



Public Health  
England

# Health inequalities slides Wirral

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 Wirral**
- **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](http://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.*

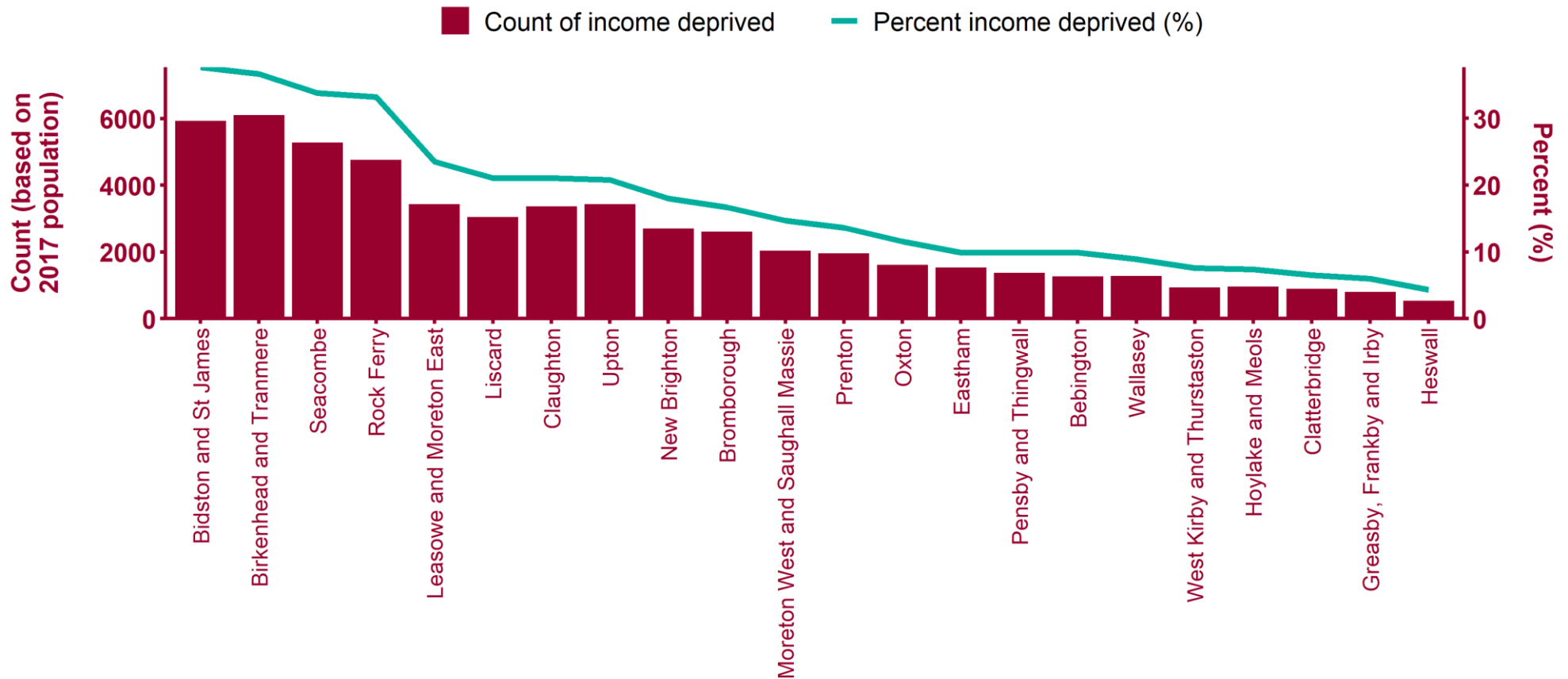
## ***Standardised Incidence Ratio (SIR)***

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

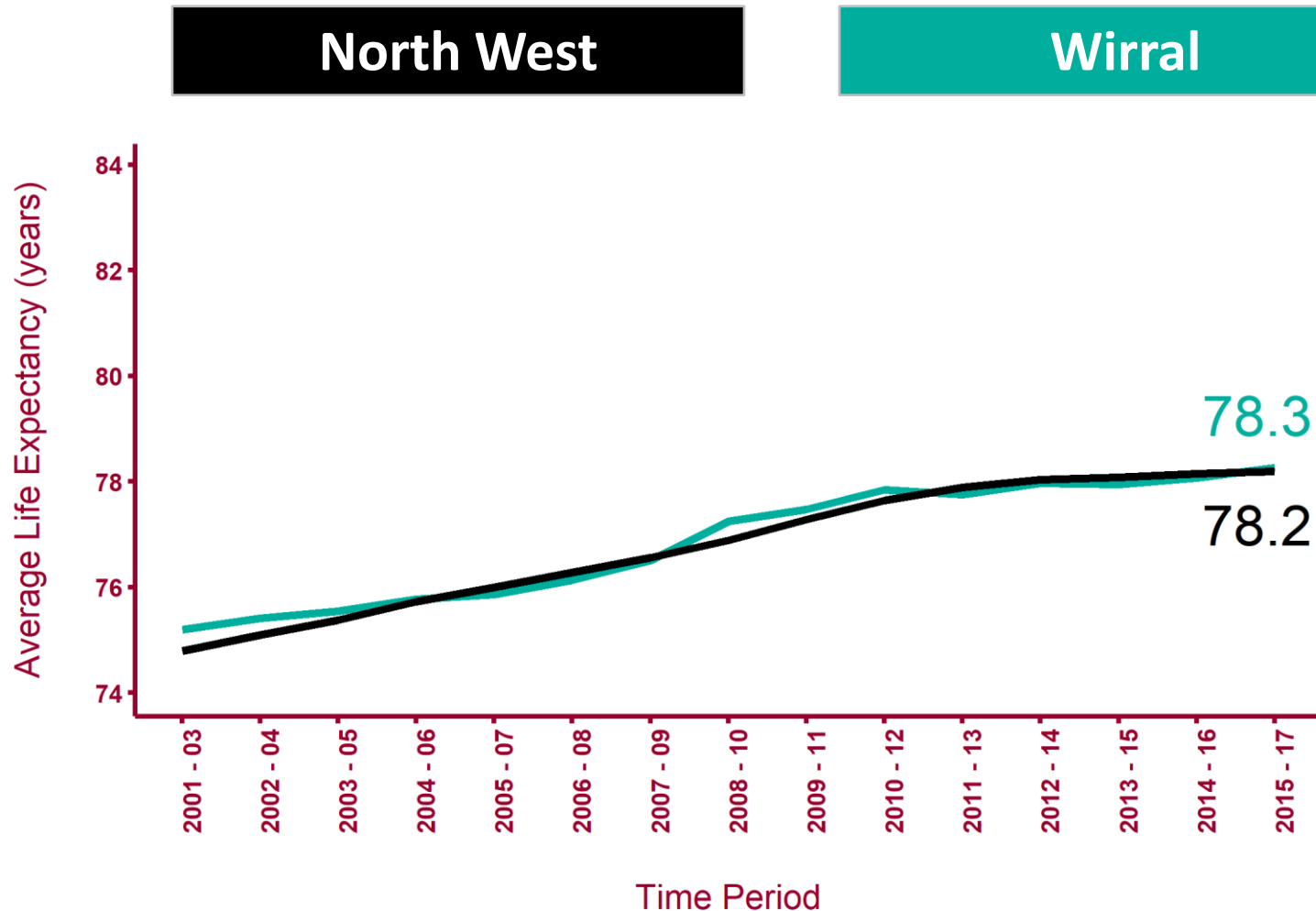
*An SIR is the ratio of the observed number of incidences in a ward to the number expected if the ward had the same age-specific rates as England.*

