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Nottingham City Council

ADDITIONAL / TO FOLLOW AGENDA ITEMS

This is a supplement to the original agenda and includes reports that are additional to the original agenda or which were marked 'to follow'.

NOTTINGHAM CITY COUNCIL
HEALTH AND WELLBEING BOARD

Date: Wednesday, 31 January 2018

Time: 2.00 pm

Place: Ground Floor Committee Room - Loxley House, Station Street, Nottingham, NG2 3NG

Governance Officer: Jane Garrard **Direct Dial:** 0115 8764315

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Statutory Officers Report for the Nottingham City Health and Wellbeing Board – 31st January 2018

Director of Public Health

1. Nottingham applies to become the East Midlands Time to Change Hub

Nottingham has applied to become the East Midlands Time to Change Hub, seeking to reduce stigma and discrimination associated with mental health. Time to Change is a growing social movement aimed at changing how we all think and act about mental health. Too many people with mental health problems are made to feel isolated, worthless and ashamed. Health and Wellbeing Board organisations can all make a difference by talking openly about mental health to their colleagues on Time to Talk Day which is on 1 February 2018.

If successful our hub will have the following vision: "A city where people talk openly about mental health problems in the same way as physical health issues, without fear of stigma or discrimination". Our plans for the Hub will be co-produced with people with lived experience - focussing on men, the workplace and the African-Caribbean community. The Hub will be a valuable resource in promoting parity of esteem in the city.

2. Antimicrobial Resistance – reducing the prescribing of antibiotics

Public Health England and NICE have new issued guidelines, aiming to limit the use of antibiotics.

Research suggests that currently antibiotics are prescribed in 60% of sore throat cases, although most are caused by viral infections, which cannot be treated with antibiotics. The guidelines state that doctors should only be prescribing antibiotic medicines for more severe cases that are likely to have been caused by a bacterial infection. In most cases, acute sore throats, including tonsillitis and pharyngitis, people should use pain relief drugs as well as drinking plenty of water and resting.

It is vital that medicines are only used when effective because of the rise in antibiotic resistance. Prof Gillian Leng, deputy chief executive at NICE, said "We are living in a world where bacteria are becoming resistant to antibiotics. It is vital these medicines are protected, and only used when they are effective".

3. Severe weather shelter for rough sleepers opens in city fire station

Conversations initiated at a previous Health and Wellbeing Board have led to an incredible partnership response, providing emergency shelter for people sleeping rough on Nottingham's streets this winter. The shelter will open when temperatures drop to zero or below and will operate from London Road Fire Station, thanks to support from Nottinghamshire Fire and Rescue. Those attending the service will be supported by volunteers from the British Red Cross and supplied with blankets, clothing, hot drinks and food.

The shelter recently opened for three nights and was used by 6-8 rough sleepers each evening. Framework's street outreach team and Nottingham City Council will assess and support those using the service to try to find alternative accommodation. Many of these attending have not previously engaged with services and offers of support which highlights the vital role this service has to play in the Council's wider winter plan.

4. Health and Wellbeing Board Stakeholder Event

On the afternoon of **Wednesday 6th June** we will be hosting a Health and Wellbeing Board Stakeholder event at the Council House (Market Square). The afternoon will be an opportunity for Board members to engage with a range of new and existing multi-sector stakeholders to foster collaborative working. Those attending will hear about the big issues in each of the Health and Wellbeing Strategy thematic areas. There will also be market stalls and opportunities for networking. We are currently developing the agenda for the day, if you have suggestions of topics you would like to see covered in a workshop please contact Claire Novak (claire.novak@nottinghamcity.gov.uk, 0115 876 3954.)

5. Public Health England publish report on Health Inequalities in the East Midlands

Public Health England published Health Inequalities in the East Midlands, an evidence report, in November last year. The report assesses inequalities in life expectancy as a means of reviewing health inequalities across the region.

A key measure of health inequality is the 'window of need', the length of time between healthy life expectancy and life expectancy, or time spent living in poor health. In the East Midlands in 2013-15, the window of need was 16.8 years for males and 19.4 years for females which converts to an average of 21% and 23% of life spent in poor health, respectively.

There is a linear relationship between window of need and deprivation as well as urbanisation. East Midlands cities, including Nottingham, have the highest preventable mortality rates in the region with the top five risk factors leading to years lived in disability identified as obesity, alcohol and drug use, poor diet, occupational risks and smoking.

The report calls for targeted partnership action to reduce inequalities, the window of need and, in turn, the associated demand and costs associated with time lived in need of care.

A copy of the report will be made available with the minutes.

Public Health England

Protecting and improving the nation's health

Health inequalities in the East Midlands
An evidence report

November 2017

About Public Health England East Midlands

Public Health England exists to protect and improve the nation's health and wellbeing, and reduce health inequalities. We do this through world-leading science, knowledge and intelligence, advocacy, partnerships and the delivery of specialist public health services. We are an executive agency of the Department of Health, and are a distinct delivery organisation with operational autonomy to advise and support government, local authorities and the NHS in a professionally independent manner.

Public Health England East Midlands covers the local authority areas of Derby City, Derbyshire County, Nottingham City, Nottinghamshire County, Leicester City, Leicestershire County, Rutland County, Lincolnshire County and Northamptonshire County. The population of the area in 2015 was over 4.7 million people.

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Published November 2017
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Foreword

The challenge of addressing health inequalities is core to public health practice. In 2010, Sir Michael Marmot published the report “Fair Society, Healthy Lives” which set out the scale of health inequalities in England and the scale of preventable mortality caused by these health inequalities. The report clearly set out the social gradient in health and the links between the social determinants of health and an individual’s access to good health outcomes.

Health inequalities are a social justice issue. It is unacceptable that in England in 2013-15 people living in the least deprived areas of the country live around 20 years longer in good health than those living in the most deprived areas. Reducing health inequalities means giving everyone the same opportunities to lead a healthy life, no matter where they live or who they are.

Increasingly, local authority public health teams are faced with having to meet this challenge against a backdrop of decreasing resources and therefore it is essential that we deploy these limited resources in a manner that maximises opportunities to address inequalities for those at greatest risk of poor health. Therefore, this PHE report is welcomed by many of us working in public health within the East Midlands with a regional view of health inequalities.

On average, men and women living in the East Midlands have a life expectancy and a healthy life expectancy that is lower than the average for England. The data that has been used within the report illustrates that across the East Midlands there has been no reduction in health inequalities since the publication of Fair Society, Healthy Lives and in some of the data presented in the report we can see that these are getting wider. This report looks in detail at the variation in health inequalities across the East Midlands and the factors that are driving these inequalities in health outcomes. From a local authority perspective, health inequalities are central to everything that we do. However, we are not making significant impact at a scale and pace that is translating to a real difference in health outcomes for the whole population. Too many in our region are still having to confront the day to day health impacts of social and economic disparities and many of the patterns observed have been maintained for generations across specific populations.

By understanding the variation in health outcomes we can start to work together to understand and systematically address health inequalities both locally and regionally. This report provides us with a baseline to work with across the East Midlands and as such is a useful foundation for us to work together more systematically towards improving health and wellbeing for our population.

Ivan Browne FFPH
Consultant in Public Health/ Deputy Director of Public Health
Public Health, Leicester City Council

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Executive summary

This report has been developed for PHE East Midlands Centre as an evidence base on health inequalities for the East Midlands. The report reviews the inequalities in health across the East Midlands, expressed as inequalities in life expectancy. The report builds on the 2015 report, Meeting the Prevention Challenge in the East Midlands (1).

Health inequalities were identified by the East Midlands Centre as a priority health issue from the centre's regular review of health outcomes through the peer benchmarking tool (2). The peer benchmarking has highlighted that overall life expectancy for males and females and healthy life expectancy for males are significantly worse than the England average. This report takes a more detailed look at the health outcomes that are contributing to health inequalities for the population of the East Midlands.

The primary audiences for the report are the PHE East Midlands Centre and local authority health inequalities leads.

Key findings:

- In 2013-15, average life expectancy at birth in the East Midlands was 79.3 years for males and 82.9 years for females
- In 2013-15, healthy life expectancy in the East Midlands was 62.5 years for males and 63.5 years for females
- In 2012-14, a male born in the most deprived area of the East Midlands could expect to live for 8.6 years less than one born in the least deprived area. For females the gap is 7.1 years
- The 'window of need' refers to the gap between life expectancy and healthy life expectancy and refers to the period of time, on average, that a person can expect to live with poor health. For 2013-15 in the East Midlands, the window of need was 16.8 years for males and 19.4 years for females. Males will spend an average of 21% and females an average of 23% of their lives affected by poor health
- The window of need is available for England by deprivation decile. This shows that on average a male living in the most deprived areas will live for 22.1 years in ill health, compared with 12.5 years in the least deprived areas Females in the most deprived areas will live for 26.7 years in ill health, compared 14.7 years in the least deprived areas
- Across the East Midlands counties there is an urban-rural divide with the urban areas of Nottingham, Leicester and Derby having significantly lower life expectancy than England across all four life expectancy indicators. There are also poorer outcomes in parts of Nottinghamshire and Derbyshire, the coastal towns of Lincolnshire and the coalfield areas in Leicestershire

- The report presents the changes in preventable mortality between 2001-03 and 2013-15. Overall preventable mortality is decreasing. However, for under 75 year old preventable mortality the pattern is more variable. There has been a reduction in preventable mortality from cardiovascular disease of 50%, a reduction of 15% for cancer and 14% for respiratory disease. Preventable mortality from liver disease has increased by 37%
- For each preventable cause, Nottingham City, Derby City and Leicester City consistently have the highest preventable mortality rates in the East Midlands. These are areas associated with the highest levels of deprivation in the region, and the people living here are more likely to suffer ill health and die prematurely
- The Global Burden of Disease (GBD) data enables us to explore the most common risk factors that lead to years lived in disability. In the East Midlands, the top five risk factors leading to years lived in disability are:
    - obesity
    - alcohol and drug use
    - poor diet
    - occupational risks
    - smoking
- Data is presented for the East Midlands for risk factors and the wider determinants of health. This data also highlights the inequalities across the East Midlands driven by socio-economic deprivation with higher levels of need identified in the urban areas of Nottingham, Leicester and Derby

Health Inequalities in the East Midlands

Introduction

Health inequalities are the differences in the distribution of health determinants or health status between people or groups due to social, geographical, biological or other factors. These differences have a huge impact, because they result in people who are worse off experiencing poorer health and shorter lives.

A wide range of factors underpin people's health and wellbeing; these are known as the wider determinants of health and are defined as the physical, social and economic conditions in which we are born, raised and live. Achieving a reduction in health inequalities therefore goes beyond access to and the delivery of health care at the right time. Recognising the wider determinants (or the 'causes of the causes') affecting individuals, communities and population health status and systematically addressing them, along with access to health care, will enable us to have the greatest impact on inequalities.

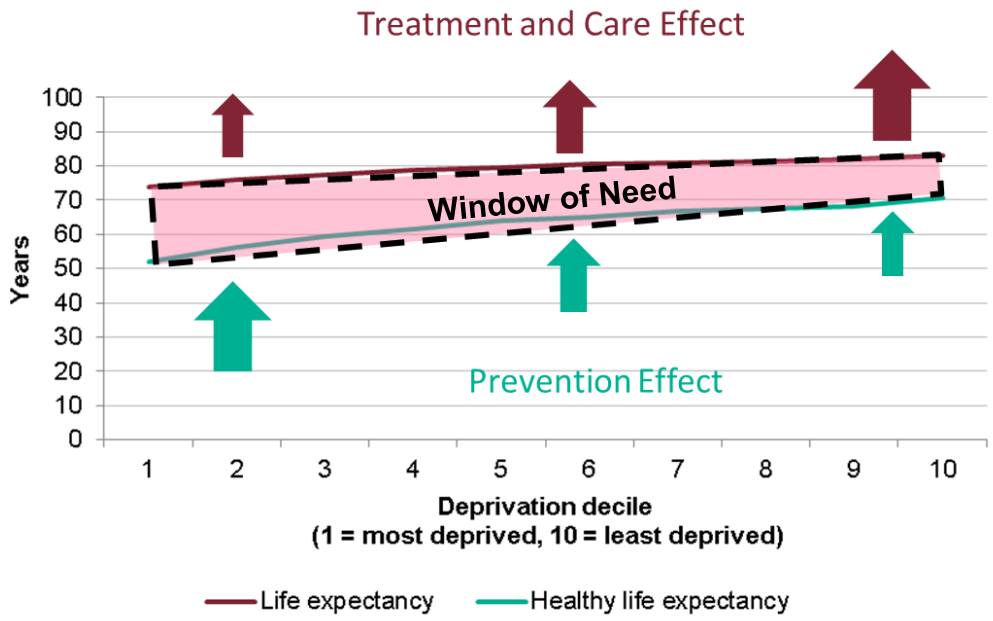
The most widely used generic measures of health inequalities are life expectancy and healthy life expectancy. Life expectancy provides a measure of the average number of years a baby born in an area can expect to live, while healthy life expectancy is a measure of the average number of years a person would expect to live in good health based on current mortality rates and prevalence of self-reported good health (3). These two indicators have been used within this report to describe health inequalities across the East Midlands and to begin exploring the drivers of inequalities.

