhaps the importance of having accessible transport. Also that people understand how to interact, and people understand some of the issues that might affect someone living with dementia, perhaps finding their money to pay for the bus, or understanding where they’re going to, those issues. I think transport is a rural issue full-stop. I think that’s something that is absolutely key to people in rural areas.”

The differences between coastal and rural locations were unpicked by the interviewee, who used DFC in her areas as examples of good practice, where forward thinking work was being done involving coastal facilities:

“I think somewhere like [coastal location 1], the difference is that there are traditional coastal facilities and services, like the harbour, the marina, cafes and shops along the Sea Front and local health, education and leisure providers which the DFC is actively working with as part of its action plan They are now looking to the future and making the surrounding coastal area more dementia-friendly and this is a really interesting idea. Looking at how going onto the beach or navigating coastal paths can be quite inaccessible for a person living with dementia. Working with people living with dementia to conduct environmental audits and explore the challenges. How can you look at the coast to make it more dementia-friendly and more inclusive?”

### Learning points and key messages

1. People with dementia are integral to developing dementia-friendly communities.
2. Communities need to be engaged in developing DFC, taking a bottom up approach to identify their core Areas of Action to apply for recognition from The Alzheimer’s Society as a ‘Community working to become dementia friendly’. Linked to this, each individual area needs its own approach – all dementia-friendly communities are different.
3. Rural dementia-friendly communities are particularly important to overcome social isolation.
4. Work is currently being undertaken to understand how coastal areas can be more dementia friendly.

Age UK Allerdale and Copeland, in a review of their annual activities to help people enjoy later life, identified a number of interventions aimed at adults aged 50+[91]. Allerdale and Copeland covers the coastal and rural area of Cumbria from Silloth down to Millom including Maryport, Workington, Whitehaven, Cockermouth and Keswick. Interventions were focused on: information, advice and support to help people in making informed choices and assist support planning; promote and provide opportunities for safe, independent living; to provide targeted support and supported activities to promote social and digital inclusion and healthy living in active communities. Effectiveness of interventions were not formally evaluated. Examples include:

## The Place-Based Prevention (PBP) programme

Part of the new integrated Health & Social Wellbeing System to deliver low-level preventative services aimed to help people retain or regain their health and independence within their local community and to prevent, deter or delay demand on more intensive statutory services. In the year 2017 to 2018 PBP case workers helped people claim a total of £1,856,294 in additional weekly benefits income and £212,627 in arrears. Age UK also worked alongside Cumbria Community Foundation and provided 258 households with Winter Warmth Grants totalling £39,200.

## Bradbury Independent Living Centre

A one-stop shop, where older and disabled people of all ages and their families and carers can find the advice, services and support they need to live safely and independently at home in their local community and address their related care needs. The centre includes a 'health pod', offering a clinical room where people can receive low level health interventions and provides a nail-cutting clinic.

## 'Up and About'

Keeping Cumbria standing strong against falls' to challenge the assumption that falls are an inevitable part of ageing, and to raise awareness of simple steps which individuals can take to avoid having a fall.

## Community Connections project

In 2017 to 2018, the project reached 8,260 people through an awareness-raising campaign and facilitated open discussions on the issues of isolation and loneliness with a whole range of community groups. This has both encouraged referrals and led to communities becoming more supportive to the needs of lonely older people. In 2017 to 2018, Age UK linked 1,135 people directly to social and activity groups and set up a number of new groups to meet a greater variety of interests, including Advanced Tai Chi, Lucy's Library Link-up, Sing-a-long and Mystery Tours.

## 'Joining Forces'

This initiative provides support for people aged 65+ who have served in the Armed Forces and their families to maintain safe, independent living at home; live well with long-term conditions; and take part in activities with others in their local military community and in the wider community. The project has enabled people to maximise their income, access home adaptations such as stair lifts, a wet room and other improvements, or to move to more suitable accommodation.

## 'Men in Sheds' groups

These have provided an opportunity for men to socialise together and build friendships, whilst using, sharing and learning new practical skills.

Other projects include:

- daily support and activities
- dementia action alliances
- alcohol awareness projects
- elder abuse awareness projects
- handyman and help at home services
- a flood support project[91]

## Case study: Age UK Social isolation, outreach and expanding service provision in coastal areas

### Background

Age UK is the country's largest charity with the aim of helping people face challenges associated with ageing and dedicated to helping everyone make the most of later life. Its vision is to make the UK a great place to grow older. They provide services and support at a national and local level to inspire, enable and support older people (aged 50 and over). The Age UK network comprises around 150 local Age UKs reaching most of England.

The Chief Executive Officer of a branch of Age UK located in a historic market town, in a rural area described the lack of outreach work when he started in his role:

"When I started here over 9 years ago, it was quite buildings-focused. It was very focused on [the town], and there was not really any outreach work going on at all. One of the things that I picked up on quite quickly was that, obviously, the cost for older people of actually getting to us was quite high, if we were looking at providing services just in [main town], not to the surrounding areas."

### Intervention

The CEO of Age UK located in a rural town described how efforts have been made to engage older people living in the rural community through outreach work. This was considered imperative in light of reduced bus services in the community:

"So, over the last, maybe, 5 or 6 years, we've had quite a strong focus on taking our services out to the community, which is more expensive for us to run, but it does mean that we get a better take-up. It does mean we can reach more people and we can be more supportive to the local population."

The CEO of Age UK located in a rural town described how social isolation is a severe issue in their area for older people, however they were clear that any older adult can engage with the service, regardless of whether they felt socially isolated:

“One of the big services we have is about social isolation there, and we try to be enablers. We employ a range of staff, who cover particular patches, who meet with people who are socially isolated. Actually, I say socially isolated but, generally, any older person with any issues can contact us.”

The CEO of a local branch of Age UK located in a deprived coastal area in the South of England described a wide variety of services focused on improving wellbeing for older people. Services include meals on wheels, Independent Living Service (ILS), a dementia service, an intergenerational project and a community hub, as described below:

“We’ve got a community hub. People can come in, they can be picked up by our transport, they can have a meal if they want to, and we provide morning and afternoon activities, and they can participate. Like I said, we offer transport if people want to come to our venues, or want to go on a day trip, or just in general need transportation. They can contact us and we can try to arrange transportation for them. We’ve got wheelchair vehicles as well, and those are around the area here, so they’re in high demand.”

### Impact

Age UK aim to combat social isolation through several schemes, facilitated by ‘Reach Out’ workers, who aim to reconnect older people with the community:

“So, our Reach Out workers, they’re called, the social isolation ones, will go and meet people in their own homes and they’ll talk about why they’re isolated or what their issues are, and then they’ll try and encourage or support them to go along and reconnect with their communities, really. So, they’ll have quite a lot of knowledge of what is already in a town or village, or whatever, that people can go to, that perhaps isolated older people wouldn’t have thought to go to or wouldn’t have had the confidence to go to.”