# Distribution of income deprivation across Wirral

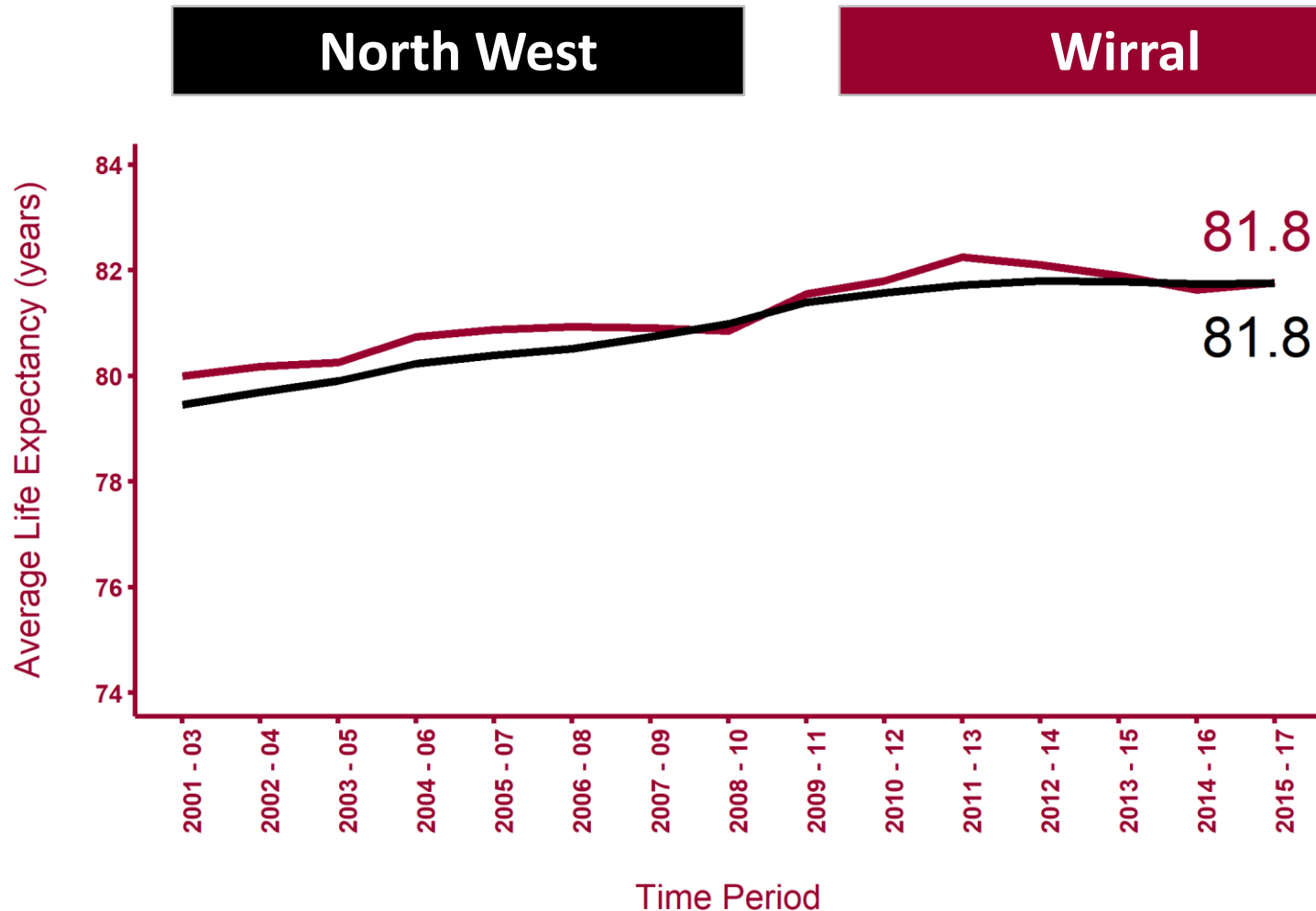
Income deprivation by ward (IMD 2019)