In the report, "Meeting the Prevention Challenge in the East Midlands" (1), the concept of the window of need was developed and presented for the East Midlands (Figure 1). It is based on the gap between life expectancy and healthy life expectancy and illustrates the years expected to be spent in a 'not healthy' state during the average lifetime. The window of need for an individual is the time between the onset of ill health and the resolution of that ill health. It is possible to consider the window of need for a population as being the gap between healthy life expectancy and total life expectancy, or the gap between the time lived in a healthy state and death during which many will be living with multi-morbidity and complex needs. The 'window of need' reflects the burden of care where there is a substantial cost to the health and social care system.

Understanding the factors underpinning life expectancy and healthy life expectancy will enable PHE and partner organisations to target interventions that will extend both healthy life expectancy and life expectancy.

This report presents the latest available data to explore health inequalities across the East Midlands using life expectancy, healthy life expectancy and the window of need as the foundations for the analysis.

Figure 1: Window of need. Source: Meeting the Prevention Challenge in the East Midlands



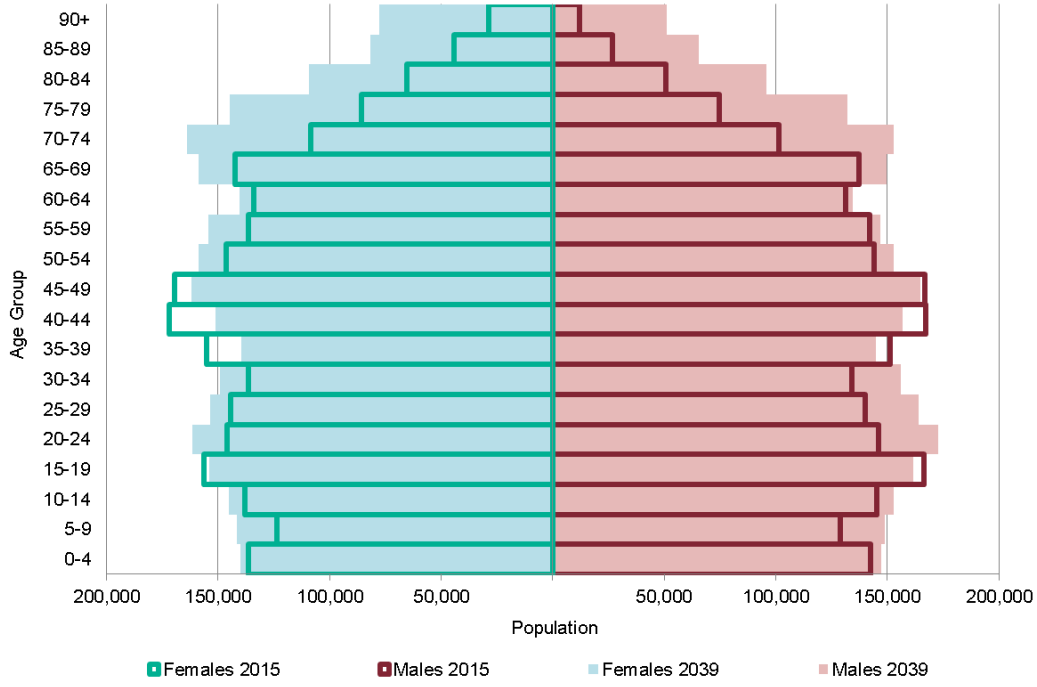
This report focuses specifically on inequality relating to socio-economic factors. It is important to note that, in addition to socio-economic inequalities, inequalities exist within specific population groups as a result of other forms of social exclusion. These groups can suffer worse health and experience difficulty in gaining access to health care. Examples include black and minority ethnic people (BME); disabled people; people with mental health problems; lesbian, gay, bisexual people and transgender people (LGBT); prisoners and offenders; gypsies and travellers; the homeless; asylum seekers and refugees. Additional risk factors for these groups can include poor support systems, isolation, substance misuse and unemployment. Rural deprivation and rural health inequalities are important issues for the East Midlands. On average people in rural communities enjoy better health and wellbeing than their urban counterparts. However, many rural areas are characterised by high levels of inequality within them and there are real difficulties faced in many rural communities. Poverty, lack of services, poor public transport and traumatic social or economic changes at a local level are some examples.

The ageing population and multi-morbidity

In 2015, the population of the East Midlands was estimated to be 4,677,038 people; of these, 877,557 were aged over 65, 18.7% of the population (Figure 2). By 2039, the population is

projected to have risen to 5,338,800 people, with 1,382,600 aged over 65. This will equate to approximately 25% of the East Midlands population.
The increase in the older population will mean an increase in the number of people living with long term conditions, such as cardiovascular disease, diabetes, cancer, liver disease and respiratory diseases.

Figure 2: Mid-2015 population estimates and 2039 population projections by age group and sex for the East Midlands. Source: ONS



Life expectancy and 'the window of need'

The average life expectancy at birth across the East Midlands in 2013-15 was 79.3 years for males and 82.9 years for females, both significantly lower than the national average. Healthy life expectancy was 62.5 years for males (significantly worse than the national average) and 63.5 years for females (similar to the national average).

Figure 3 illustrates the increase in life expectancy at birth between 2001-03 and 2013-15 in the East Midlands. It demonstrates that life expectancy has gradually increased since 2001-03. The trend mirrors the England trend.

There are significant health inequalities between males and females. In 2013-15, on average in the East Midlands, a female will live for 3.6 years longer than a male. The gap in healthy life expectancy is smaller with females having 1.0 year longer than males in good health.

Figure 4 shows the range of life expectancy across upper tier/ unitary authorities. In 2013-15, the highest life expectancy at birth was in Rutland for both males and females at 81.8 years

and 85.2 years respectively, while the lowest were in Nottingham at 76.8 years and 81.4 years respectively. Healthy life expectancy has remained stable since 2009-11, with the highest in Rutland and the lowest in Nottingham for both males and females.

Figure 3: Male and female life expectancy at birth, East Midlands and England, 2001-03 to 2013-15. Source: PHOF

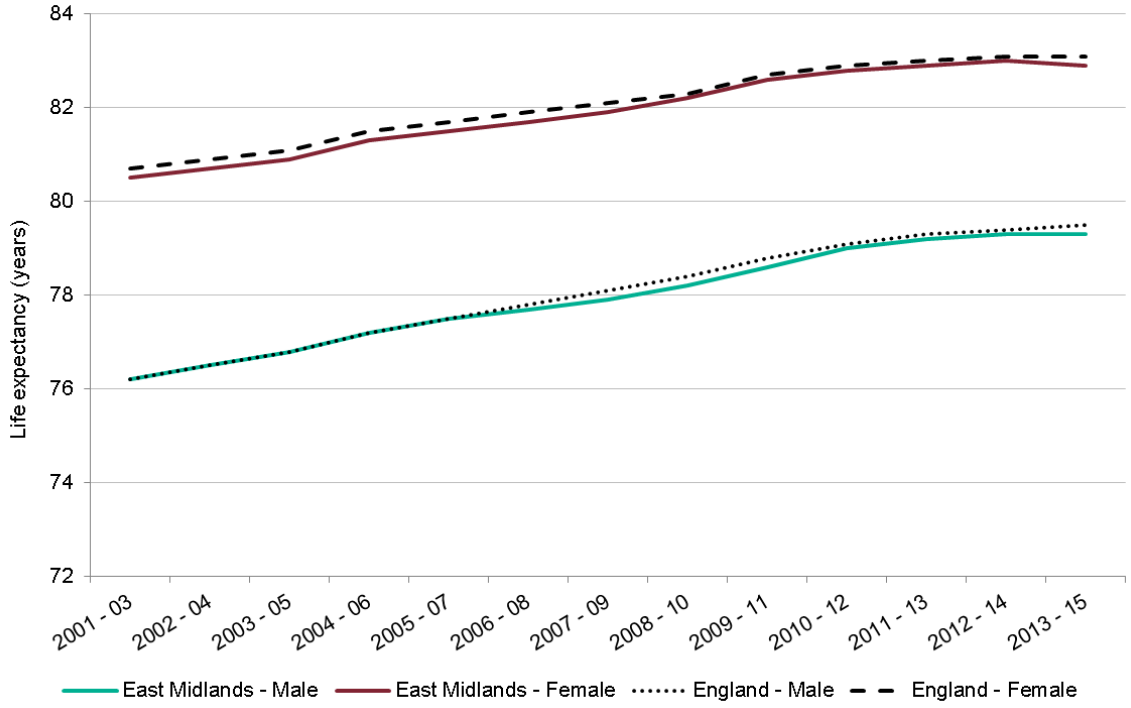
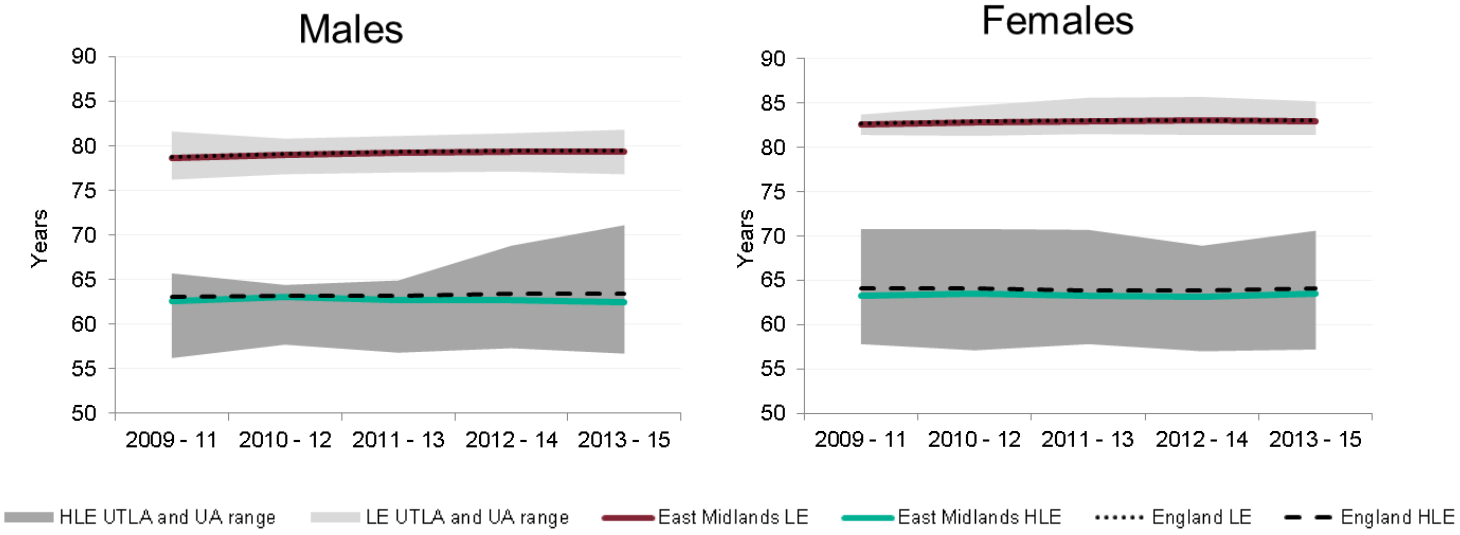


Figure 4: Life expectancy (LE) and healthy life expectancy (HLE) in the East Midlands. Shaded light and dark grey areas represent the range between the lowest and highest upper tier/unitary authority LEs and HLEs respectively. Source: PHOF



In the East Midlands, the gap between life expectancy and healthy life expectancy is referred to as ‘the window of need’, and is the number of years that an individual can expect to live in ill health. In the East Midlands in 2013-15, males live an estimated 16.8 years in ill health, while females live 19.4 years in ill health. The proportion of life spent in poor health is over one fifth for both males and females, with 21% of life lived in poor health for males and 23% for females. This demonstrates that whilst females have a higher life expectancy and healthy life expectancy than males, they will experience a greater proportion of that life affected by poor health.

Figure 4 illustrates the amount of variation across the region using upper tier local authorities. In Rutland, males and females live 10.7 and 14.6 years respectively in ill health, whereas in Nottingham City they live 20.1 and 24.2 years in ill health. The proportion of life lived in ill health is much higher in Nottingham than it is in Rutland. In Rutland males spend an average of 13% and females 17% of their lives in poor health. In Nottingham, this equates to an average of 27% for males and 30% for females.