The CEO of Age UK located in a rural town also described a range of services to engage older people in rural communities including lunch clubs, singing for the brain, cognitive stimulation therapy and men’s groups. However, this was caveated by noting that some older adults don’t wish to engage in the wider community, but still would like to combat social isolation:

“Obviously, it doesn’t always work. We have a truck load of volunteers as well because there’s a balance to be had. A lot of people don’t want to go out. They just want somebody to come and have a cup of tea with them, or they can’t get out, so we do that as well, but obviously, once you’ve used up a volunteer, that’s it. You haven’t got them anymore, have you? So, it is good to try and get people to engage with their communities, I think.”

Although service provision was varied and effort were made to facilitate engagement, the CEO of a local branch of Age UK located in a deprived coastal area in the South of England commented on the dynamics of providing services in a deprived area:

“In general, it’s very difficult to make comparisons. Like I said, all Age UKs are quite different. But you can certainly see that, for example, [town name] is the nearest Age UK with a very affluent area, so people have money, and they’ve got the money to participate in activities that cost a little bit more money. And we have to focus more on the daily activities that are to help them in their day-to-day life.”

Additionally, consideration about access to services in coastal areas needed to be considered, to ensure people in the community were able to engage. Driving was an issue for some people in the communities, which Age UK responded to through provision of transport services:

“Well, for this area, a lot of people don’t drive. They don’t have driver licenses, so they’re homebound. That means that we need to have transport to pick them up and get them to our venues, or that we need to go to the community to visit them at home to make sure they get the services they need. So we’re trying to find more and more services that we can offer, like a handyman service, like a hairdresser, like some foot care, to deliver at their homes.”

Current provision was considered good from those in the local coastal community, but there were calls for expansion of services from local residents. Calls for increased services were thought to be a result of loneliness:

“The most questions we asked if we are getting expanded services as well. Because we’ve got a kitchen that’s open from early morning to somewhere late afternoon, and it’s open 6 days of the week. We keep getting questions and requests if we can open on a Sunday as well. Because we know that the days we’re not open, people are lonely at home, so we might be the only point of contact they have in a week’s time. For example, for the buddy box as well, the only persons they see, or speak to, in a week are drivers who come and deliver the meals. So we’ve got a lot of questions from the community to expand our services, but obviously there needs to be money to fund it as well, so that’s sort of a struggle. But just trying to increase our opening times, for example, ILS, instead of just the normal working hours, we want to actually extend it to the evenings, to the weekends. Just trying to meet the demands of the community.”

### Learning points and key messages:

1. Age UK provide a wide range of services for those in rural and coastal areas, including activities to support daily living which are particularly important in an area of high deprivation.
2. Social isolation is an issue experienced by older people in rural areas – a range of services are needed to engage those are socially isolated and connect them with local communities.

3. Accessibility is a consideration and transport to venues needs to be provided to support attendance – or services need to be delivered in the home as a form of outreach work.
4. There are demands from the community for expansion of services, particularly service opening times, which can be a struggle to meet within available resources.

## Whole system approaches

A limited number of models and strategies for whole system approaches have been proposed[35, 95-97] particularly for coastal areas[35, 95] these include:

- Atterton's pre-retirement and retirement industry models[95]
- Corcoran's proposals for inclusive approaches to physical regeneration
- community wealth building approaches[35]
- Asthana's morbidity-based model[96]
- the Countryside and Community Research Institute's 'Big Society' approach[97]

One comprehensive example of whole system approaches in action was that of The Cornwall and Isles of Scilly Health Action Zone[98].

Atterton (2006) proposed 2 progressive and pro-active strategies to maximise the benefits of the demographic ageing trend along Britain's coast – the pre-retirement model and the retirement industry model[95]. The pre-retirement model draws on the positive resource and benefits that people who have reached later working life bring to the coastal areas that has attracted them in such large numbers. This relates to, not only, economic activity and spending, but also time and energy to devote to voluntary and community activities[95].

The retirement industry model draws on the fact that coastal locations are also home to substantial numbers of people who have reached retirement age, some of whom will have migrated to the coast to retire. Many of these individuals are more active, healthy and wealthy than ever before. Many wish to remain economically active beyond the state pension age; others wish to spend time engaged in voluntary activity. Many will also require a range of health, transport and retail services, and the increasing demand from this group may result in improvements in this infrastructure. Evidence suggests that planned retirement villages, which are a relatively new phenomenon in the UK, bring positive impacts for local communities as well as for older people themselves[95].

## Case study: Coastal Action Zone – positive aspects of ageing

### Background

A report identified in the systematic literature review explored the processes of demographic ageing in rural coastal areas of the UK and the implications of this changing population profile for the future economic and social development of these areas[95], including how coastal areas can respond to (and consider proactively encouraging) in-migration of older populations.

The work drew on research being carried out in the USA around ageing and migration and the more positive aspects of ageing. According to the Policy Researcher:

“Researchers in the US have done a lot more work to explore the extent to which older people, either pre-retirees or retirees, moving into rural parts of the US can be a positive driver. So, they’ve looked at, you know, spending by people, setting up businesses, volunteering and that kind of stuff.”

### Intervention

This work acknowledges the potential challenges associated with increasing proportions of older people amongst local populations, but identifies and proposes 2 models – the pre-retirement model and the retirement industry model – which represent progressive and proactive strategies to maximise the benefits of demographic shifts related to ageing.

The pre-retirement model focuses on the positive resources and benefits that pre-retirement older people can bring, in terms of economic activity and spending, but also time and energy to devote to voluntary and community activities[95]:

“The data that we looked at [...] does show [...] something particularly important in the UK in terms of pre-retirees moving to the countryside. So, people in their late 40s, 50s, who have maybe given up a job in the city and want a better quality of life, a better work-life balance, and move to the countryside. That could be a coastal place, it could be anywhere else. Then, you know, continue to work there, either from home doing their previous job or setting up a business and doing something different. So, there is something, again, not unique about the UK, but something quite important about the UK in terms of that age group moving into rural places and generating positive economic impacts.”

Similarly, many (albeit not all) of those who are retired are now more active, healthy and wealthy than ever before, thus many wish to remain economically active beyond the state pension age; others wish to spend time engaged in voluntary and community-focused activity[95]. Many retired older people whether in good or poor health will require access to a range of services, therefore increasing demand from this group may result in improvements in health, transport and retail infrastructure. The interviewee suggested that planned



retirement villages may bring positive impacts for local communities as well as the residents themselves, although these phenomena were relatively new in the UK:

“People [in the USA], I guess, are a bit more open to the idea that the future economy of their area could be based on older people and the, sort of, idea of retirement villages, and gated communities, and all that stuff that is more familiar in the US than it is over here.”

The value of the distinction between pre-retirement and retirement was seen as important, and just as important as other distinctions currently used in research:

“I guess – also, distinguishing between the retirees and the pre-retirees, I think, is quite important. Obviously, I was distinguishing between the younger old and the older old before, but I think distinguishing between pre-retirees and retirees is also quite important.”

### Impact

The work highlights that there is a great variability in terms of location and the different processes operating in different places and that this needed to be acknowledged by policy and practice in order to make an impact:

“I think the other thing for me was it just showed the diversity of rural- the diversity of places, I suppose, it doesn't necessarily have to be just rural, but there's so much difference between places. I mean, this, in some ways, was a mini case study, but the need to better understand the differences between places and therefore ensure that policy and practice responses are different, you know, place-based, I suppose, is the word, to make sure that they are as applicable as possible to different places or as tailored to different places as possible.”