# Life expectancy at birth (male)

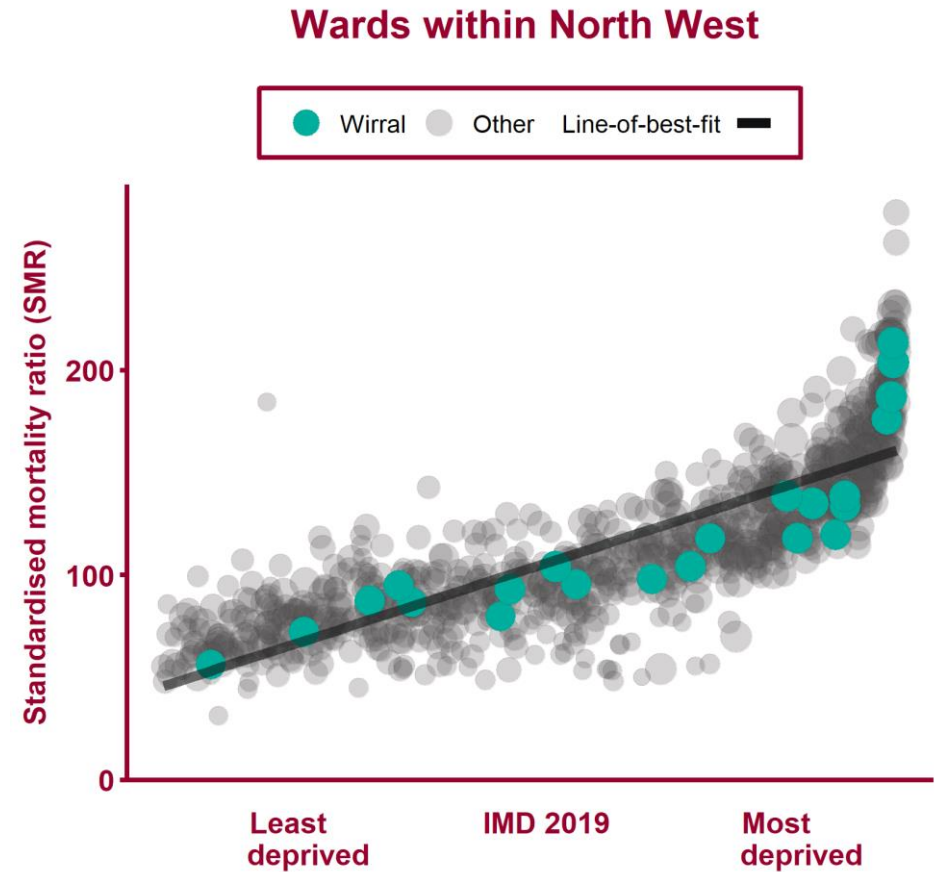
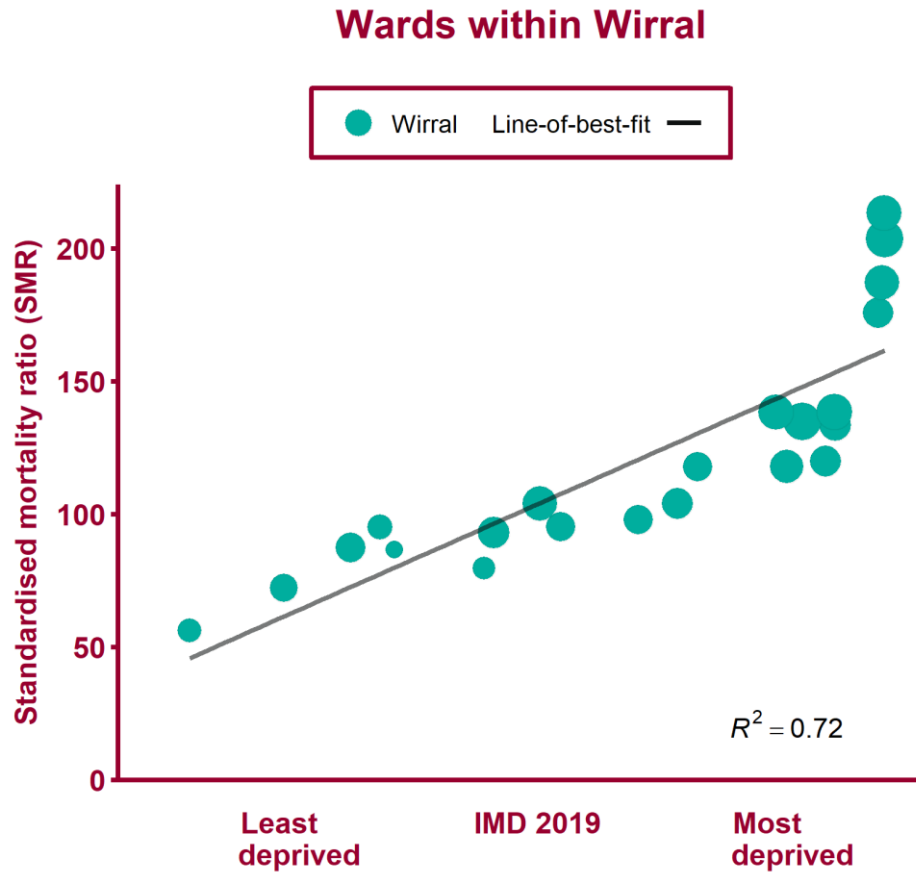


# Life expectancy at birth (female)

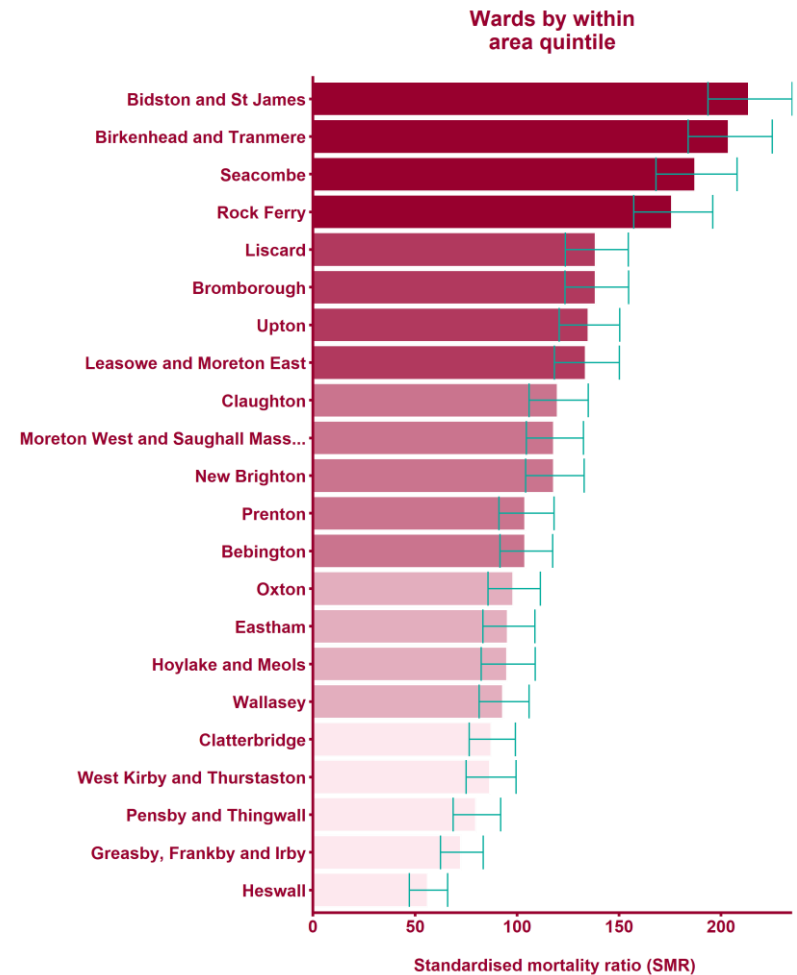
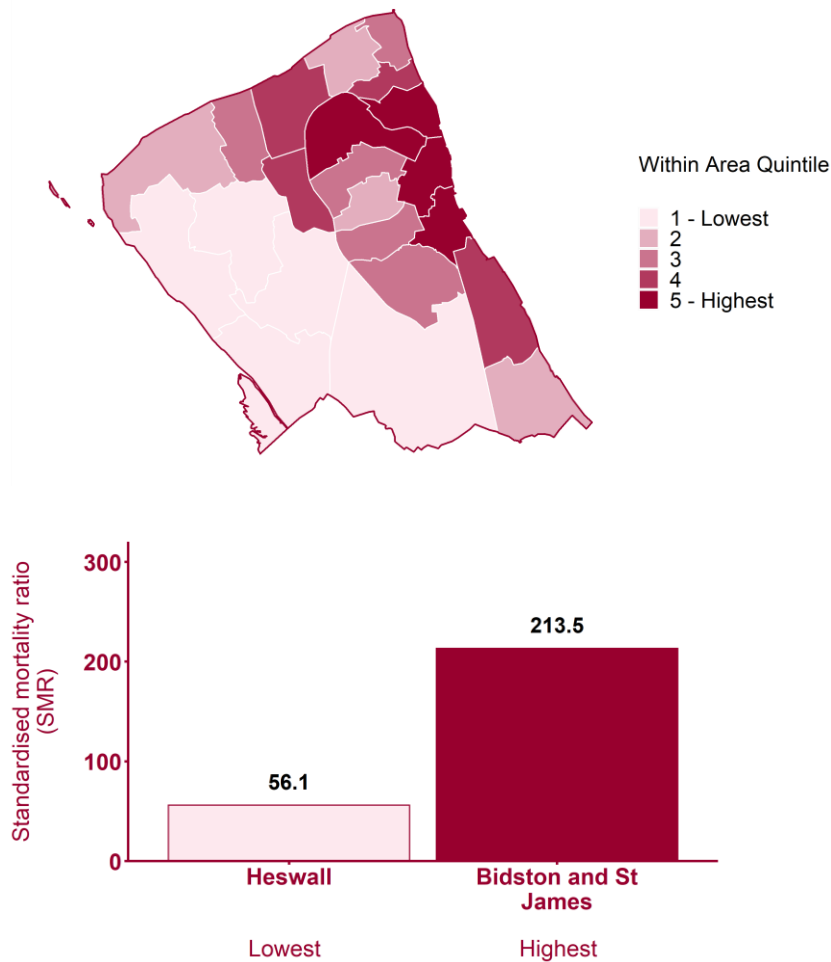




