



Public Health
England

Health inequalities slides East Riding of Yorkshire

January 2020

Version 1.1

Why health inequalities are important

"Reducing health inequalities is a matter of fairness and social justice. In England, the many people who are currently dying prematurely each year as a result of health inequalities would otherwise have enjoyed, in total, between 1.3 and 2.5 million extra years of life."

Fair society, healthy lives (The Marmot Review): Strategic Review of Health Inequalities in England post-2010

<http://www.instituteofhealthequity.org/resources-reports/fair-society-healthy-lives-the-marmot-review>

About the slides

- The Global Burden of Disease (GBD) Study 2017 highlights the conditions causing the largest burden (in terms of disability-adjusted life years) in East Riding of Yorkshire
- The purpose of this slide set is to demonstrate inequalities in important high-burden diseases - defined either because they are high-burden as measured by the GBD, or because they reflect a national strategic priority
- This slide set also includes a number of Local Health indicators where there is a particularly strong statistical linear relationship with deprivation as measured by the Index of Multiple Deprivation 2019 (IMD 2019) at ward level
- It uses routinely available data from the Local Health website (*www.localhealth.org.uk, downloaded August 2019*)
- It uses 2018 ward and local authority boundaries

Glossary of Technical Terms Used

Linear Regression Model

Linear regression has been used in the analyses presented in this slide set in an attempt to model the relationship between deprivation, as measured by IMD 2019, and outcome indicators from Local Health. The results from the linear regression models are presented as scatter plots with the line-of-best-fit and R-squared value shown for the observed data. The rank of IMD 2019 overall score for wards has been used as the independent variable in the models and all of the regression models in this presentation are weighted by ward population size (2017).

R-Squared

This is a statistical term which indicates how close the data is to a line-of-best-fit in linear regression. It represents the proportion of variation in the dependent variable (in this case, indicators from Local Health) that is explained by the independent variable (in this case IMD 2019 rank of score). It ranges from 0 (no relationship between the variables) to 1 (a perfect relationship).

Note: In the real world, a value of 1 is extremely unlikely!

Glossary of Technical Terms Used

Standardised Mortality Ratio (SMR)

$$SMR = \text{Observed/Expected} \times 100$$

An SMR is the ratio of the observed number of deaths in a ward to the number expected if the ward had the same age-specific rates as England.

Standardised Admission Ratio (SAR)

$$SAR = \text{Observed/Expected} \times 100$$

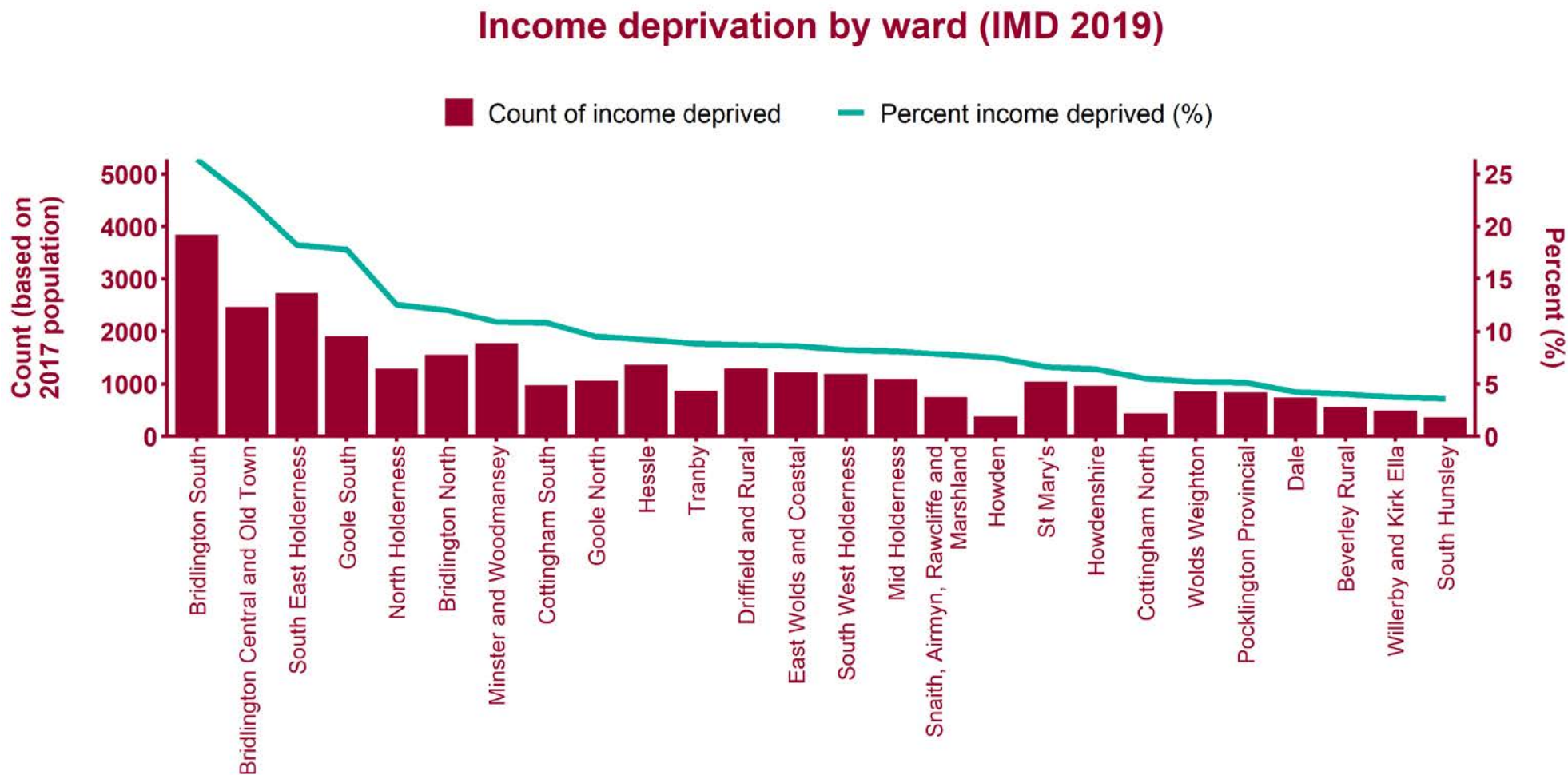
An SAR is the ratio of the observed number of admissions in a ward to the number expected if the ward had the same age-specific rates as England.

Standardised Incidence Ratio (SIR)

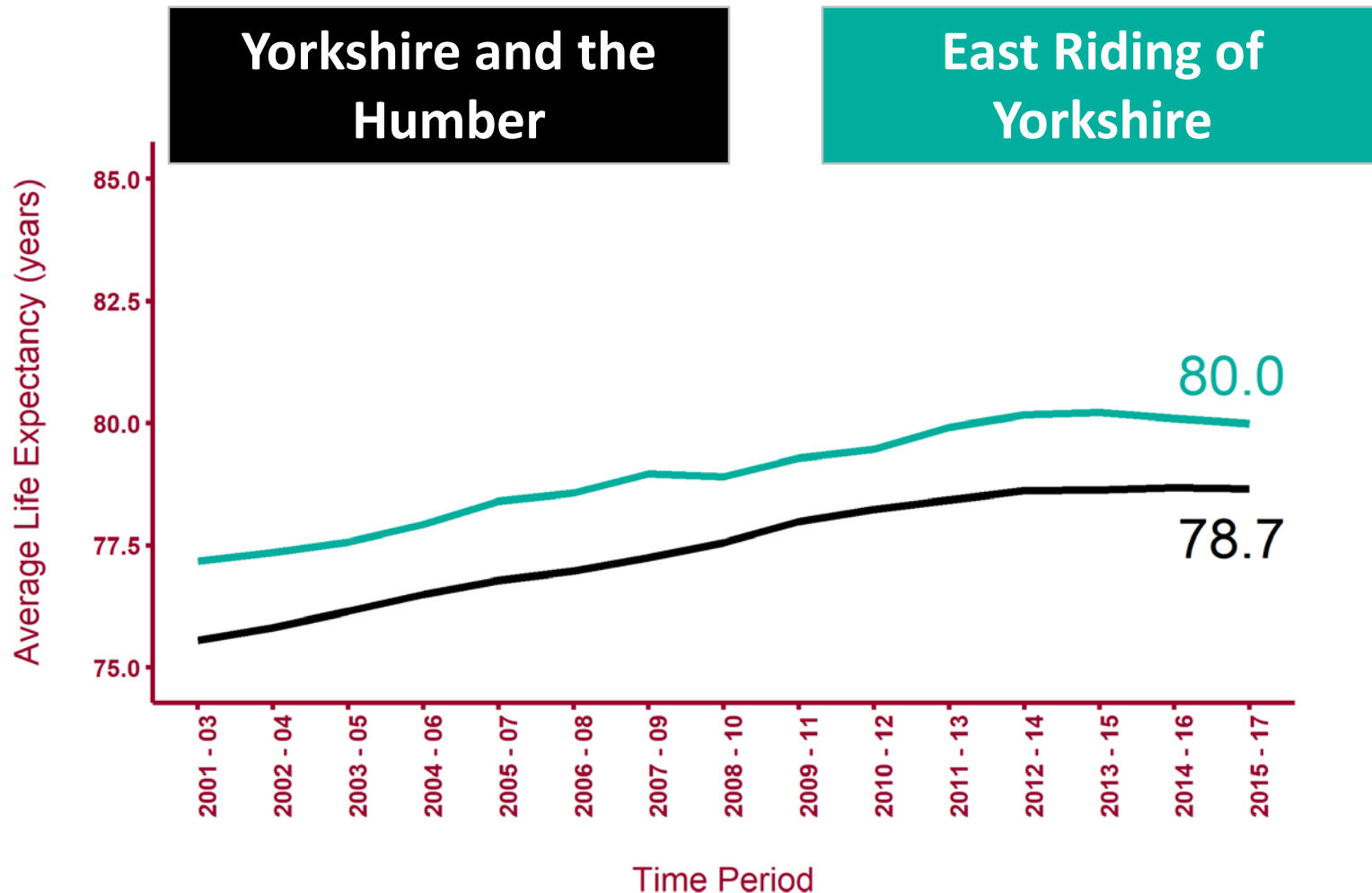
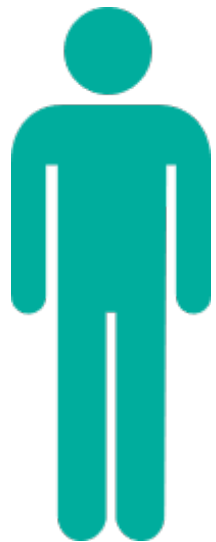
$$SIR = \text{Observed/Expected} \times 100$$

An SIR is the ratio of the observed number of incidences in a ward to the number expected if the ward had the same age-specific rates as England.

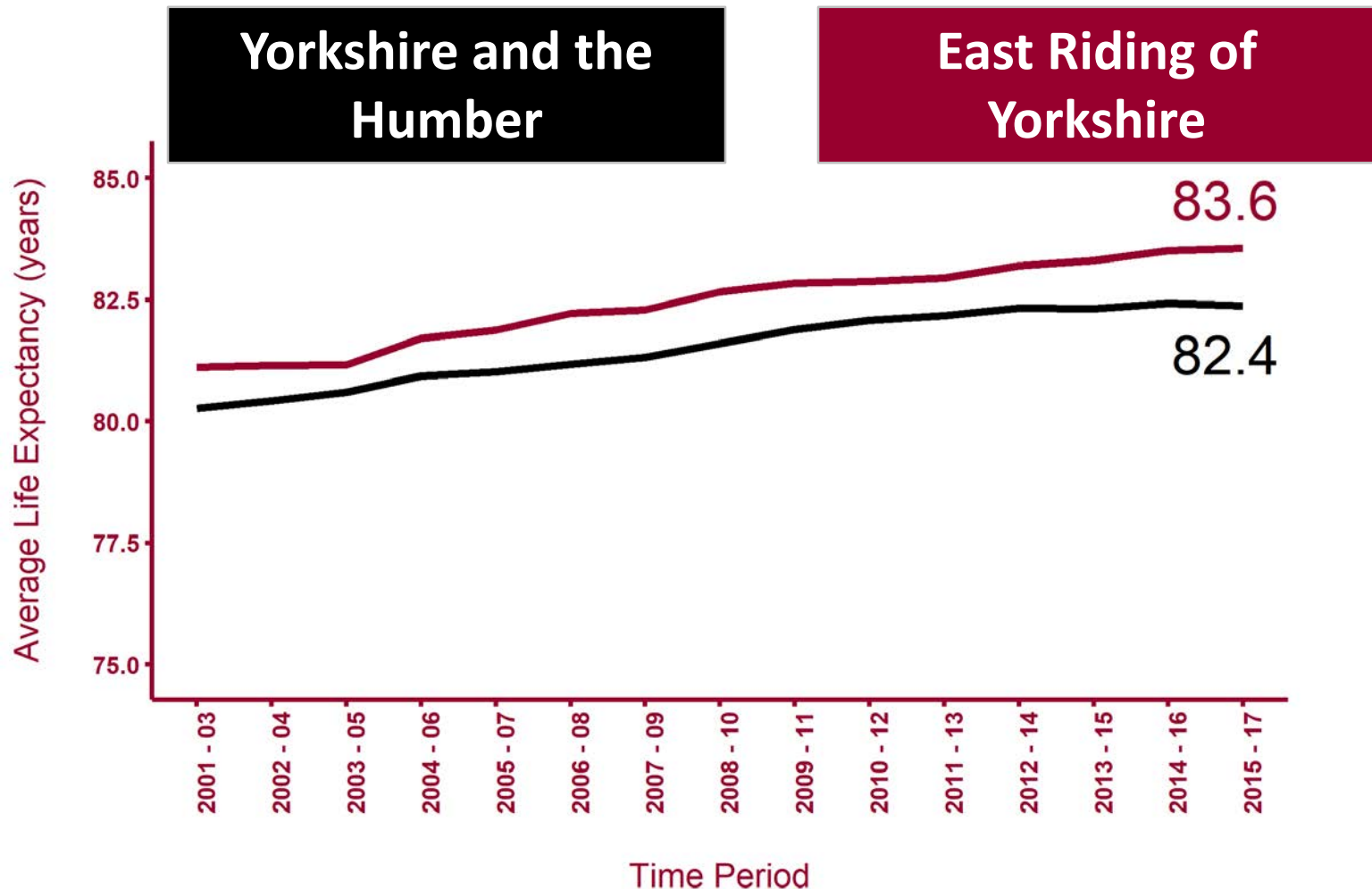
Distribution of income deprivation across East Riding of Yorkshire



Life expectancy at birth (male)

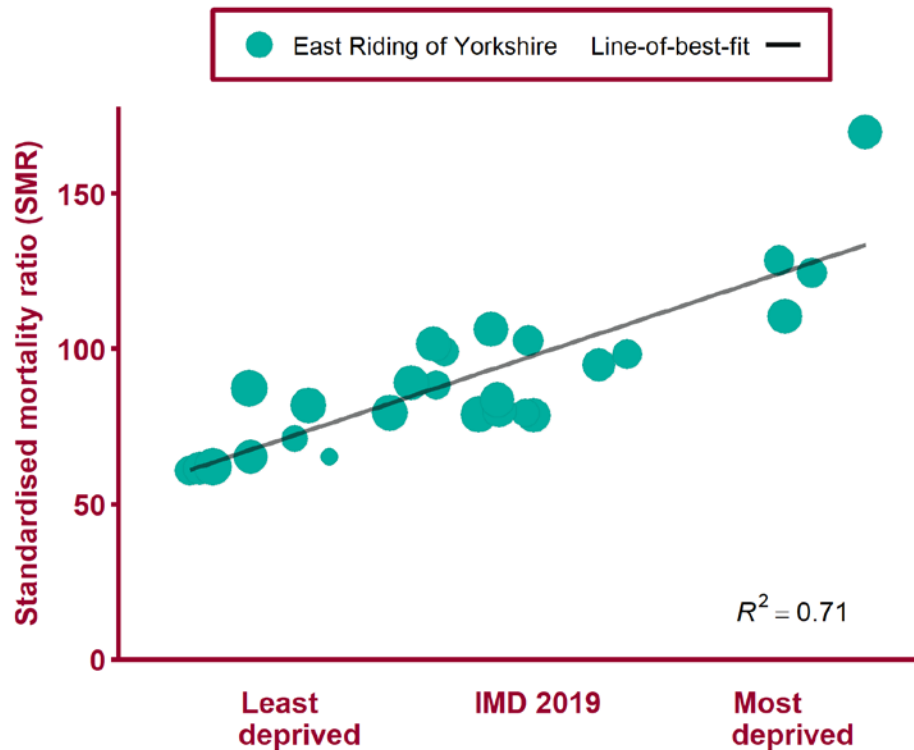


Life expectancy at birth (female)

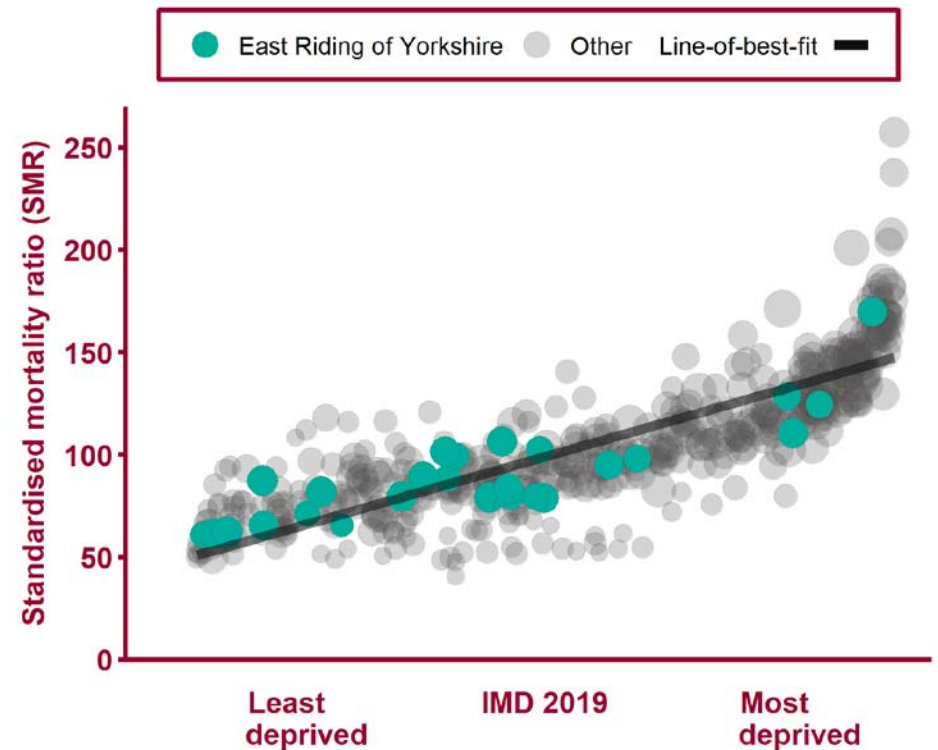


Deaths from all causes, under 75 years (2013 - 17)

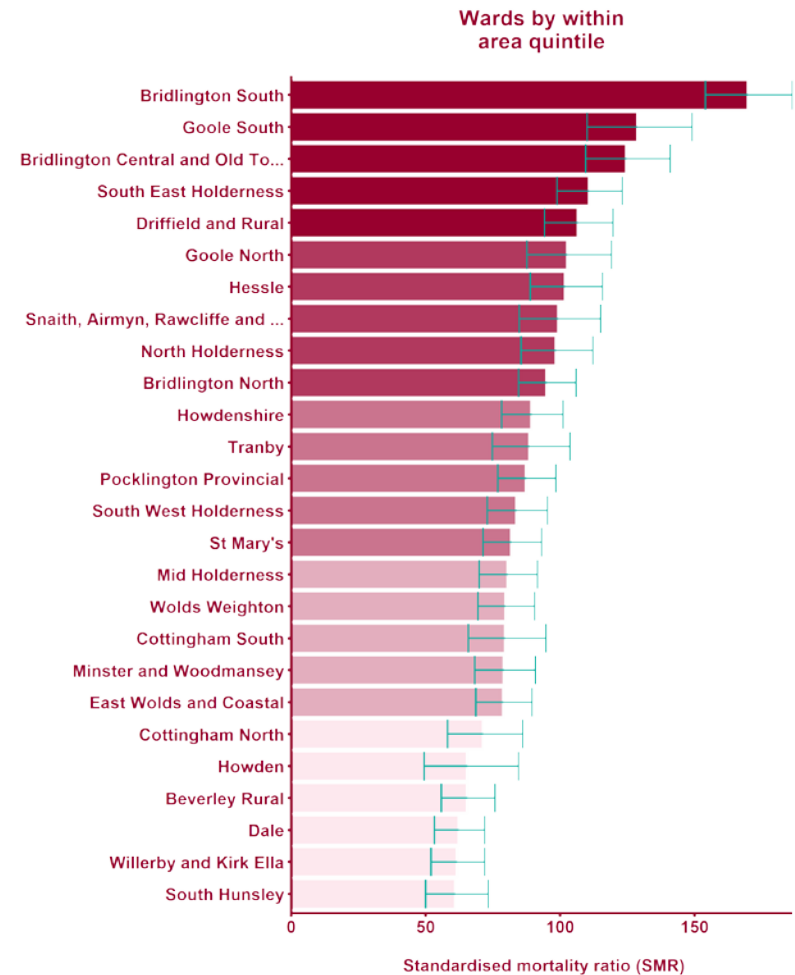
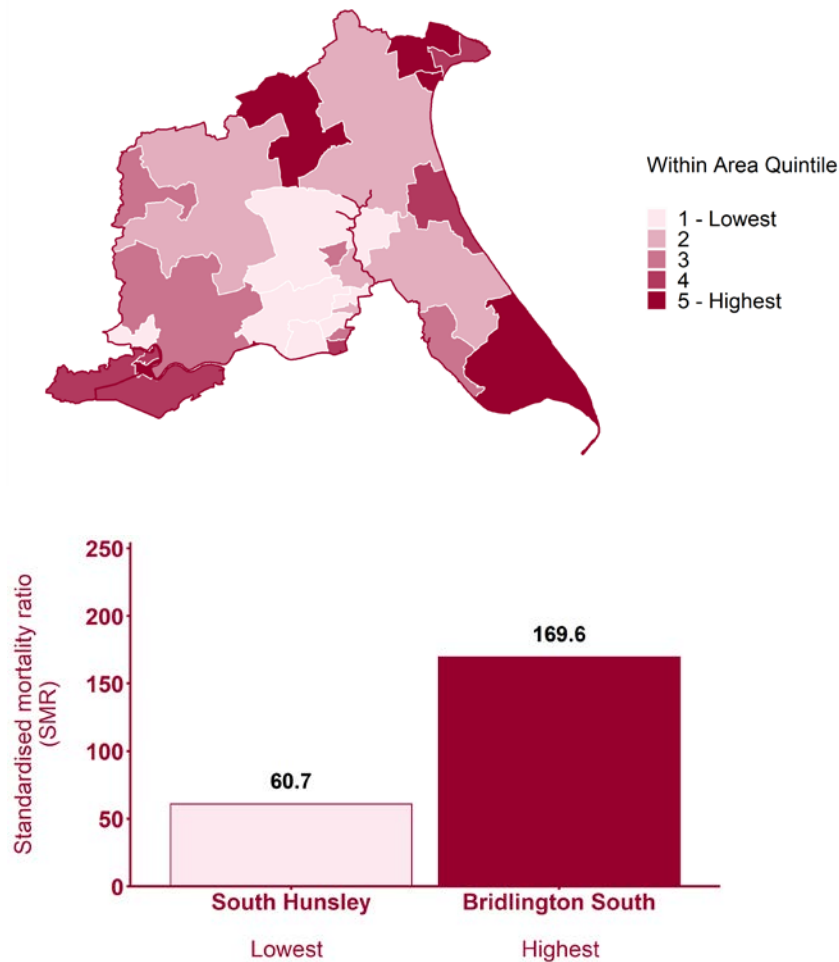
Wards within East Riding of Yorkshire



Wards within Yorkshire and The Humber

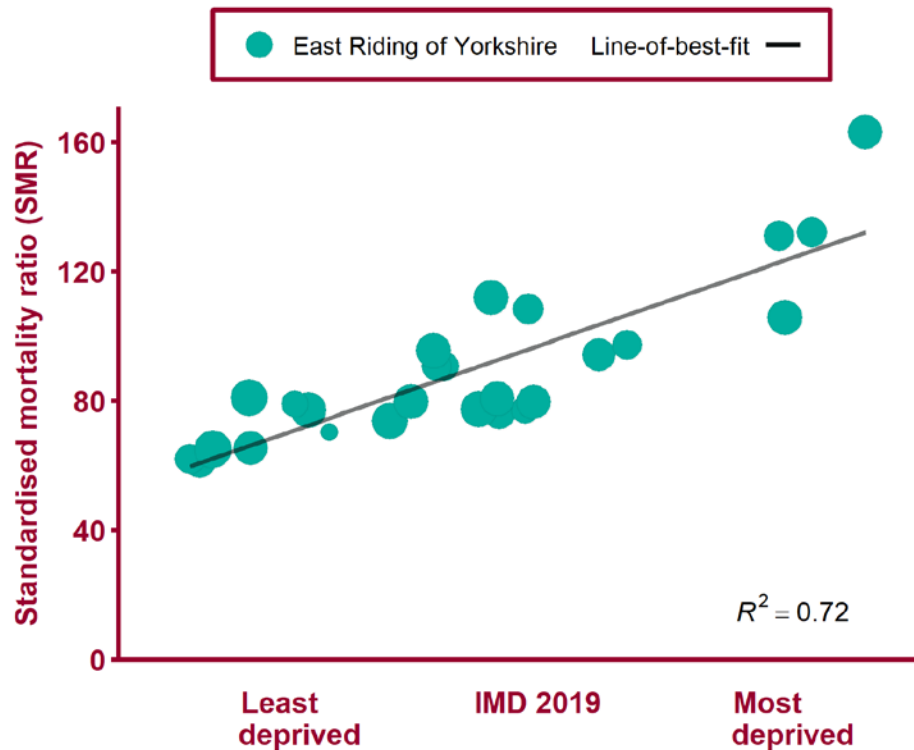


Deaths from all causes, under 75 years (2013 - 17)