The interviewee felt that in order to move forward and capitalise on our view of ageing there was a need think differently:

“[We need to] think holistically, rather than in a sectoral way when it comes to tackling some of these challenges or making the most of the opportunity. So, thinking about places as a whole in a holistic way, so housing, economic development, health, transport. It's all so interrelated and maybe more interrelated in rural places than it is urban places due to the particular challenges of distance and sparsity of population that rural people face on a day-to-day basis.”

### Learning points and key messages:

1. In the past, demographic ageing has tended to be seen as a 'pensions and care' issue, with older people considered only as dependent and as a burden on society. However, older people can provide a potential driver for a regional economy and can lead to infrastructure and service improvements.
2. Ageing has implications for wider economic and social policy-making and is important for policies related to economic growth, employment, productivity and social cohesion.



3. Policy and practice responses need to be place-based – thinking holistically is essential when trying to tackle challenges and opportunities associated with ageing.

According to Corcoran in her report to the House of Lords Select Committee (2018)[35], evidence focused on community wellbeing and health inequalities suggests that a combination of the following would most likely lead to positive change in the prospects of UK coastal towns:

1. National legislation aimed at halting the drift of vulnerable and transient populations to UK coastal towns.
2. National legislation addressing the longstanding issues of the quality and type of homes and accommodation associated with isolation, loneliness, poor mental and physical health that can back up and support context-sensitive local initiatives such as the Blackpool Housing Strategy.
3. Inclusive approaches to physical regeneration such as community co-design focused on community wellbeing and informed by evidence of their wellbeing efficacy.
4. Community wealth building approaches to social and economic regeneration that involves anchor institutions and public authorities procuring services from locally-based practices that know and rely on the town for their business[35].

Asthana et al (2004) in a critical review of NHS resource allocation in England demonstrated the feasibility and impact of using direct health estimates as a basis for setting health care capitations. Comparing target allocations for the inpatient treatment of coronary heart disease in a sample of 34 primary care trusts in contrasting locations in England, they proposed that a morbidity-based model would result in a significant shift in hospital resources away from deprived areas, towards areas with older demographic profiles and towards rural areas. Because epidemiological estimates yield direct measures of health status, there are strong grounds for proposing that a morbidity-based model provides a more legitimate basis for allocating health resources than the use of indirect proxies such as health service utilisation or deprivation[96].

A report by the Countryside and Community Research Institute which examines how innovative approaches have developed, how they operate in practice, and what the main successes and barriers are to their implementation in rural areas found several emerging models of service delivery as being of value[97]. Hybrid models were observed and their development was to suit local circumstances and local skills and opportunities. The most important characteristics of success in bringing a service into being through the voluntary and community sector (across a wide range of the services investigated) were felt to be:

- capacity, leadership and governance arrangements; assets that are fit for purpose
- adequate financial, business and needs planning

- involvement with the council
- good communication
- robust organisational models
- user and community involvement

In terms of lessons to be learnt, from both the processes and outcomes of alternative service delivery, there were a number of characteristics associated with the development of a successful partnership:

- recognising that cutting services is not the only response to cuts in funding
- putting needs and choices above service delivery per se
- working together in partnership through leadership, time, investment and support
- access to local expertise
- ensuring sustainability beyond initial funding
- putting community benefit before asset acquisition

The barriers to innovation on the part of the voluntary and community sector in the delivery of alternative rural services covered:

- inflexible procurement and commissioning processes
- finance – finding the right mix of funding
- the gap between what people say and what people do
- a need to provide services that people want to use
- reluctance to partnership working
- lack of community skills
- change management
- risk aversion
- time pressures
- service fragmentation
- insignificance of rural issues
- lack of local assets[97]

The study by the Countryside and Community Research Institute suggests that the 'Big Society' approach, to give communities and authorities the wherewithal to tailor their services to local circumstances through a broad base of action, offers a number of benefits, particularly through the use of common local assets by a number of services in the same area. Good examples of these are for example, sustaining the pub, shop, library, social care, health, broadband and transport. Motivated individuals and personal commitment are critical to these developments[97].

Asthana and Halliday (2004) reviewed the literature and evaluated whole system approaches developed within a rural Health Action Zone, The Cornwall and Isles of Scilly (CloS) HAZ[98]. The HAZ was a multi-agency partnership which developed local programmes and activities to improve health and reduce inequalities. Cornwall is a challenging rural context. Located at the extreme of the south-west peninsula of

England, it is a large county, geographically remote from regional centres, surrounded by sea and with much of its population dispersed in small towns and villages. This geographical position has ensured that Cornwall has remained one of the more remote and isolated parts of the UK. Whole-systems thinking was a key feature of programme development in CloS HAZ. Cornwall has gone a long way towards establishing a comprehensive whole-systems approach to rehabilitation. In so doing, the use of alternative rehabilitation settings (such as GP beds in community hospital) to those piloted in urban areas, and the broadening of key workers' skills and responsibilities (such as eldercare nurses substituting for GPs in triaging patients) have been necessary strategies to promoting access (see example, below)[98].

For example, Outlands, a residential rehabilitation unit in Plymouth, has been widely identified as an example of good practice. In Cornwall, the provision of 1 central rehabilitation unit would have proved inaccessible to the vast majority of the population. Consequently, the decision was taken to provide a number of small residential rehabilitation units in independent sector residential homes. Compared to residential rehabilitation, which has received a great deal of national interest, far less attention has been paid to the use of GP beds in community hospitals in providing intermediate care. Nevertheless, many rural areas have a number of community hospitals, the use of which could be further promoted for patients who require rehabilitation and nursing support, but who do not need the services of an acute hospital[98].

In Cornwall, community hospitals are an important link in the chain of intermediate care, admitting patients who 'step up' from the community or 'step down' from acute hospital. Significantly, intermediate care coordinators in the county hold local community hospital waiting lists, allowing them to actively resolve blockages in the system – for example, by releasing a community hospital bed in order to place a new patient. The development of nurse-led community hospital beds has also made a critical difference where medical capacity is over-stretched. The intermediate care coordination role has developed particularly strongly, coordinators acting as a single point of contact for the range of professionals involved in both discharge planning and the identification of the need for step-up support. This has encouraged the development of more innovative proposals for supporting older people who are at risk of losing independence, such as the need to ensure that housing improvements are considered as part of overall care plans. Evaluation evidence (based on unit costs and length of stay) suggested that each of the intermediate care models in Cornwall have an economic advantage over hospital-based rehabilitation [98].

Within Cornwall, various approaches have been used to substitute key workers (including higher-grade nurses) for others. Designated eldercare nurses are acting as a triage service for vulnerable older patients. The eldercare nurses substitute for GPs at the outset, but signpost on to a range of specialist services as appropriate. The aim is to reduce the impact risk factors have on the well-being of older people by making

appropriate referrals to other agencies, and by offering more frequent visits, so that care needs are monitored and new problems are identified early. Evaluation found allied benefits to include a reduction in GP visiting workload, a reduction in GP and district nurse administration time, and an increase in up-to-date information regarding patient status, together with a high degree of patient satisfaction [98].