# Deaths from all causes, under 75 years (2013 - 17)

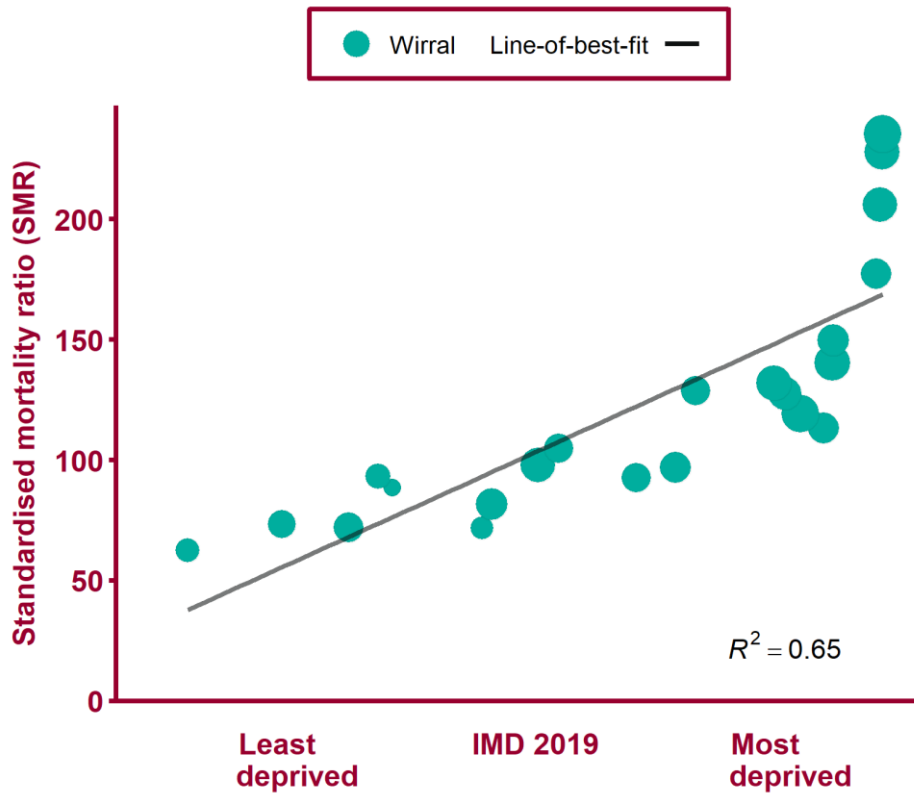


# Deaths from all causes, under 75 years (2013 - 17)

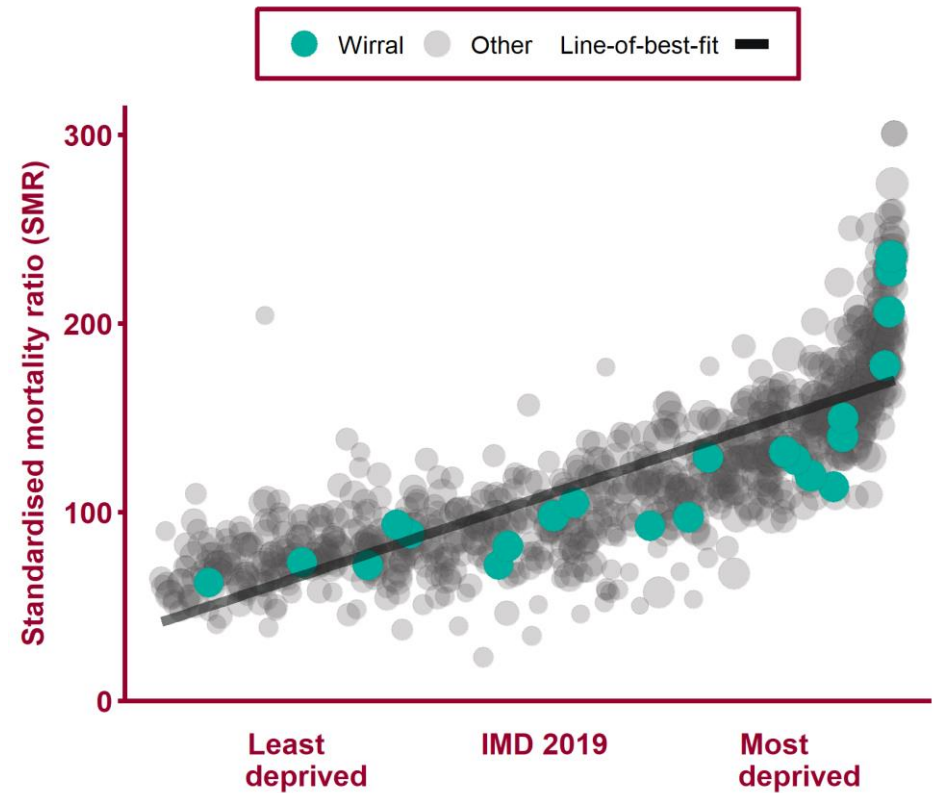


# Deaths from causes considered preventable, all ages (2013 - 17)

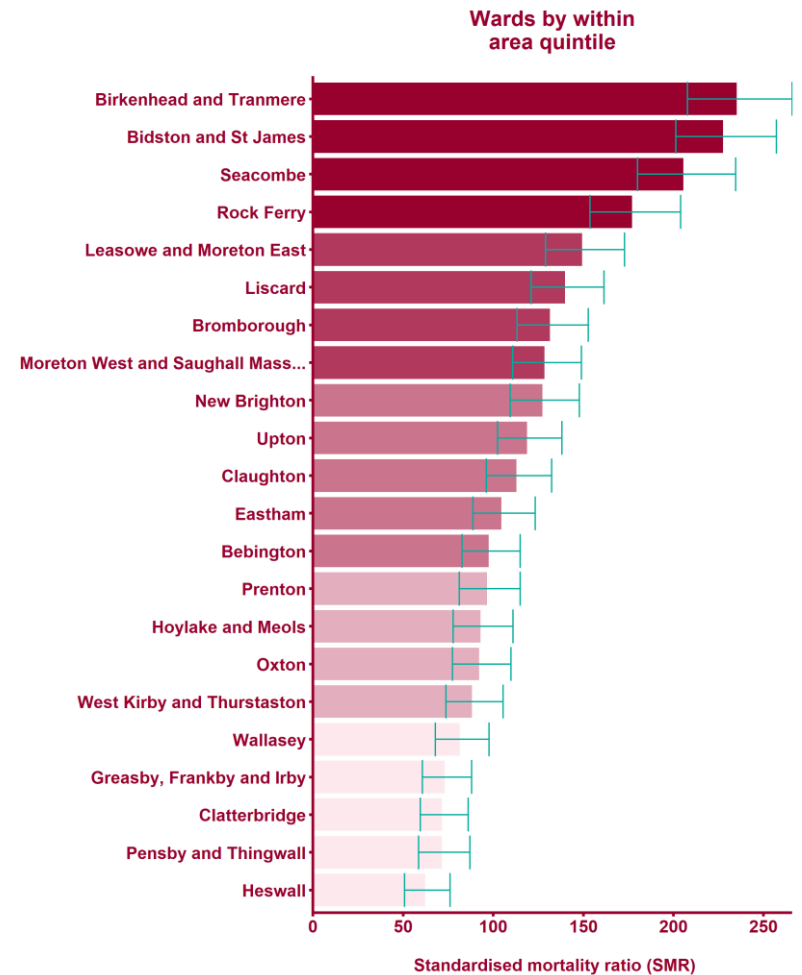
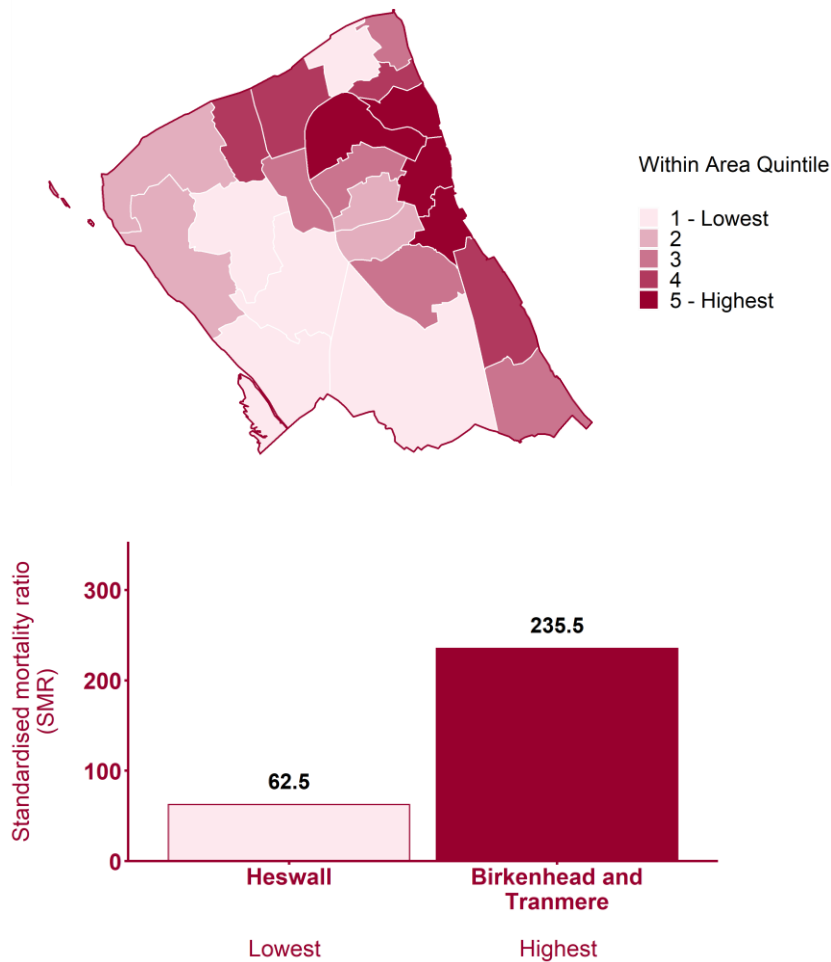
## Wards within Wirral