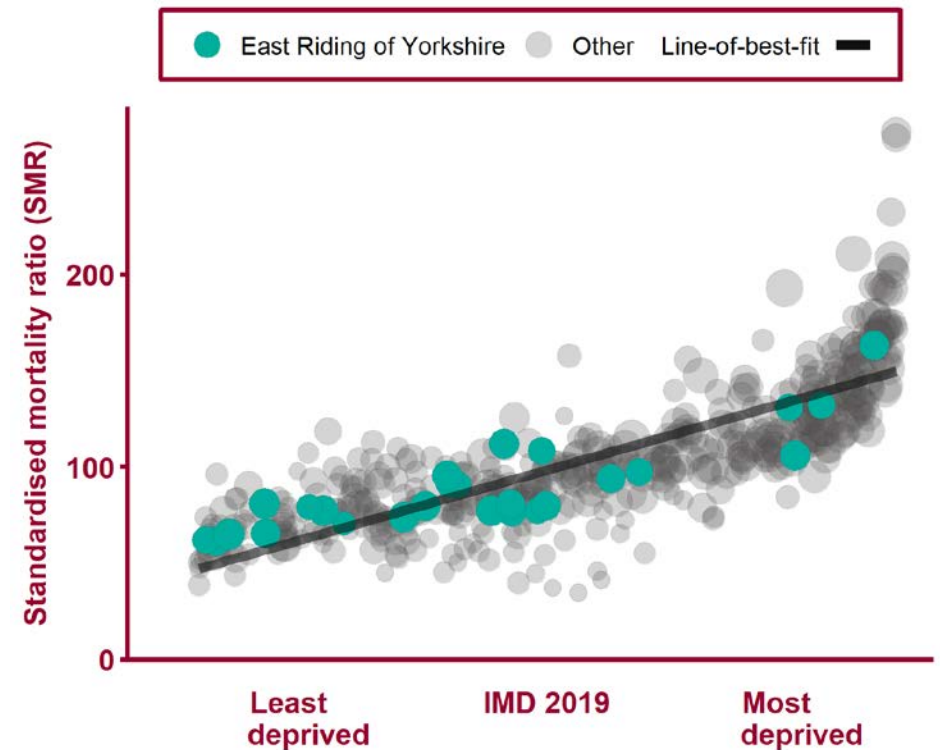


Deaths from causes considered preventable, all ages (2013 - 17)

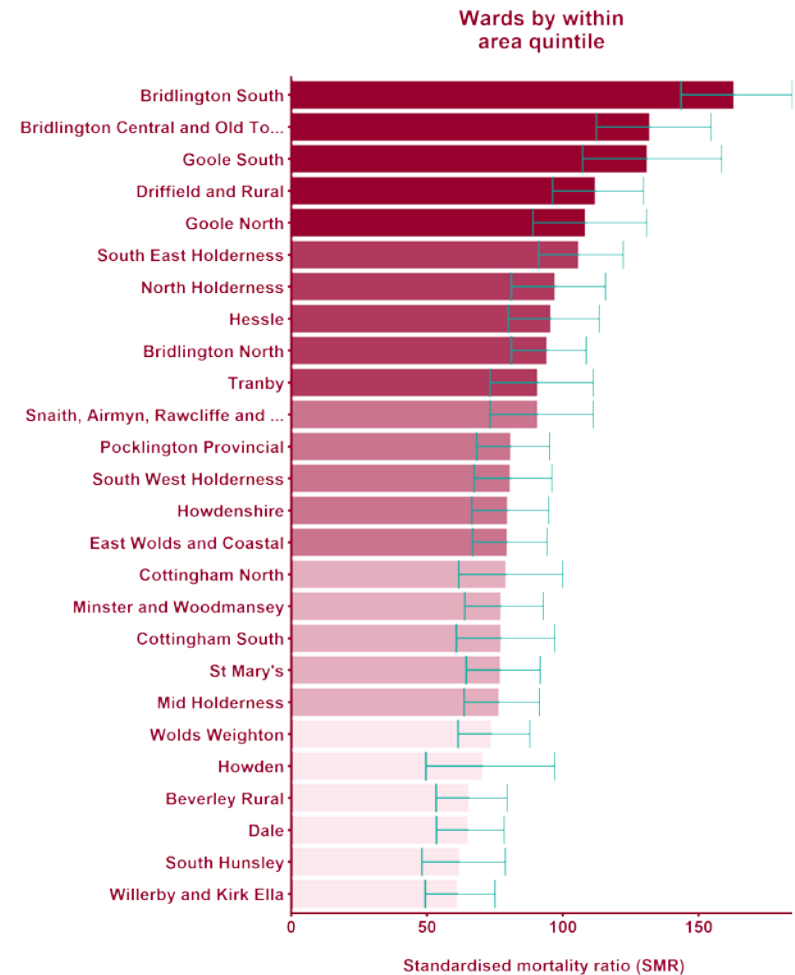
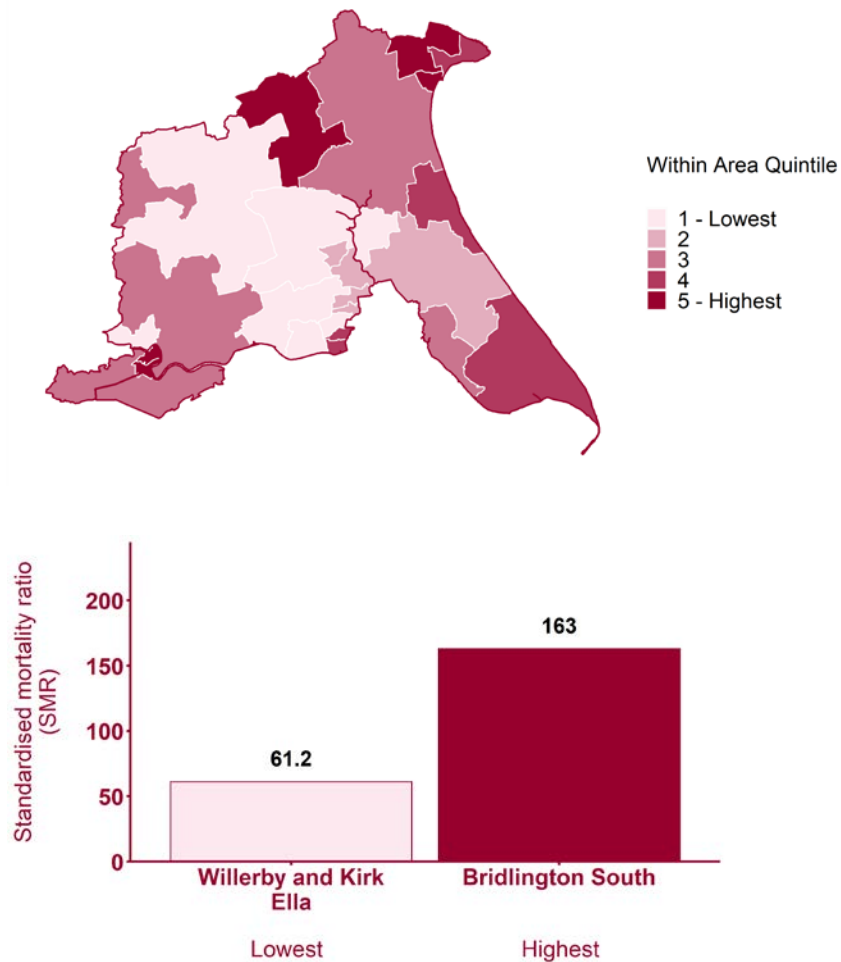
Wards within East Riding of Yorkshire



Wards within Yorkshire and The Humber



Deaths from causes considered preventable, all ages (2013 - 17)

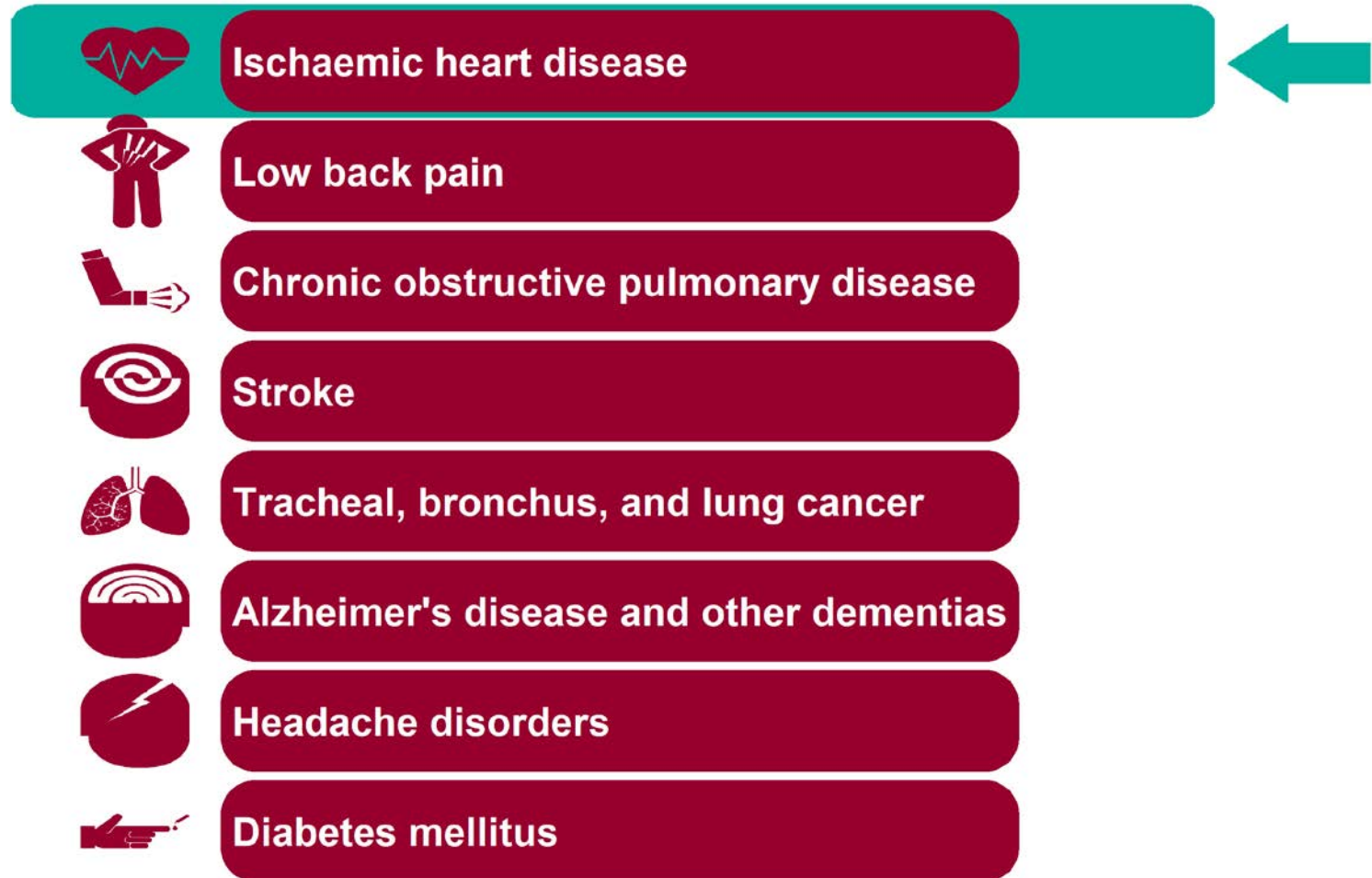


GBD cause: East Riding of Yorkshire

Causes ranked by percentage of total disability-adjusted life years



Global Burden of Disease: Ischaemic heart disease



Ischaemic heart disease - National picture



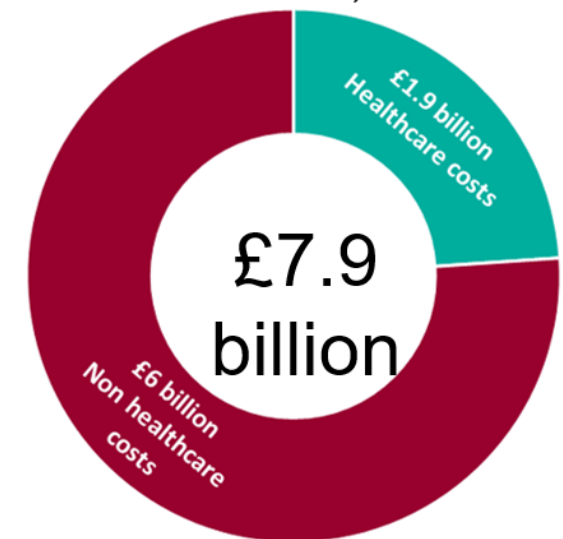
1 in 7 male deaths

1 in 12 female deaths

in 2017 were from ischaemic heart disease

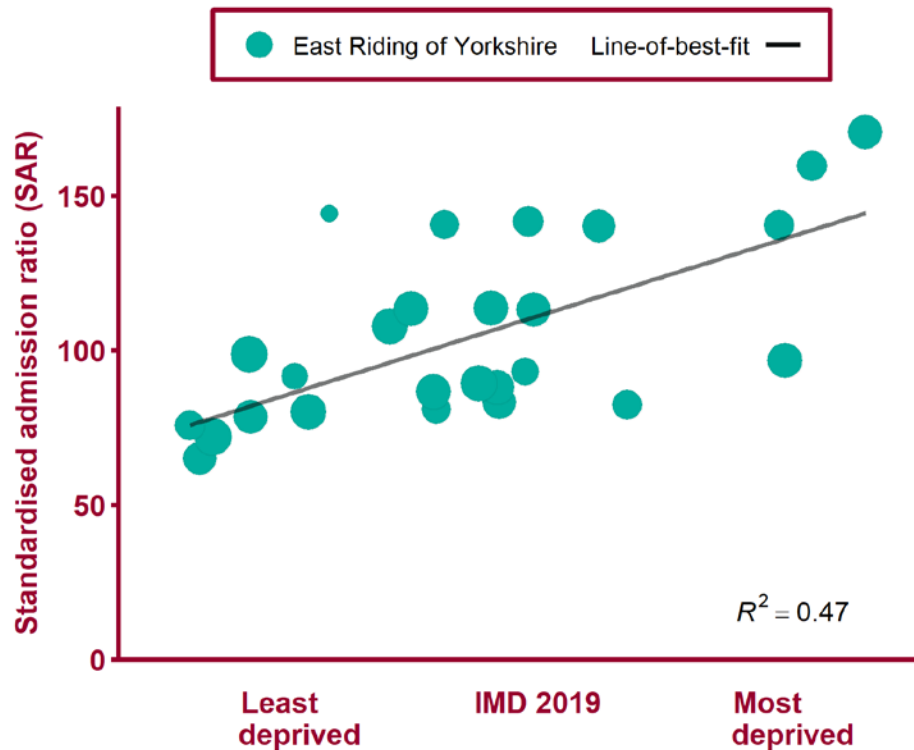


UK Costs, 2015

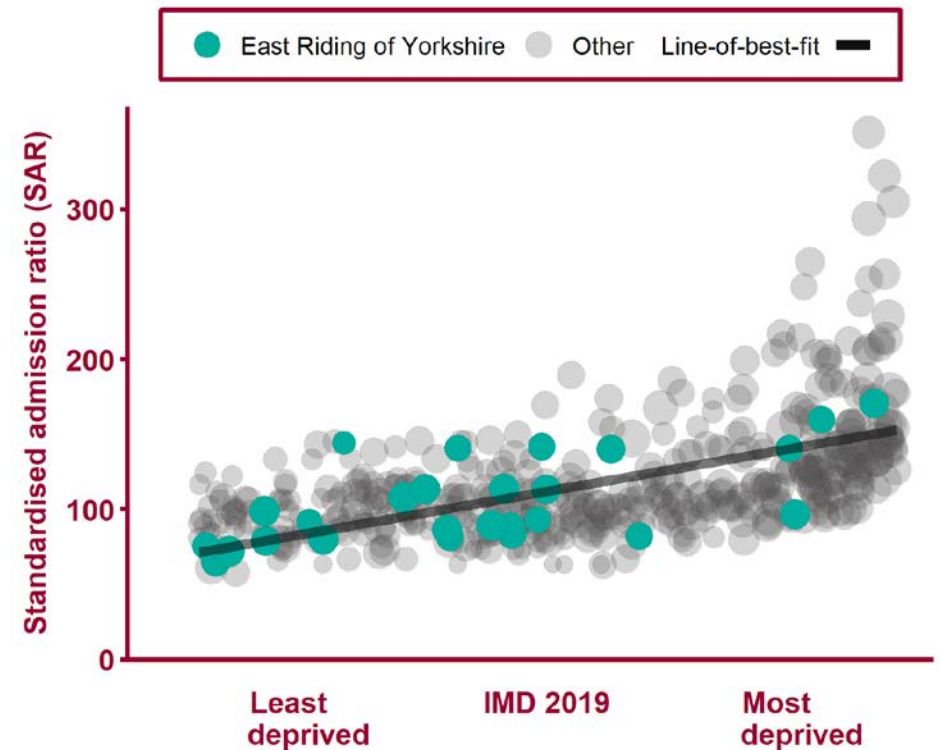


Emergency hospital admissions for CHD (2013/14 - 2017/18)

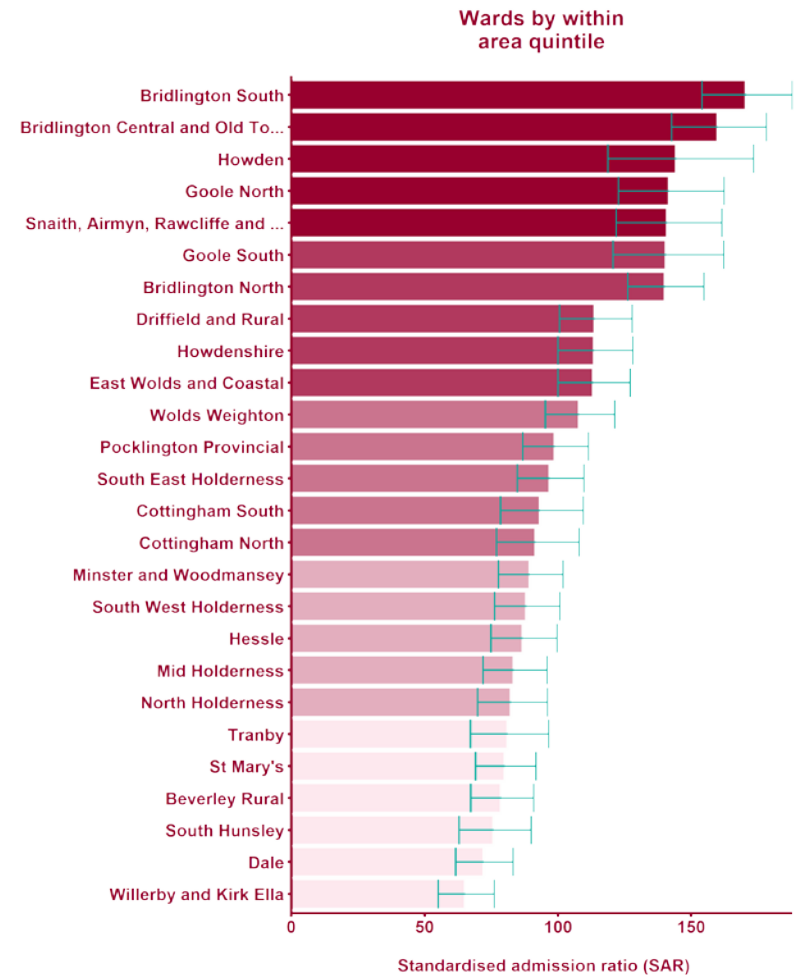
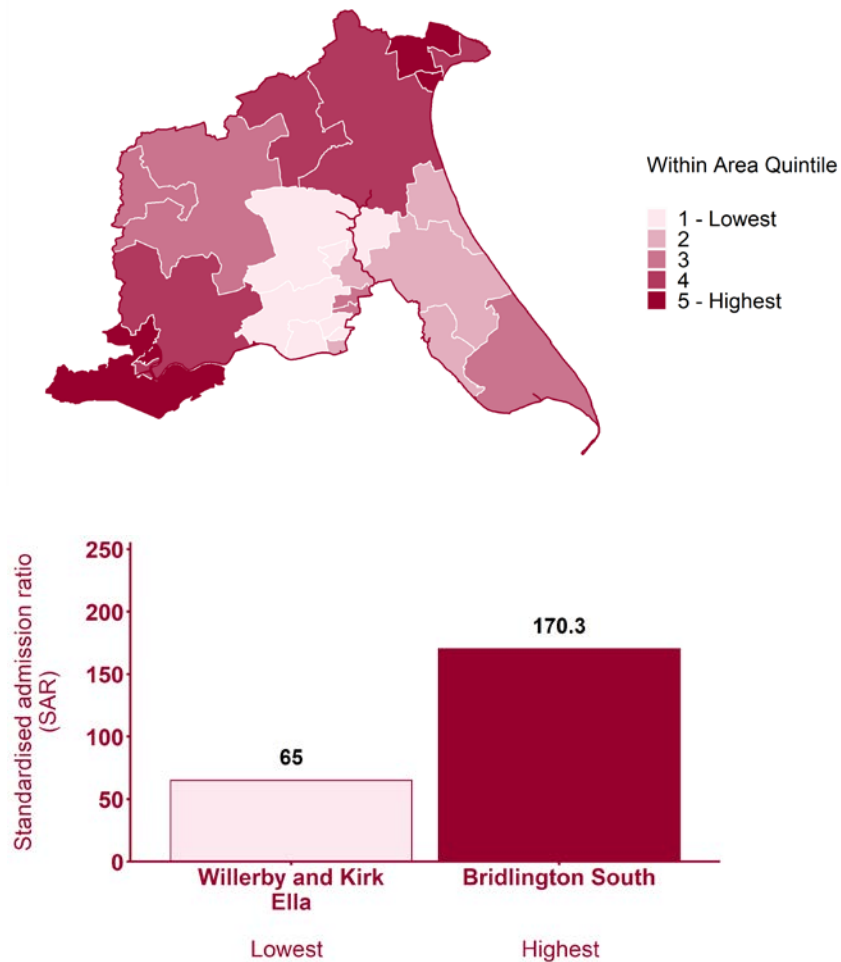
Wards within East Riding of Yorkshire



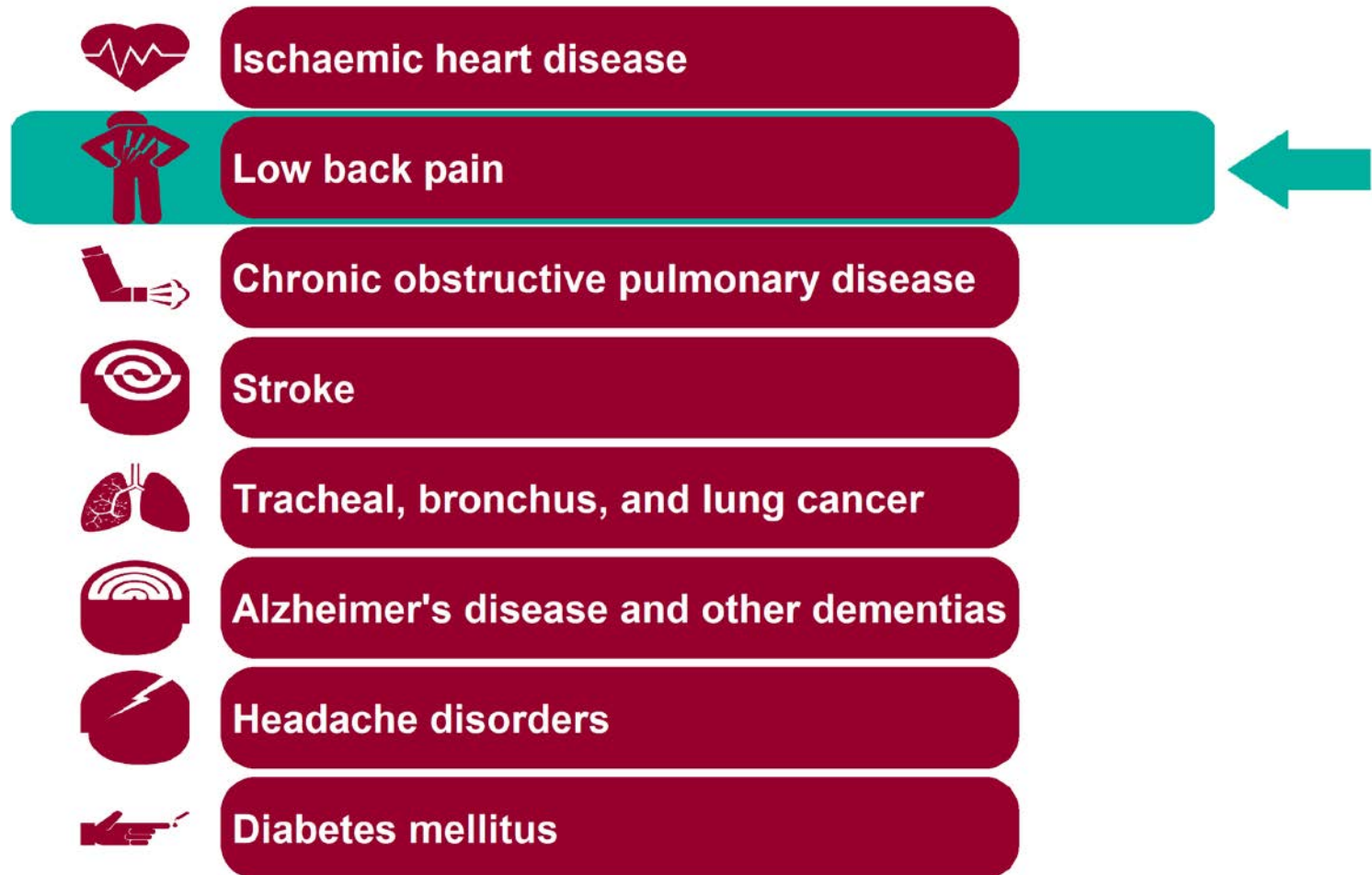
Wards within Yorkshire and The Humber



Emergency hospital admissions for CHD (2013/14 - 2017/18)



Global Burden of Disease: Low back pain

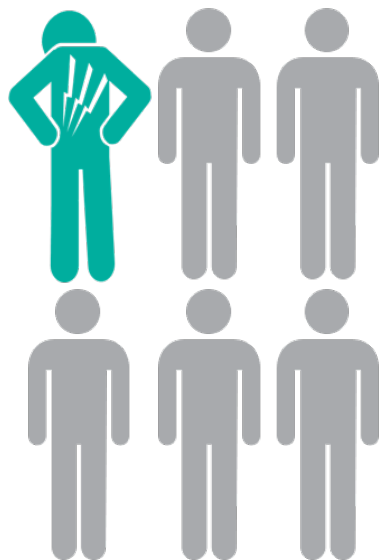


Low back pain - National picture

An estimated 10.5 million people live with low back pain in the UK.