Taking the issue of access to transport for older people, CloS HAZ supported the development of integrated transport schemes designed to overcome the problems of coordinating and accessing a myriad of local initiatives. Initiated in North Cornwall, organisations involved in patient transport, particularly voluntary organisations, came together to identify ways of providing a less fragmented and less expensive transport service for patients attending health appointments. This work was rolled out county-wide with the support of all the then primary care trusts in Cornwall. Further examples of innovative practice include the block booking of patients from a particular geographical area into specific hospital services, facilitating use of both voluntary transport and specialist aftercare, an approach piloted in Cornwall with respect to cataract operations[98].

## Opportunities and risks of digital technology

Only 4 studies examined the opportunities and risks of digital advances in rural and coastal areas[61, 79, 99, 100]. An evaluation of Scotland's NHS 24 identified an unfamiliarity among older people with this type of service or an unwillingness to use telephone advice lines[99]. In contrast Nurse led Technology Enabled Care (video conferencing) older adult psychiatry clinics were introduced in 3 rural care homes in NHS Highland (Scotland) resulting in quicker assessment, treatment review and regular monitoring[100]. It was also suggested that older patients with chronic pain could have some of their needs met through eHealth applications where digital interaction could enhance rather than replace face-to-face care[79]. Finally, Scottish Territorial Health Board representatives pointed to the potential of information and communications technology (ICT) but felt it was limited in rural areas due to lack of broadband coverage[61].

NHS 24 is a nurse-led telephone advice service to provide an accessible, high-quality, consistent and sensitive healthcare service to the people of Scotland via a network of contact centres accessible through a single telephone number that is available 24 hours a day, 7 days a week. Compared with in-hours users, a significantly higher proportion of out-of-hours users were female, younger or older, living in less affluent areas and living in remote and rural areas. There were no clear differences in the problems presented by different urban/rural groups. A smaller proportion of older users than younger users used the service. This may reflect an unfamiliarity among older people with this type of service or an unwillingness to use telephone advice lines[99].

In contrast Nurse led Technology Enabled Care (video conferencing) older adult psychiatry clinics were introduced in 3 rural care homes in NHS Highland (Scotland)

with the aim of providing improved access to psychiatric care services, reducing unnecessary admissions, reducing antipsychotic use for people with dementia and improving the management of behavioural and psychiatric symptoms of dementia. The direct impact on residents was quicker assessment, treatment review and regular monitoring. Residents and family members believed that the service was more responsive to their needs. In addition to direct impacts on residents, for care home staff, access to specialist knowledge, experience and advice led to increased confidence, skills and understanding and also allowed staff to feel more actively involved in care.

Care homes were more able to manage complex cases and challenging behaviours locally and were less likely to admit patients to hospital. Prevention of hospital admissions allowed residents to remain within their local care setting. Where hospital admission was necessary, sooner and more frequent follow up was possible after discharge back to the care home. Frequent reviews enabled more rapid adjustment in medication, with some residents becoming managed through behavioural plans only. Overall, participation in the clinics led to staff feeling more valued in their role[100].

### Case study: video conferencing in care homes

#### Background

Census data shows that 57% of care home residents in the NHS Highland area have dementia. Access to specialist psychiatric expertise for care home staff and residents is challenging in this rural context. There are often long gaps between consultant visits and travelling long distances for secondary care for residents can increase anxiety and stress for residents and family. According to the University evaluator it can take over 2 hours for an old age psychiatrist, based in Inverness, to reach these remote care homes to carry out face to face consultations.

“Within the Highlands, we have several consultants who will be leading on psychiatric services in different parts of the region, and different consultants have different approaches to the way they deliver services in rural communities. And some will have a locally based community mental health team, who will be going in and out of places. But the clinician that was working to set up this service, identified a need to rethink how these services were being delivered.”

#### Intervention

To address the challenges of delivering specialist psychiatric care the team in the Highlands introduced Technology Enabled Care (TEC). This was nurse-led and was introduced in 3 rural care homes in NHS Highland. The idea of using video conferencing came about through the Scottish Centre for Telehealth and Telecare, who offered the old age psychiatry team use of their video-conferencing units. Initially, 1 of the Old Age Psychiatrist's felt that this type of delivery of care would not work for residents who had dementia.

“It surprised me how well interviewing patients by video conferencing actually works. I think there are some patients who don’t do well being interviewed by video conferencing, but there are also patients that I go and see face to face in the care home and it doesn’t go well because of the extent of their dementia, so that’s not a huge difference.”

The aim of TEC was to provide improved access to psychiatric services, reduce unnecessary admissions, and reduce antipsychotic use for people with dementia and to improve the management of behavioural and psychiatric symptoms of dementia. According to the University evaluator the feeling within the psychiatric team was that the video conferencing made a difference.

“There was a very strong sense from having had it in place for a short period of time, they felt that it was, their gut feelings from what they were seeing, was that it was being really effective and being really useful, and was valued. But they wanted to have this service evaluated, so that they could look to see from a cost point of view whether or not it would be cost-effective.”

### Impact

The old age psychiatrist who initiated the use of video conferencing saw how it worked and felt that it was just as successful as face to face consultations.

“It worked. Really well and then we managed to get 2 more units and put them in 2 smaller care homes, 1 was even further afield. So, 1 of the things I was worried about was making decisions based on only having seen the patient by video conferencing or telecare, so we did make the effort and still do to go down every 6 months and see the patients face to face. At no stage have I ever seen somebody face to face and thought: “I would have done it differently had I not made a decision based on VC.” So I’ve always been comfortable with the management decisions we make.”

The Scottish Centre for Telehealth and Telecare funded the evaluation. The university team took a realist perspective and talked to commissioners and relevant stakeholders to gather their views.

“We worked on the basis of looking at it from a realist evaluation point of view. We developed a theory of change, speaking with the commissioners who were involved, and the lead nurses, and some of the other stakeholders...having come up with a theory of change, we then had a series of interviews with both staff and residents or family members across the different care homes that were involved in the evaluation. We also had someone from our economics unit within the University of the Highlands and Islands looking at elements of health economics. This (health economics) is quite challenging in rural communities, because the numbers are always very low. It’s very easy for numbers to be skewed by 1 outlier. So it’s quite challenging.”

The University team found the impact on residents has been quicker psychiatric assessment, treatment review and regular monitoring. Both residents and family members felt that this

intervention was more responsive to their needs. Care home staff were able to develop a greater knowledge and understanding of the management of dementia through accessing and observing these specialist TEC clinics. This led to increased confidence and skills and staff being able to become more actively involved in residents care around their psychiatric needs.

“Initially the (TEC) sessions were held quite frequently and part of the benefit came from the frequency. But there was an element of feeling like it was a catch-up situation, that there were a lot of people who hadn't had access, or adequate access for quite a while... many of the staff who felt under confident, and lacking in knowledge...I think having very frequent sessions at the start of the service enabled that confidence to build, which then enabled them to consider reducing the frequency of the... video conferencing sessions that they were having. So my understanding is that they're still running, but they're not running at the same frequency as they were.”