Inequalities in life expectancy across the East Midlands

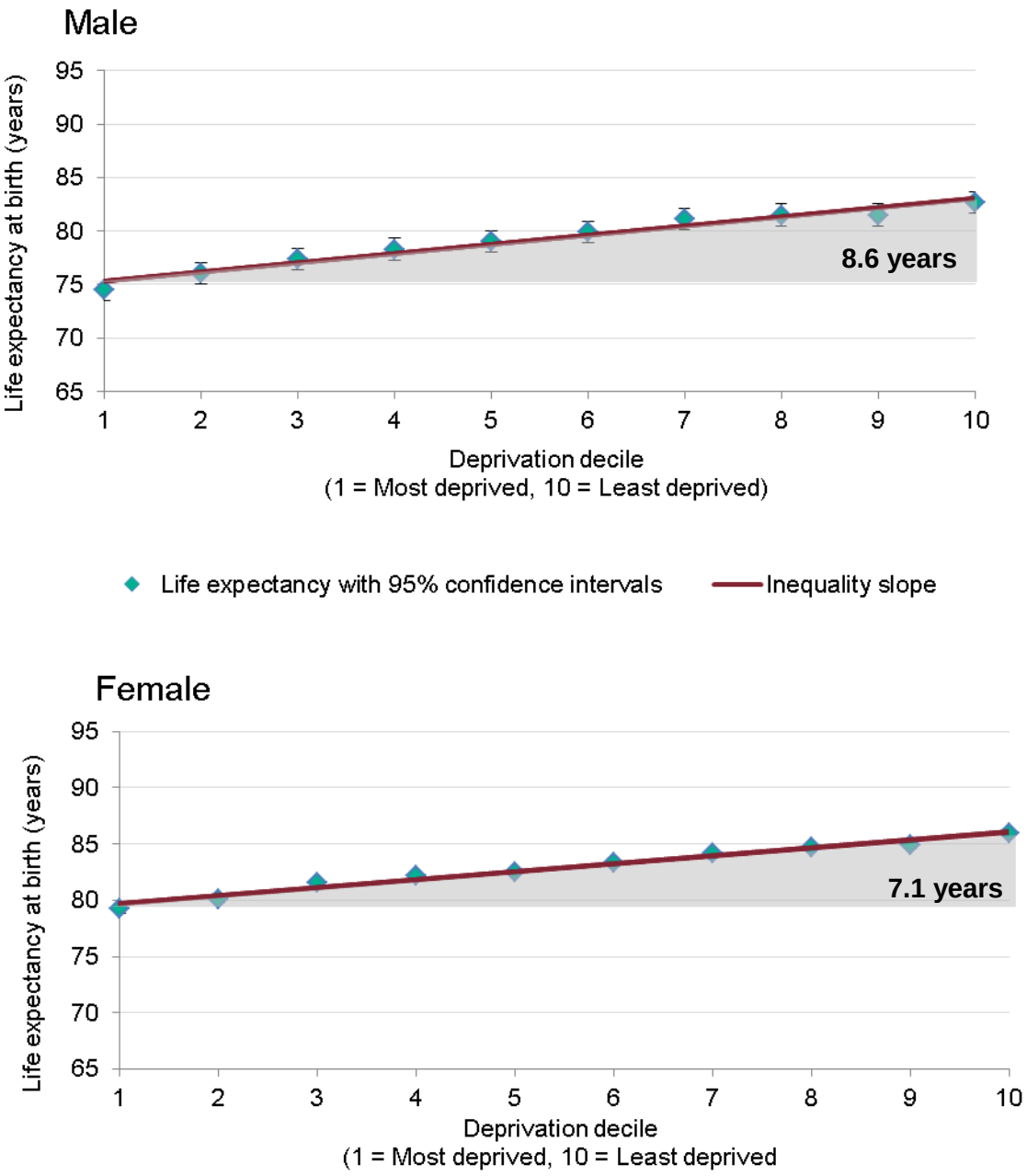
This section of the report reviews the variation in life expectancy across the region by deprivation measured by the slope index of inequality (SII) (3). The SII is a measure of the social gradient in life expectancy, i.e. how much life expectancy varies with deprivation. It takes account of health inequalities across the whole range of deprivation within an area and summarises this in a single number. It represents the range in years of life expectancy across the social gradient from most to least deprived.

For the SII, deprivation is measured using the Index of Multiple Deprivation 2015 (IMD 2015), which combines information from the 7 domains of deprivation that drive overall deprivation (4). The 7 domains are:

- income
- employment
- education
- health
- crime
- barriers to housing and services
- living environment

The slope index in life expectancy at birth for the East Midlands is presented in Figure 5. This illustrates that life expectancy at birth decreases as deprivation increases for both males and females, creating a slope index of 8.6 years for males and 7.1 years for females between the most and least deprived.

Figure 5: Slope index of inequality in life expectancy at birth within the East Midlands, 2012-14. Source: PHOF



There are differences in life expectancy at birth within local authorities. As shown in Figure 6, males living in the least deprived areas of Derby City live 12 years longer than males living in the most deprived areas of the city. For females, life expectancy in the least deprived areas is 8 years greater than in the most deprived areas. In the East Midlands, the smallest inequality gap can be seen in the Lincolnshire and Leicestershire counties.

Figure 6: Slope index of inequality in life expectancy at birth within English local authorities, based on local deprivation deciles, 2012-14 - the range in years of life expectancy across the social gradient within each local authority in the East Midlands, from most to least deprived. Source: PHOF[1]

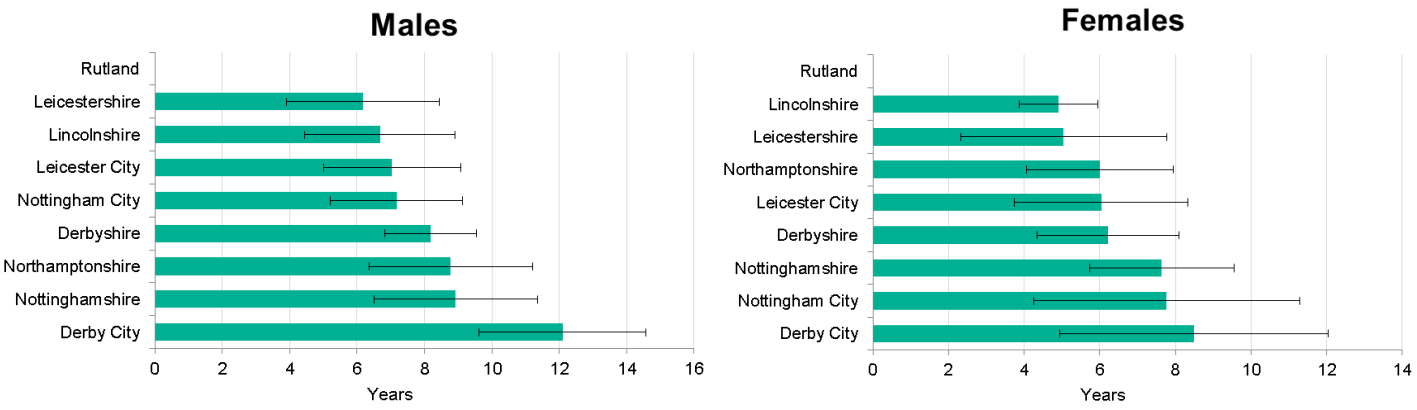


Figure 7 illustrates life expectancy and health life expectancy by deprivation decile for England. There is a similar pattern in both life expectancy and healthy life expectancy and deprivation at England level. People in the least deprived deciles have a higher life expectancy and live a greater number of years in good health than people in the most deprived deciles. In England, on average:

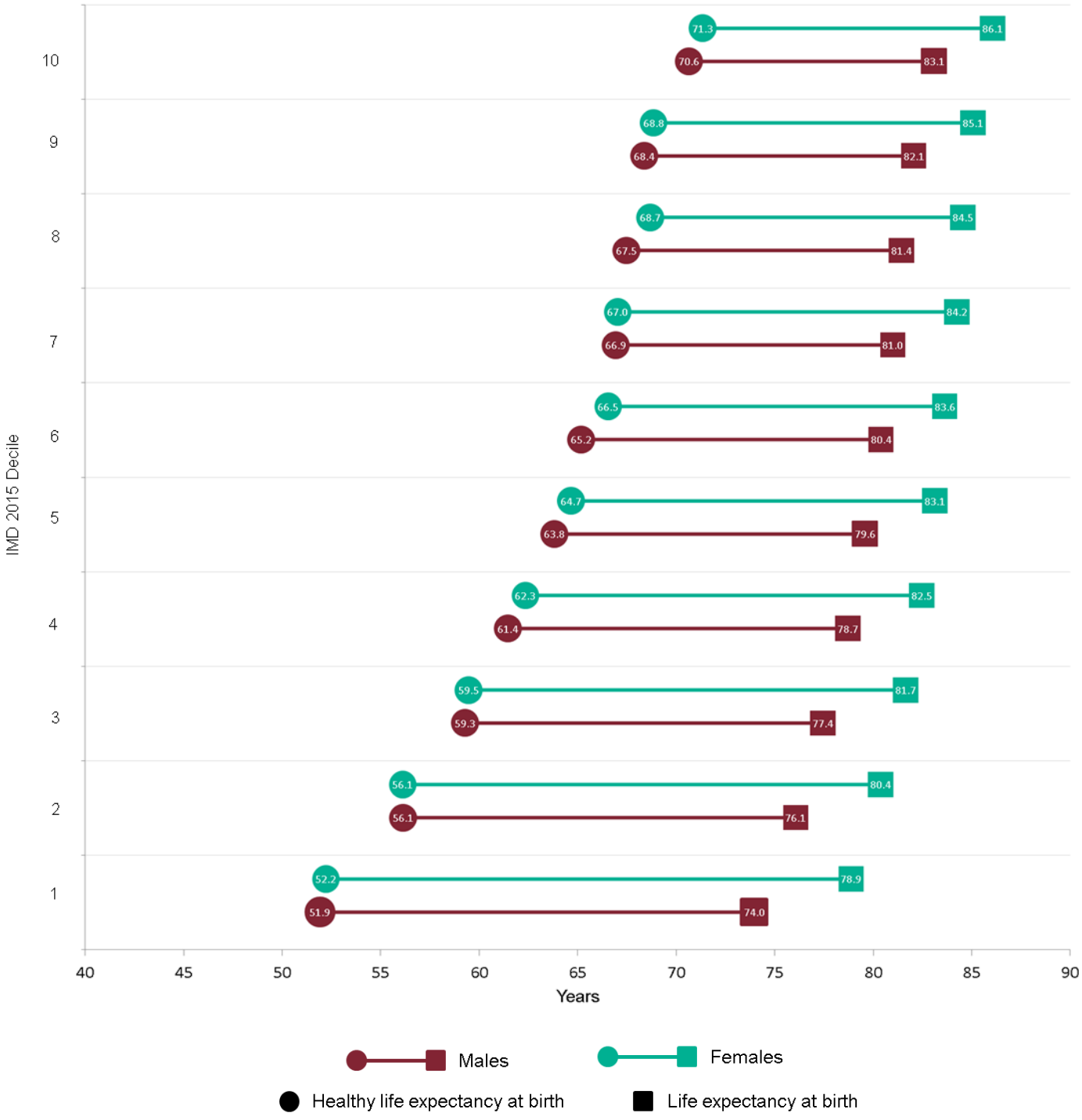
- a male living in the most deprived areas will live for 22.1 years in ill health
- a male in the least deprived areas will live for 12.5 years in ill health
- a female in the most deprived areas will live for 26.7 years in ill health
- a female in the least deprived areas will live for 14.7 years in ill health

Consistently across all deciles, women live longer than men, but they also live in ill health for a longer period of time. This is demonstrated by the proportion of life spent in ill health. In the most deprived decile, the average proportion of life affected by poor health is 30% for males and 34% for females. In the least deprived decile this reduces to 15% for males and 17% for females.

One of the main focal points of public health activity in the East Midlands is the reduction of the window of need. However, between 2009-11 and 2013-15 there has been little improvement in the size of the gap between life expectancy and healthy life expectancy (data not shown). On average, the size of the gap has increased for both males and females.

[1] The value for Rutland cannot be calculated as the number of cases is too small

Figure 7: The gap between healthy life expectancy (circle marker) and life expectancy (square marker) by sex and deprivation decile, England 2013-15. Source: ONS



Life expectancy at birth and healthy life expectancy vary from place to place across the East Midlands (Figure 8). This data is presented at middle super output area (MSOA) level.

Healthy life expectancies at birth for males and females range from approximately 50 to 75 years (Figure 8i). The highest healthy life expectancies tend to be associated with rural areas, while the lowest healthy life expectancies are associated with areas with higher levels of deprivation, such as the cities, some towns, the coastal areas of Lincolnshire, and the coalfields of Derbyshire, Nottinghamshire and Leicestershire.