## Wards within North West

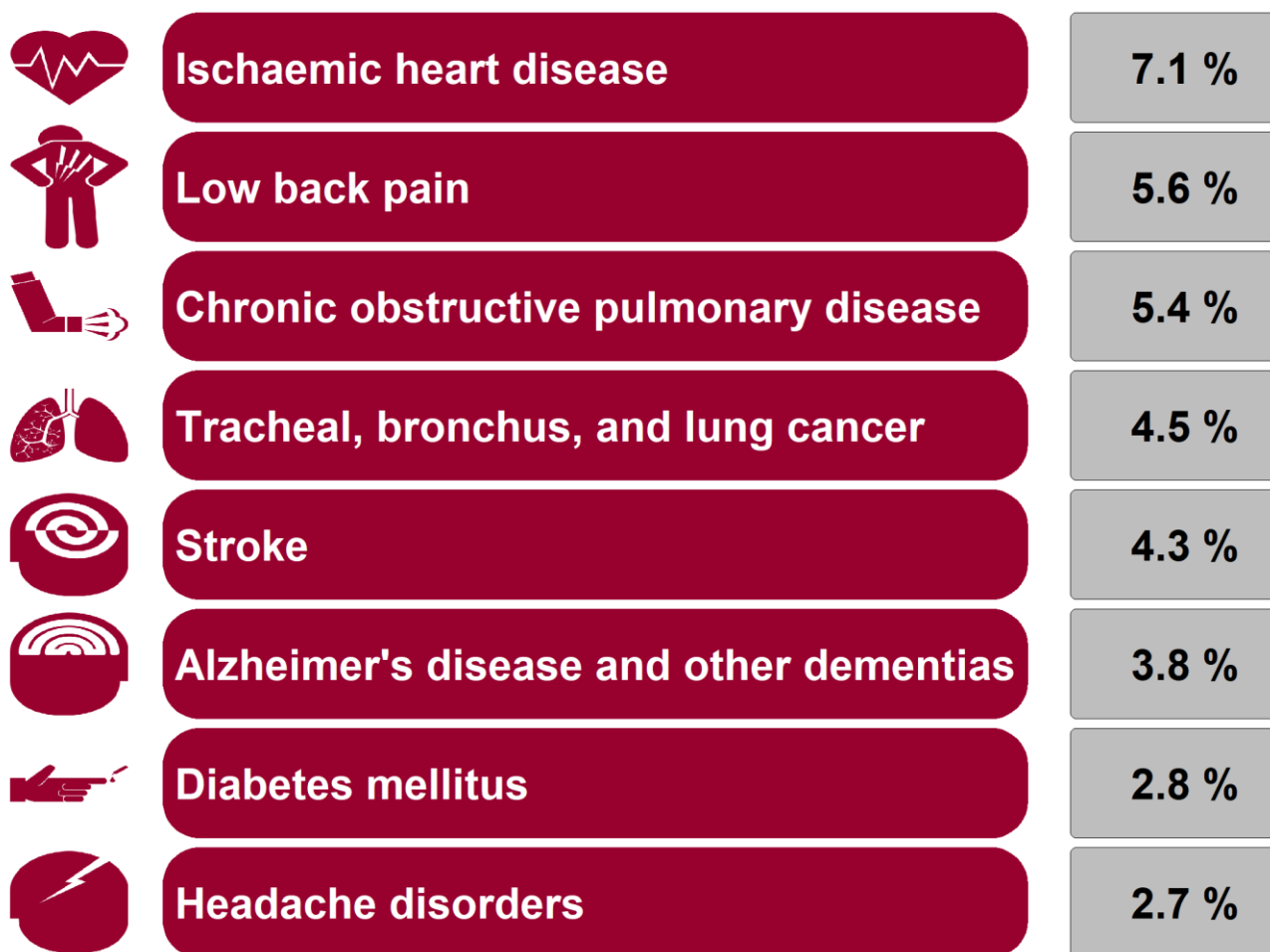


# Deaths from causes considered preventable, all ages (2013 - 17)

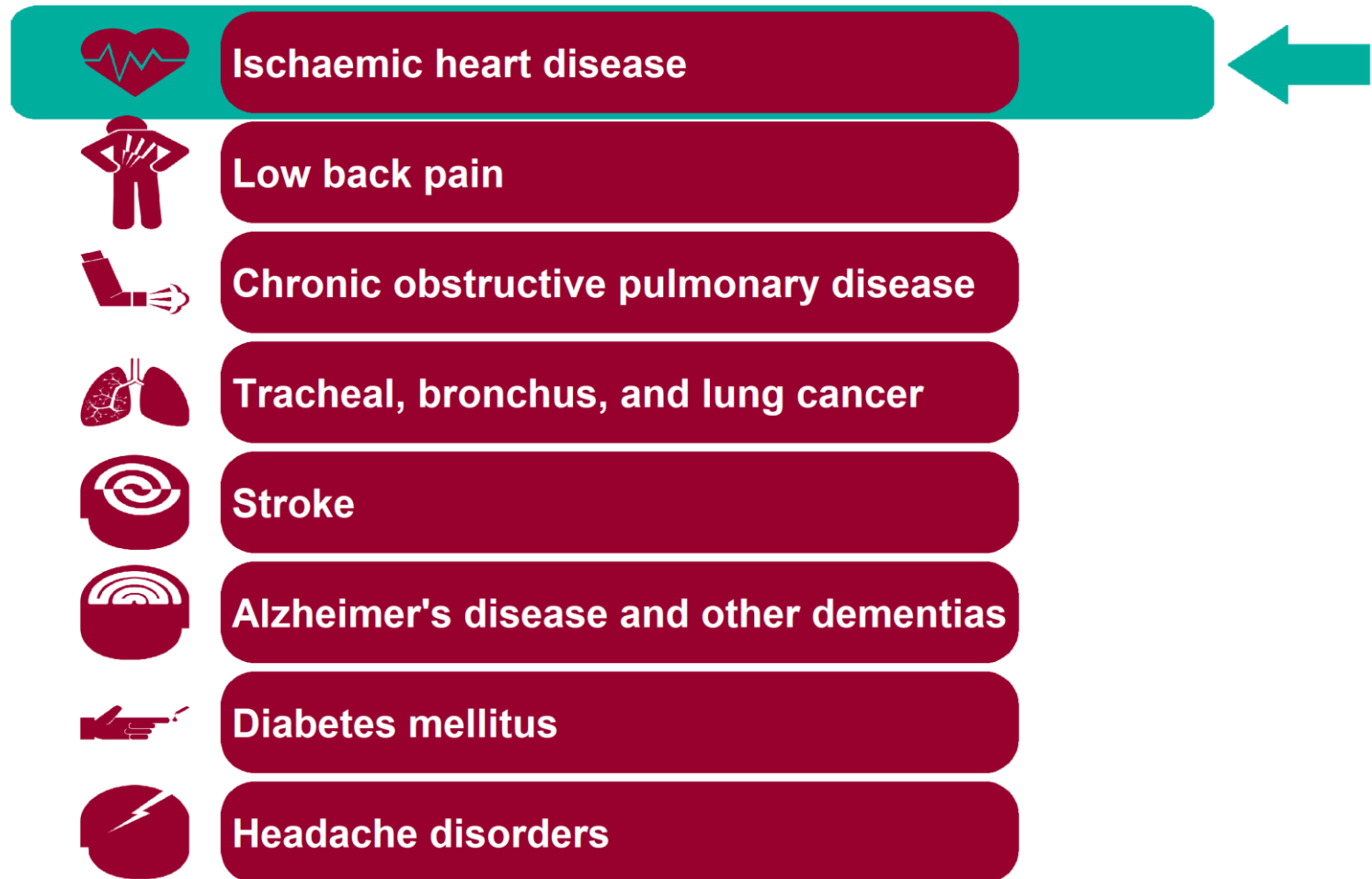