The evaluation of the intervention was carried out by the Rural Health and Wellbeing team at the University of the Highlands. They were approached by the Scottish Centre for Telehealth and Telecare who were keen to explore if video-conferencing could be used to improve access to services for care home residents living in remote areas. The intervention is still being used and is seen as a low cost initiative that works for these types of clinical consultations in remote areas of the Highlands.

### Learning points and key messages

1. Introducing Technology-Enabled Care has not only had a positive impact on residents and their family, but has also enabled care home staff to gain a greater understanding of residents psychiatric needs and given them confidence in managing complex cases and challenging behaviour.
2. Prevention of hospital admissions has allowed residents to remain within their local care setting.
3. Frequent reviews have enabled more rapid adjustment in medication, with some residents becoming managed through behavioural plans only.

A further study examined interactions between older people and their health/social care provider and considered how eHealth (a very broad concept which encompasses both telehealth and telecare technologies) could play a part in enhancing the life experiences of older people with chronic pain, who live in remote/rural areas of Scotland[79]. Older patients and care professionals believed in-person care (home visits) by a health/social care professional promoted the general well-being of older patients with pain and older patients, their spouses and carers valued the sociability of the home visit[79]. For some of the patients the physical presence of a health professional was essential: for example, patients who required clinical activities that cannot be carried out remotely using an eHealth application. Others could, potentially, have had some of their needs met through



eHealth applications and were positive about the potential use of eHealth technologies to manage chronic pain. The authors conclude that a balance where digital interaction could enhance rather than replace face-to-face care may be most appropriate[79].

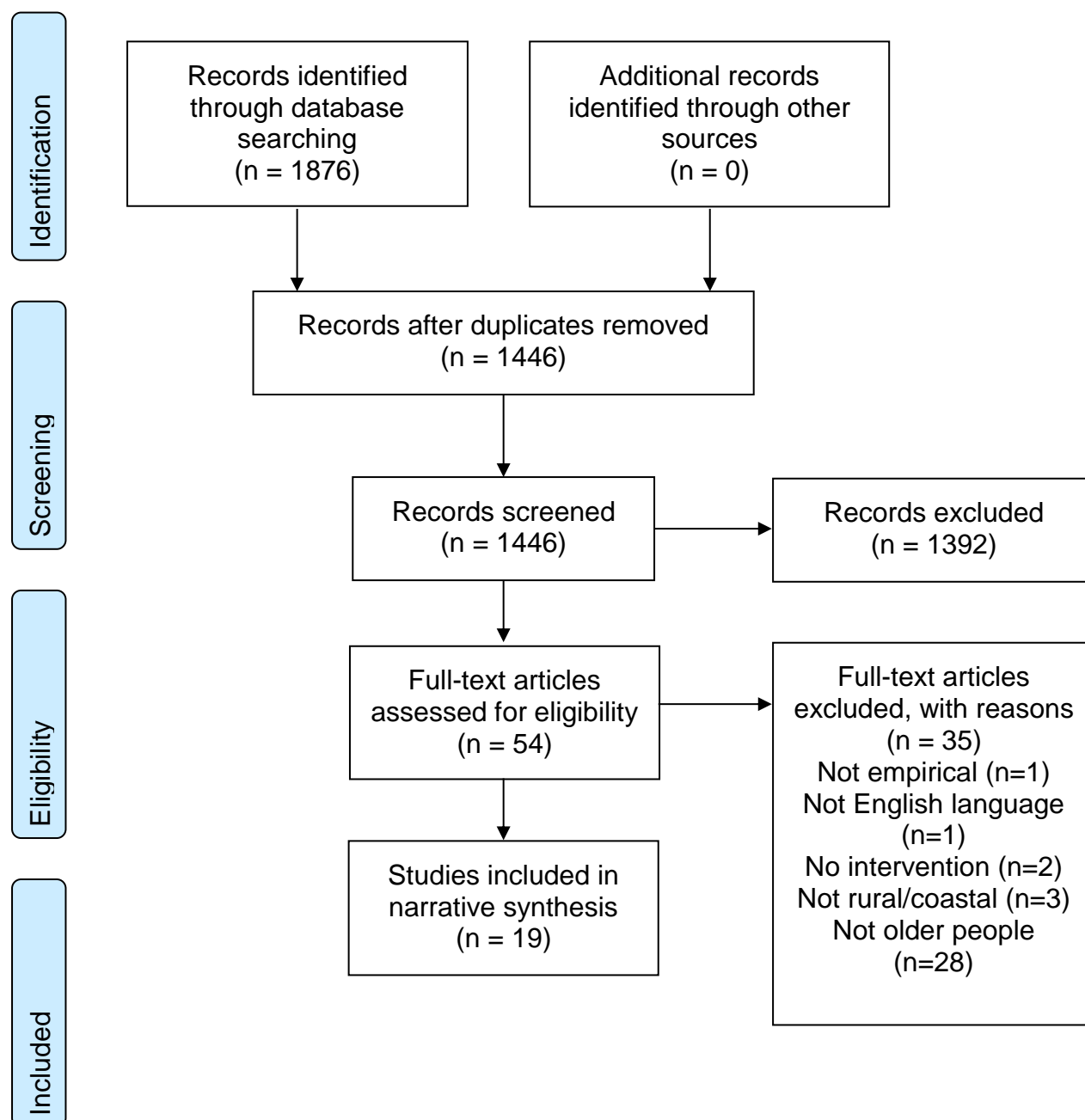
Finally, Scottish Territorial Health Board representatives pointed to the potential of information and communications technology (ICT) to assist with diagnosis and decision making, minimise patient and staff travel and improve training and CPD options for staff. However, technology infrastructure at present limits the potential solutions available to some Health Boards, with some (large) parts of the more remote areas being effectively still without broadband coverage[61].



## Results: international literature

Initially 1,446 unique records were identified which were screened against the inclusion/exclusion criteria and 1,392 were removed as they met the exclusion criteria. In total 54 full texts were then assessed for eligibility and 35 excluded for the following reasons: sample did not target people over the age of 50 years (n=28); rural or coastal area not targeted in the sample (n=3); study not evaluating an intervention (n=2); not in the English language (n=1); not empirical (n=1). Nineteen articles met our inclusion criteria and are included in this report (see Figure 2).

**Figure 2: PRISMA Flow Diagram international literature**



Included studies were carried out in the USA[101-109], Brazil[110], Australia[111], Canada[112-114], Korea[115, 116], China[117, 118] and Iran[119]. The majority (n=14) were of good quality (scoring 70% or more on quality assessment) with 1 study which could not be quality assessed. All studies focused on rural rather than coastal settings (see Annexe).

## Health and social care system interventions

Nine studies showed effectiveness of various health and social care system interventions for older rural people[103, 104, 107, 109, 111, 113, 115, 118, 119] including home health parties for colorectal cancer knowledge and screening[103], a home based nutrition and exercise intervention[113] a multicomponent intervention[115] volunteers in supporting people with dementia[111] and chronic health conditions[104], an outreach programme on hearing health[107], an educational intervention for injury prevention[119], a culturally tailored lifestyle intervention, VivirMi Vida! (Live My Life!)[109], and a modified behavioural activation treatment (MBAT) intervention[118]. One study examined the role of dental hygienists in reducing oral health disparities in Canada for rural older people[112].