That's around

1 in 6 people



In 2017 **28.2 million**

working days were lost due to musculoskeletal conditions

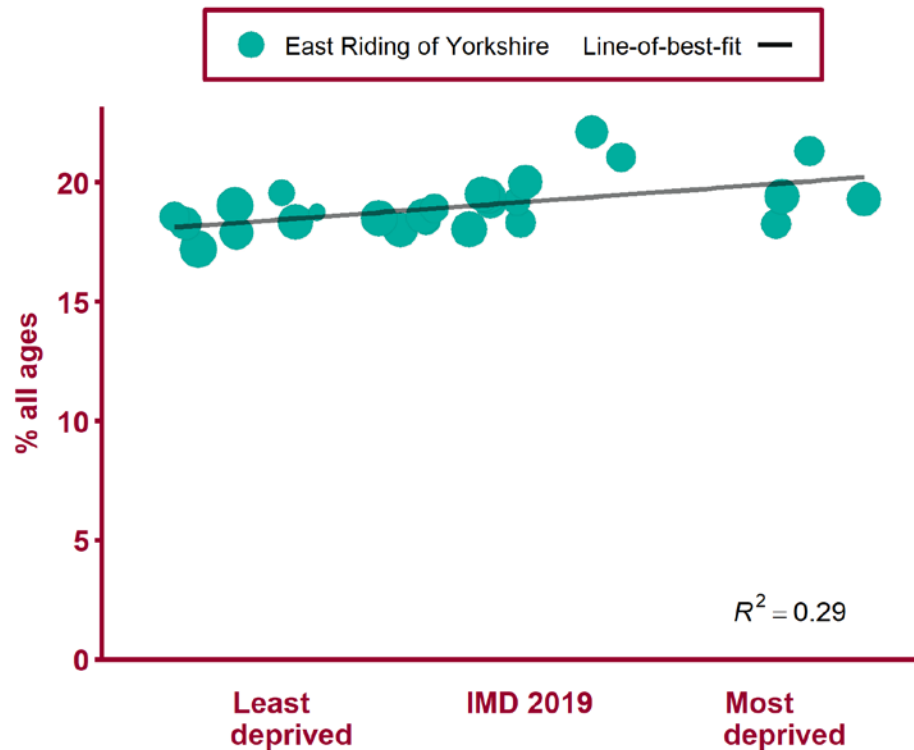


Which accounted for **21%** of all sickness absence

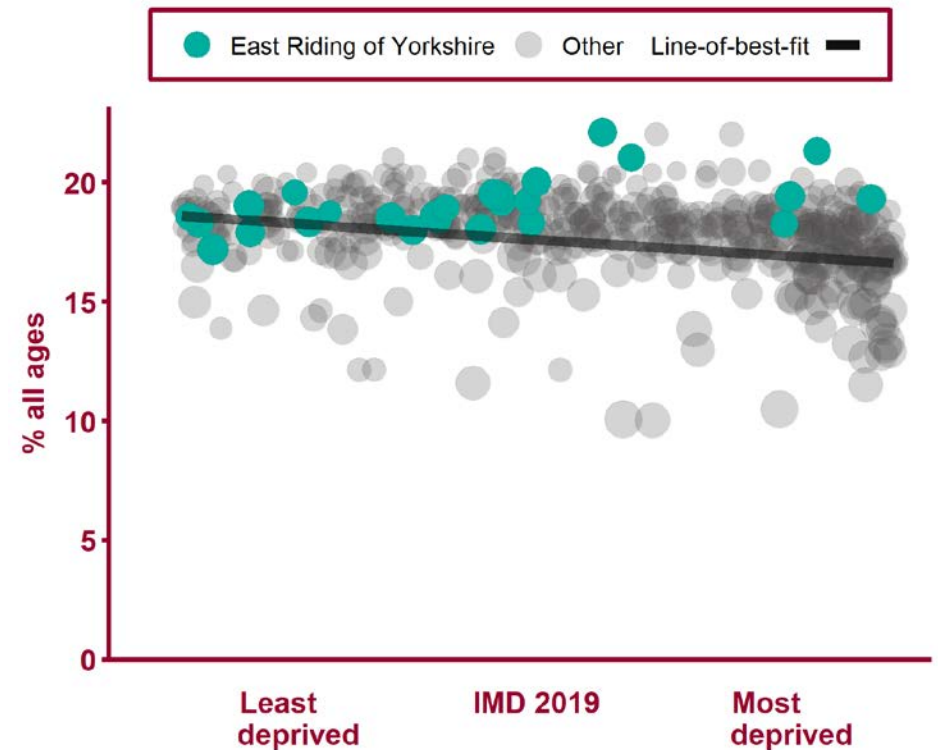
Musculoskeletal conditions are the **2nd biggest cause** of work days lost after coughs and colds

Modelled back pain prevalence (2012)

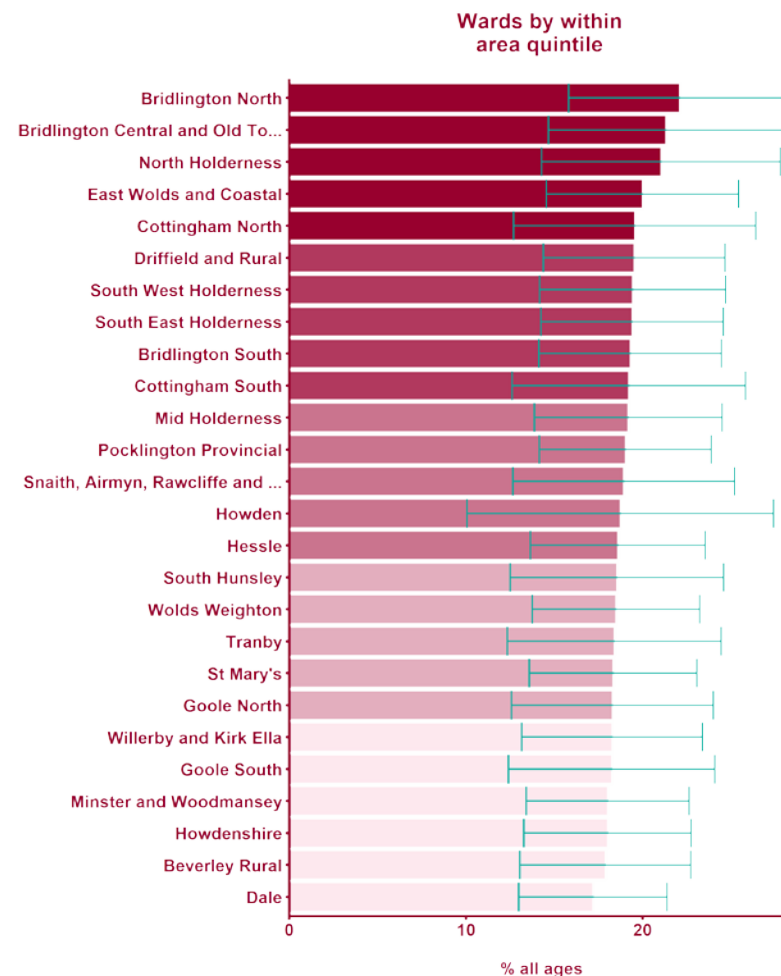
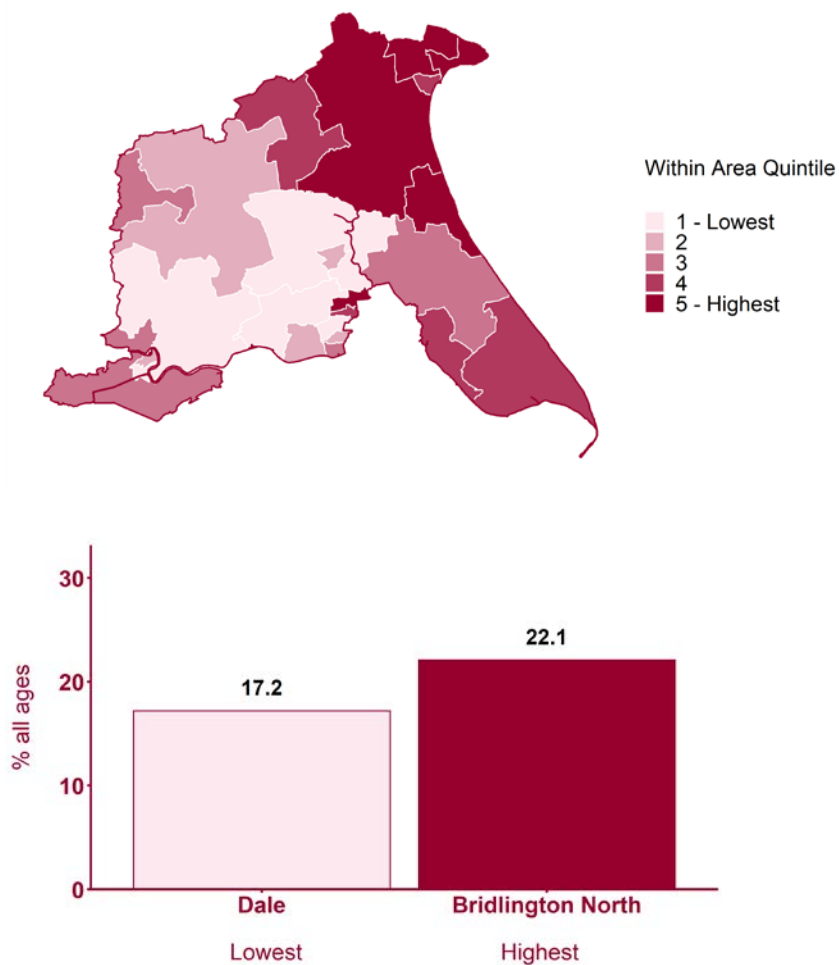
Wards within East Riding of Yorkshire



Wards within Yorkshire and The Humber



Modelled back pain prevalence (2012)



Global Burden of Disease: Chronic obstructive pulmonary disease



Chronic obstructive pulmonary disease - National picture

In the UK in 2017 an estimated

5.5 million people
lived with COPD



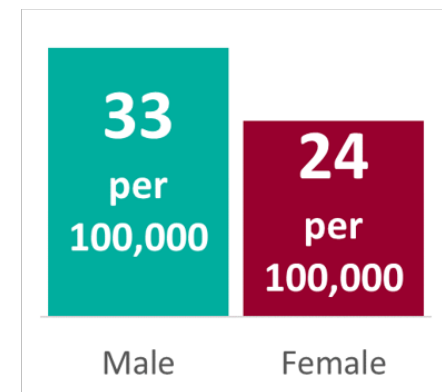
That's around **8.2%**
of the population

There were almost

**40 thousand
deaths**

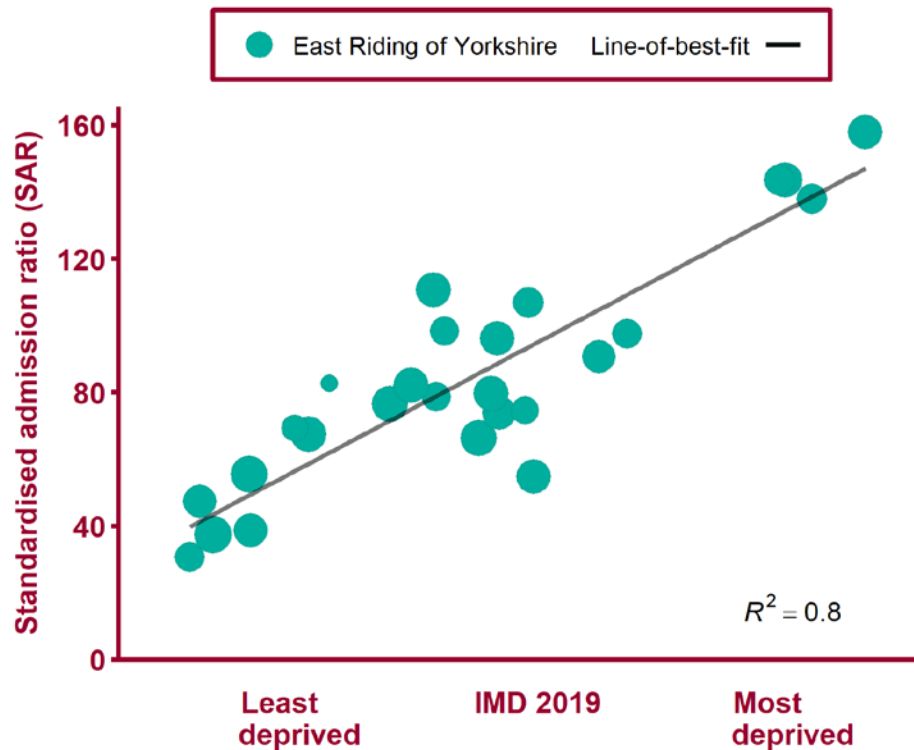
from COPD in the UK in 2017

The rate of death from COPD is higher in
men than in **women**

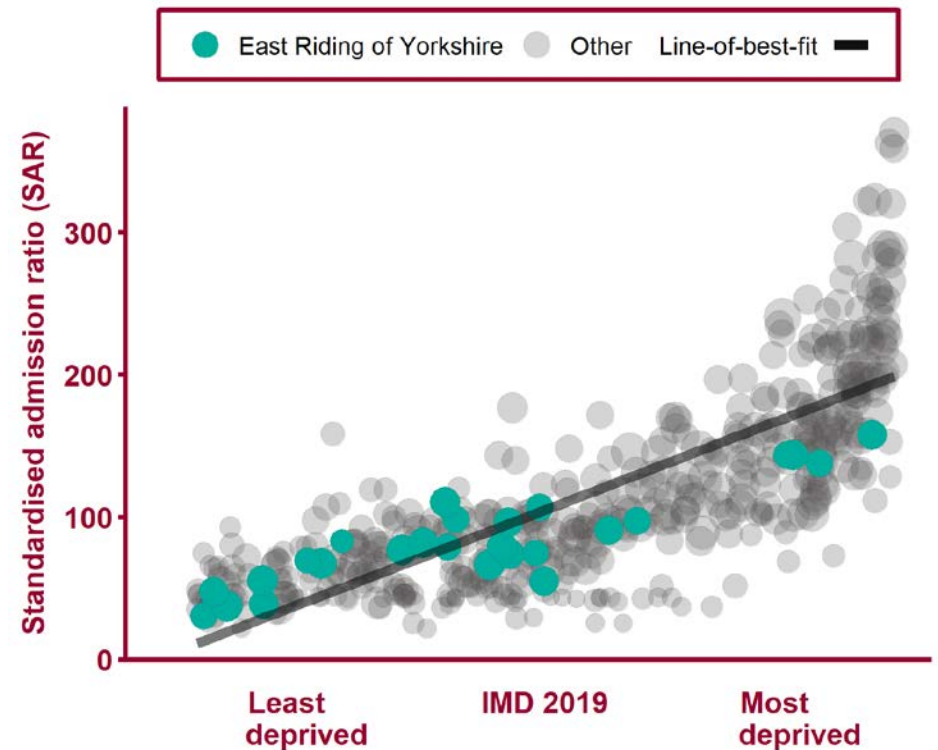


Emergency hospital admissions for COPD (2013/14 - 2017/18)

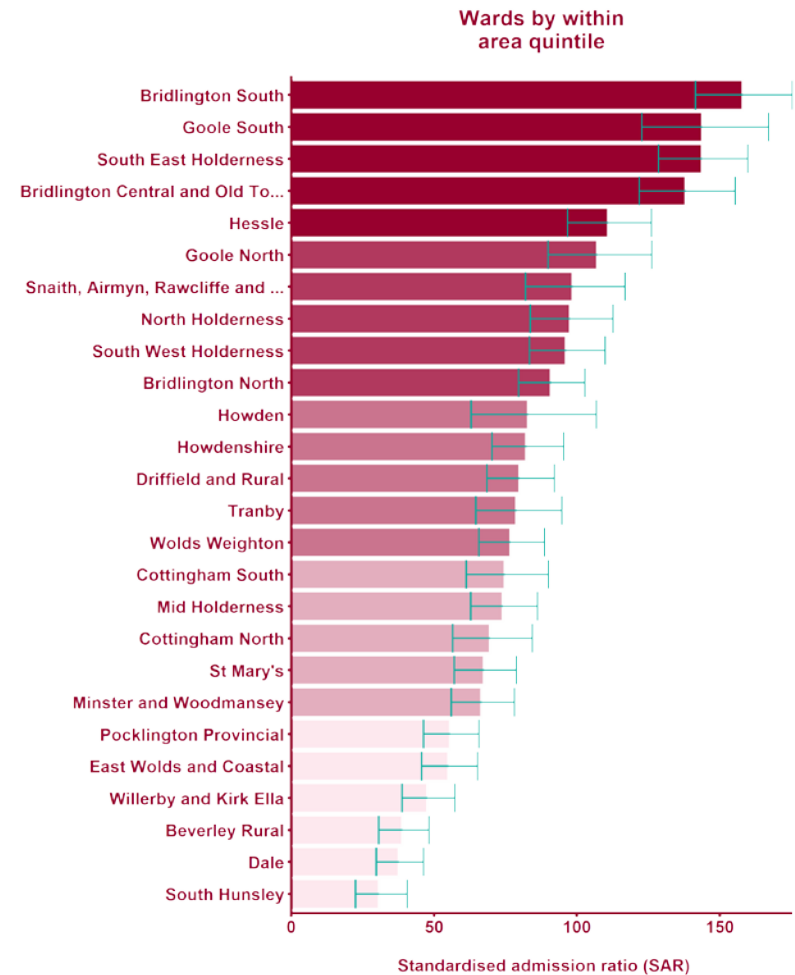
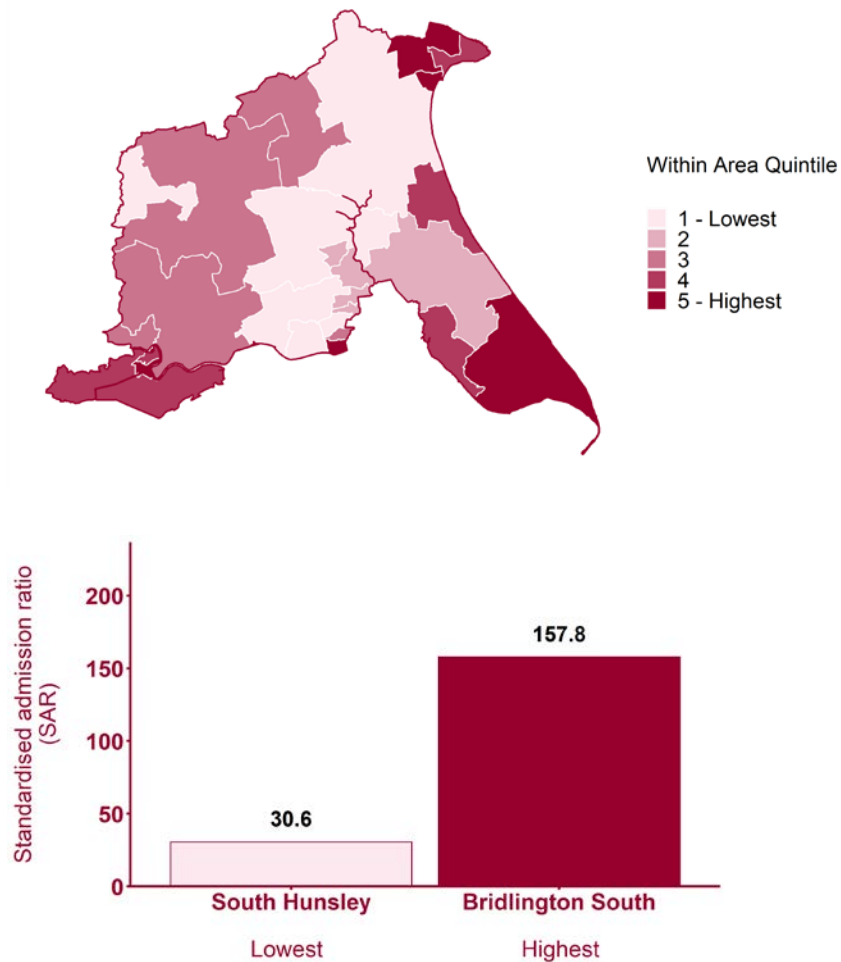
Wards within East Riding of Yorkshire



Wards within Yorkshire and The Humber



Emergency hospital admissions for COPD (2013/14 - 2017/18)



Global Burden of Disease: Stroke



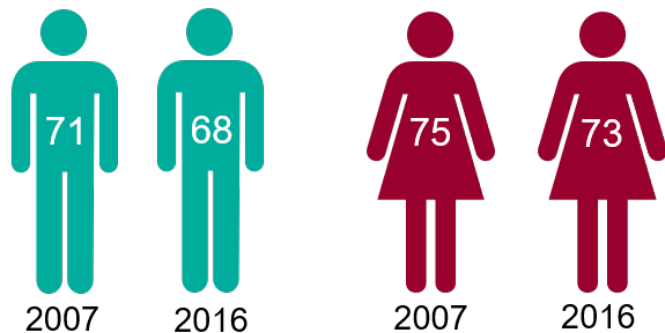
Stroke - National picture

Atrial Fibrillation (AF) is a **contributing factor** to **one in five** strokes


Anticoagulation reduces the risk of stroke by **two thirds**

14% of diagnosed AF patients at high risk of stroke are **not anticoagulated**

Age at first stroke is decreasing



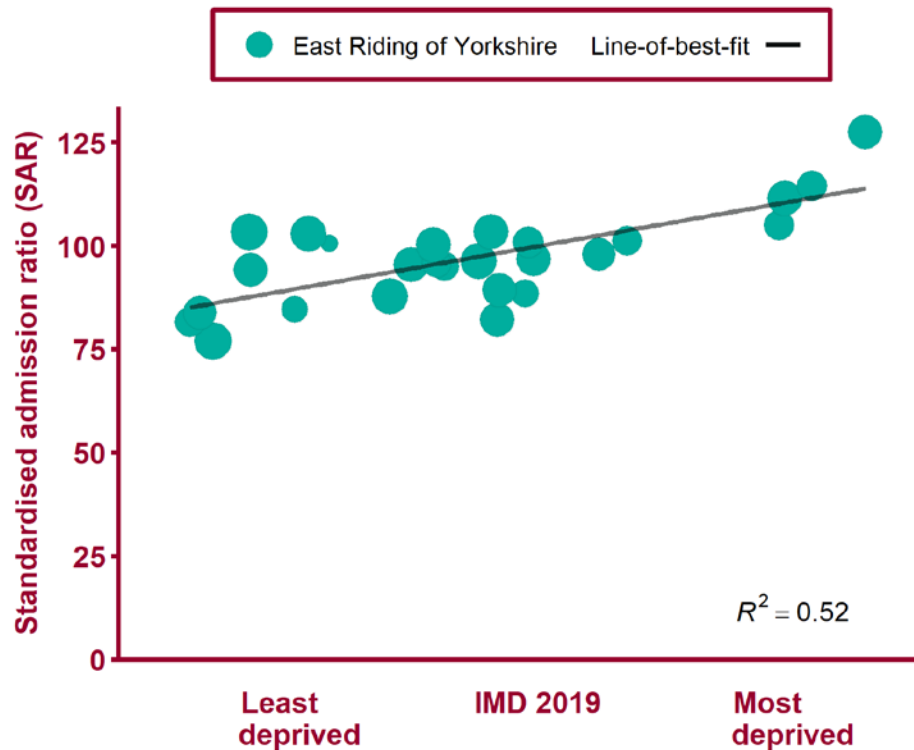
Almost **1 in 4** people likely to have a stroke



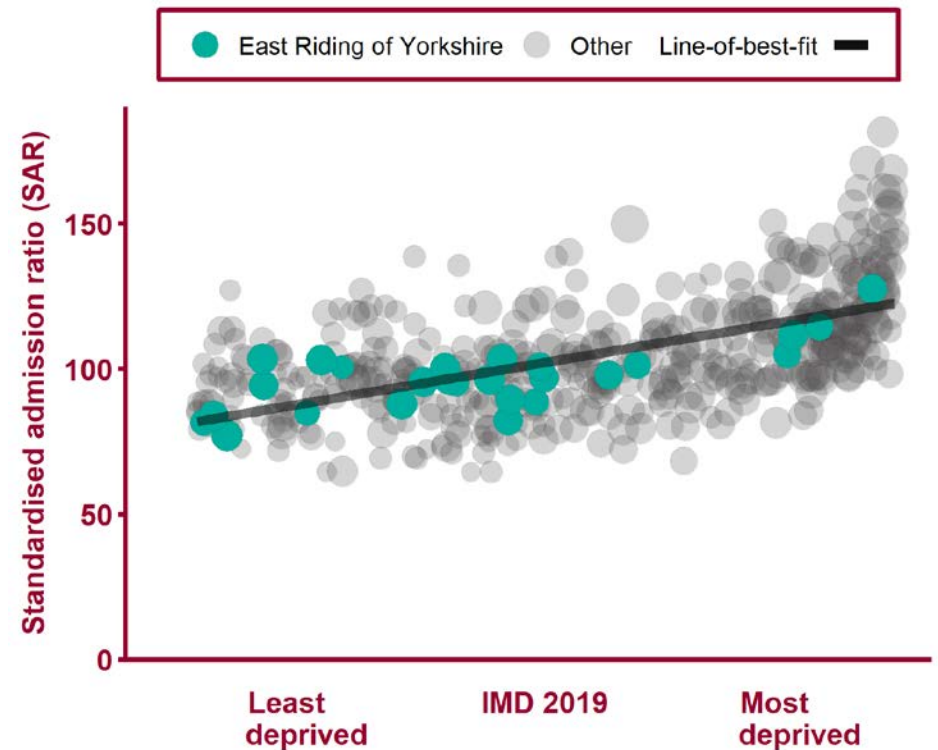
The estimated cost of acute stroke in England is **£1.7 billion** a year

Emergency hospital admissions for stroke (2013/14 - 2017/18)