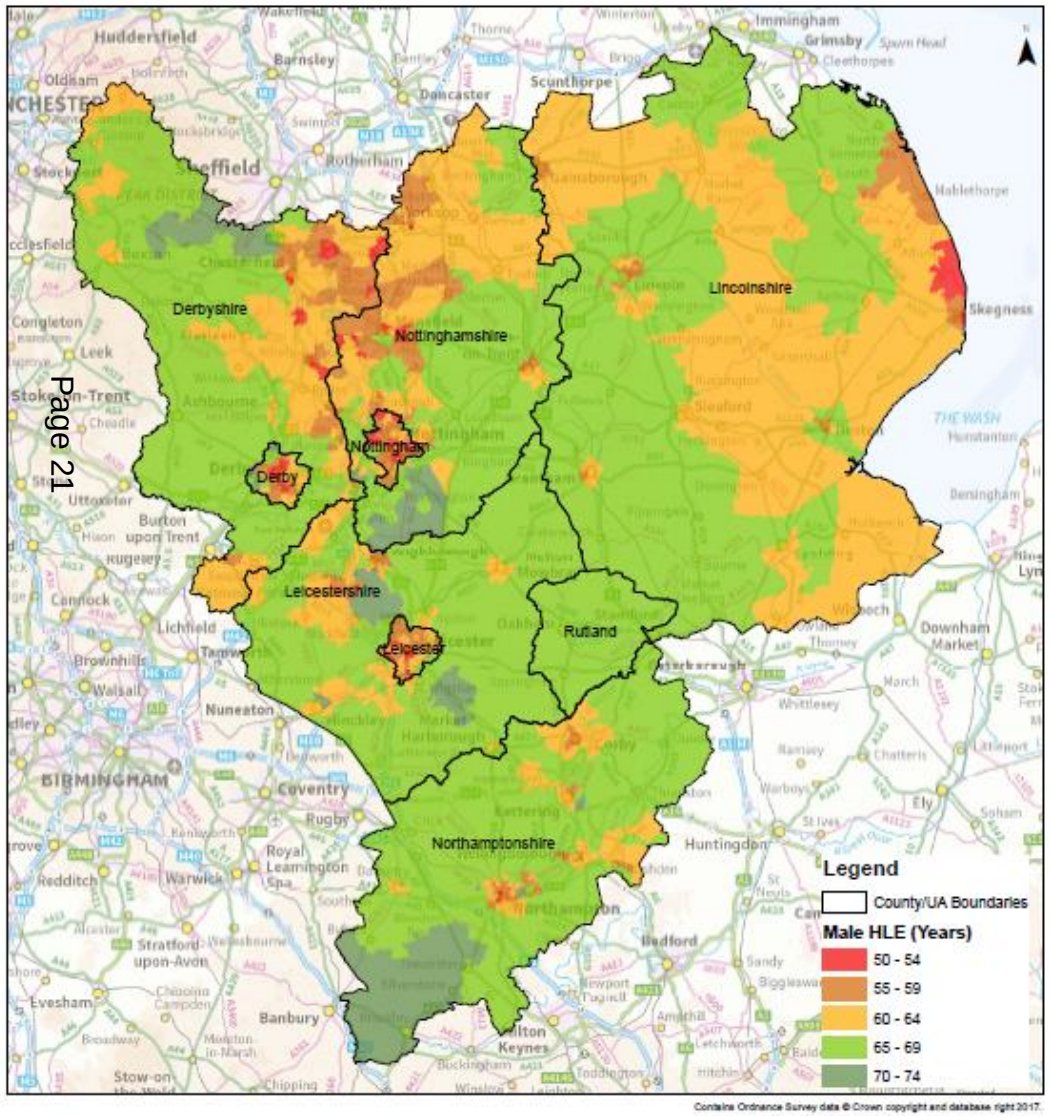
Mapping life expectancy at birth shows a similar distribution across the region, although life expectancy at birth is generally greater for women than men (Figure 8ii). Figure 8 also demonstrates the scale of the range in life expectancies within a local authority – with the largest ranges noted in Derby and Leicester.

The life expectancy and healthy life expectancy at birth data has been used to illustrate the average number of years lived in poor health at MSOA level (Figure 8iii). Here, the differences between the areas become even more evident, particularly in the cities, coalfield areas and on the coast. Smaller pockets of deprivation are also highlighted, for example in Grantham, Lincoln and Boston, particularly for females. Although females live longer than males in the East Midlands, it is clear that they are also living in poor health for a longer period of time and that these groups are more widely distributed across the East Midlands.

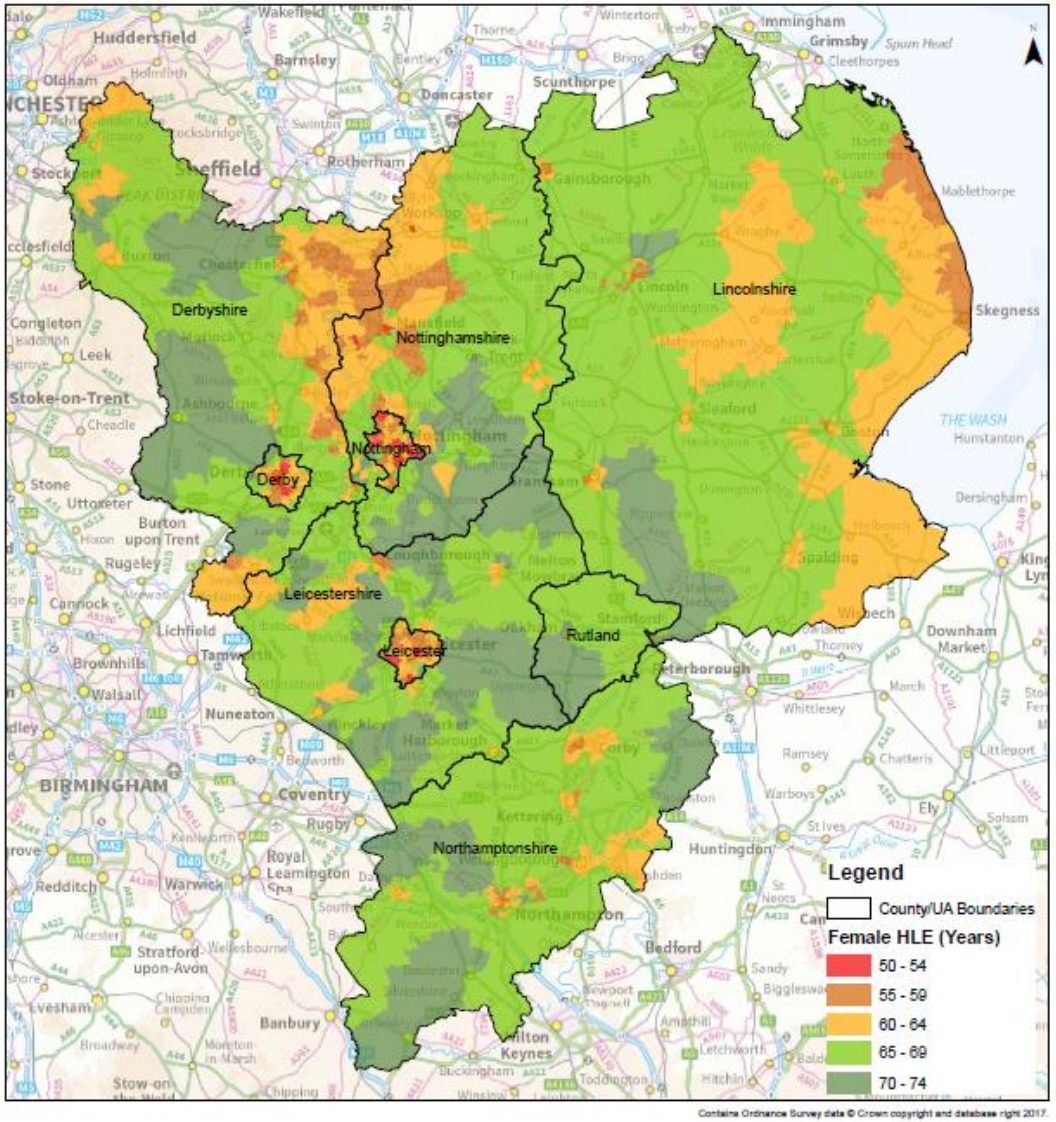
Figure 8: Healthy life expectancy at birth (i), life expectancy at birth (ii), and the number of years lived in poor health across the East Midlands (iii) by sex, 2009-13. Data has been mapped to middle super output area level. Source: ONS

i.

Healthy life expectancy at birth in the East Midlands, Males, 2009-13
Source: ONS

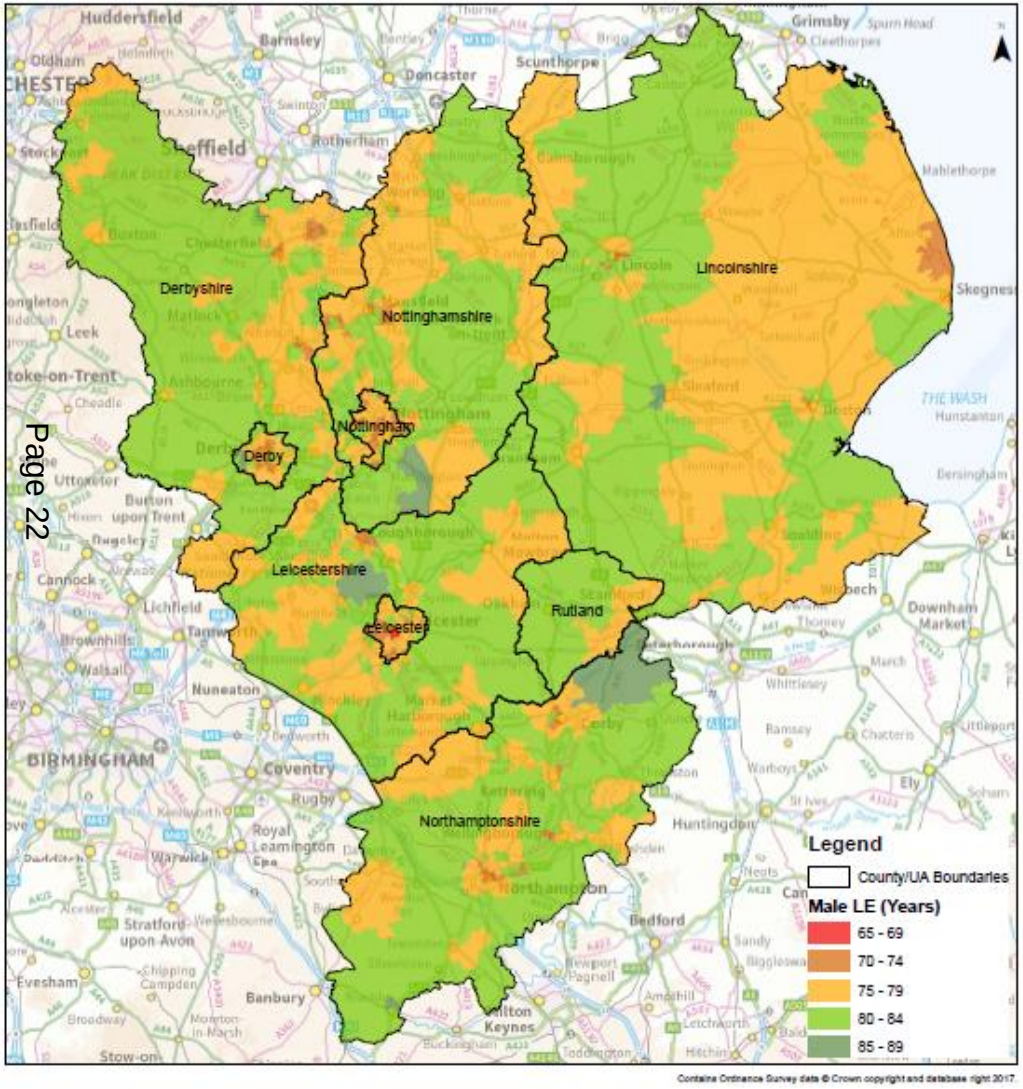


Healthy life expectancy at birth in the East Midlands, Females, 2009-13
Source: ONS

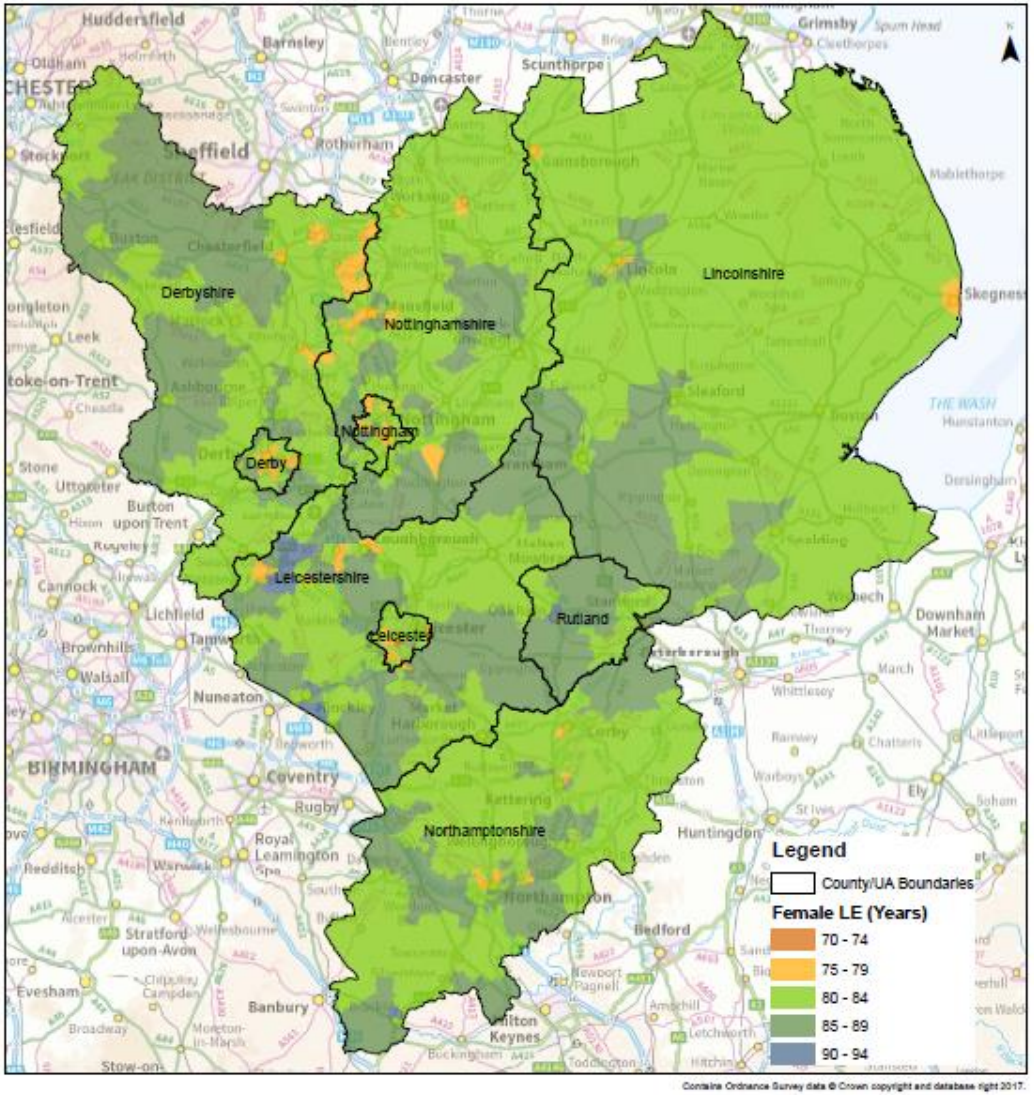


ii.