Home-based promotor-led 'home health parties' in which participants were taught about colorectal cancer screening and were given a free faecal occult blood test kit to complete on their own was found to be an effective way to increase colorectal cancer screening awareness, knowledge, and screening among older (aged 50+ years) Hispanics living in a rural area in Washington State, USA[103]. Improvement of functional health among rural older people (aged 60+ years) in Nova Scotia, Canada was found to be achievable through the delivery of a home-based intervention focusing on exercise and nutrition[113]. Nova Scotia accounts for 3% of the Canadian population and has a population density of approximately 17.2 persons/km<sup>2</sup>.

Trained volunteers were found to be a safe, effective, and replicable way to support older (aged 65+ years) acute patients with dementia, delirium, or risk factors for delirium in rural hospitals in Southern New South Wales Australia. These rural hospitals serve a population of 200,000 people over an area of 45,000 square kilometres. Trained volunteers provided 1:1 person-centred care with a focus on nutrition and hydration support, hearing and visual aids, activities, and orientation[111]. A model to reduce hospital readmissions and emergency department use of rural, older adults (aged 60 or older) with chronic diseases (congestive heart failure, diabetes Type II or cardiovascular diseases) in South Carolina, USA used volunteers trained as Health Coaches to mentor discharged home health services patients. Intervention participants increased their ability to monitor and track their chronic health conditions, make positive lifestyle changes, and reduce incidents of falls, pneumonia and flu. Although differences in the admission rates after discharge from home health services between the intervention and comparison group were not statistically significant, the intervention group's rate was

less than the comparison group thus suggesting a promising impact of the Health Coach Intervention[104].

A 6-month multicomponent intervention in Pyeongchang, Korea had sustained beneficial effects up to 1 year on physical function, frailty, sarcopenia, depressive symptoms, and nutritional status in socioeconomically vulnerable older adults (aged  $\geq 65$  years) in rural communities. The 24-week multicomponent programme consisted of group exercise, nutritional supplementation, depression management, de-prescribing medications, and home hazard reduction[115].

An outreach programme on hearing health, Oyendo Bien (hearing wellness), a 5-week, Spanish-language health education programme for older adults (aged 50+ years) incorporating communication strategies and behavioural change techniques in Arizona USA increased self-efficacy and decreased stigma. After 1 year, 7 of 9 participants with hearing loss contacted for follow-up had sought some form of hearing-related health care[107].

An educational intervention in the field of injury prevention, based on PRECEDE model, was effective on promoting preventive behaviour among rural old people aged 60 to 75 years in rural areas of Hamadan County, Iran[119]. A culturally tailored lifestyle intervention, VivirMi Vida! (Live My Life!) designed to improve the health and well-being of high risk late middle-aged (50 to 64-years old) Latino adults and to be implemented in a rural primary care system in California, USA demonstrated improvements in blood pressure, sodium and saturated fat intake, well-being and reduced stress[109]. A modified behavioural activation treatment (MBAT) intervention for rural 'left-behind' elderly people in China who had a Geriatric Depression Scale (GDS) score between 11 and 25 produced a significantly greater reduction in depressive symptoms than regular care[118]. Left-behind is a term used in the study to describe a situation in which young couples have moved to the cities to work, and their parents are left-behind without care.

Strategies proposed by dental hygienists to address oral health disparities in older people in rural Canada; included alternate delivery models of dental care delivery through non- traditional practice environments by integrating themselves within other healthcare settings in advisory or consulting roles, interprofessional collaboration, and increased scope of practice[112]. Dental hygienists also suggested the use of technology which is discussed further below.

## Opportunities and risks of digital technology

Six studies showed effectiveness of telehealth in older rural communities[101, 102, 105, 106, 108, 110] while 2 showed effectiveness of an internet based intervention[106, 117] although 1 study reported variability in patient and provider receptiveness to telehealth[114]. One study reported the effectiveness of a wearable device-based

walking programme for older adults[116]. Another study examined the role of digital technology for use by dental hygienists in reducing oral health disparities in Canada for rural older people[112].

A 12-week weight management telehealth intervention for overweight and obese rural cardiac rehabilitation patients (aged 47 to 81 years) in rural Midwestern tertiary hospitals, Nebraska, USA resulted in significantly more weight loss compared to the control group. Findings demonstrated the usefulness and feasibility of using telehealth delivery of the WMI for cardiac rehabilitation participants in rural communities[101]. Supportive telephone counselling over 4 months, through 16 telephone contacts, for the metabolic control of people older than 60 years of age with diabetes mellitus was effective in a health unit in the rural countryside of São Paulo, Brazil[110]. One study examined the long-term effects of telephone-delivered cognitive-behavioural therapy (CBT-T) compared with nondirective supportive therapy (NST-T) in rural older adults (aged 60 years) with generalised anxiety disorder (GAD) in North Carolina, USA. While there were no significant differences between the conditions in terms of depressive symptoms and GAD symptoms there was a significantly greater decline in general anxiety symptoms and worry among participants in CBT-T compared with those in the NST-T group[102].

A telephone delivered collaborative care intervention (SUpporting Seniors Receiving Treatment And INtervention [SUSTAIN]) improved access to mental health services for older people (65+ years) in rural areas of Pennsylvania, USA. Participants in rural counties were more likely than those in urban-suburban counties to complete the initial clinical interview. Programme penetration was significantly higher in rural than in urban-suburban counties[105]. Veterans aged 60 years or older who received the Rural Pharmacological Intervention in Late Life (PILL) programme in rural Boston or Maine, USA were 70% less likely than controls to have an acute care visit at 30 days post discharge. There was no difference in rates of hospital readmission or mortality. The pharmacist-led phone-based programme was effective in decreasing acute care utilisation within 30 days after hospital discharge[108]. Rural was defined as 1,000 people/sq. mile.

Another study from the USA demonstrated the feasibility and acceptability of using a variety of modalities (telephone and internet) to deliver caregiver support to a group of largely older, rural, spousal caregivers of veterans with dementia. The potential for reducing isolation for caregivers capable of receiving this intervention through the Internet was a promising finding[106]. Despite the low rate of internet access among the older population (aged  $\geq 45$  years), the internet shows its potential as a platform for achieving better hypertension management in China. Urban-rural disparities were moderated by internet access improving management in rural areas[117].

In a study examining patients' and providers' views on telehealth's potential to support rural Canadian patients (aged 65+ years) with Atrial Fibrillation there was variability in patient and provider receptiveness to telehealth. Receptiveness reflected differences in past experience with telehealth, in perceived adequacy of rural health services, and in perceived gaps in AF care[114]. For the majority of older adults, telehealth held promise for meeting Atrial Fibrillation related needs and care gaps, but lack of familiarity and previous experience with this mode of delivery left them uncertain about what telehealth could offer. Older adults satisfied with their current rural care were less convinced of the need, while those dissatisfied with care expressed telehealth readiness. Rural communities had population sizes ranging from 600 to 7,600, and distances from the urban-based AF clinic ranging from 111 to 760 kilometres.