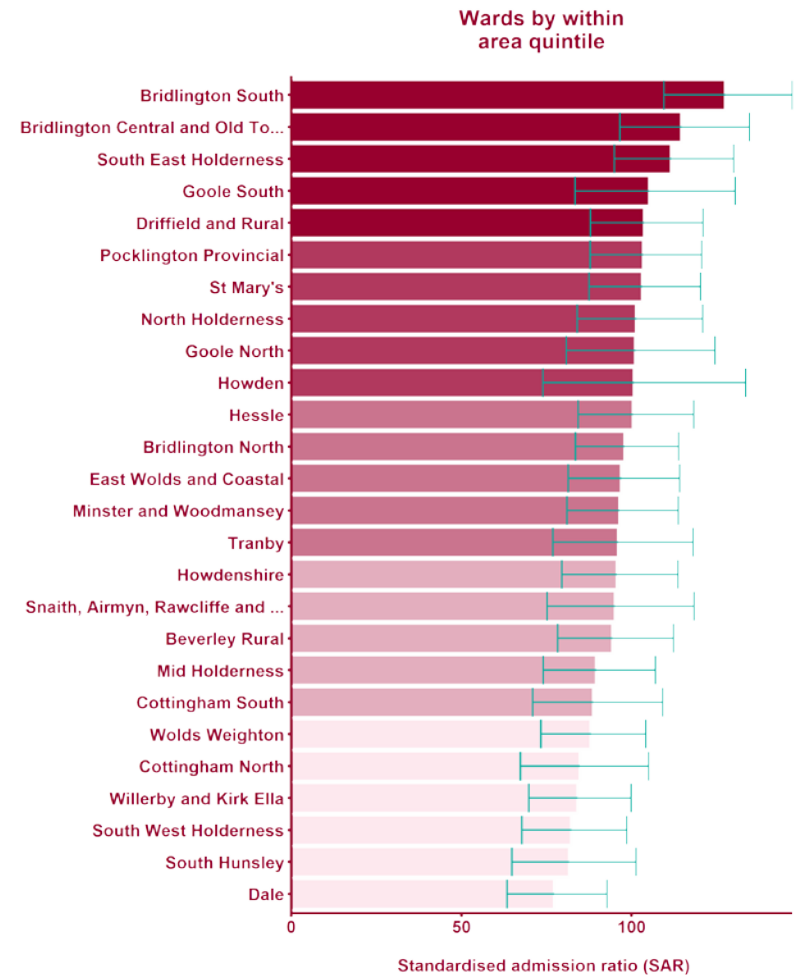
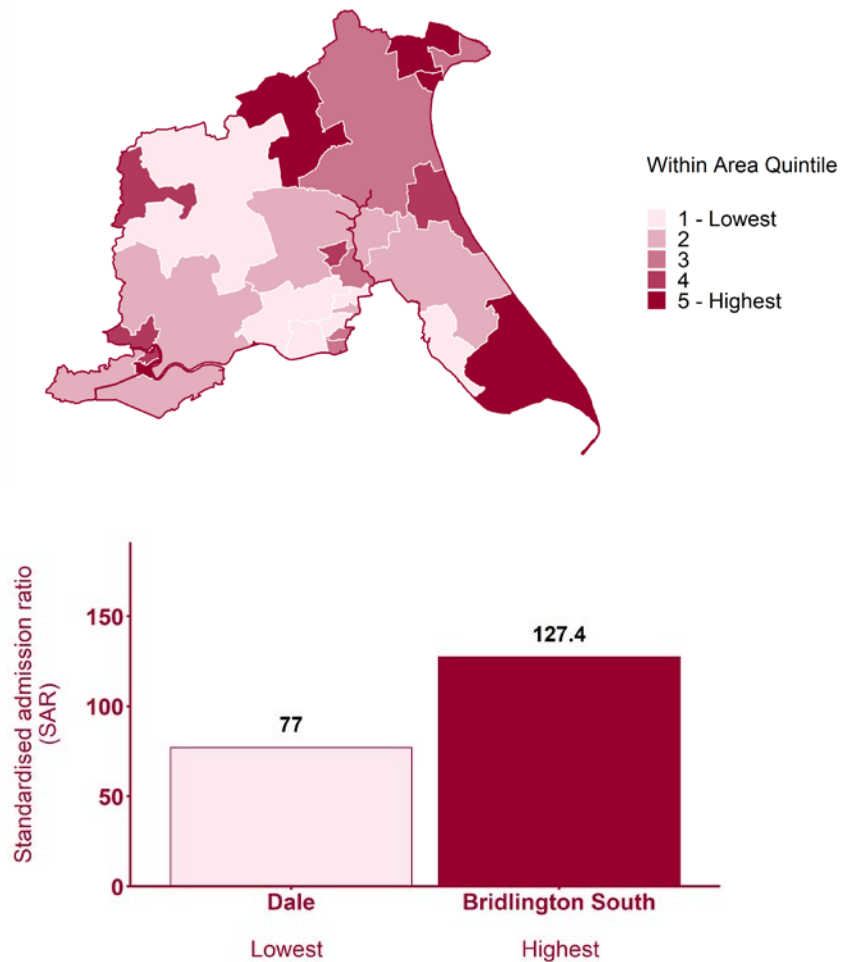
Wards within East Riding of Yorkshire



Wards within Yorkshire and The Humber



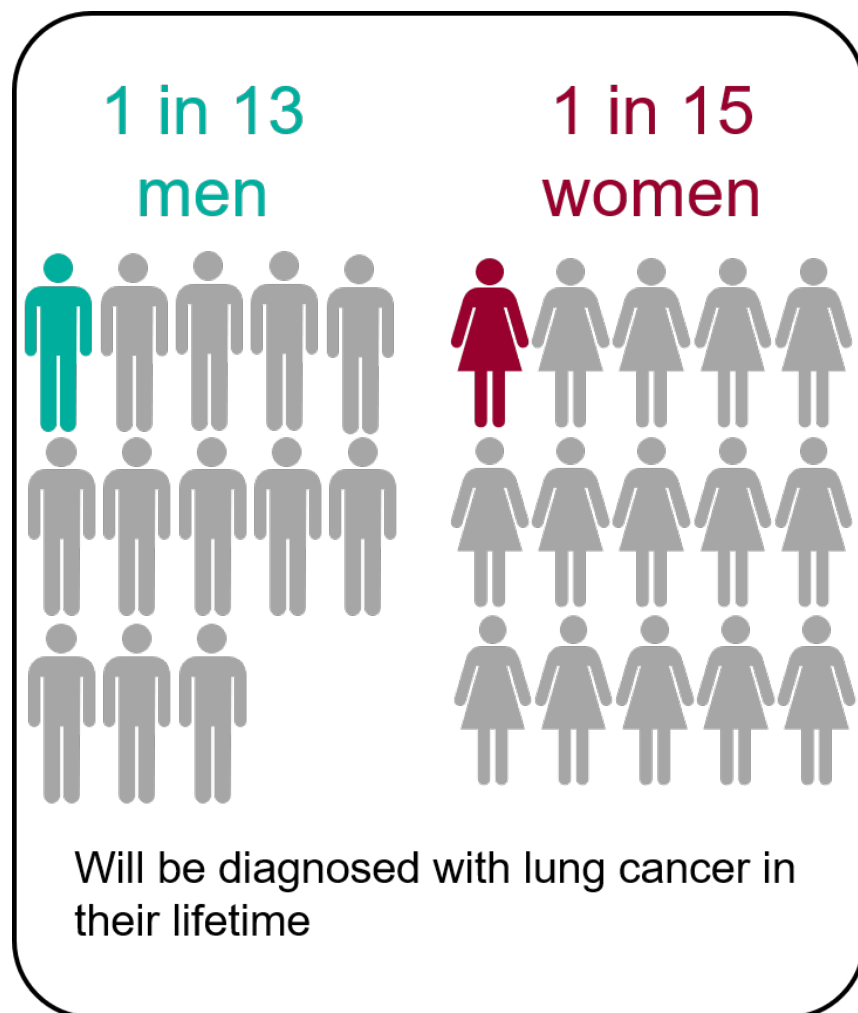
Emergency hospital admissions for stroke (2013/14 - 2017/18)



Global Burden of Disease: Tracheal, bronchus, and lung cancer



Lung cancer - National picture



Smoking

is the main avoidable risk factor
for lung cancer, linked to an
estimated

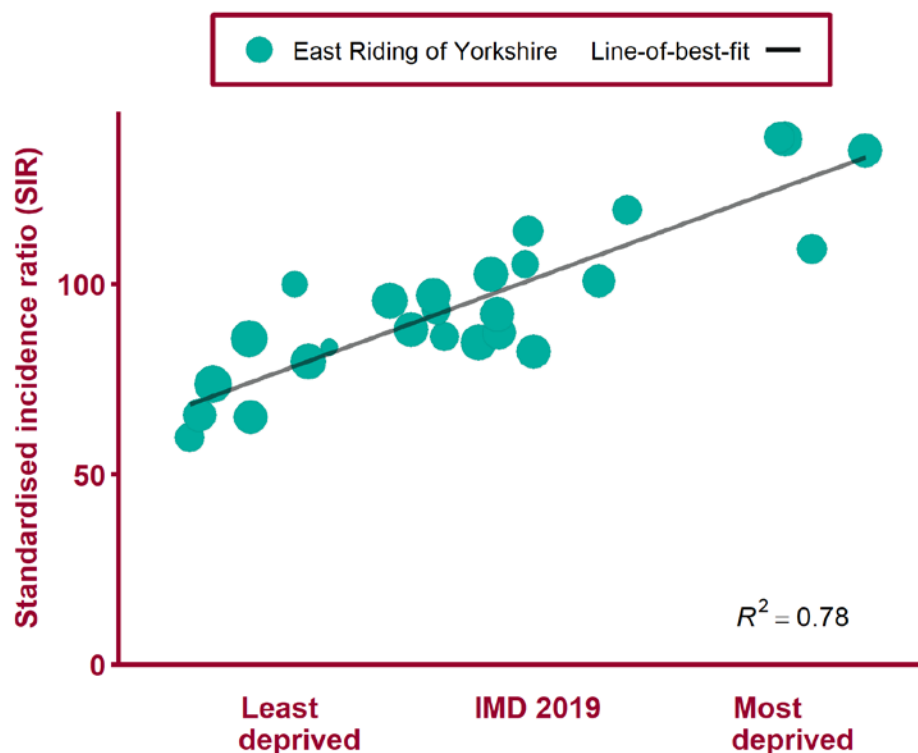
72%

of lung cancer cases in the UK

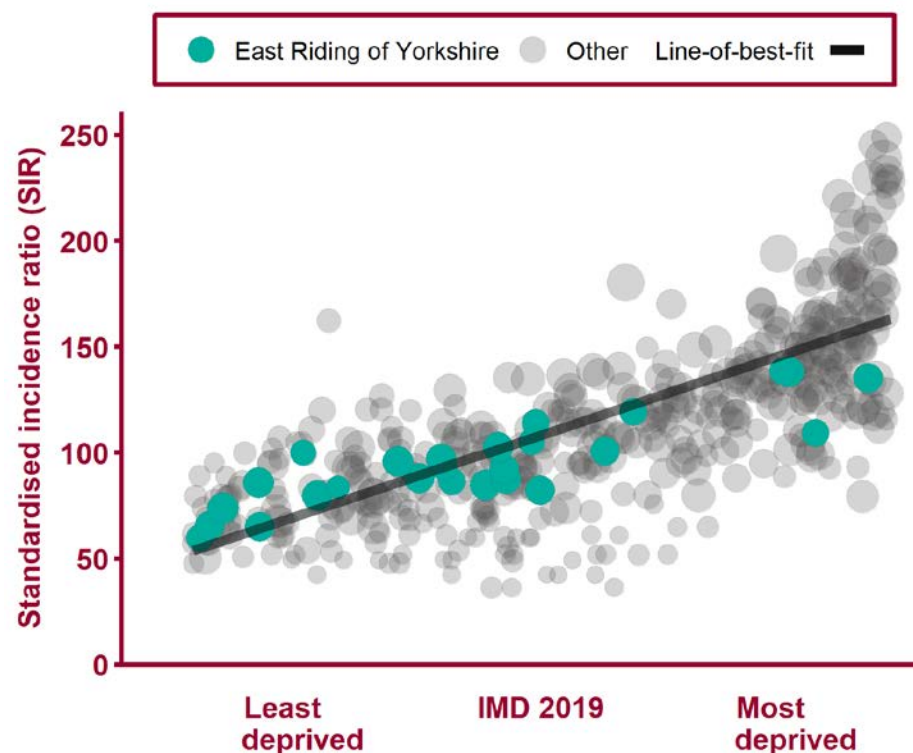


Incidence of lung cancer (2012 - 16)

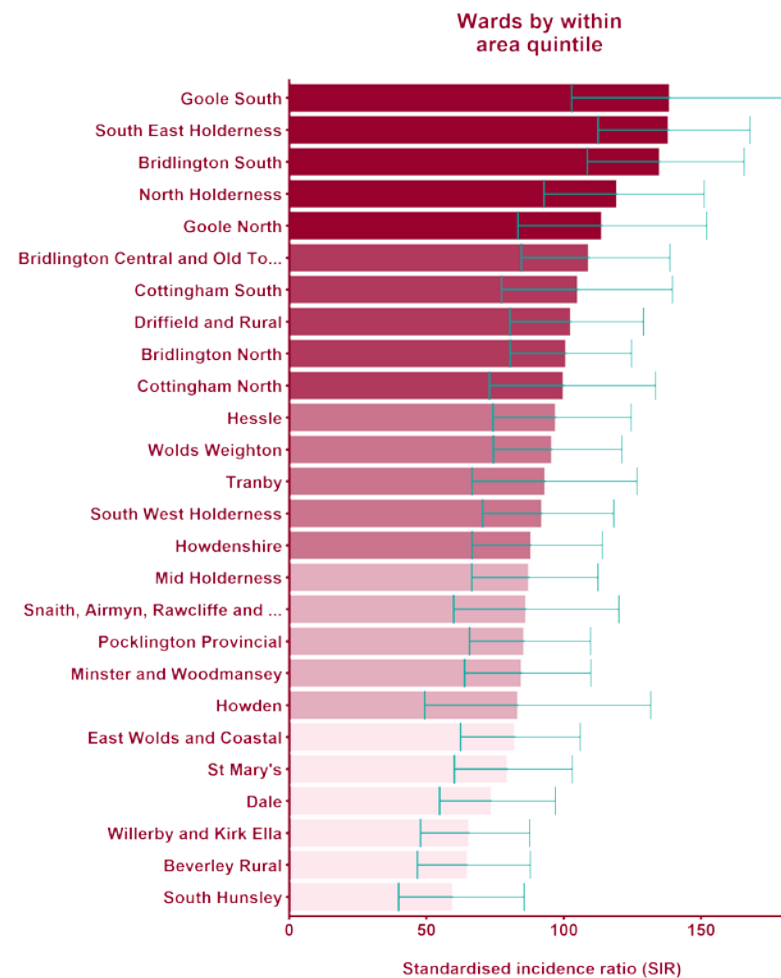
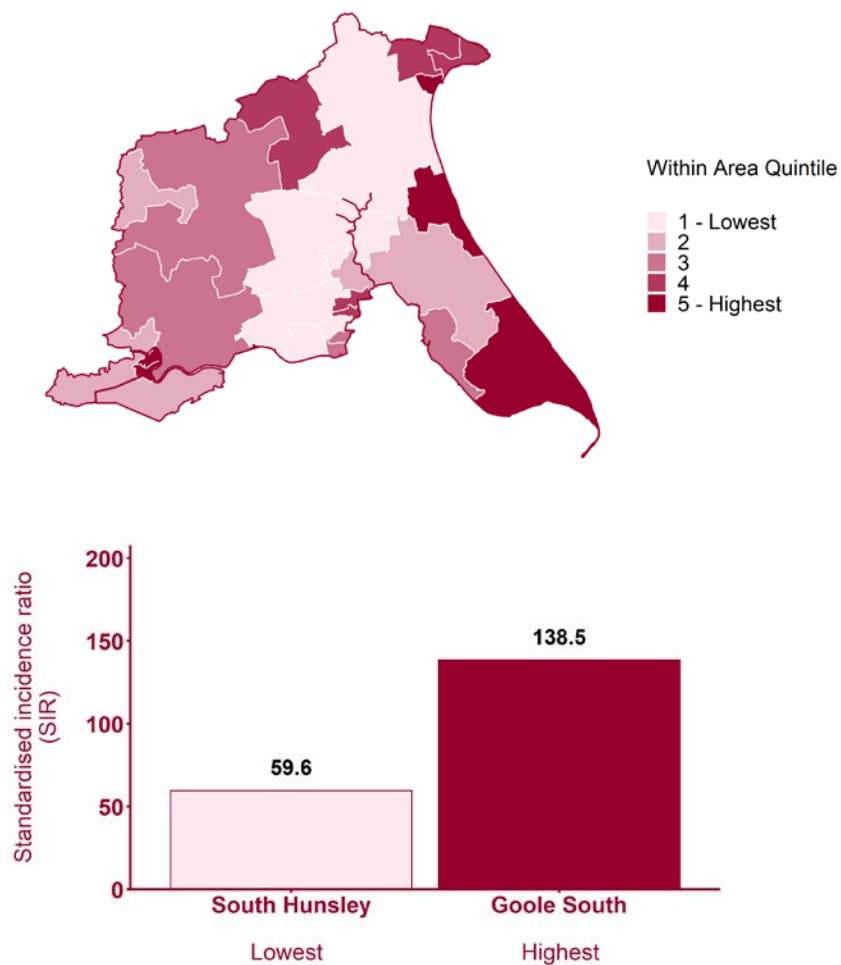
Wards within East Riding of Yorkshire



Wards within Yorkshire and The Humber



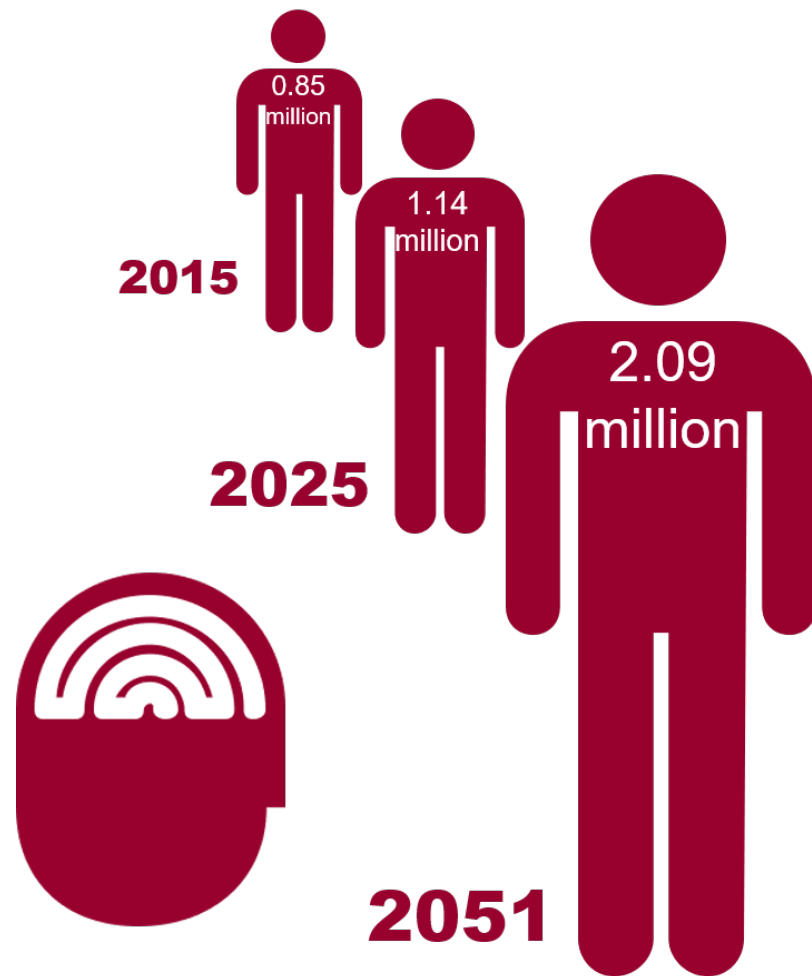
Incidence of lung cancer (2012 - 16)



Global Burden of Disease: Alzheimer's disease and other dementias



Alzheimer's disease and other dementias - National picture



Total annual cost of dementia to UK is

£26.3
billion

Dementia diagnosis rate

68.7%

Global Burden of Disease: Headache disorders



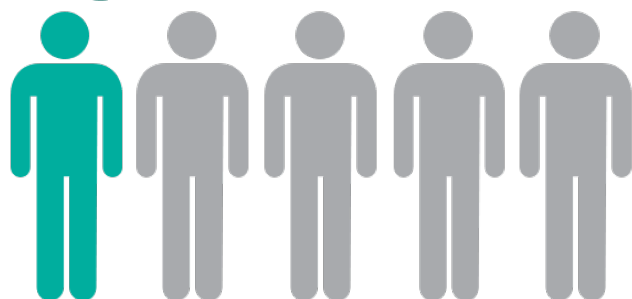
Headache disorders - National picture

Tension-type headache



**Approximately
2 in 5 people**

Migraine



**Approximately
1 in 5 people**

Tension-type

**headache: 118
DALYs per 100,000
people**



**Migraine: 785
DALYs per 100,000
people**

2.3 million work days lost through sickness absence

Global Burden of Disease: Diabetes mellitus



Diabetes mellitus - National picture

People with diabetes are at greater risk of:

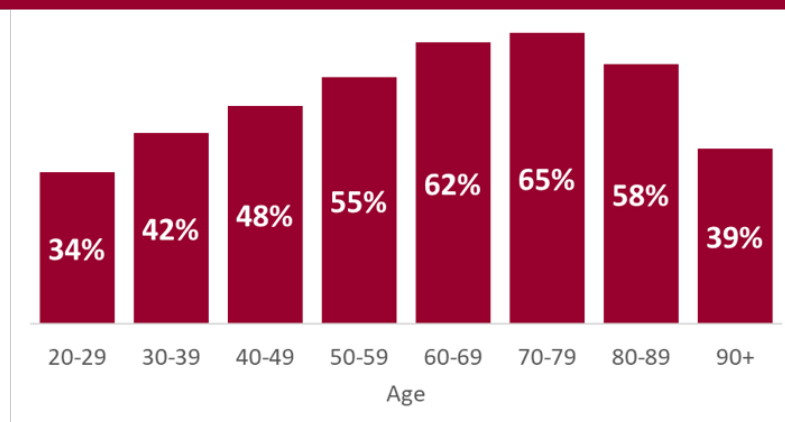
Heart attack: **2.5x**

Heart failure: **2.5x**

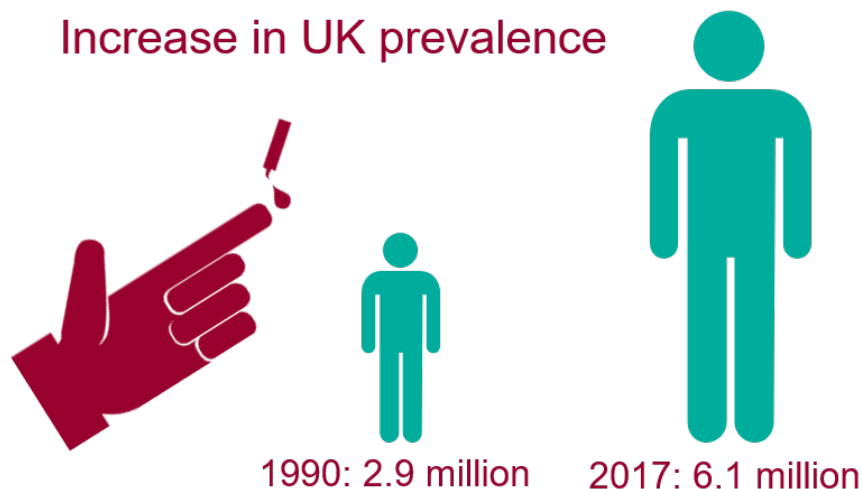
Stroke: **2x**

more likely than people without diabetes

Age inequalities in the % of people with type 2 diabetes receiving care checks



Increase in UK prevalence

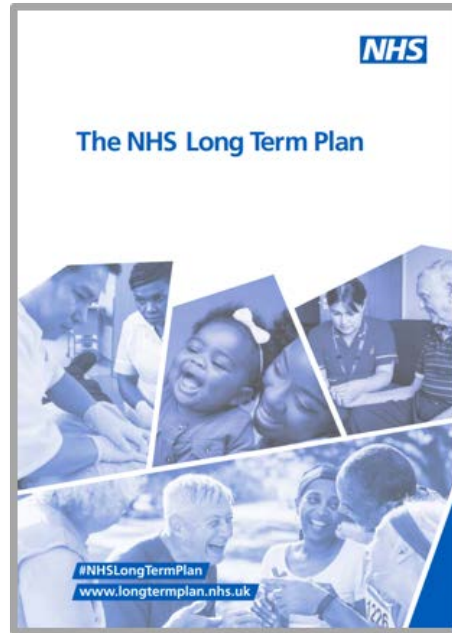


The estimated NHS spend on diabetes is

£10 billion

a year, 80% of which is spent on treating complications

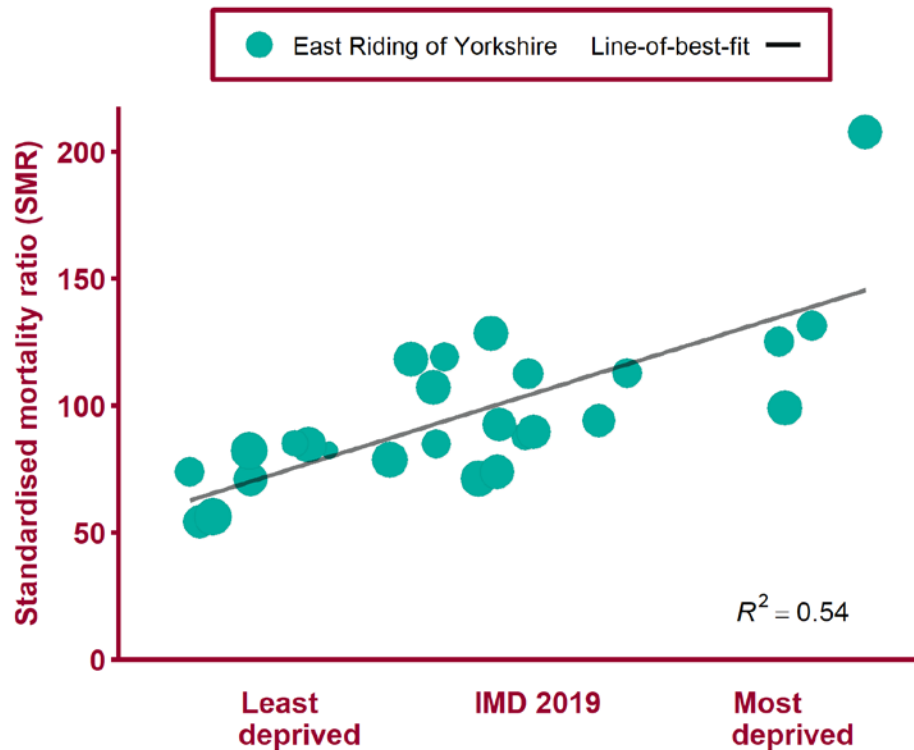
Health inequalities within East Riding of Yorkshire for national strategic priorities