# GBD cause: Wirral

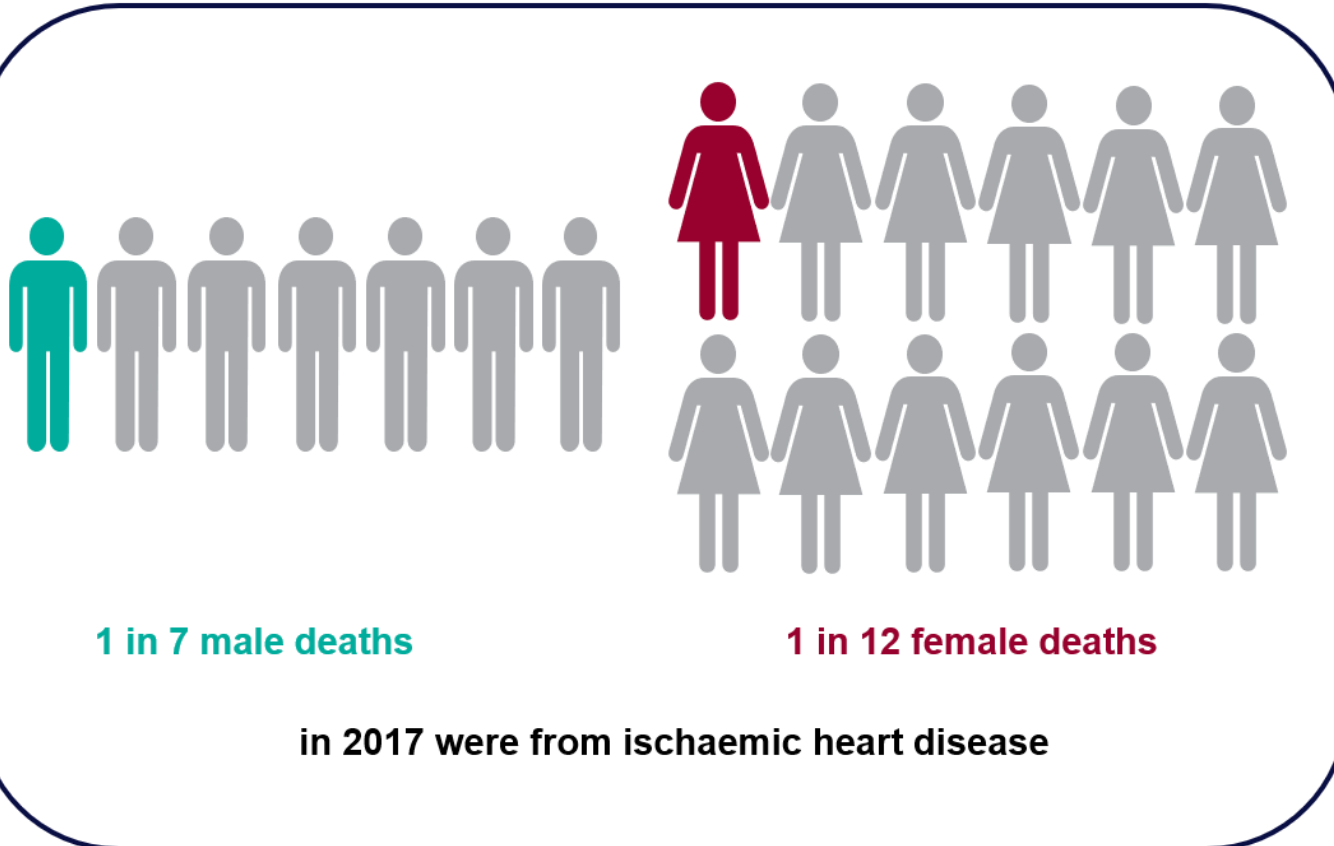
Causes ranked by percentage of total disability-adjusted life years



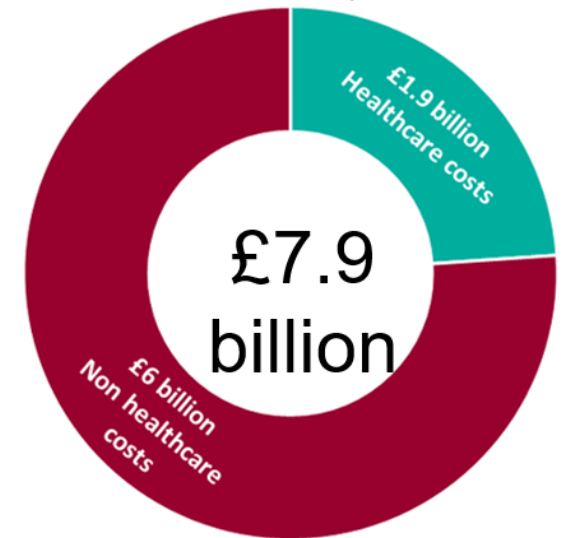