The "Smart Walk" programme, a health care model where a wearable device is used to promote self-exercise particularly among community-dwelling older adults managed by a community health centre improved physical fitness, anthropometric measurements, and geriatric assessment categories in a small group of older adults (aged  $\geq 65$  years) in rural areas in Korea[116].

Strategies proposed by Dental Hygienists to address oral health disparities in older people in rural Canada included alternate delivery models of dental care delivery through the use of technology[112]. For example, the use of intraoral cameras by community workers so that dental hygienists can see the images from a distance and advise on course of action.

## Discussion

The review found 92 studies, based in the UK and Ireland, generally of good quality (scoring 70% or more in quality assessment) although there was a small number of poorer quality studies (n=14) and studies where quality could not be assessed (n=15) (grey literature, with no published study design). The majority of studies took place in England although there was a good spread throughout the UK and Ireland. Most studies compared and contrasted rural with urban living for older adults however there was a paucity of literature focusing on those living in coastal areas – particularly coastal areas that were not also considered to be rural. Eleven studies, all of good quality, examined rates of mortality or length of life between those living in rural compared to urban environments with 1 study also including coastal environments. The majority (n=8) of studies reported older people in rural areas experienced reduced rates of mortality although there was some contradictory evidence suggesting a potential lack of statistical information on outcomes in rural and coastal areas.

Nine studies investigated the effect of rural or urban living on incidence of physical health conditions while 3 studies examined the association between physical health and coastal areas. Four studies found better physical health in rural older adults, 2 found somewhat mixed results and 6 reported worse health, 3 in rural areas and 3 in coastal areas. Several of the studies reporting poorer health in urban areas focused on respiratory health. The prevalence of widespread musculoskeletal pain increases with increasing rurality, also the magnitude is slight. Four good quality studies indicated that mental health problems were associated with living in a rural or coastal area (although 2 other good quality studies indicated poorer mental health among people in urban areas. Four studies, mainly of good quality also indicated that neurological problems were associated with living in a rural area (although 2 good quality studies contradicted this finding). There was a paucity of evidence in relation to coastal areas.

Thirty-six studies examined the determinants and drivers of health inequalities experienced by older populations in rural and coastal areas. Determinants and drivers of health inequalities experienced by older populations include:

- mobility
- exclusion, marginalisation and lack of social connections felt by certain groups such as LGBT+ or those who are divorced or living alone
- being socially detached
- lack of access to health and other community based services which, in turn, can also contribute to becoming socially isolated
- equitable outcomes costing more in rural areas for a variety of reasons relating to remoteness and limited economies of scale

- financial difficulties experienced by older people themselves in rural areas including fuel poverty and housing issues, different types of treatment (but not delays in treatment) provided in rural areas
- more emergency and elective hospital treatment in rural areas
- workforce challenges facing the NHS and social care in rural areas such as recruitment, retention and development
- service providers deliberately moving out of rural areas
- lack of transport and distance from services which again can contribute to feeling isolated
- lack of awareness of certain conditions or services for example older rural residents were unaware of the role of pharmacists in the review of medicines
- already poor health
- lack of community support for some
- seasonality and weather which could affect some recreational activities
- certain environmental conditions (for example, asbestos linked to the shipbuilding industry) which are particular to coastal areas: lack of physical activity

No differences were found in fruit and vegetable consumption between rural and urban older people.

The strengths, assets and sources of resilience in ageing populations in rural areas, examined in 15 studies in rural areas and 1 study in a coastal area were:

- community-based social networks and a sense of community
- community services
- family support by living as part of 2 or 3 generation households
- neighbours for example older rural dwellers were less likely to enter care homes, suggesting that neighbours and relatives in rural areas provide more informal care
- home-grown fruit and vegetables
- access to a car or other form of transport as rural-urban health and mental health differences were found to be mediated by access to a car
- environmental factors, such as less crime, more green space and better quality street level conditions
- certain health and social care services such as home visits, sitting services and trained and experienced palliative care nurses

There was a paucity of evidence relating to strengths, assets and sources of resilience in coastal areas.

There were only 3 studies which assessed the effectiveness of a health and social care intervention designed to reduce inequalities and promote productive health ageing in rural and coastal areas. Examples include Mobile Me which showed evidence of effectiveness; A Liaison Psychiatric Nurse which showed a trend towards improvement; Village services (6 community-based services and activities provided to help meet the

needs of older rural residents, namely lunch clubs, welfare rights information and advice services, befriending schemes and community warden support) which were found to promote social inclusion by enhancing older rural residents' access to the resources, rights, goods and services that encourage social interaction and meaningful participation in community life, although older men were often reluctant to engage. One trial is currently underway of a new community service provided by the Royal Mail to help tackle loneliness in a coastal town. Other interventions which were identified in the literature but were not subjected to a formal assessment of effectiveness included Active Norfolk's Dance to Health, Rural Wheels; Personal Budgets, village 'agents', dementia-friendly communities and a number of other initiatives including those run by Age UK.

Only 4 models and strategies for whole system approaches were proposed both for coastal and rural areas these include:

- Atterton's pre-retirement and retirement industry models which emphasise drawing on the positive resource and benefits that those of pre and post retirement age bring to coastal areas
- Corcoran's proposal for inclusive approaches to physical regeneration and community wealth building
- Asthana's morbidity-based model which proposes there are strong grounds for using morbidity as a basis for allocating health resources
- the Countryside and Community Research Institute's 'Big Society' approach

One comprehensive example of whole system approaches in action was that of The Cornwall and Isles of Scilly Health Action Zone.

Only 4 studies examined the opportunities and risks of digital advances in rural and coastal areas. There were mixed findings with 1 study reporting the potential of technology to enhance care and speed up treatment within a care home setting, while others noted barriers including broadband coverage and unfamiliarity and unwillingness of older people to use certain services in this way. An evaluation of Scotland's NHS 24 identified an unfamiliarity among older people with this type of service or an unwillingness to use telephone advice lines. In contrast Nurse led Technology Enabled Care (video conferencing) older adult psychiatry clinics which were introduced in 3 rural care homes in NHS Highland (Scotland) resulted in quicker assessment, treatment review and regular monitoring. It was also suggested that older patients with chronic pain could have some of their needs met through eHealth applications where digital interaction could enhance rather than replace face-to-face care. Finally, Scottish Territorial Health Board representatives pointed to the potential of information and communications technology (ICT) but felt it was limited in rural areas due to lack of broadband coverage.

In terms of the International literature, 19 studies were included from a range of countries including the USA, Brazil, Australia, Canada, Korea, China and Iran. The



majority (n=14) were of good quality (scoring 70% or more on quality assessment) with 1 study which could not be quality assessed. All studies focused on rural rather than coastal settings. Nine studies showed effectiveness of health and social care system interventions for older rural people including:

- home health parties for colorectal cancer knowledge and screening
- home based nutrition and exercise intervention
- multicomponent intervention
- volunteers in supporting people with dementia and chronic health conditions
- outreach programme on hearing health
- educational intervention for injury prevention
- culturally-tailored lifestyle intervention, VivirMi Vida! (Live My Life!)
- modified behavioural activation treatment (MBAT) intervention

One study examined the role of dental hygienists in reducing oral health disparities in Canada for rural older people. Six studies showed effectiveness of telehealth in older rural communities while 2 showed effectiveness of an internet-based intervention although 1 study reported variability in patient and provider receptiveness to telehealth. One study reported the effectiveness of a wearable device-based walking programme for older adults. Another study examined the role of digital technology for use by dental hygienists in reducing oral health disparities for rural older people.