Life expectancy at birth in the East Midlands, Males, 2009-13
Source: ONS

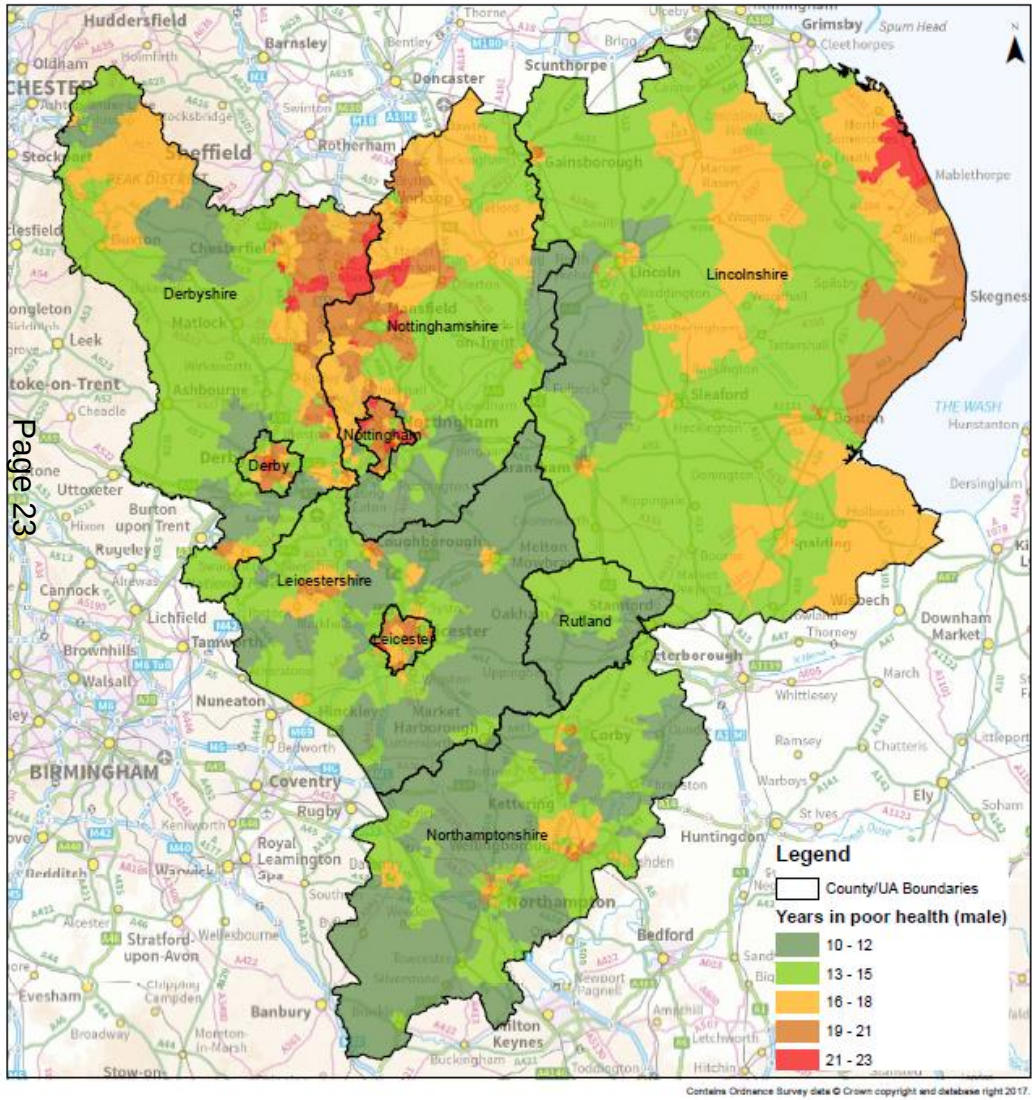


Life expectancy at birth in the East Midlands, Females, 2009-13
Source: ONS

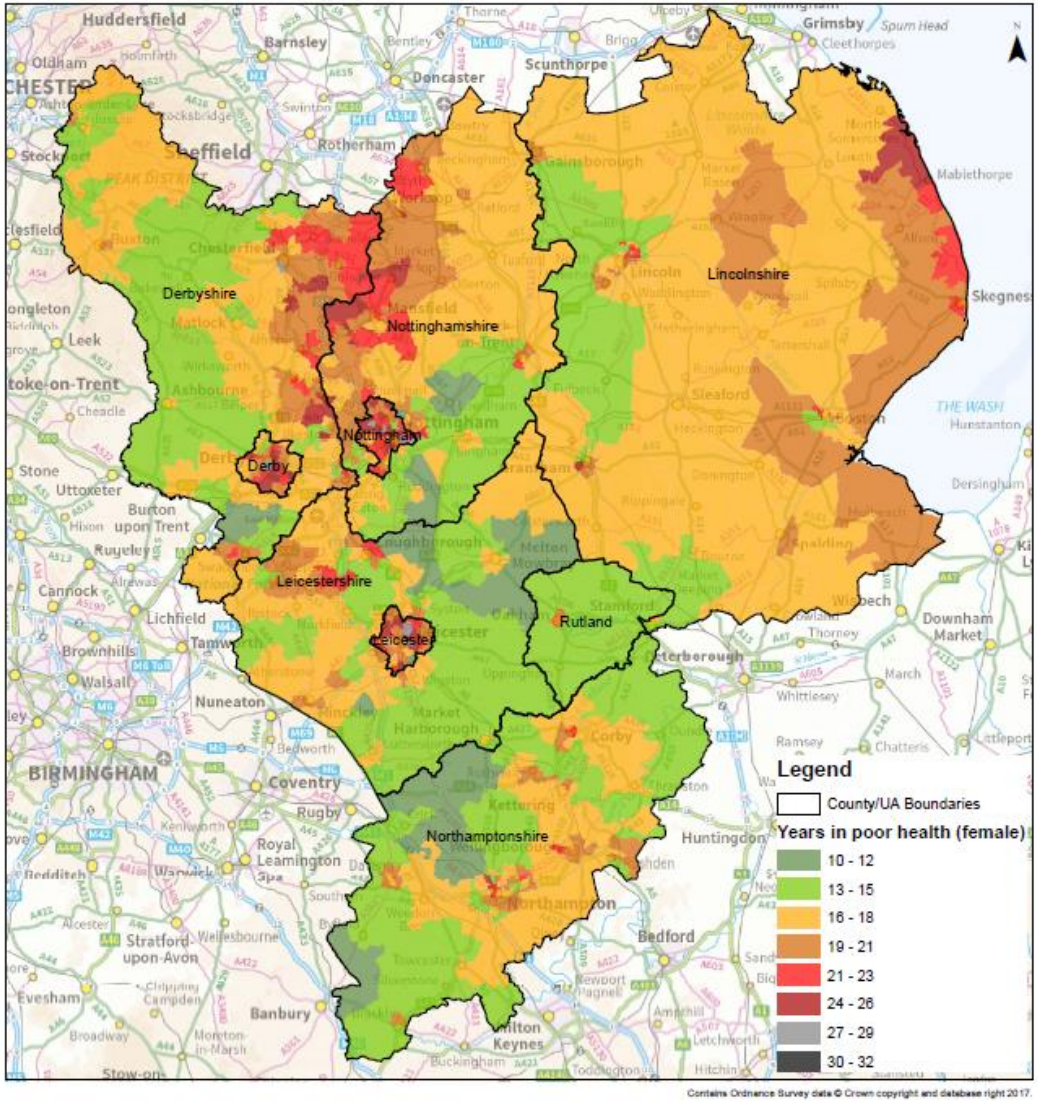


iii.

Years lived in poor health (window of need) in the East Midlands, Males, 2009-13
Source: ONS



Years lived in poor health (window of need) in the East Midlands, Females, 2009-13
Source: ONS

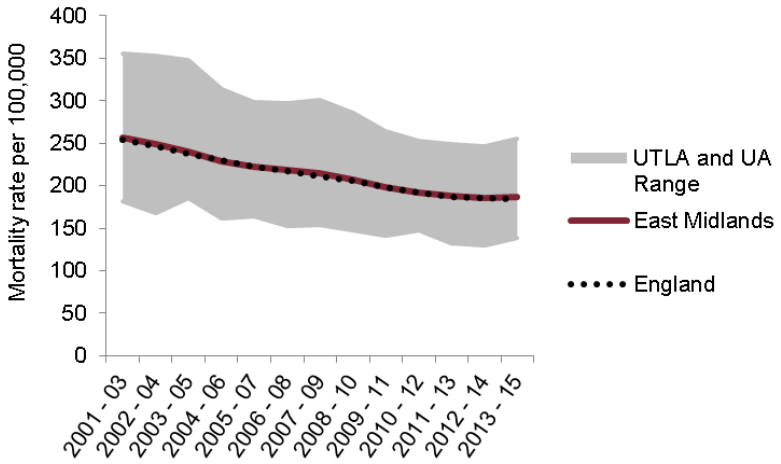


Preventable Mortality

Preventable mortality rates provide an overview of the underlying morbidity in the population driving ill-health and premature mortality. The basic concept of preventable mortality is that deaths are considered preventable if they could have been avoided by public health interventions focusing on wider determinants of public health, such as behaviour and lifestyle factors, socioeconomic status and environmental factors (5).

In 2013-15, there were 186.3 avoidable deaths per 100,000 population in the East Midlands, a rate similar to the national average. There has been a decrease in mortality due to preventable causes between 2001-03 and 2013-15 both nationally and for the East Midlands as shown in Figure 9. While the overall rate for the East Midlands is similar to the England average, there is a high degree of variation across the East Midlands local authorities. The highest rate of mortality due to causes considered preventable was in Nottingham in 2013-15 (255.2 per 100,000) while the lowest was in Rutland (139.3 per 100,000).