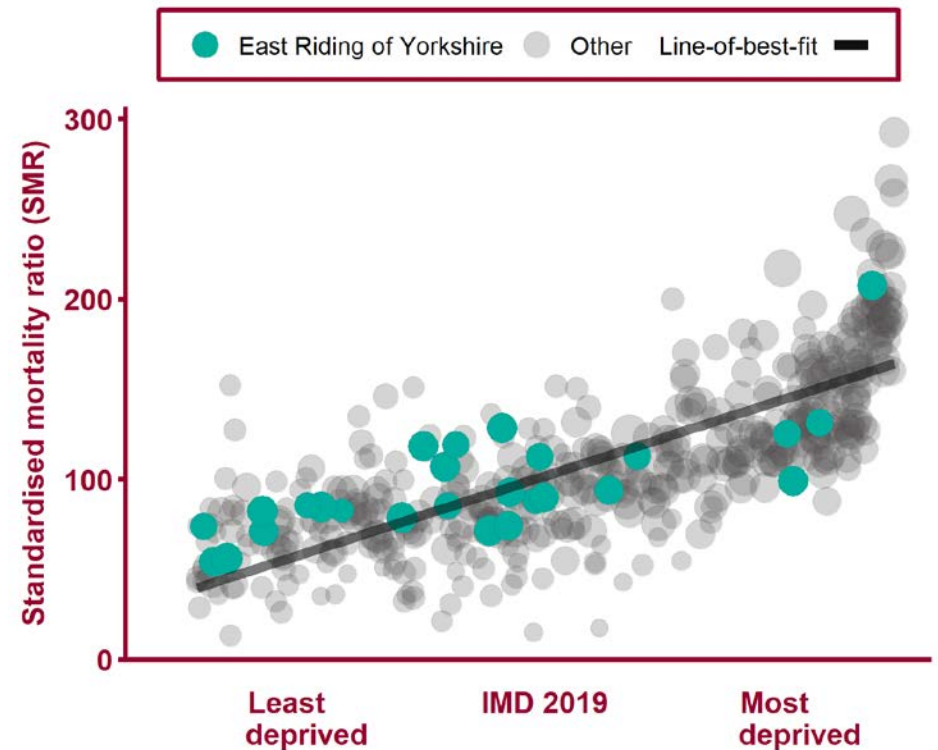
The following slides include additional indicators (not already analysed) considered to reflect national strategic priorities for which data is available in Local Health at ward level

Deaths from circulatory disease, under 75 years (2013 - 17)

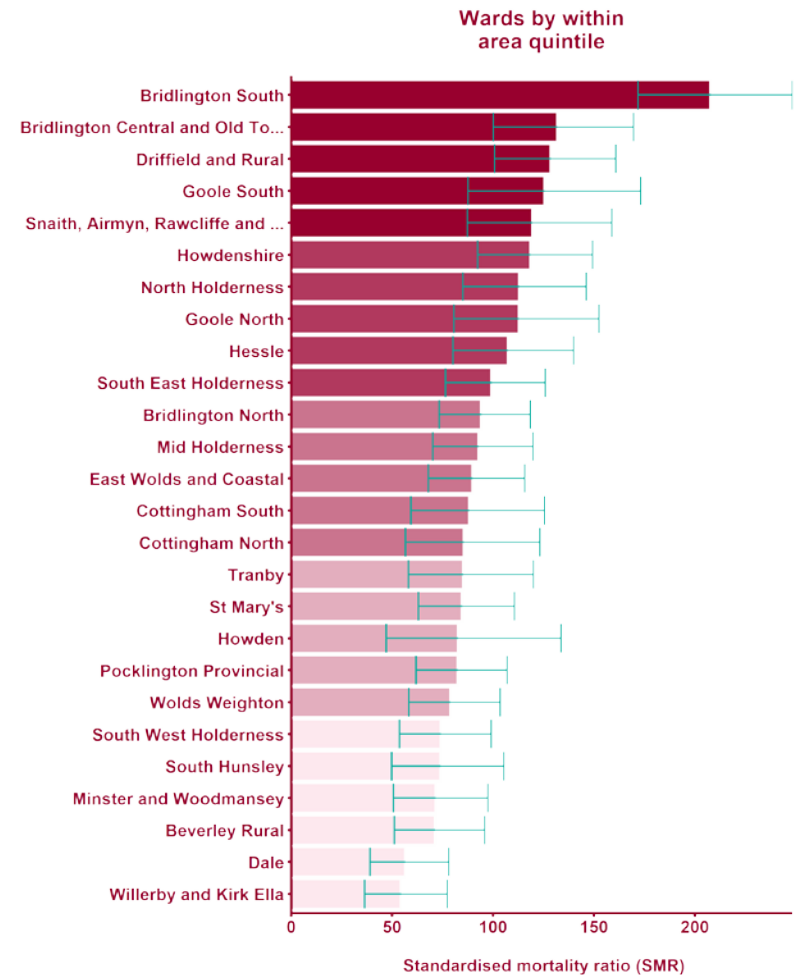
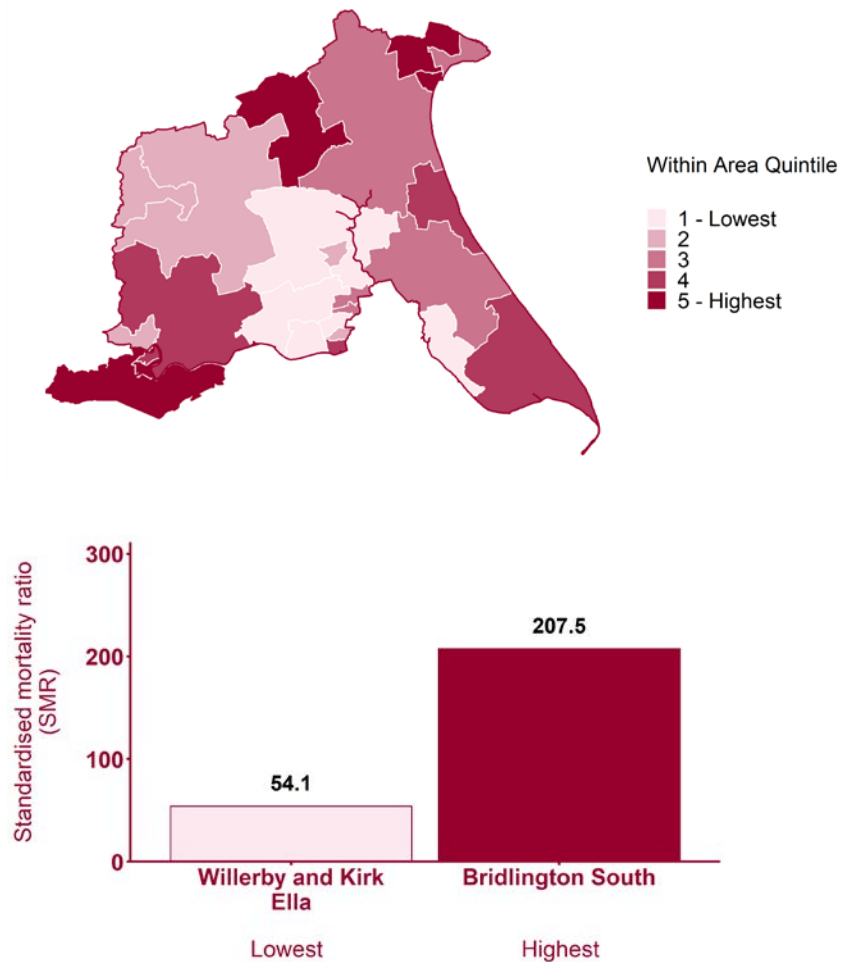
Wards within East Riding of Yorkshire



Wards within Yorkshire and The Humber

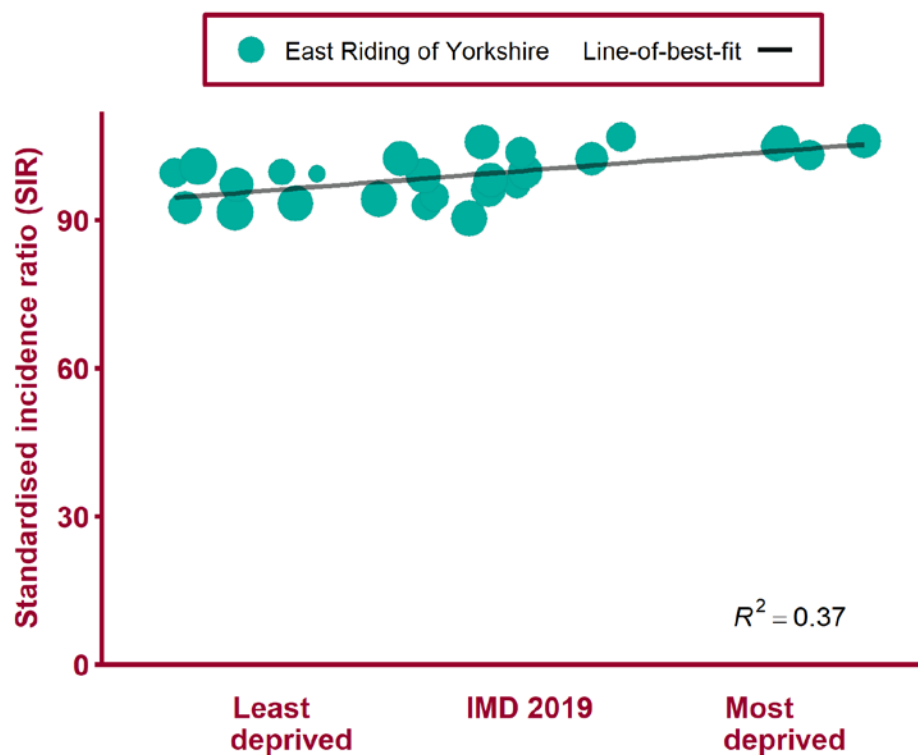


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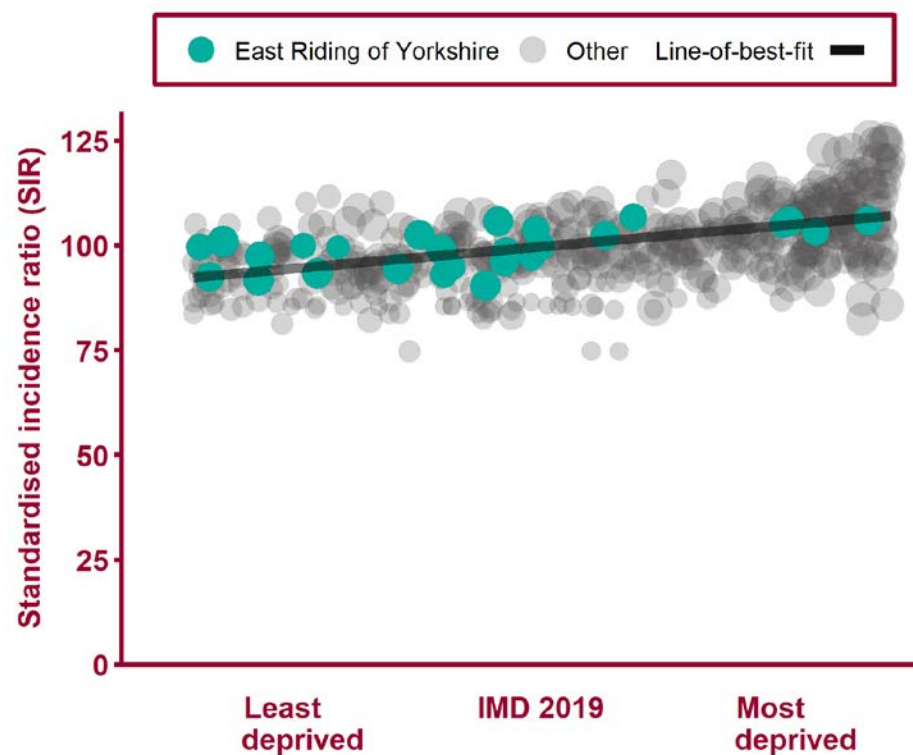


Incidences of all cancers (2012 - 16)

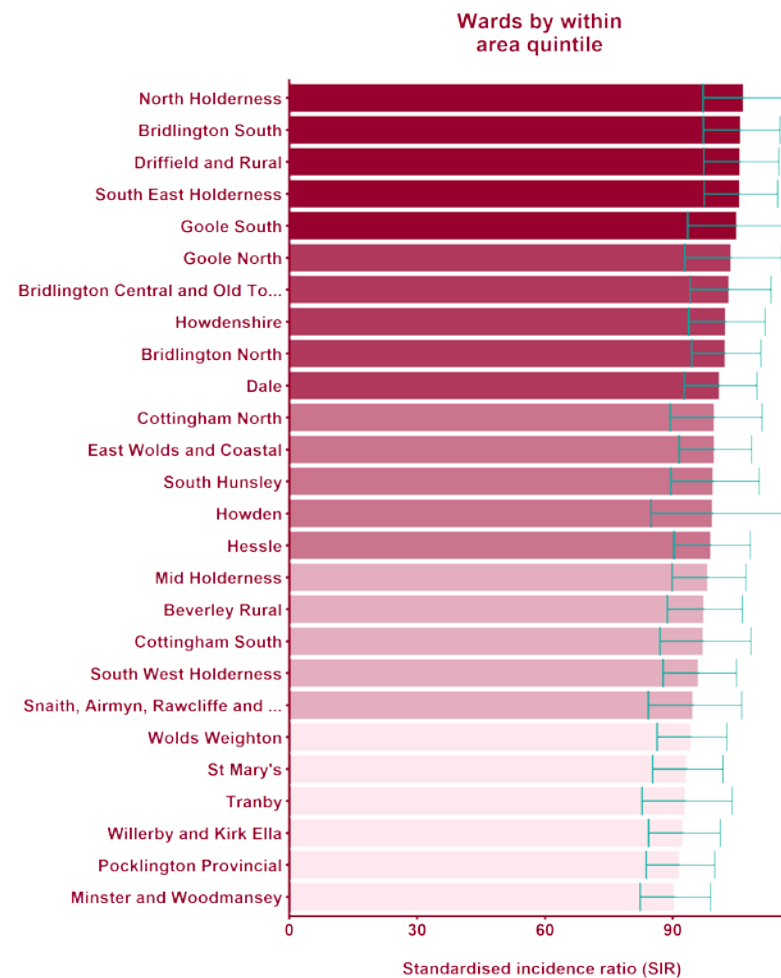
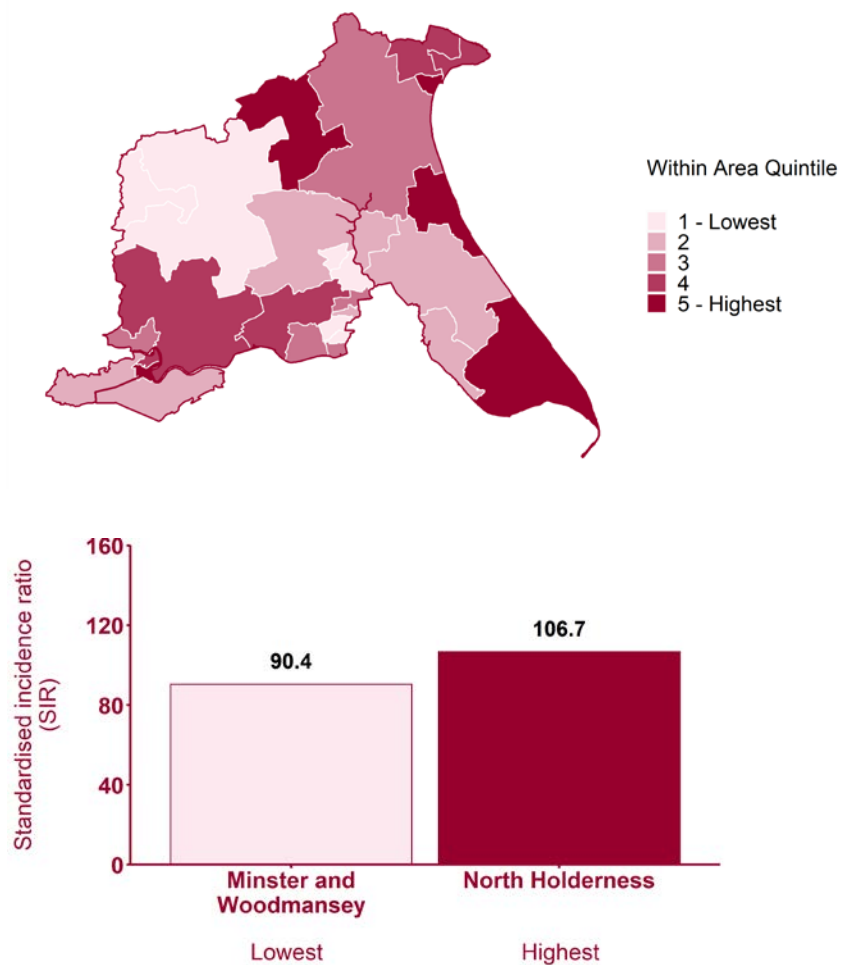
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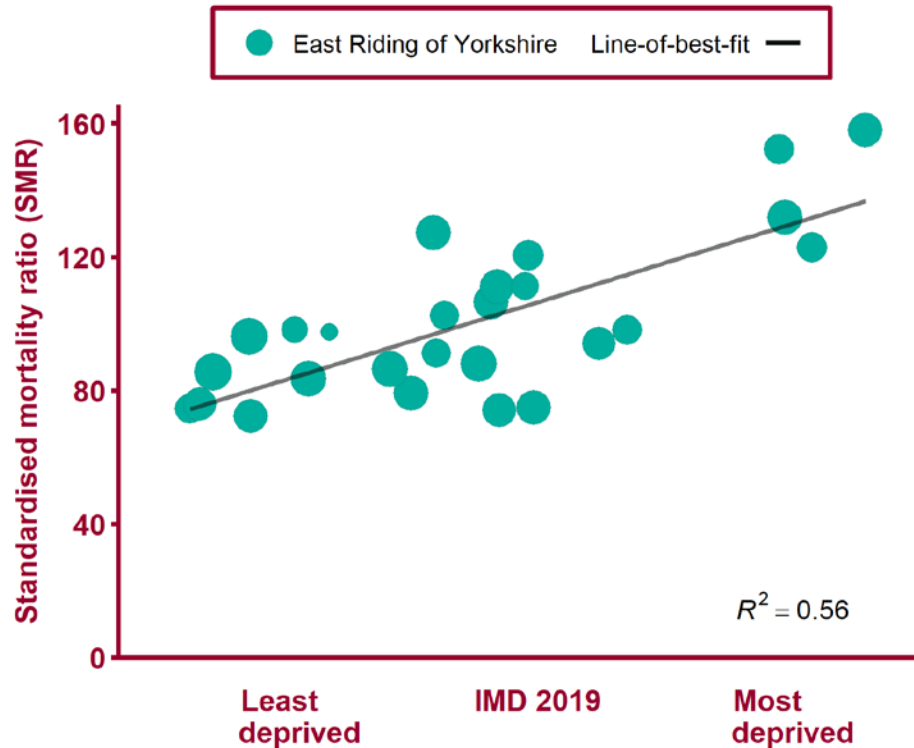


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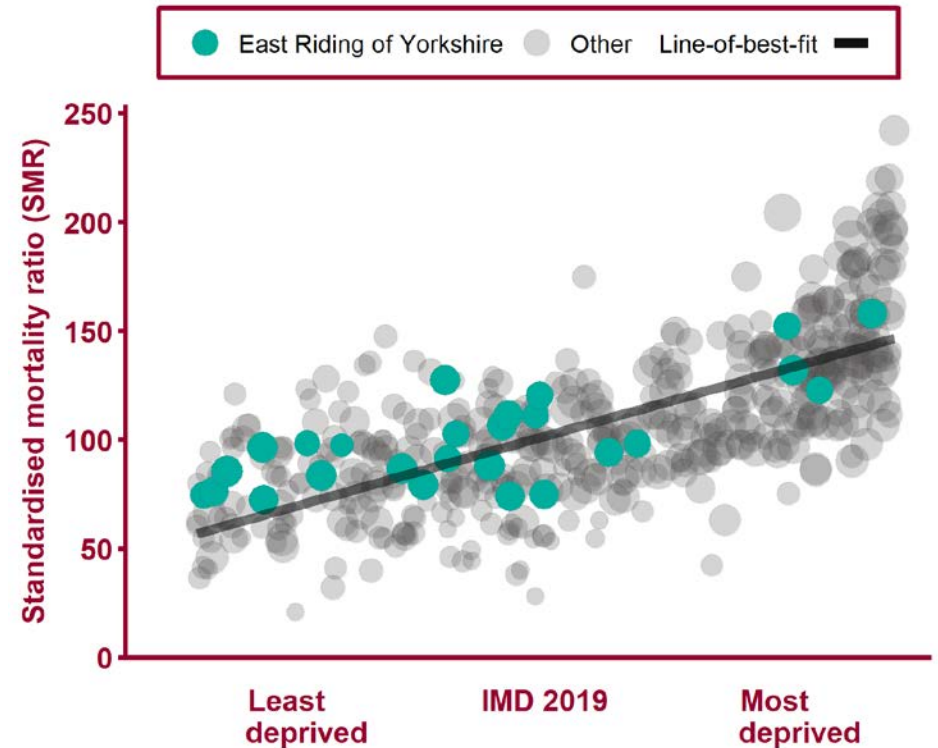


Deaths from respiratory diseases, all ages (2013 - 17)

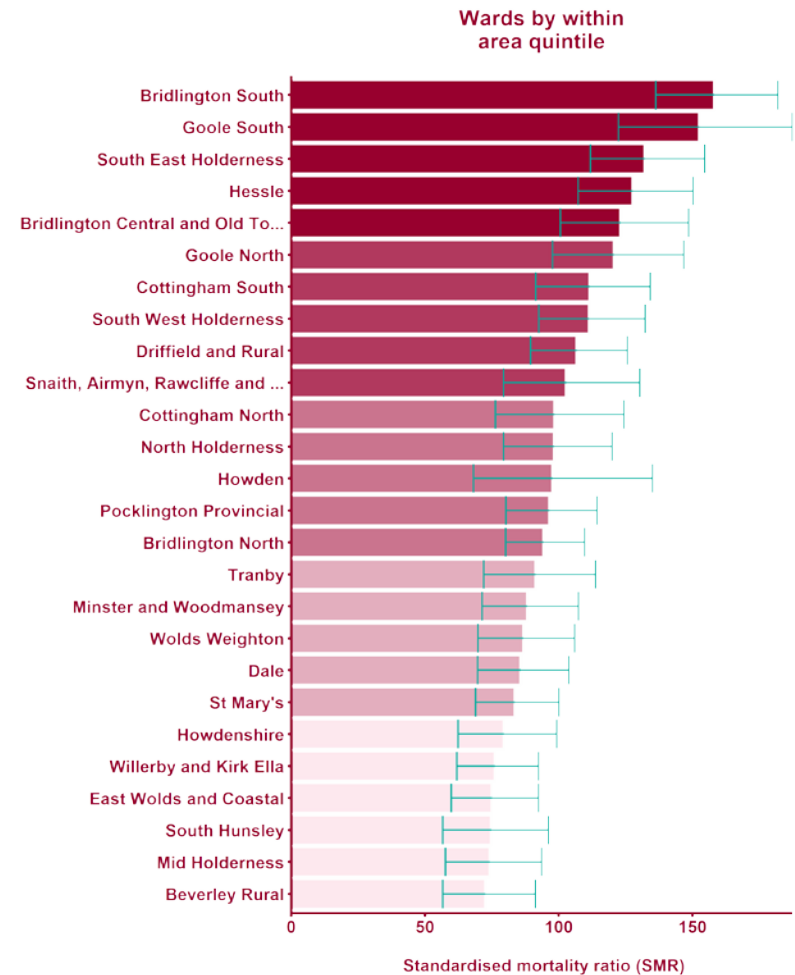
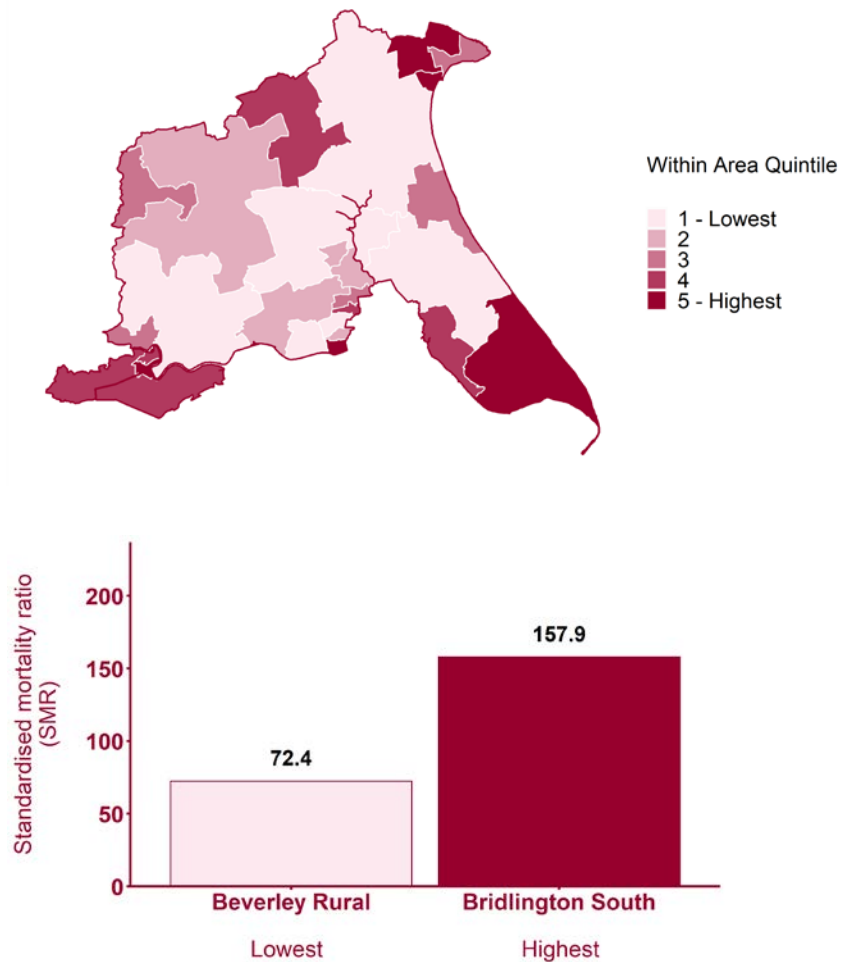
Wards within East Riding of Yorkshire