# Global Burden of Disease: Ischaemic heart disease



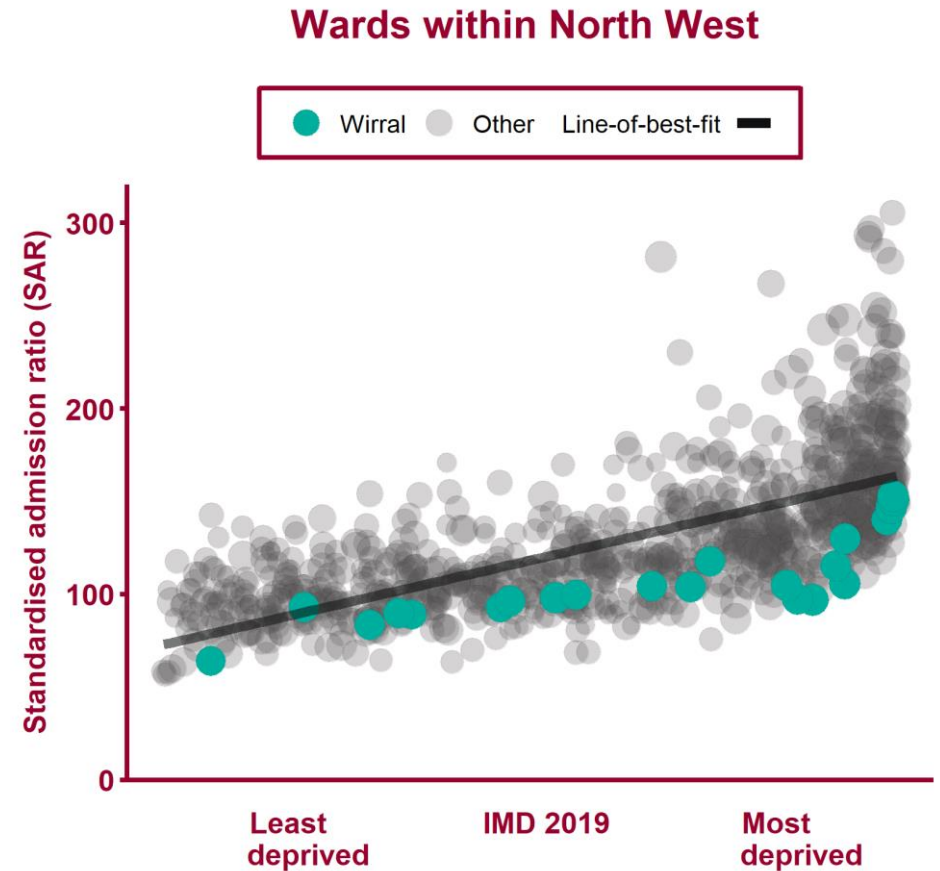
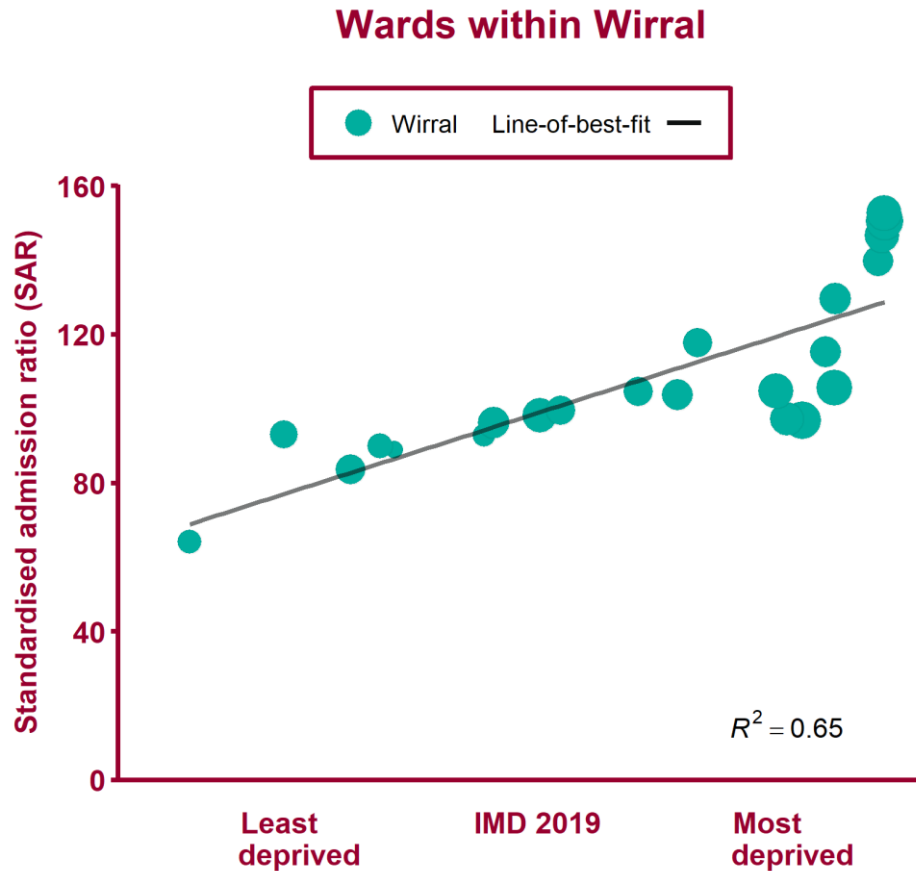
# Ischaemic heart disease - National picture