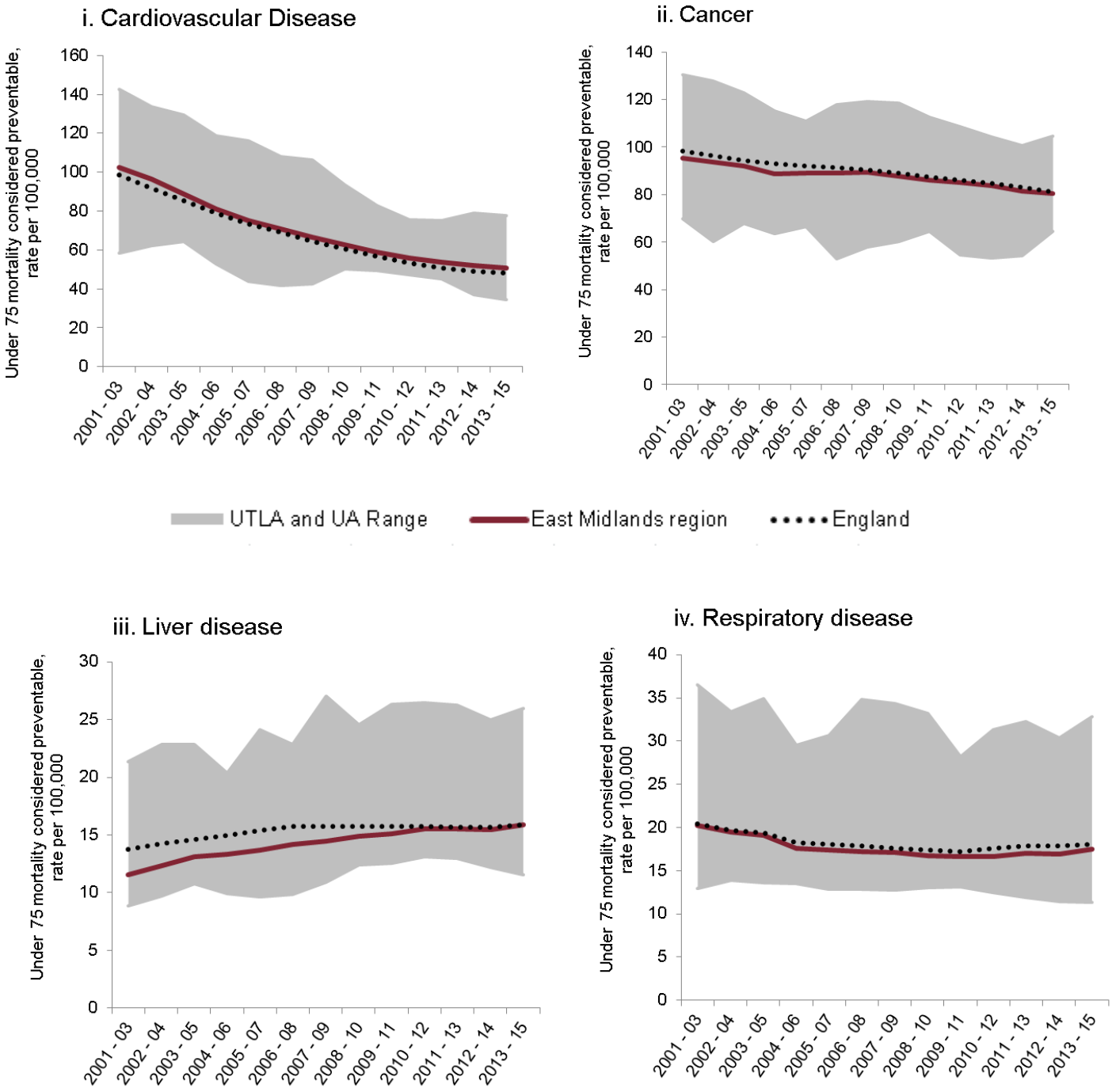
Figure 9: Age-standardised rate of mortality from causes considered preventable per 100,000 population, persons, all ages, East Midlands upper tier and unitary authorities, 2001-03 to 2013-15. Source: PHOF



Preventable mortality in those aged under 75 years can be further broken down into four disease areas; cardiovascular disease, cancer, liver disease and respiratory disease. This is shown in Figure 10.

In the East Midlands in 2013-15, 50.5 preventable deaths per 100,000 were due to **cardiovascular disease** in the under 75 year olds. Although this is higher than the England average, the mortality rate due to preventable cardiovascular disease has decreased significantly since 2001-03, and the range between the local authority with the highest rates (Leicester City) and the lowest (Rutland) has halved (Figure 10i).

Figure 10: Age-standardised rate of premature mortality from causes considered preventable due to a specific disease per 100,000 population, persons aged under 75, East Midlands upper tier and unitary authorities, 2001-03 to 2013-15. Please note the different axis scales on each chart. Source: PHOF



The rate of preventable mortality due to **cancer** in the under 75 year olds was 80.5 per 100,000 population in the East Midlands in 2013-15. This is similar to the national average and, although it has reduced by 15% since 2001-03, this change is not statistically significant. While the range between the highest and lowest rates in the East Midlands has reduced over time, Nottingham City and Leicester City both have rates that are significantly worse than the national average. The lowest rates of preventable mortality due to cancer in the under 75s in the East Midlands in 2013-15 were in Leicestershire and Lincolnshire, where rates were significantly better than the England average (Figure 10ii).

Preventable mortality due to **liver disease** has risen by 37% in the East Midlands since 2001-03. In 2013-15, there were 15.9 deaths per 100,000 in those aged under 75. While this is similar to the England average, the range in the rates between the areas with the highest and lowest rates is widening. The highest rates in the East Midlands in 2013-15 were in Nottingham City, Leicester City and Derby City (26.0, 24.2 and 23.4 per 100,000 aged under 75 years respectively), all of which have rates significantly higher than both the England and East Midlands averages (Figure 10iii).

Preventable mortality due to **respiratory disease** in the under 75s in the East Midlands is similar to the national average and has reduced by 14% since 2001-03. However, Nottingham City, Derby City and Leicester City again have rates that are significantly higher than the national average and showing no signs of improvement over time. Overall, the range between the highest and lowest rates in the East Midlands has shown little change; the premature mortality rate due to respiratory disease in Nottingham City is more than double that of Leicestershire (Figure 10iv).

For each preventable cause, Nottingham City, Derby City and Leicester City consistently have the highest preventable mortality rates in the East Midlands. These are areas associated with the highest levels of deprivation in the region, and the people living here are more likely to suffer ill health and die prematurely.

Risks to health and causes of disability

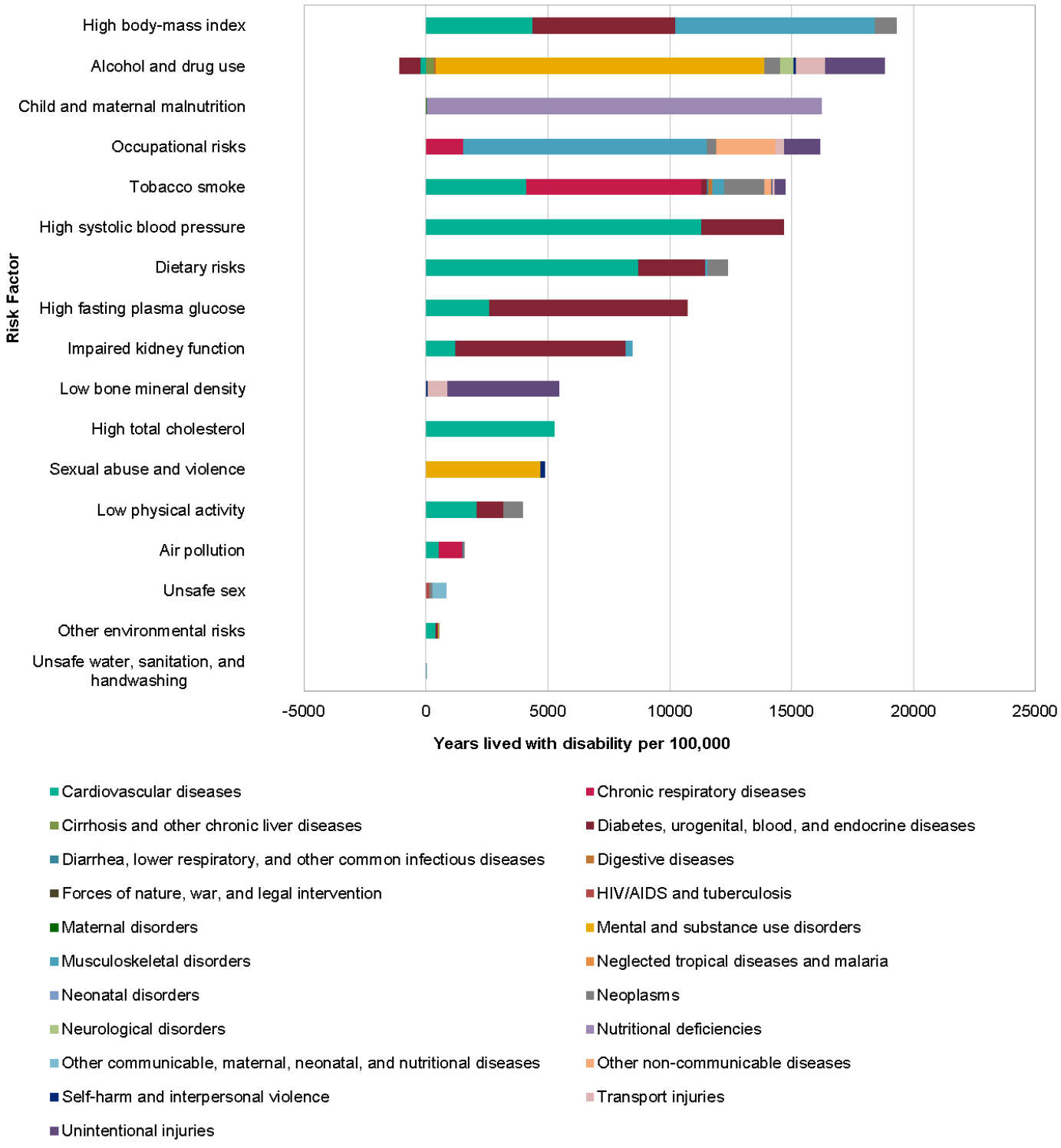
The WHO Global Burden of Disease (GBD) project pulls together data on premature death and disability from more than 300 diseases and injuries in 188 countries, by age and sex, from 1990 to the present. The data can be used to rank the diseases and risk factors in terms of their overall burden on a population. The ‘burden’ is measured by combining two indicators; the number of years of life lost to disease and the number of years lived with disability as a result of disease (6).

This report reviews the most common risk factors that lead to years lived in disability. In the East Midlands, the top five risk factors leading to years lived in disability are illustrated in Figure 11. These are:

- obesity
- alcohol and drug use
- poor diet
- occupational risks
- smoking

Many of the risk factors identified in the region lead to disability through cardiovascular diseases and diabetes, urogenital, blood and endocrine diseases.

Figure 11: Years lived with disability per 100,000 population by risk factor and disease or disorder, East Midlands. Source: WHO Global Burden of Disease Study 2015

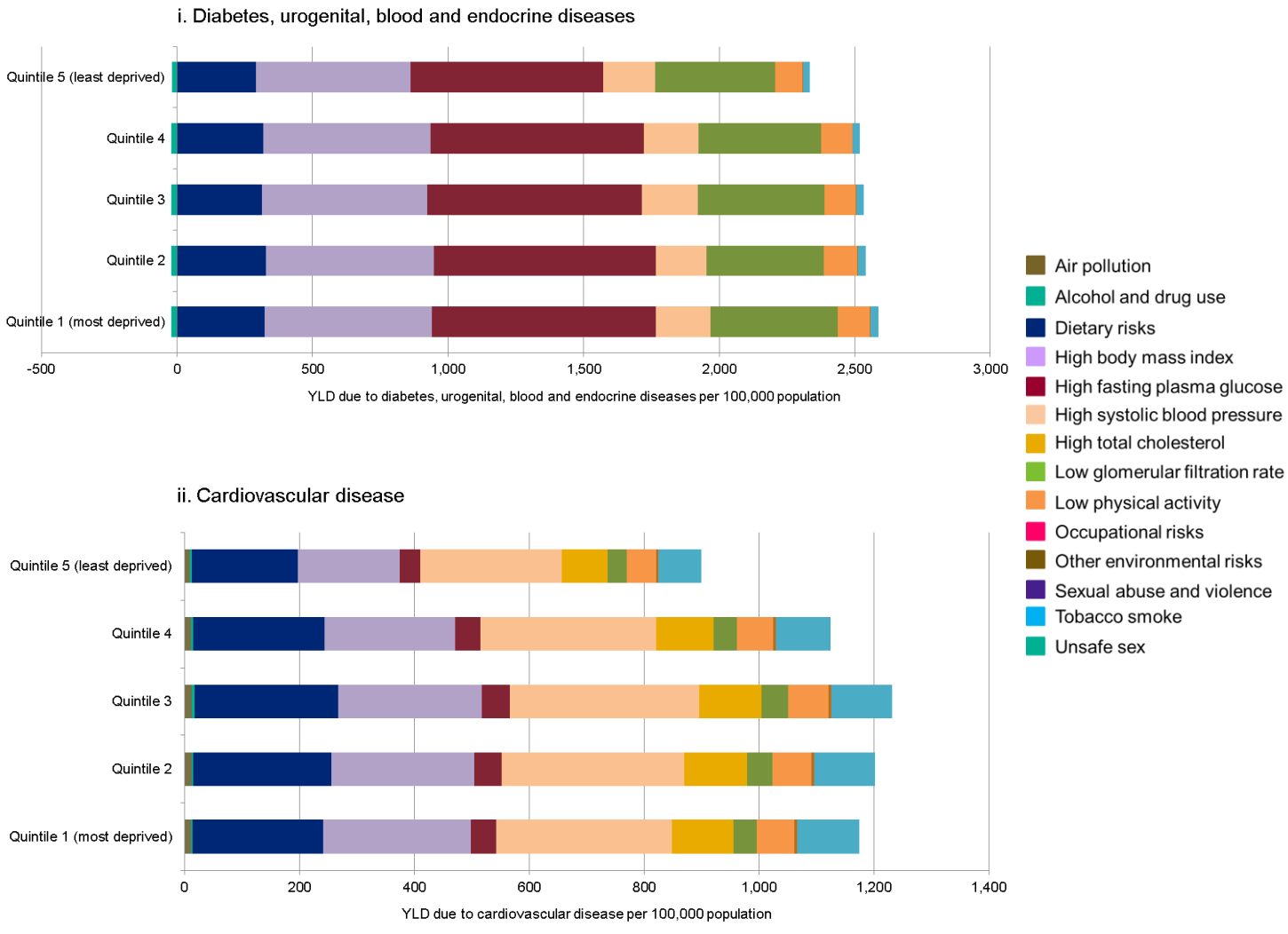


Often, ill health disproportionately affects those in more deprived socioeconomic groups, and these groups also have poorer health outcomes. Data from the GBD Study in 2013 includes deprivation data which allows disease and risk factor data to be analysed by deprivation quintile. Figure 12 presents data by disease and risk factor for the following conditions:

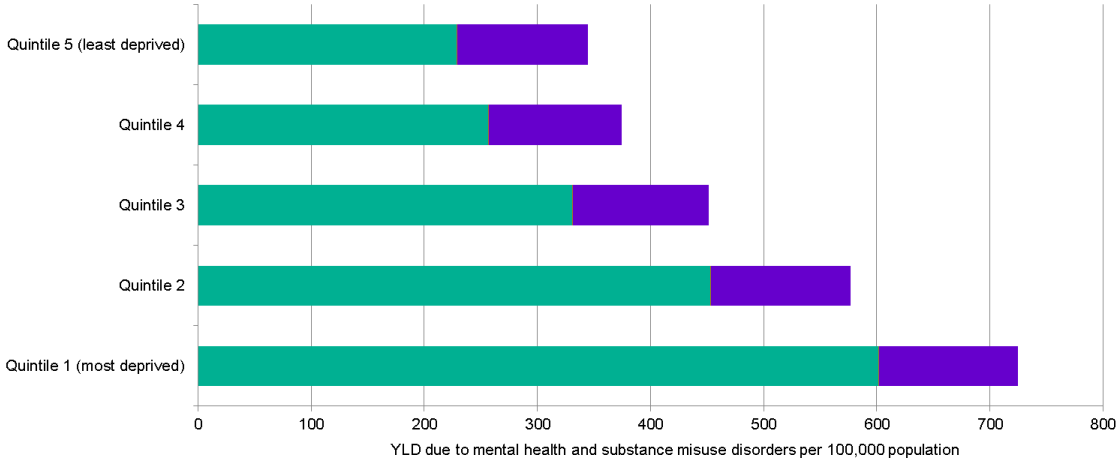
- cardiovascular disease
- chronic respiratory disease
- cirrhosis
- diabetes, urogenital, blood and endocrine disease
- mental health and substance use disorders
- musculoskeletal disorders
- cancer

These conditions were chosen as the main disorders or diseases in this report as they are more likely to be dependent on risk factors related to lifestyle.

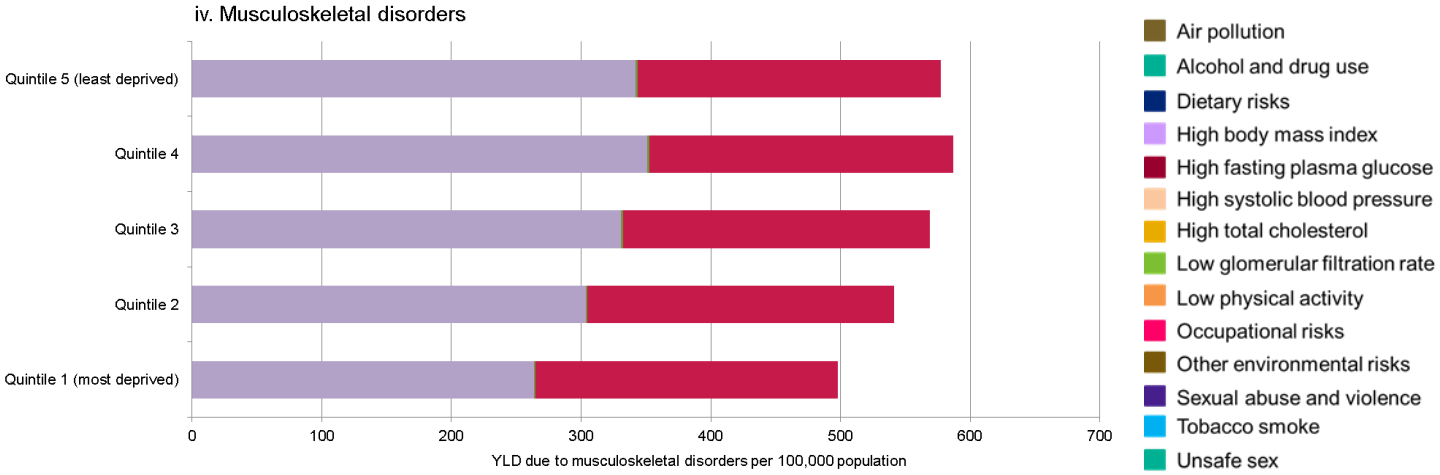
Figure 12: Number of years lived with disability (YLD) due to a disease or disorder by risk factor and deprivation decile, East Midlands. Charts are in order of magnitude of YLDs attributed to each disease or disorder; please note the different axis scales on each chart. Source: WHO Global Burden of Disease Study 2013



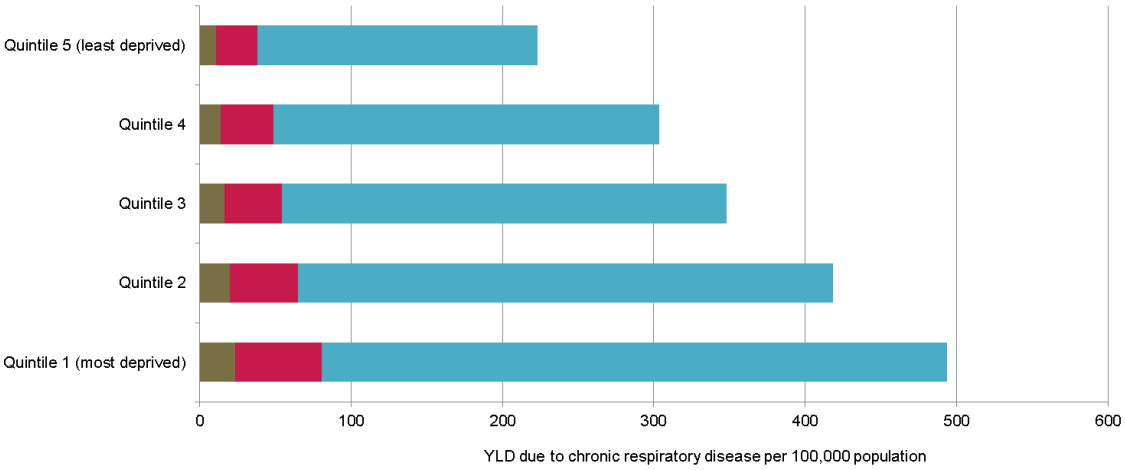
iii. Mental health and substance misuse



iv. Musculoskeletal disorders



v. Chronic respiratory disease



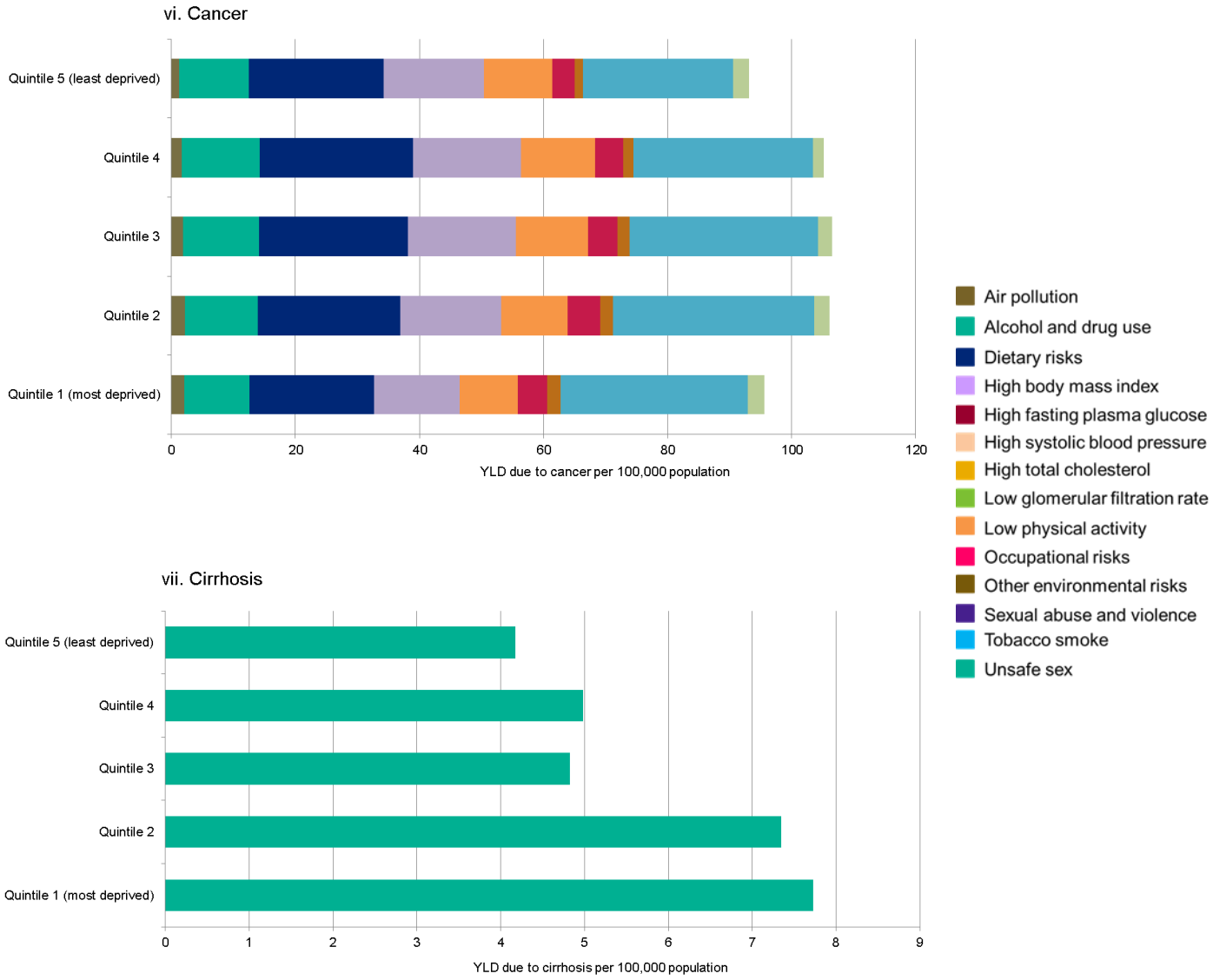


Figure 12 is an analysis the number of years lived with disability due to each of the disease areas in terms of their risk factors, broken down by deprivation quintiles. The results from this analysis are complex and have been included for background information – a more detailed analysis of each of the areas is necessary to gain a good understanding of the data and the underlying issues.

There is a strong association with deprivation illustrated for:

- chronic respiratory disease
- mental health and substance misuse disorders

This demonstrates that more years are lived with disability due to these conditions in the most deprived groups. This is driven by the greater risk of smoking and alcohol and drug use in the more deprived quintiles of the population.

Musculoskeletal disorders demonstrate a greater number of years living with disability in the least deprived groups.

There is no clear pattern of years lived with disability for the following conditions:

- cardiovascular disease
- diabetes, urogenital, blood and endocrine diseases
- cancer

However, each of these follows a similar pattern for years lived with disability, with quintiles 2, 3 and 4 generally being most affected. Interpretation of data around these conditions may be made more complex by the large number of risk factors involved.

The number of years that people live with a disability is a complex issue and will be strongly influenced by:

- the age of a person at the onset of disease
- the progression of the disease at the time of diagnosis
- the management of the condition once diagnosed
- the treatment and care provided for the individual
- the age of the person at their death

Each of the diseases included in this analysis will be different and more in depth analysis is needed to fully explore their specific inequalities issues. The GBD data offers an opportunity to highlight inequalities issues by disease and risk factor in a more comprehensive way that will add to the understanding of population health issues.

Risk factors in the East Midlands

A number of risk factors discussed here are known local health issues. The key indicators summarising these for the East Midlands are included in Table 1, showing that:

- 16.1% of the adult population smoke
- 22.5% of the adult population are physically inactive
- 52.7% of the adult population eat five or more portions of fruit and vegetables per day
- There were 685.8 hospital admissions for alcohol per 100,000 population in 2014/15
- 66.8% of the adult population are overweight or obese
- 18.6% of the population report a limiting long term illness or disability

The majority of these indicators show no significant change over time at local authority level in the East Midlands even when there has been an improvement or decline at a national level. The only exception to this is in relation to smoking and hospital admissions due to binge drinking, where there has been some improvement.

It is important to recognise that many people will be exposed to more than one risk factor for ill health, and multiple unhealthy behaviours have a cumulative effect on health. Someone in mid-life who smokes, drinks too much, exercises too little and eats poorly is four times more likely to die in the next 10 years than someone who does none of those things (7).

Table 1: Trends in local health issues relating to risk factors across the East Midlands local authorities compared with England. Table shows the figure for the most recent time point, and the overall trend over time compared with the baseline year.