Wards within Yorkshire and The Humber

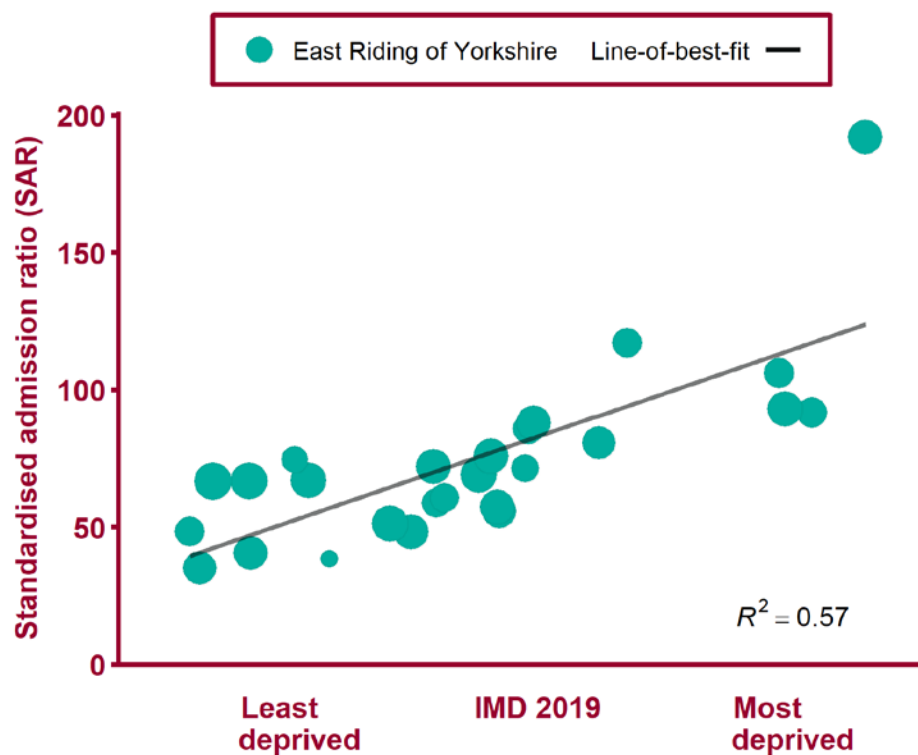


Deaths from respiratory diseases, all ages (2013 - 17)

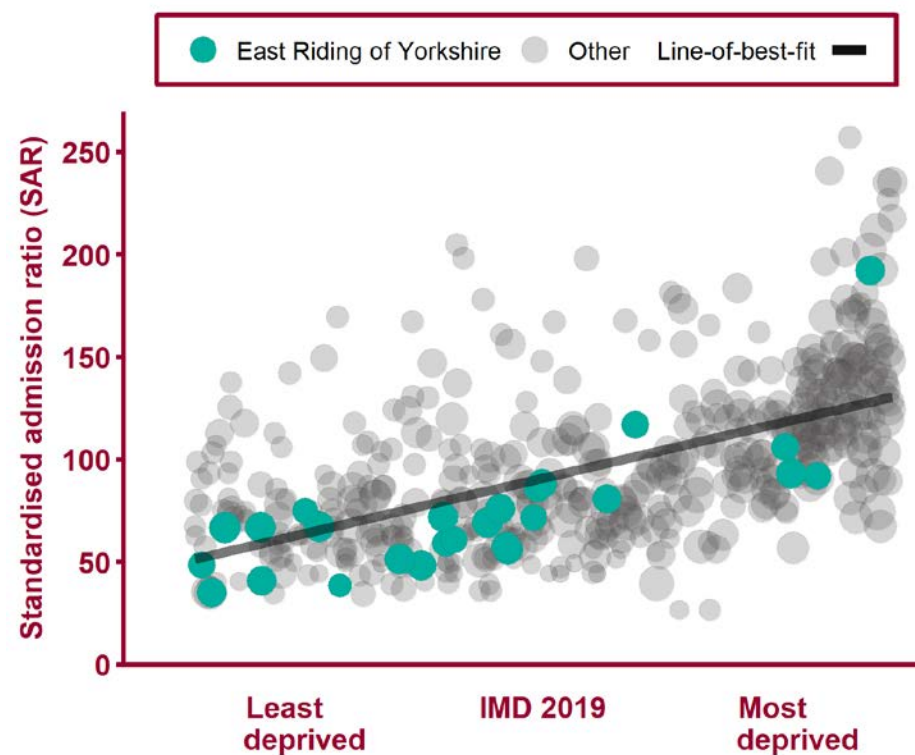


Hospital stays for self harm (2013/14 - 2017/18)

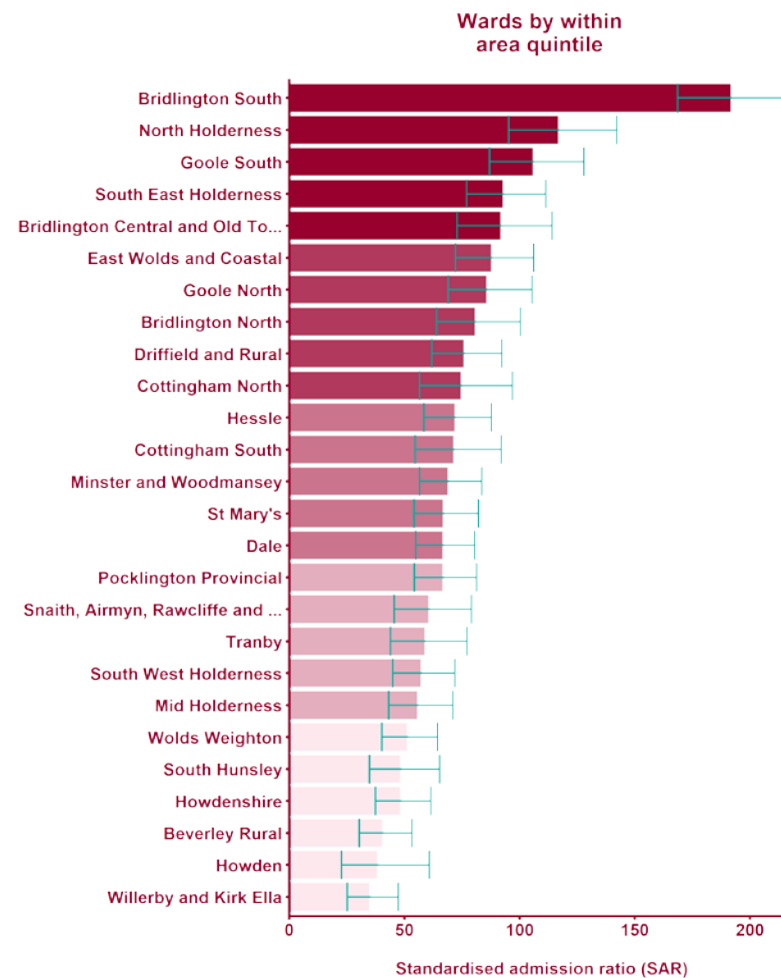
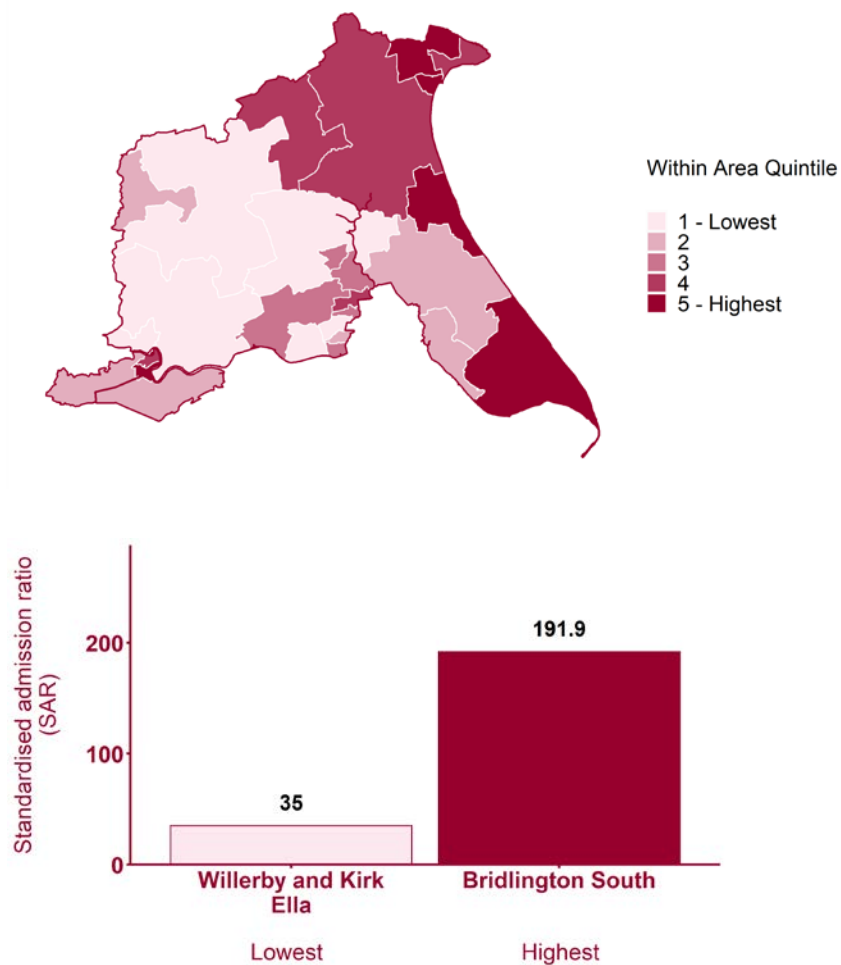
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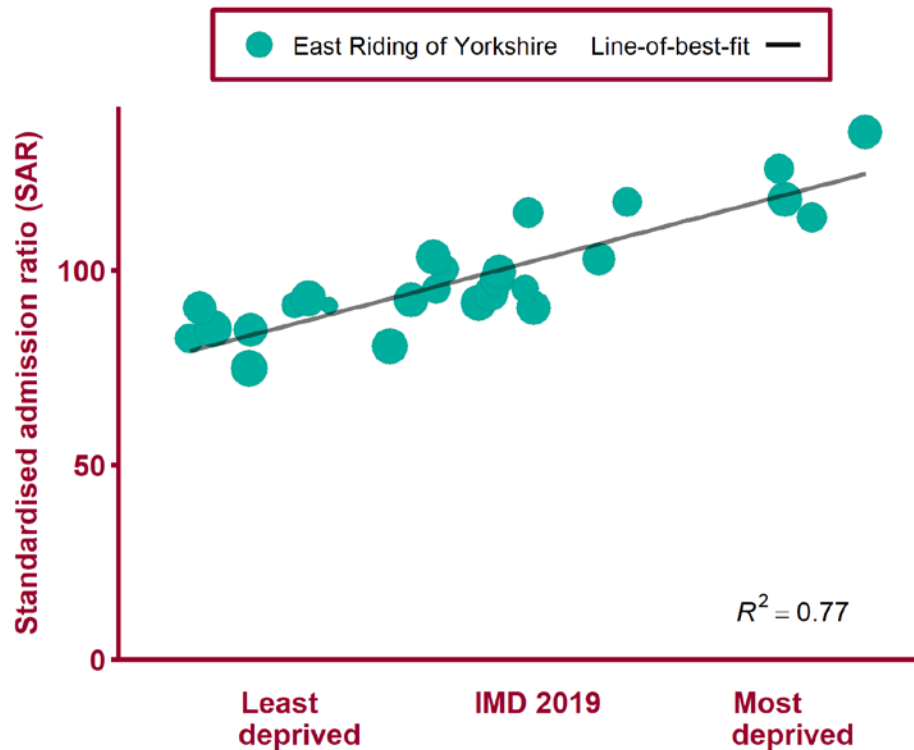


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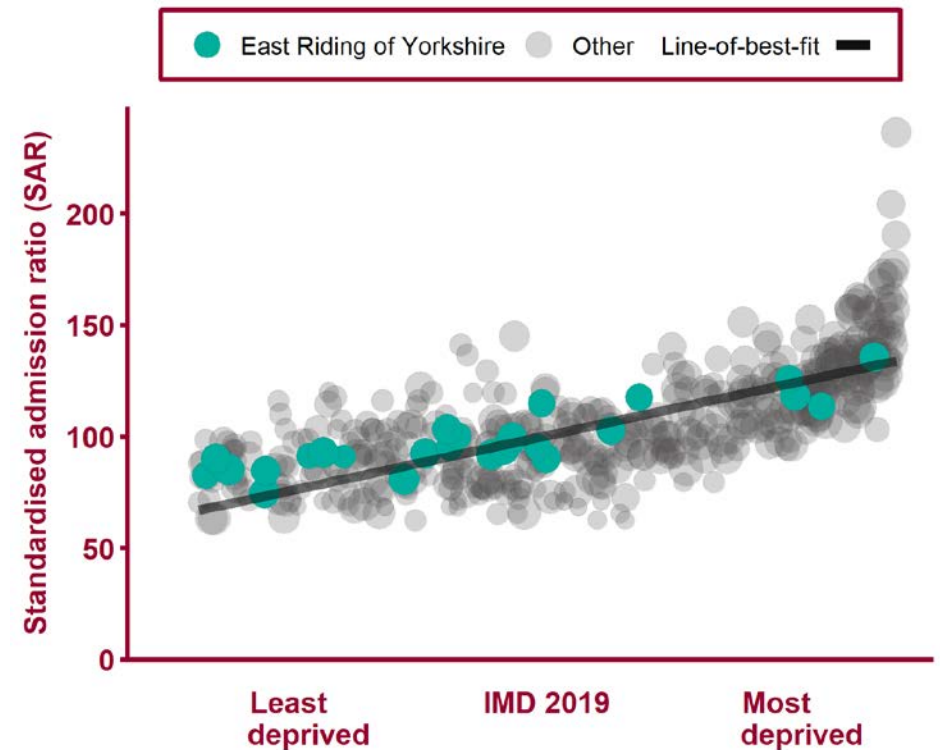


Hospital stays for alcohol-related harm, Broad definition (2013/14 - 2017/18)

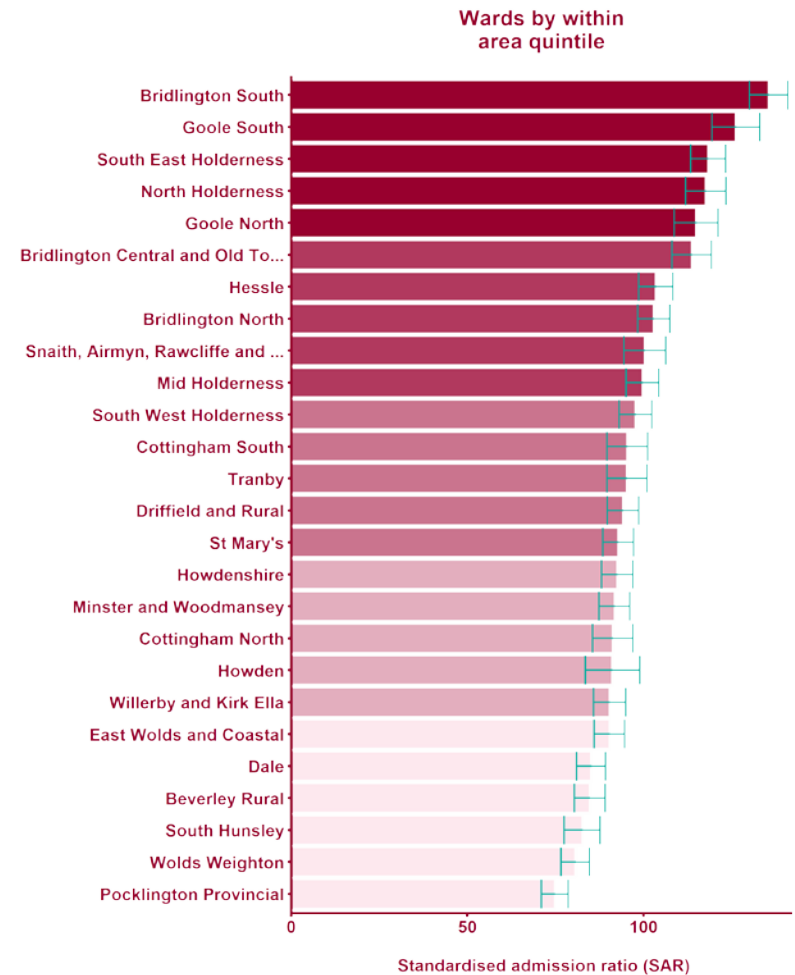
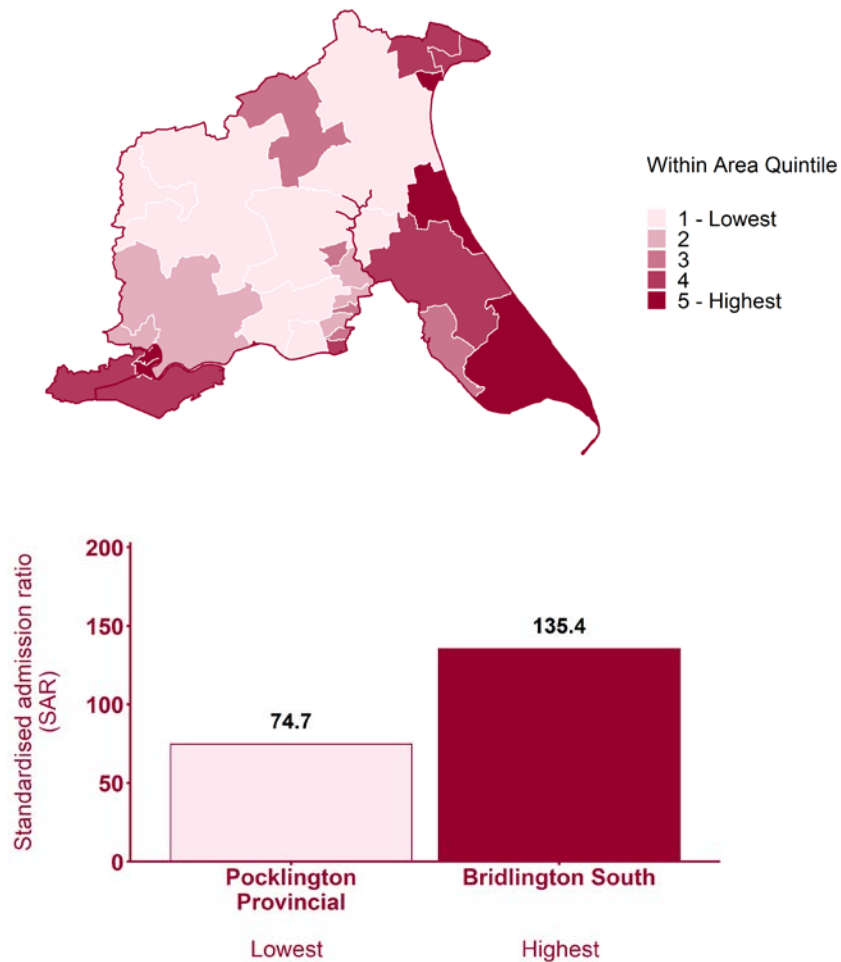
Wards within East Riding of Yorkshire



Wards within Yorkshire and The Humber

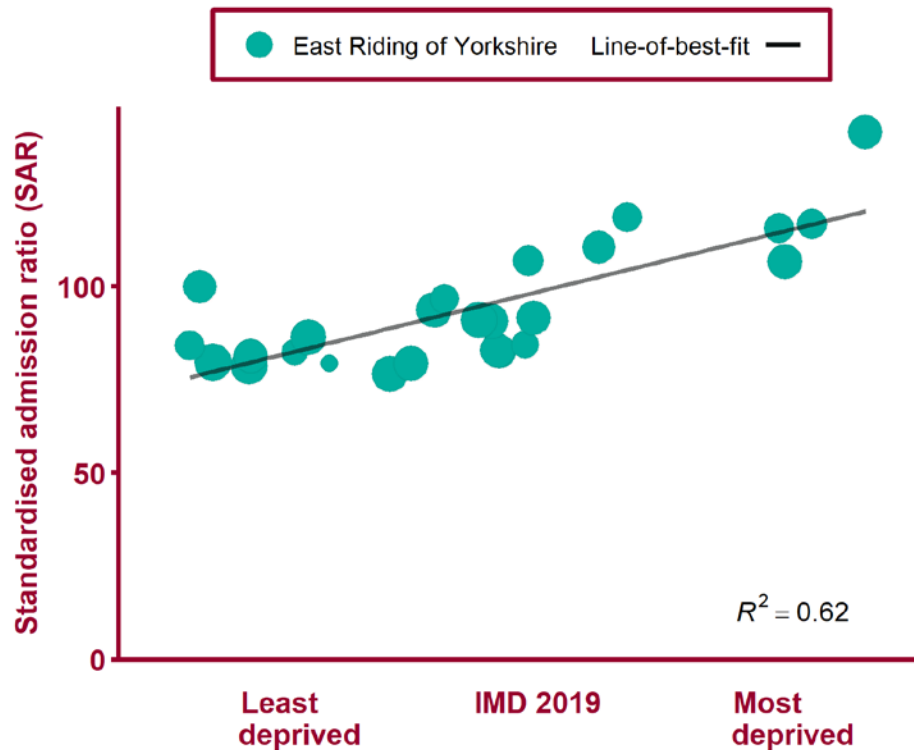


Hospital stays for alcohol-related harm, Broad definition (2013/14 - 2017/18)

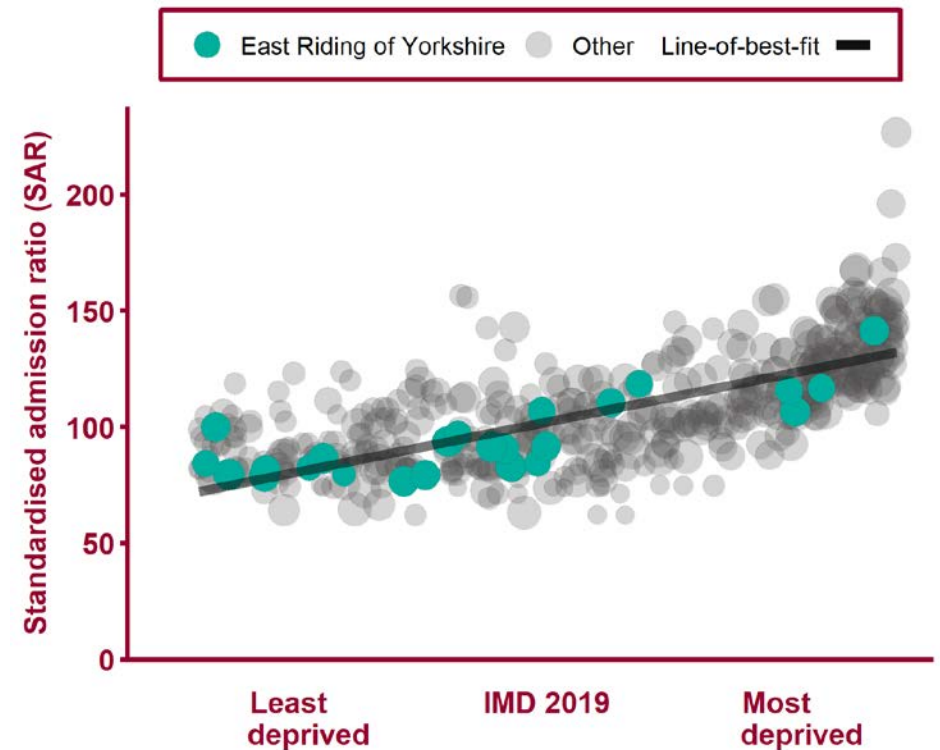


Hospital stays for alcohol-related harm, Narrow definition (2013/14 - 2017/18)