In addition to the paucity of literature focusing on inequalities in healthy ageing in those living in (less rural) coastal areas there was also a lack of literature focusing on specific groups of older people who might experience inequalities in health. Significant health inequalities exist between the Gypsy and Traveller population in England and their non-Gypsy counterparts, even when compared with other socially deprived or excluded groups, and with other ethnic minorities[120]. There was no literature examining ageing inequalities in Gypsy and Traveller populations in rural or coastal areas. Other groups where no literature was available were prisoner, veteran, BME and homeless populations.

This rapid review, using the principles of systematic reviewing identified and synthesised a significant amount of both published and grey literature relating to health inequalities experienced by older people in rural and coastal areas in the UK and Ireland. In addition, recent international literature was included in order to learn from successful interventions around the world. However, as is the case with all systematic reviews, our search strategy may not have been sensitive enough to identify all the relevant literature and therefore we cannot guarantee that important references are not missing. In addition, our search was restricted to literature that was published in the English language so foreign language papers are not included. Due to the vast body of literature, our international literature search was restricted to the last 2 years meaning that older interventions are also not included. Transferability of findings must also be treated with caution particularly from international studies with different rural environments and where findings relate to 1 study only.

Caution should also be taken in regard to the populations studied within the literature. There is no standard definition of older people and we chose to be as inclusive as possible by including studies which focused on adults aged 50 years and older. While the majority of included studies from the UK and Ireland (n=39) sampled “older” participants (n=6) or those aged  $\geq 50$  years (n=9),  $\geq 55$  years (n=2),  $\geq 60$  years (n=4),  $\geq 65$  years (n=16),  $\geq 75$  years (n=1) or  $\geq 100$  years (n=1) a number of included studies focused on the general population (n=13) or participants of any age (n=13). Other included studies sampled individuals who were affected by dementia (n=2) or lung or colorectal cancer (n=1) and so by nature of the disease were older. A number of included studies (n=21) simply focused on adults with a range of definitions from anywhere from 15 years plus while a small number focused on older adults  $\geq 40$  years (n=2). All included studies reported important findings based on age, however it is difficult to delineate findings between age ranges.

# Considerations

Based on the literature considered as part of this review and taking into account the quality and number of studies available, the following considerations are relevant for the health and care system, as well as other sectors, in addressing inequalities in ageing in rural and coastal areas.

## Strengths and assets

There was a paucity of evidence on the strengths and assets of non-rural coastal areas, therefore the considerations below are made particularly in relation to rural areas.

Consideration could be given to interventions which encourage social connections and contact particularly for those in marginalised groups such as LGBT+ and those who are divorced or living alone.

Local community services (such as pubs, post offices, libraries) are important assets and where these are in danger of closure consideration could be made to allow these to be run by local community cooperatives, this may also nurture a sense of community and neighbourliness. A resident-run local shop with café facilities is a strategy which could increase errand-related and social trips in rural areas.

Outcomes may be strengthened in rural areas through the provision of village services, such as lunch clubs, welfare rights information and advice services, befriending schemes, community warden support, and village agents to signpost older residents with unmet needs to services and community resources.

Consideration could be given to new and innovative ways of engaging with older men in rural and coastal areas to prevent social isolation. An example of a service targeting men in rural and coastal areas is Men's Sheds.

Evidence suggests that nurturing and promoting fruit and vegetable sellers and local markets can support healthy eating.

Protecting and promoting public and community transport in rural and coastal areas may enhance outcomes. In particular, awareness of community schemes and options could be improved, especially in areas where public transport does not operate.

Interventions which encourage mobility are recommended. The healthiest populations were those of working age moving out of rural areas and those of retirement age moving into rural areas. Flexible working patterns should be encouraged so that working age individuals can work from rural areas for example via the internet.

## Health and care interventions

The following considerations are relevant to both rural and coastal areas.

Consideration could be given to greater provision of interventions which increase physical activity in older people in rural and coastal areas. Examples of effective or potentially effective interventions include 'Mobile Me' a 10-week sport intervention, and 'Dance to Health' a falls prevention programme combining physiotherapy with dance. There may also be potential for areas to use their natural assets to promote physical activity and / or reduce social isolation – for example, volunteer-led walking groups.

Evidence suggests that promoting the role of community pharmacists, particularly for medicine review, may have a positive impact on access to certain health services.

Positive health outcomes may be promoted by ensuring accessibility in design and delivery of health and care services, and considering accessibility before any decision to move or remove current services.

Evidence suggests that provision of home visits from health and social care professionals for older people may enhance outcomes as they provide access to key services as well as a vital source of social connection.

Consideration could be given to provision of sitting or befriending services in order to improve the mental health of older carers in rural and coastal areas.

Evidence suggests that home-based, volunteer and outreach programmes may improve outcomes for rural adults.

## Whole system approaches

The following considerations are relevant to both rural and coastal areas.

Consideration could be given to adopting a community based, whole system approach which gives communities and authorities the wherewithal to tailor their services to local circumstances through a broad base of action. This approach has some merit as a method to use common local assets by a number of services in the same areas and sustain local pubs, shops and libraries offering a number of benefits.

Implementing an asset-based approach, comprising progressive and pro-active strategies viewing older people in rural and coastal areas as a key resource as employees, volunteers and community advocates may help to maximise the benefits of the population ageing.

## Digital technology

The following considerations are relevant to both rural and coastal areas.

Evidence suggests that technology (such as video conferencing) for use in care home environments can improve older people's access to health care specialists..

Evidence suggests that:

- technology (such as video conferencing) for use in care home environments can improve older people's access to health care specialists
- telehealth and internet-based interventions can improve the health of older rural patients
- internet-based interventions hold the potential for reducing isolation for caregivers
- wearable device-based walking programmes for older adults can improve physical activity in rural older adults

Consideration could be given to expanding the use of technology for easier access to training and development of health and social care staff working in rural and coastal areas.

While there is potential for technology to assist with diagnosis and decision making, minimise patient and staff travel and improve training and continuing professional development options for staff, infrastructure and broadband coverage at present limits the potential solutions available, and there is evidence that some older patients may be reluctant to engage with technology. A balance where digital interaction could enhance rather than replace face-to-face care may be most appropriate.

## Further research

More research into inequalities in healthy ageing in coastal areas, particularly coastal towns is required, with a focus on strengths, assets and sources of resilience.

Further research on the effectiveness and cost-effectiveness of health and social care and technology enabled interventions to reduce inequalities in both rural and coastal areas would be beneficial. Research utilising high quality methods such as randomised controlled trials is essential.

More research is also needed into inequalities in healthy ageing felt by particular groups such as the gypsy and traveller community, prisoners, veterans, ethnic minorities and the homeless population in rural and coastal areas.

There is potential to further explore options to improve detailed statistical information on health outcomes in rural and coastal areas, as national statistics often do not reveal differences within small areas and can mask inequalities.

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