⇩-significant decrease, getting better ⇧-significant decrease, getting worse ⇧-significant increase, getting worse ⇔-no significant change

Indicator	Time Period	England		East Midlands		Derby		Derbyshire		Leicester		Leicestershire		Lincolnshire		Northamptonshire		Nottingham		Nottinghamshire		Rutland	
		Most Recent	Trend	Most Recent	Trend	Most Recent	Trend	Most Recent	Trend	Most Recent	Trend	Most Recent	Trend	Most Recent	Trend	Most Recent	Trend	Most Recent	Trend	Most Recent	Trend	Most Recent	Trend
1. Smoking prevalence	2012 to 2016	15.5	⇩	16.1	⇩	17.8	⇔	13.9	⇩	17.0	⇔	13.5	⇩	17.7	⇔	16.3	⇔	21.5	⇔	15.7	⇔	12.3	⇔
2. Physical inactivity	2015/16	22.3	No Trend	22.5	No Trend	19.6	No Trend	19.7	No Trend	30.7	No Trend	21.9	No Trend	22.4	No Trend	23.2	No Trend	24.6	No Trend	22.0	No Trend	18.1	No Trend
3. Five a day	2014 to 2015	52.3	⇧	52.7	⇔	52.4	⇔	53.3	⇔	44.3	⇔	55.6	⇔	54.3	⇔	51.0	⇔	44.4	⇔	56.2	⇔	62.8	⇔
4. Binge drinking	2008/09 to 2015/16	646.0	⇧	685.8	⇧	844.0	⇔	713.4	⇧	753.4	⇩	592.5	⇩	582.0	⇔	681.8	⇧	999.7	⇧	693.3	⇧	685.8	⇔
5. Excess weight	2012-14 to 2013-15	64.8	⇔	66.8	⇔	66.0	⇔	68.3	⇔	62.7	⇔	64.7	⇔	69.9	⇔	67.3	⇔	62.4	⇔	67.6	⇔	67.3	⇔
6. Limiting long term illness or disability	2011	17.6	No Trend	18.6	No Trend	18.7	No Trend	20.4	No Trend	17.3	No Trend	16.2	No Trend	20.4	No Trend	16.2	No Trend	18.1	No Trend	20.3	No Trend	15.5	No Trend

1. Prevalence of smoking among adults aged 18 years and over, %, PHOF **2.** Proportion of adults aged 16 years and over classified as 'inactive' (current method), %, PHOF **3.** Proportion of adults aged 16+ meeting the recommended '5-a-day' on a usual day, %, PHOF **4.** Hospital admissions for alcohol related conditions (narrow definition), all ages, DASR per 100,000 population, PHOF **5**. Proportion of adults aged 16 years and over classified as overweight or obese, %, PHOF **6.** Proportion of the population reporting a health problem or disability that limits their day-to-day activities and has lasted, or is expected to last, at least 12 months, %, Common Mental Health Disorders profile

Wider determinants of health

Health is affected by a wide range of factors including age, sex and hereditary factors and behavioural risk factors. Other factors that impact on health include social factors, often referred to as the wider determinants of health. PHE's wider determinants of health profile (8) includes a set of Marmot indicators that have been developed to monitor the progress made against the recommendations in 'Fair Society, Healthy Lives' (9) and are intended to support monitoring of the key outcomes in the reduction of health inequalities. The Marmot indicators for the East Midlands are summarised in Figure 13.

Figure 13 includes a number of indicators that have already been mentioned, such as life expectancy and healthy life expectancy. However, there are also other indicators relating to education, employment, and housing.

There are 16 Marmot indicators where benchmarking is available for the East Midlands region, and of these the East Midlands performs worse than England in 8. Half of these relate to children and young people, specifically with regards to education. At local authority level, all but 3 of the East Midlands local authorities are significantly worse than England in terms of GCSE achievement. Nottinghamshire and Rutland perform significantly better than England, while Leicestershire is similar to England.

In the East Midlands, 10.1% of households experience fuel poverty; this is significantly better than the England average. However, there is variation across the region, with Leicester and Nottingham performing worse than England, and Derbyshire, Leicestershire, Nottinghamshire and Northamptonshire performing better than England.

As has been discussed elsewhere in the report, poorer outcomes tend to be seen more often in cities, and this is also reflected in the Marmot indicators. None of the indicators for Nottingham and Leicester are significantly better than the England average, while Derby only performs better than England on long term unemployment.

Table 2: Summary of Marmot indicators, including current outcomes for the East Midlands region and local authorities. Outcomes compared to the England average or benchmark. Source: PHE Fingertips Wider Determinants of Health tool, May 2017

Compared with benchmark	Better	Similar	Worse	Lower	Similar	Higher	Low				High	Not compared

Indicator	Period	England	East Midlands region	Derby	Derbyshire	Leicester	Leicestershire	Lincolnshire	Northamptonshire	Nottingham	Nottinghamshire	Rutland
Healthy life expectancy at birth (Female)	2013 - 15	64.1	63.5	59.6	63.8	60.0	65.8	63.7	67.0	57.2	62.2	70.6
Healthy life expectancy at birth (Male)	2013 - 15	63.4	62.5	60.9	63.5	59.1	63.6	62.9	65.5	56.7	61.1	71.1
Life expectancy at birth (Female)	2013 - 15	83.1	82.9	82.7	82.8	81.6	83.9	83.1	83.1	81.4	82.8	85.2
Life expectancy at birth (Male)	2013 - 15	79.5	79.3	78.0	79.2	77.1	80.5	79.6	79.4	76.8	79.4	81.8
Inequality in life expectancy at birth (Female)	2013 - 15	-	-	8.4	6.4	6.6	4.8	5.4	7.0	7.2	8.0	*
Inequality in life expectancy at birth (Male)	2013 - 15	-	-	10.4	8.2	8.2	6.1	6.3	8.8	8.0	8.8	*
People reporting low life satisfaction	2015/16	4.6	4.0	5.6	3.4	4.7	*	3.8	4.0	6.7	*	*
School readiness: Good level of development at age 5	2015/16	69.3	67.6	66.4	70.8	60.7	67.5	70.5	68.1	63.5	67.0	72.1
School readiness: Good level of development at age 5 with free school meal status	2015/16	54.4	51.6	54.5	52.6	52.2	43.5	54.1	52.0	54.7	47.5	41.2
GCSE achieved 5A*-C including English & Maths	2015/16	57.8	55.1	44.8	54.8	50.8	58.9	55.7	54.2	45.0	61.1	70.3
GCSE achieved 5A*-C including English & Maths with free school meal status	2014/15	33.3	27.8	23.6	29.7	33.6	29.0	25.3	27.2	23.6	28.4	37.5
19-24 year olds not in education, employment or training	2016	13.4	13.2	-	-	-	-	-	-	-	-	-
Unemployment	2015	5.1	4.7	7.6	3.5	9.1	3.1	5.5	3.2	9.1	3.5	4.3
Long term claimants of Jobseeker's Allowance	2016	3.7*	3.5*	2.6*	2.7*	3.9*	1.3*	4.0*	3.0*	9.6*	3.6*	1.0*
Individuals not reaching the Minimum Income Standard	2012/13 -14/15	30.1	29.7	-	-	-	-	-	-	-	-	-
Work-related illness	2013/14 -15/16	3990	4730	-	-	-	-	-	-	-	-	-
Fuel poverty	2014	10.6	10.1	10.7	9.8	13.5	8.8	10.6	9.5	12.6	9.4	10.6
Utilisation of outdoor space for exercise/health reasons	Mar 2015 Feb 2016	17.9	18.5	20.7	18.5	12.0	20.8	19.0	21.1	15.6	16.7	*

Conclusions

This report highlights inequalities in health between males and females, geographic inequalities and inequalities driven by socio-economic deprivation. As well as these impacts on the lives of the population of the East Midlands, the report also highlights the impact of health inequalities on service use and demand using the concept of the window of need.

There are health inequalities between males and females, with females living longer than males. However, health inequalities are more complex than the variation in life expectancy and the analysis demonstrates that women can expect to spend a greater proportion of their lives in poor health.

The impact of the social gradient on health inequalities is clearly demonstrated with males in the most deprived areas of the East Midlands living for 8.6 years less than males in the least deprived areas. For females, the gap is is 7.1 years. This social gradient translates to the urban areas in the East Midlands having a lower life expectancy than the more affluent rural areas. However, even within the more affluent rural areas the report highlights pockets of health inequalities across all local authorities. This social gradient is even greater when accounting for years lived in the window of need, with gaps of 9.6 years and 12.0 years respectively for males and females.

As well as access to and quality of care, health inequalities are driven by multiple complex factors. There is considerable variation in preventable mortality from the major causes of death across the East Midlands local authorities. The number of years that people spend living in ill or poor health in the East Midlands is driven by the risk factors of obesity, alcohol and drug use, diet, and occupational risks. These risk factors will also be driven by the wider determinants of health and addressing health inequalities needs targeted action across multiple factors to have the impact that is needed to deliver change.

The inequalities highlighted in healthy life expectancy demonstrate the opportunities to reduce the time lived in need of care and the associated costs and demand pressures. Targeted action must focus on reducing the number of years a person can expect to live in poor health (the window of need) as well as increasing overall life expectancy for the population. The window of need highlights the period of life where people will be most in need of care and understanding the factors that are driving life expectancy and healthy life expectancy will help local organisations to target action effectively to improve independence and quality of life and reduce the window of need. To have a real impact at population level, interventions need to be sustainable and systematically delivered at scale in order to reach large sections of the population.

Glossary

Global Burden of Disease Study

The Global Burden of Disease Study (GBD) is a worldwide observational epidemiological study. It describes mortality and morbidity from major diseases, injuries and risk factors to health at global, national and regional levels. Examining trends from 1990 to the 2015 and making comparisons across populations, it enables understanding of the changing health challenges facing people across the world in the 21st century (10).

The GBD data can be downloaded via the results tool at http://ghdx.healthdata.org/gbd-results-tool

Healthy life expectancy at birth

Healthy life expectancy measures the average number of years a person would live in good general health if he or she experienced the prevailing mortality and health prevalence rates for that country for the rest of their life (11).

The Office for National Statistics publishes healthy life expectancy data at geographical levels ranging from national to middle layer super output area. These can be downloaded via https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandlifeexpectancies

Index of Multiple Deprivation

The 2015 Index of Multiple Deprivation (IMD) ranks every lower super output area in England from 1 (most deprived area) to 32,844 (least deprived area). The IMD combines information from the seven domains of deprivation to produce an overall relative measure of deprivation (12).

IMD data is published by the Department for Local Communities and Government at lower super output level, and it is also available aggregated to both upper and lower tier local authorities via https://www.gov.uk/government/statistics/english-indices-of-deprivation-2015

Life expectancy at birth

Life expectancy is a statistical measure of the average time someone is expected to live, based on their year of their birth, current age and other demographic factors including their sex (13).

The Office for National Statistics publishes life expectancy data at geographical levels ranging from national to lower super output area. These can be downloaded via https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/lifeexpectancies

Public Health Outcomes Framework

The Public Health Outcomes Framework (PHOF) *Healthy lives, healthy people: Improving outcomes and supporting transparency* sets out a vision for public health, desired outcomes and the indicators that will help us understand how well public health is being improved and protected.

The framework concentrates on two high-level outcomes to be achieved across the public health system, and groups further indicators into four 'domains' that cover the full spectrum of public health. The outcomes reflect a focus not only on how long people live, but on how well they live at all stages of life (3).

Public Health England has produced a data tool that presents data for the indicators in the framework for the most recent period available and accompanying trend data where possible, at national, regional and both upper and lower tier authority levels. The data tool can be accessed via http://www.phoutcomes.info/

Preventable Mortality

Deaths are considered preventable if, in the light of the understanding of the determinants of health at the time of death, all or most deaths from the underlying cause (subject to age limits if appropriate) could potentially be avoided by public health interventions in the broadest sense (14).

The Public Health Outcomes Framework includes indicators relating to preventable mortality in males, females and persons of all ages, at national, regional, and both upper and lower tier local authority levels. There are also condition specific indicators for preventable mortality due to cardiovascular disease, cancer, liver disease and respiratory disease in persons aged under 75 years. These can also be obtained broken down by sex at national, regional, and both upper and lower tier local authority levels (3).

Slope Index of Inequality

The Slope Index of Inequality (SII) is a measure of the social gradient in life expectancy and is a way of showing how life expectancy varies with deprivation. The SII indicator gives a single number representing the difference in life expectancy between the most deprived and least deprived populations living within the specified area (15).

The Public Health Outcomes Framework includes the SII at national, regional and upper tier local authority levels for both males and females. SII charts are available at national, regional and both upper and lower tier local authority levels via http://www.phoutcomes.info/further-information

Window of Need

The Window of Need is the gap between healthy life expectancy and life expectancy, and is the number of years an individual can expect to live in poor health (1). This is calculated by subtracting the healthy life expectancy from the life expectancy.

As well as life expectancy and healthy life expectancy data by geographical area, the Office for National Statistics also publishes national life and health expectancies by Index of Multiple Deprivation decile. This allows the association between the window of need and deprivation to be visualised and can be downloaded via https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthinequalities/bulletins/healthstatelifeexpectanciesbyindexofmultipledeprivationimd/england2013to2015

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