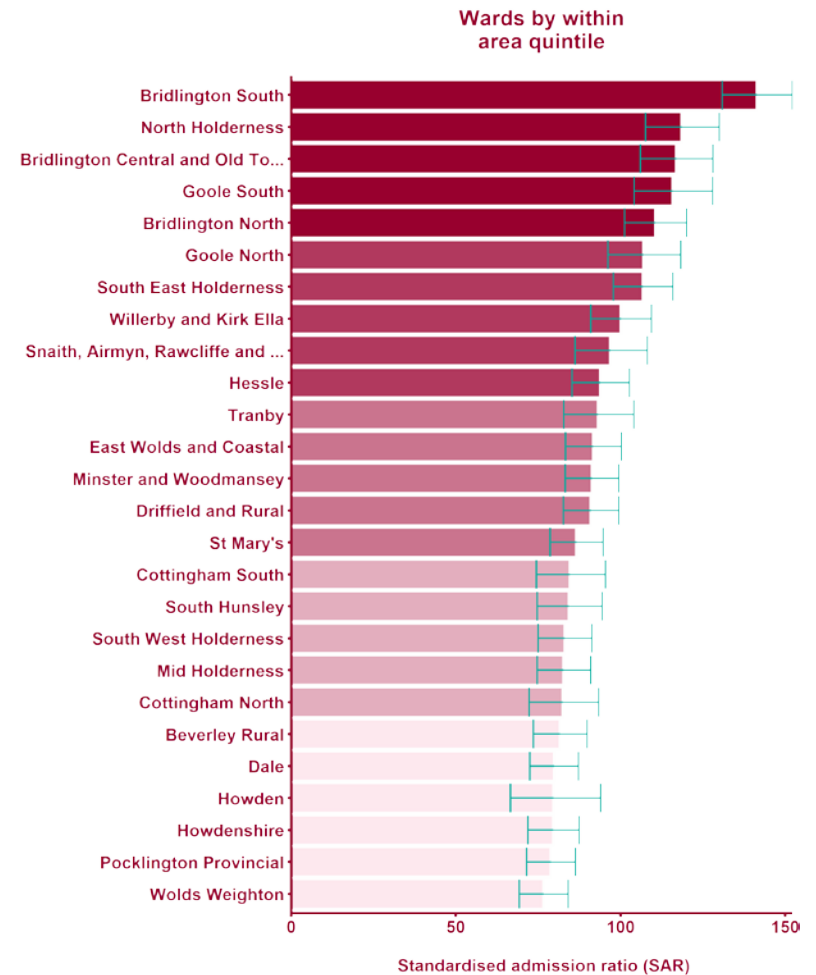
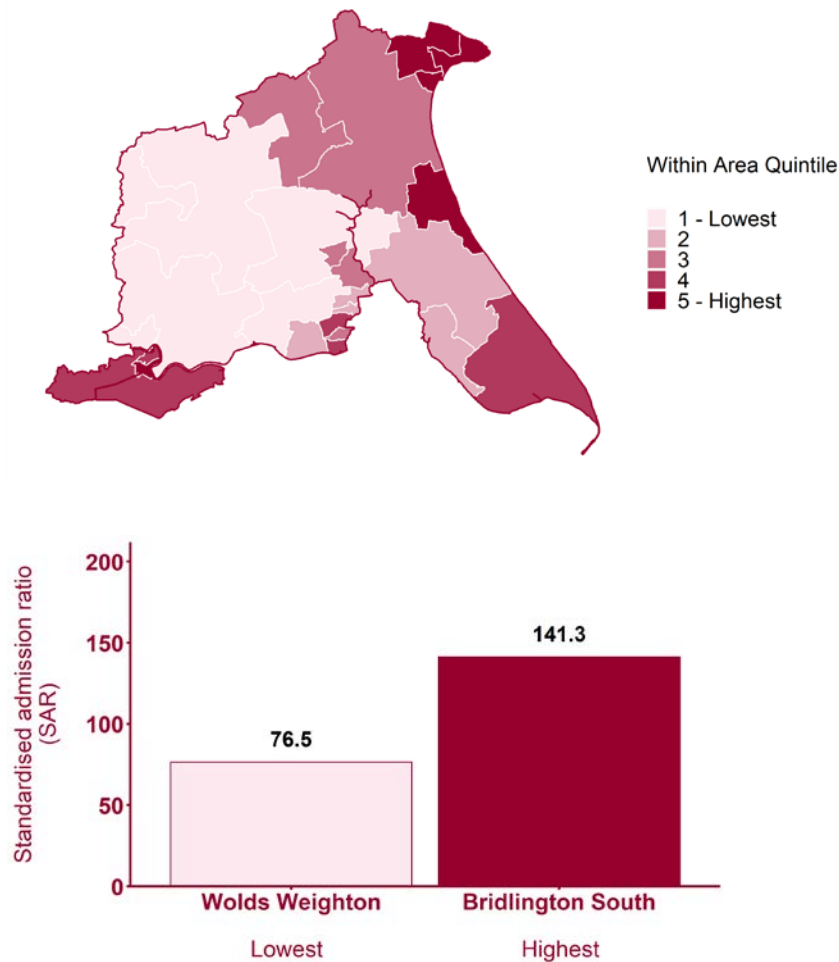
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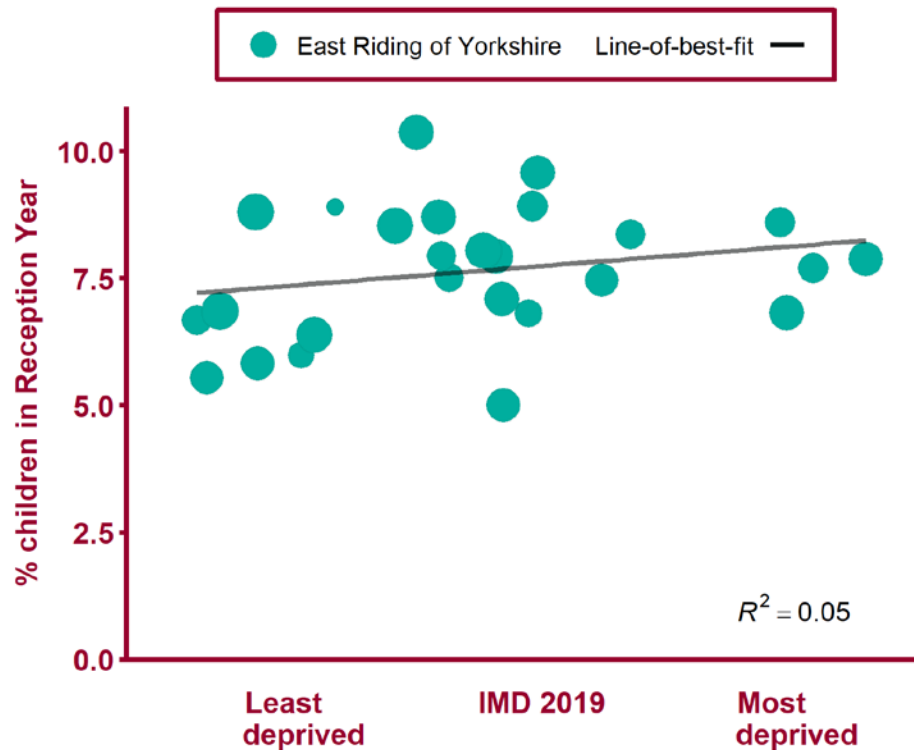


Hospital stays for alcohol-related harm, Narrow definition (2013/14 - 2017/18)

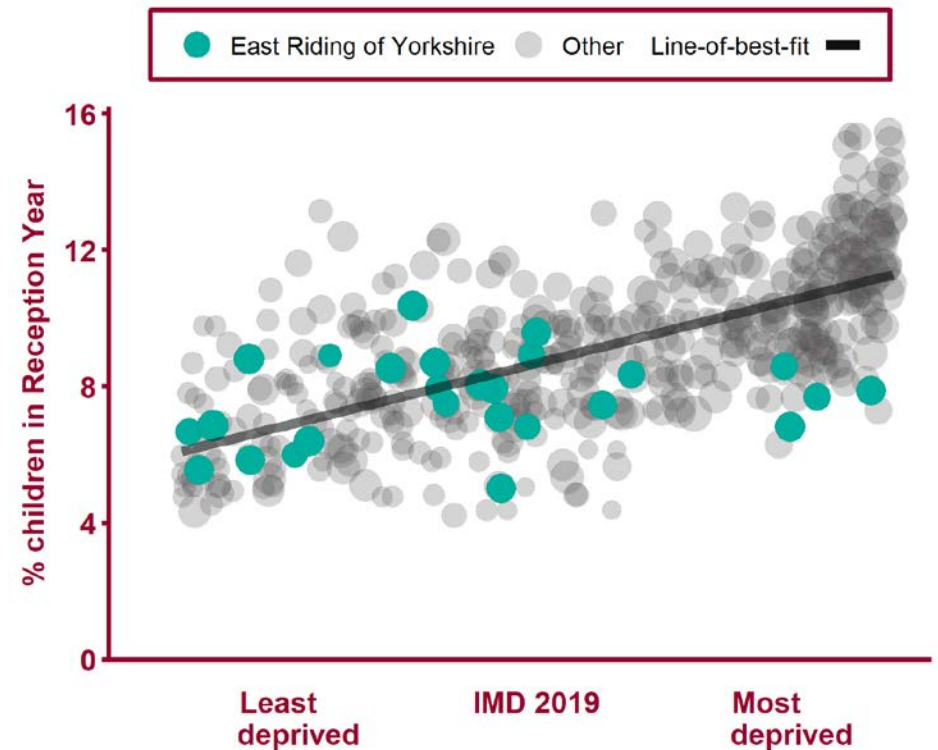


Obese children, Reception Year (2015/16 - 2017/18)

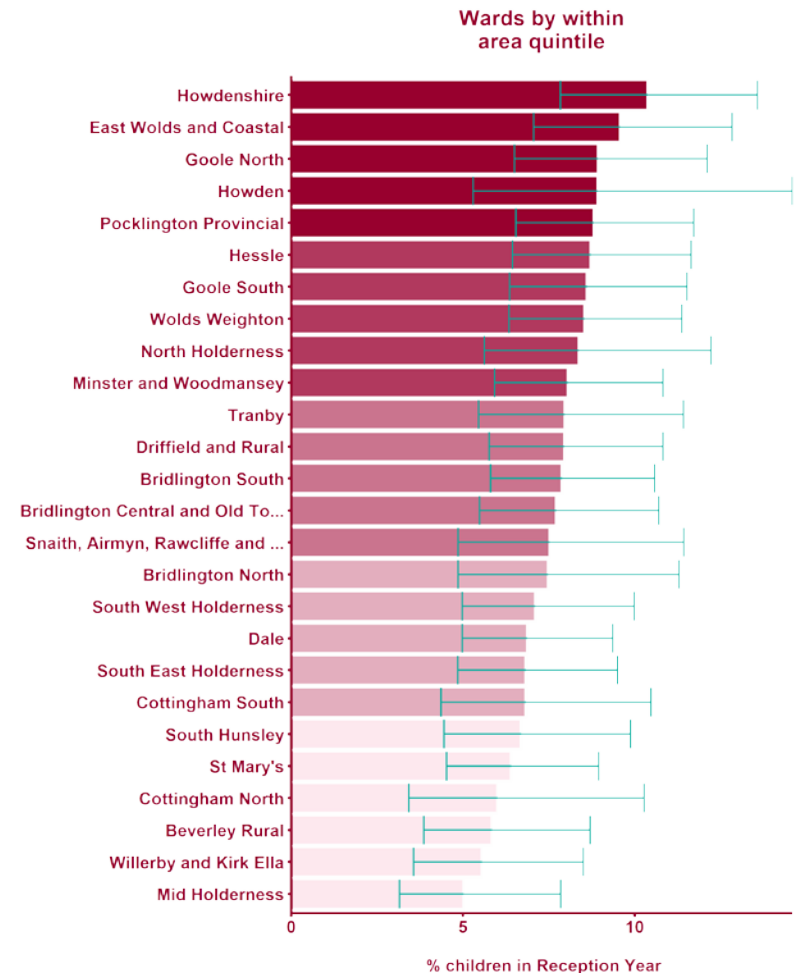
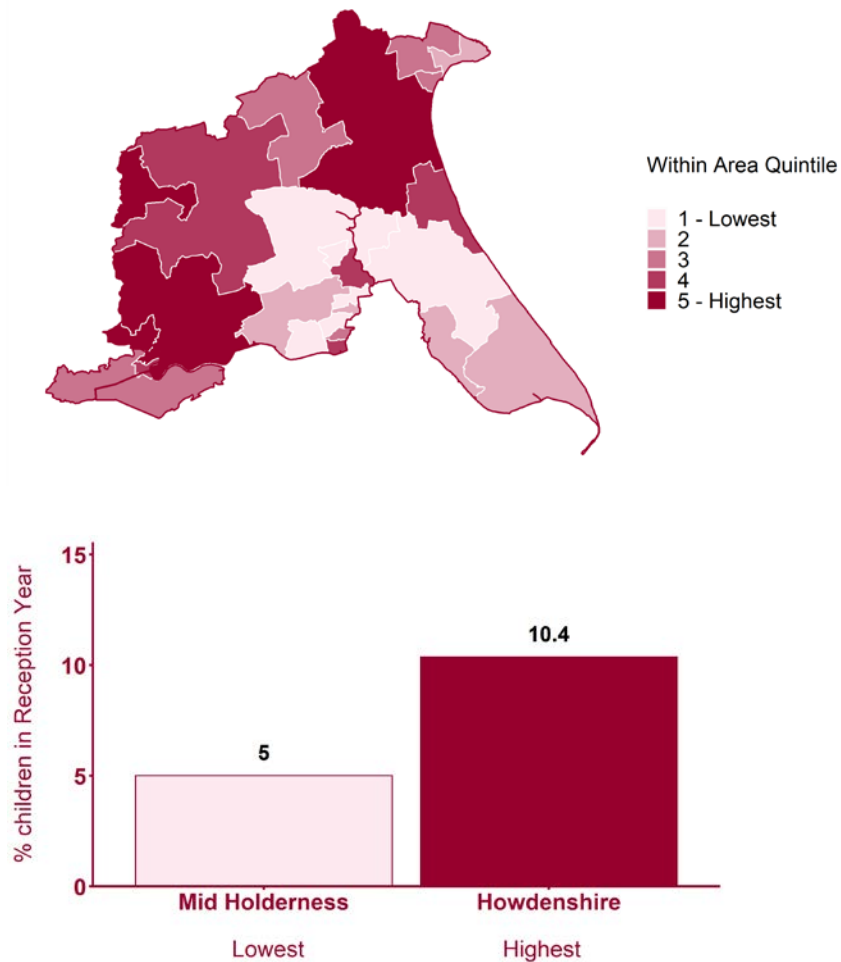
Wards within East Riding of Yorkshire



Wards within Yorkshire and The Humber

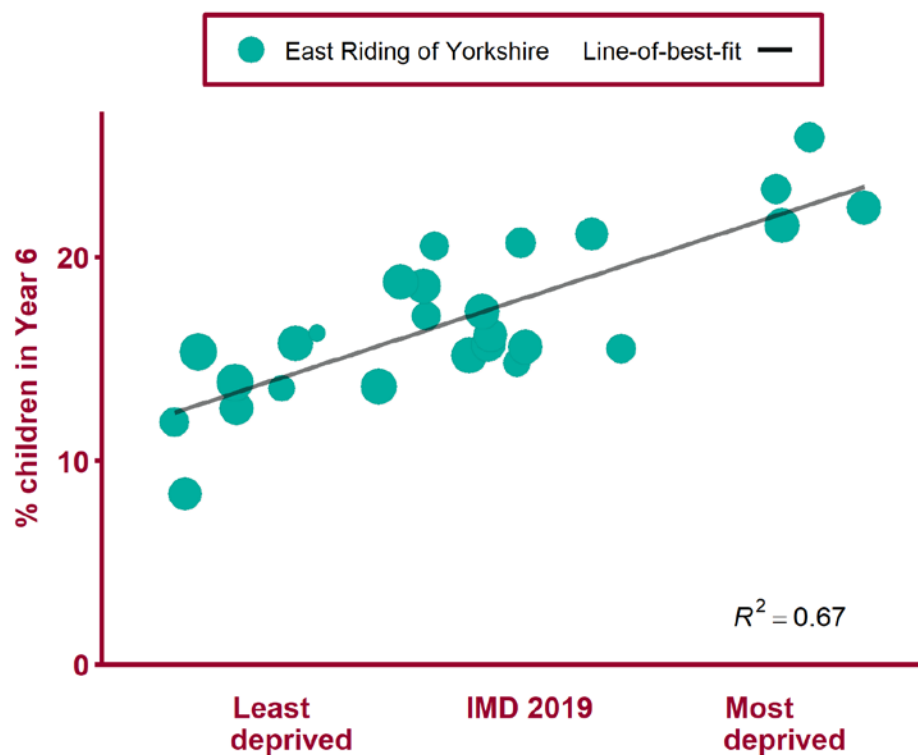


Obese children, Reception Year (2015/16 - 2017/18)

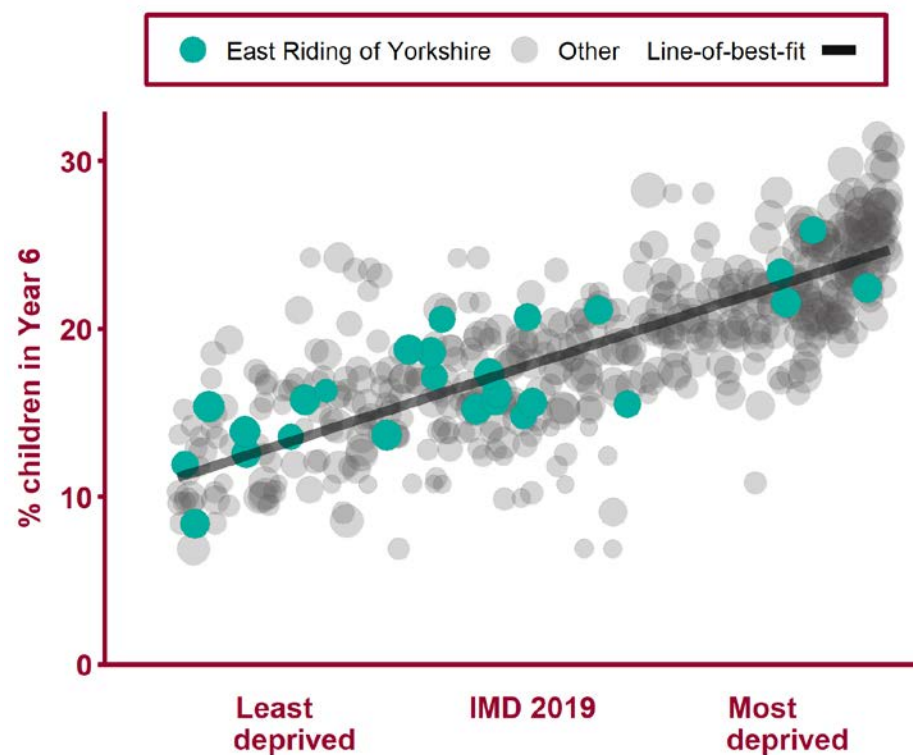


Obese children, Year 6 (2015/16 - 2017/18)

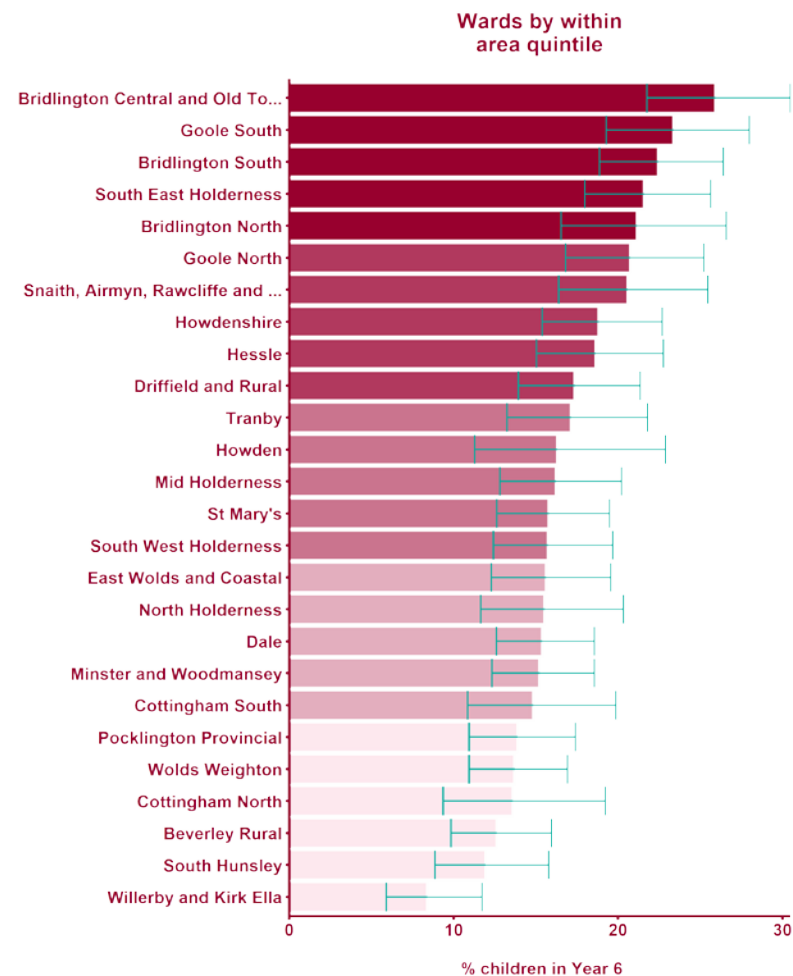
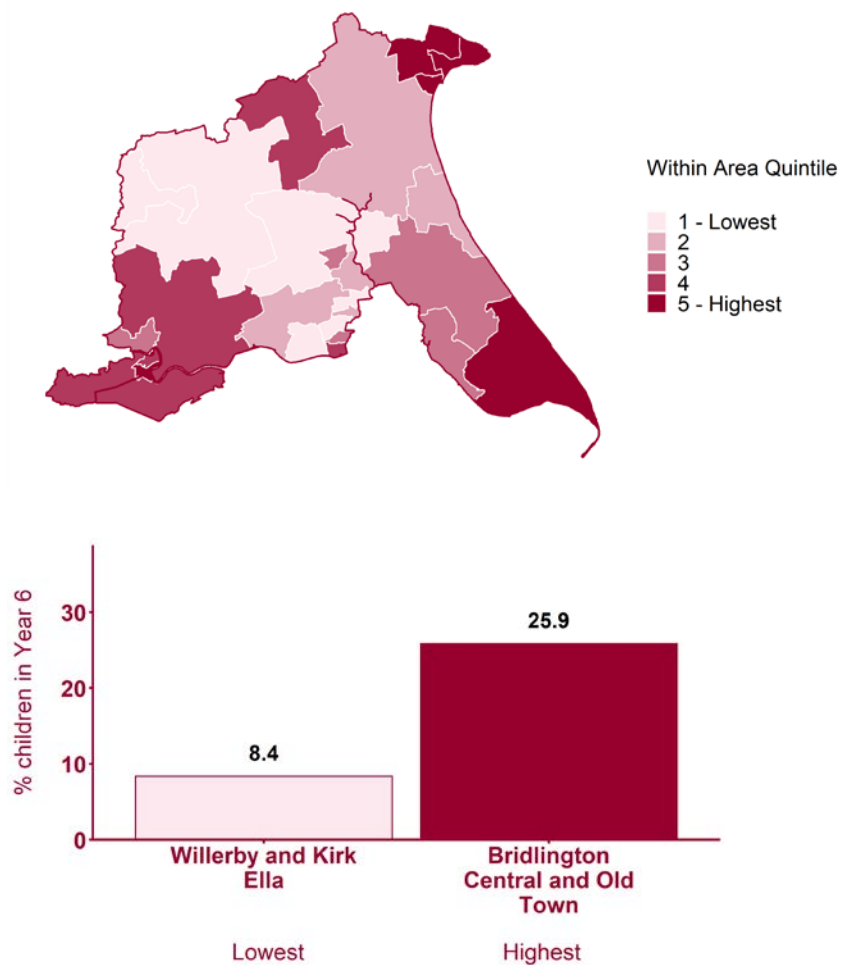
Wards within East Riding of Yorkshire



Wards within Yorkshire and The Humber



Obese children, Year 6 (2015/16 - 2017/18)



Further health inequalities strongly associated with deprivation in East Riding of Yorkshire

Some other indicators show a particularly strong association with deprivation (rank of IMD 2019 score) locally



The following slide lists those indicators most strongly associated with deprivation locally, with the top three (not already analysed) explored further

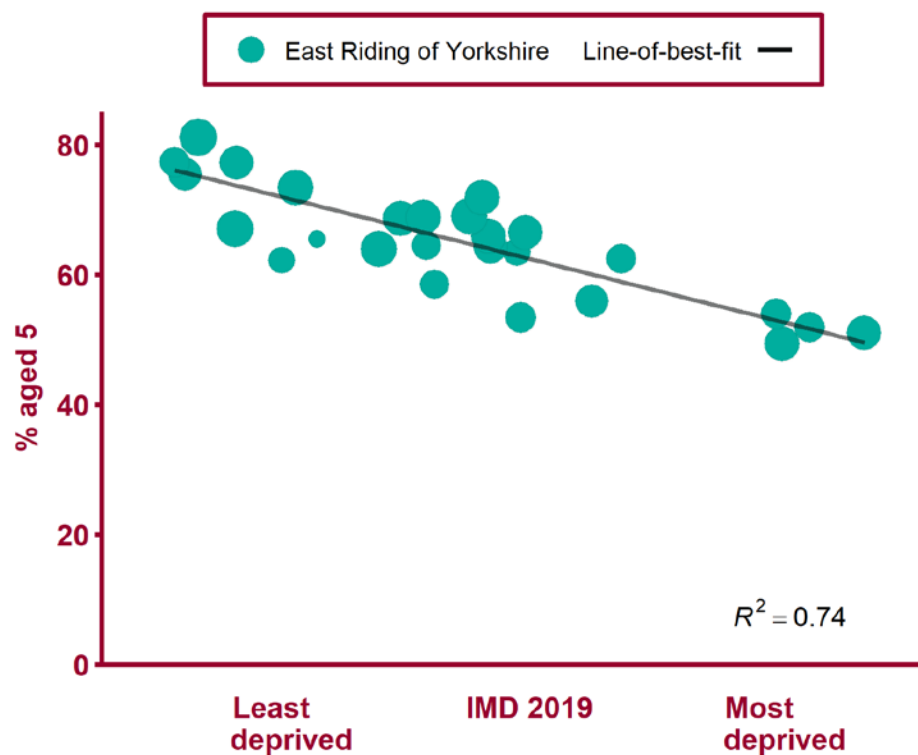
Health inequalities within East Riding of Yorkshire

(Sorted by R-squared value)

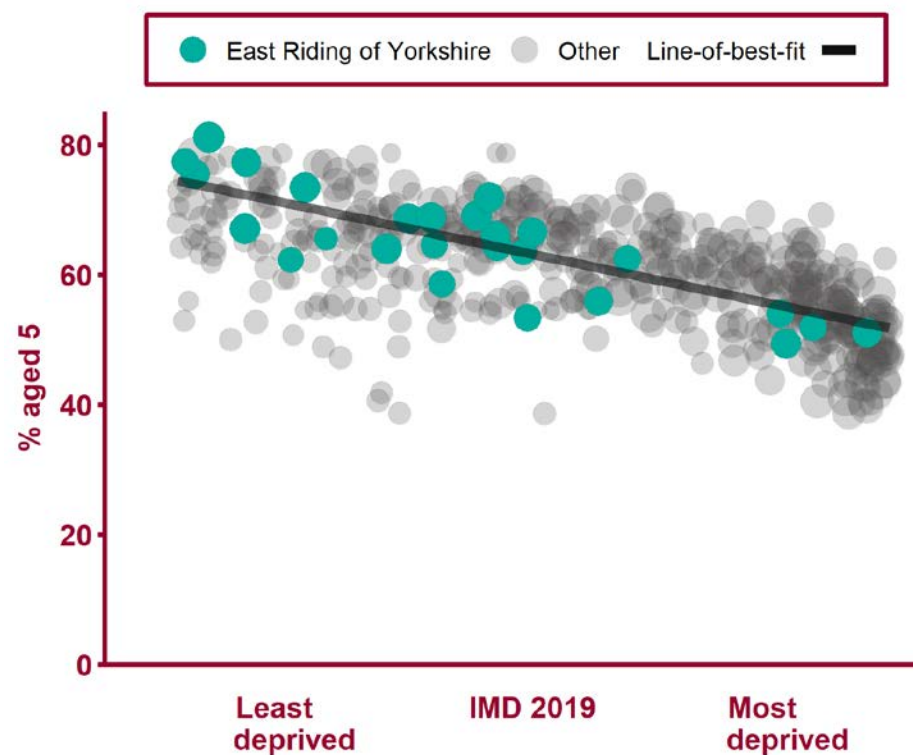
Indicator	R-squared value
Emergency hospital admissions for COPD	0.80
Incidence of lung cancer	0.78
Hospital stays for alcohol-related harm, Broad definition	0.77
Child Development at age 5	0.74
GCSE Achievement	0.74
Deaths from causes considered preventable, all ages	0.72
Deaths from all causes, under 75 years	0.71
Obese children, Year 6	0.67
Percentage with a limiting long-term illness or disability	0.67
Emergency hospital admissions for all causes	0.65
Life expectancy at birth for males	0.64
Hospital stays for alcohol-related harm, Narrow definition	0.62
Hospital stays for self harm	0.57
Deaths from respiratory diseases, all ages	0.56
Children with excess weight, Year 6	0.54

Child Development at age 5 (2013/14)

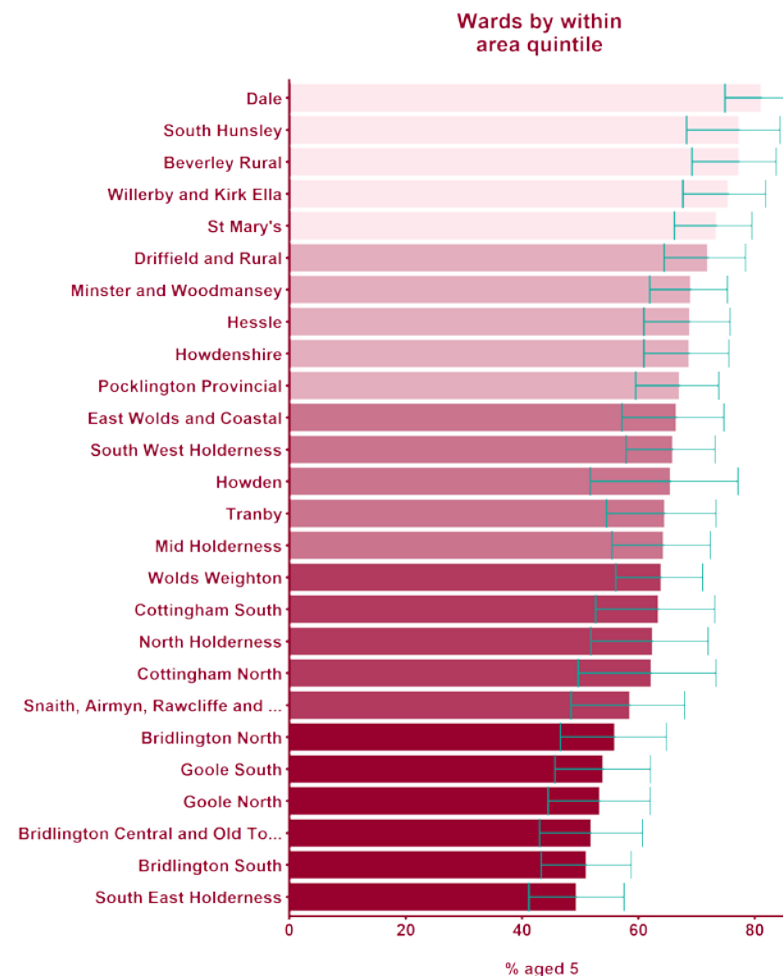
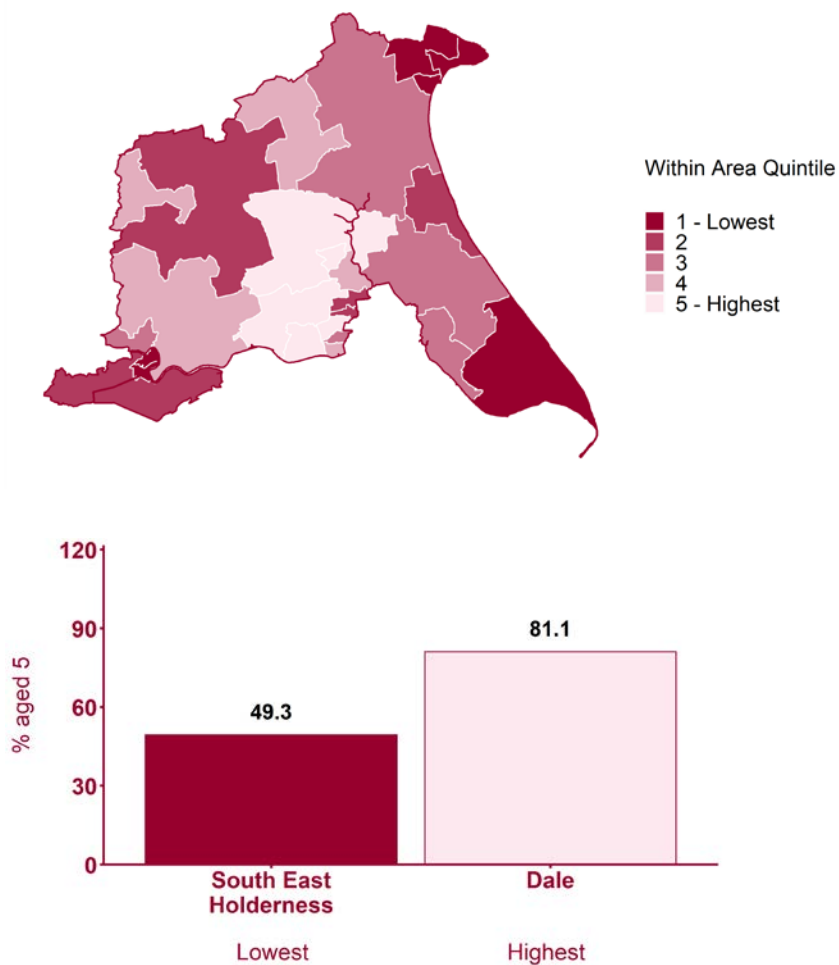
Wards within East Riding of Yorkshire



Wards within Yorkshire and The Humber

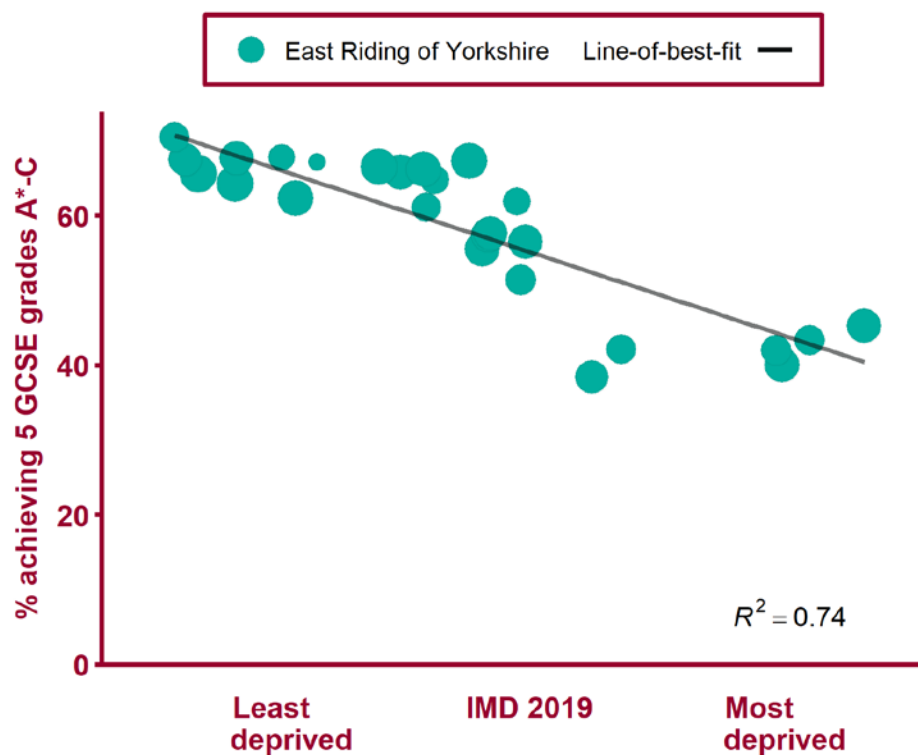


Child Development at age 5 (2013/14)

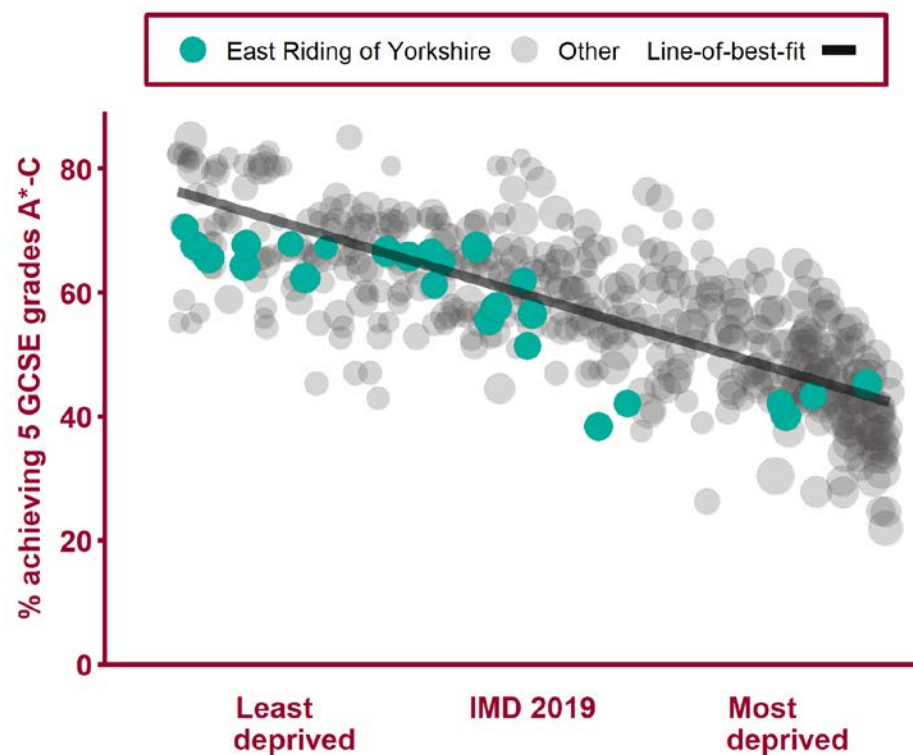


GCSE Achievement (2013/14)

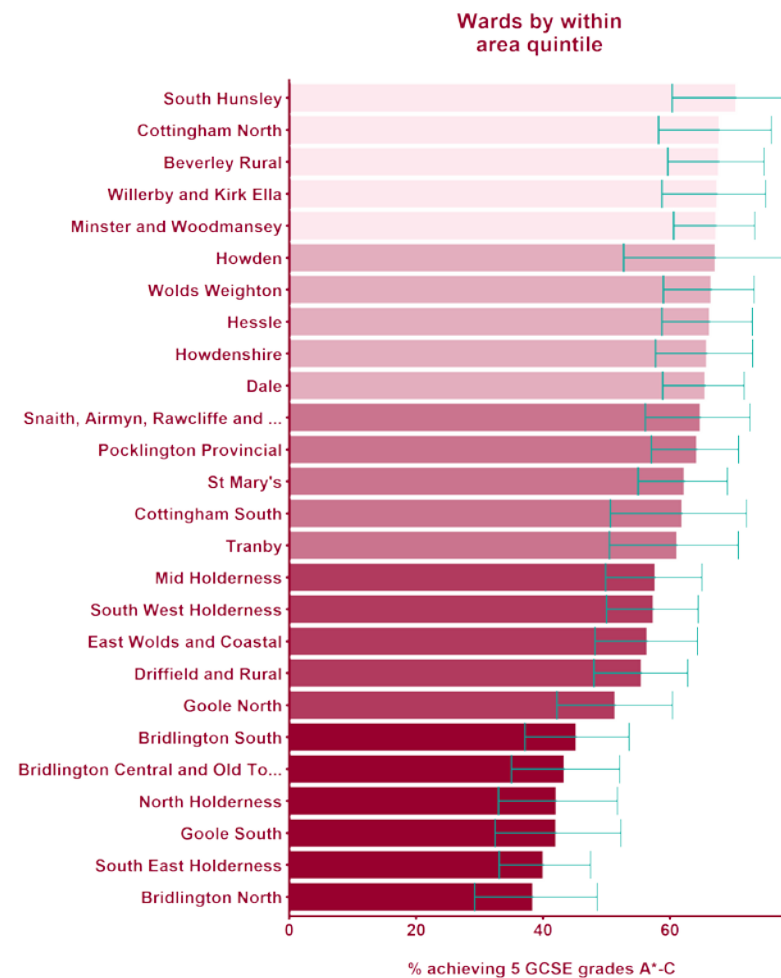
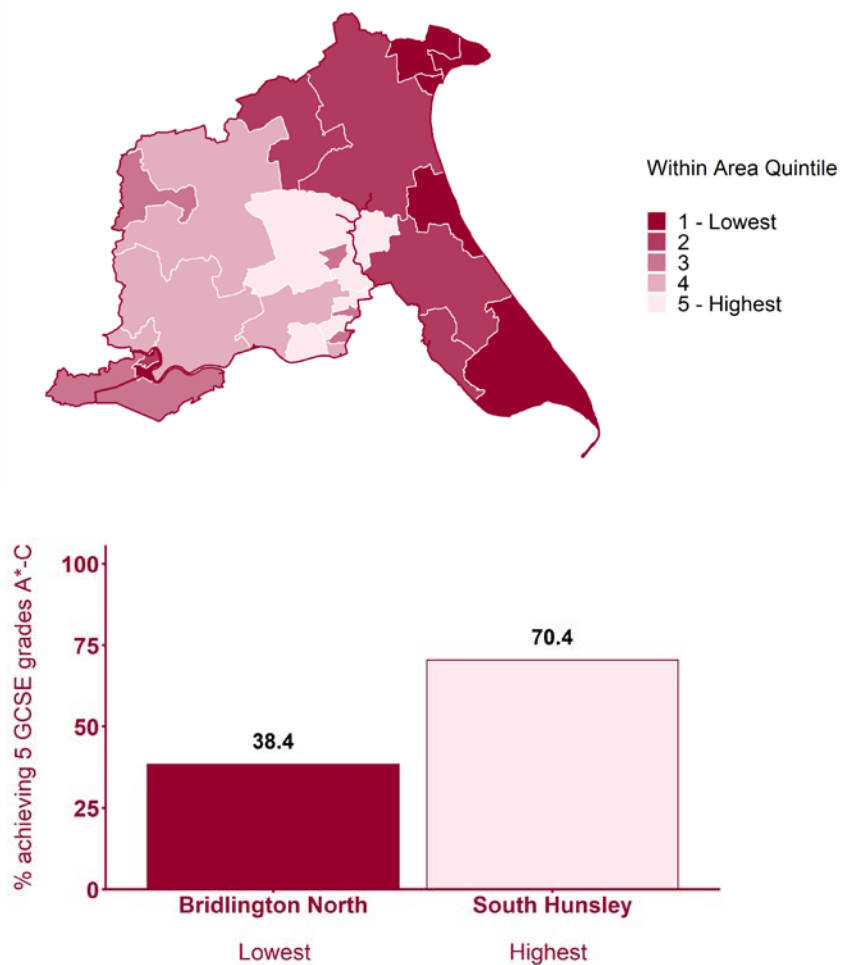
Wards within East Riding of Yorkshire



Wards within Yorkshire and The Humber

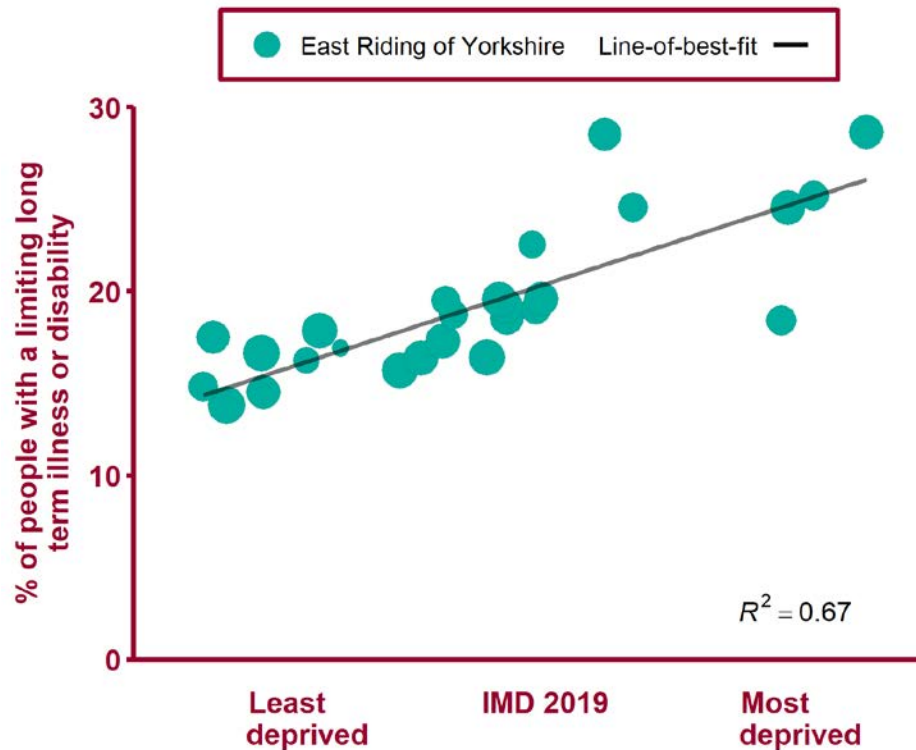


GCSE Achievement (2013/14)

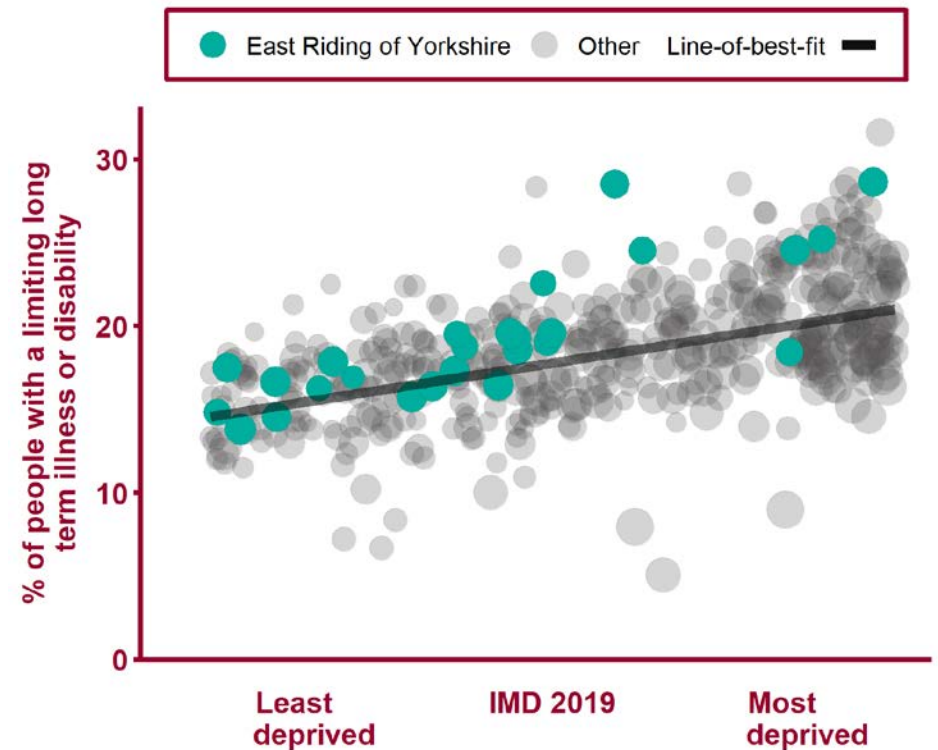


Percentage with a limiting long-term illness or disability (2011)

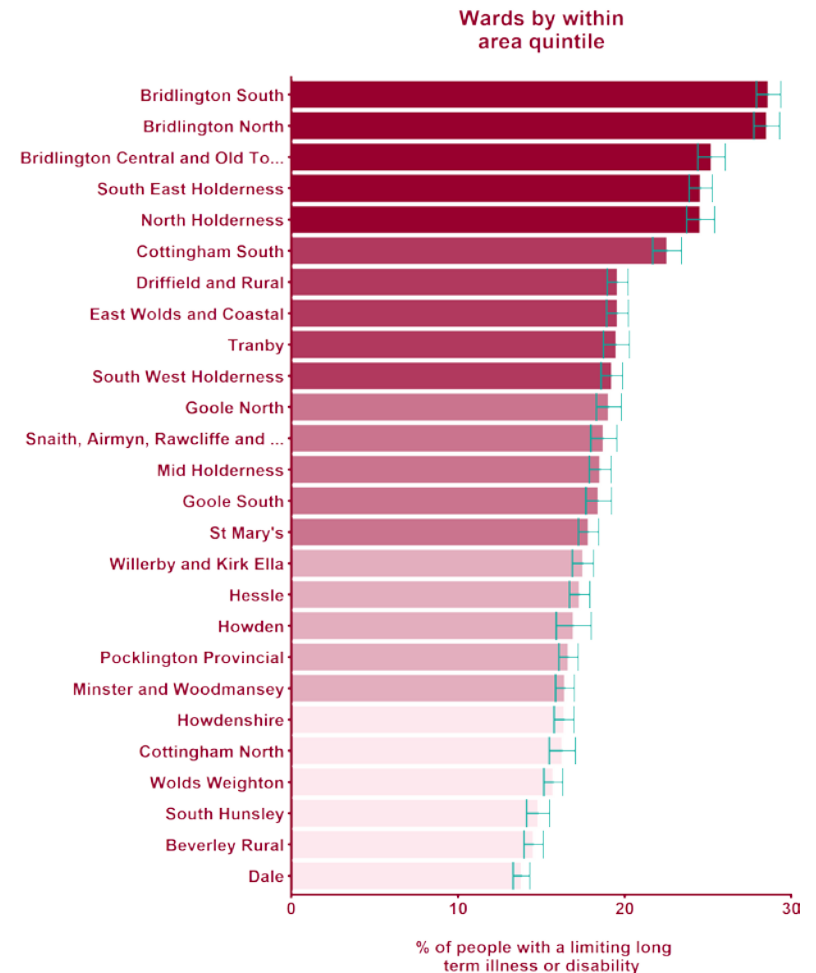
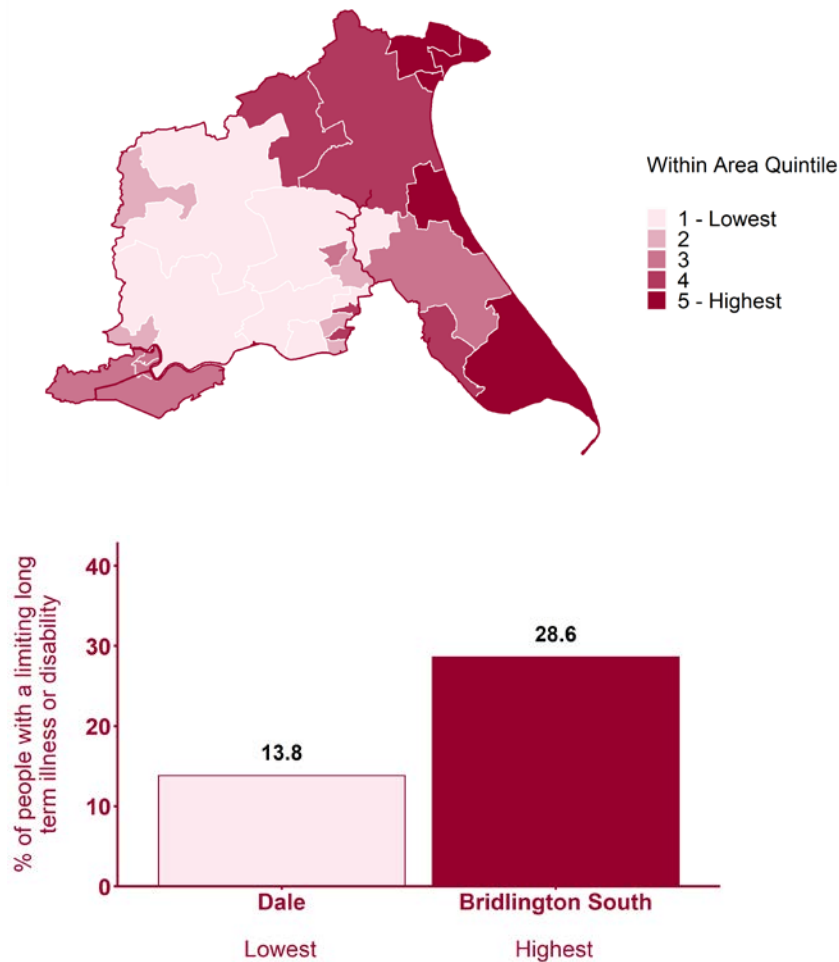
Wards within East Riding of Yorkshire



Wards within Yorkshire and The Humber



Percentage with a limiting long-term illness or disability (2011)



Feedback

We would be very interested to hear your views on these Health Inequalities Slides

If you would like to let us know your thoughts, or have any questions, then please contact your regional LKIS team at the address below:

LKISYorkshireandTheHumber@phe.gov.uk