UK Costs, 2015

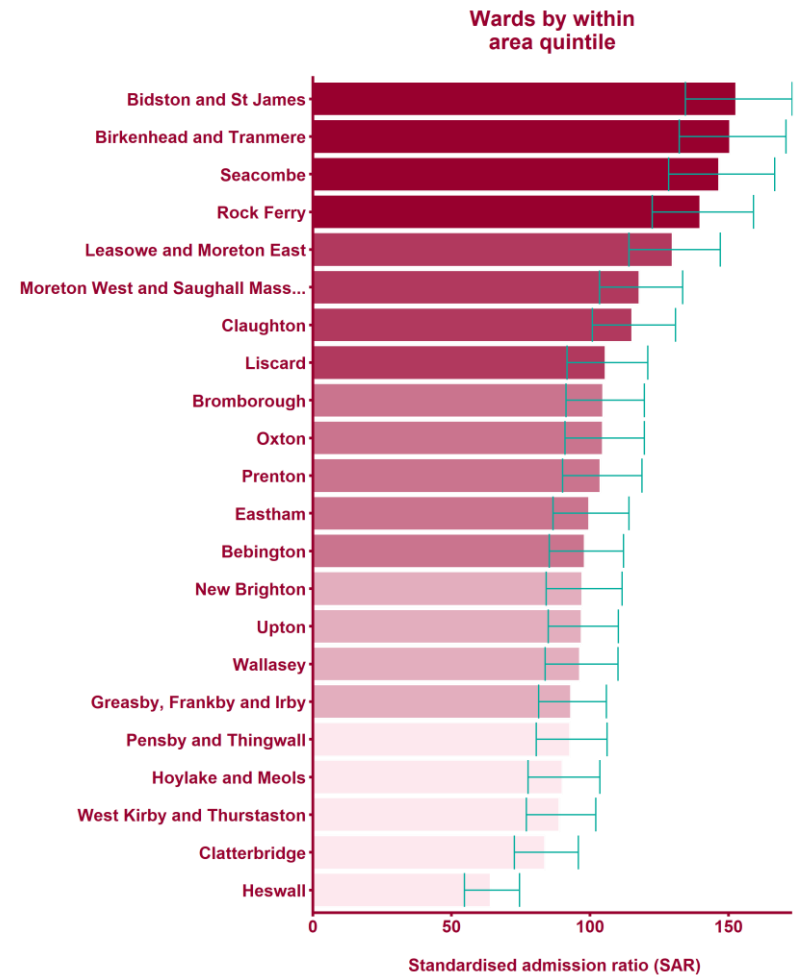
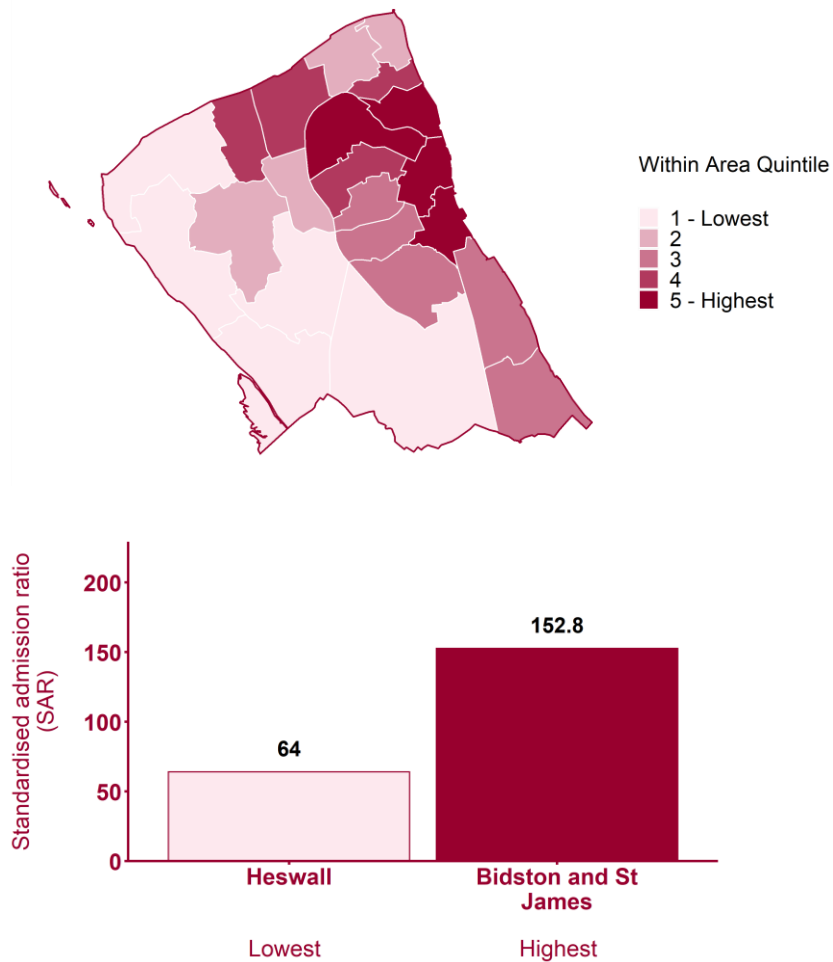


# Emergency hospital admissions for CHD (2013/14 - 2017/18)





# 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

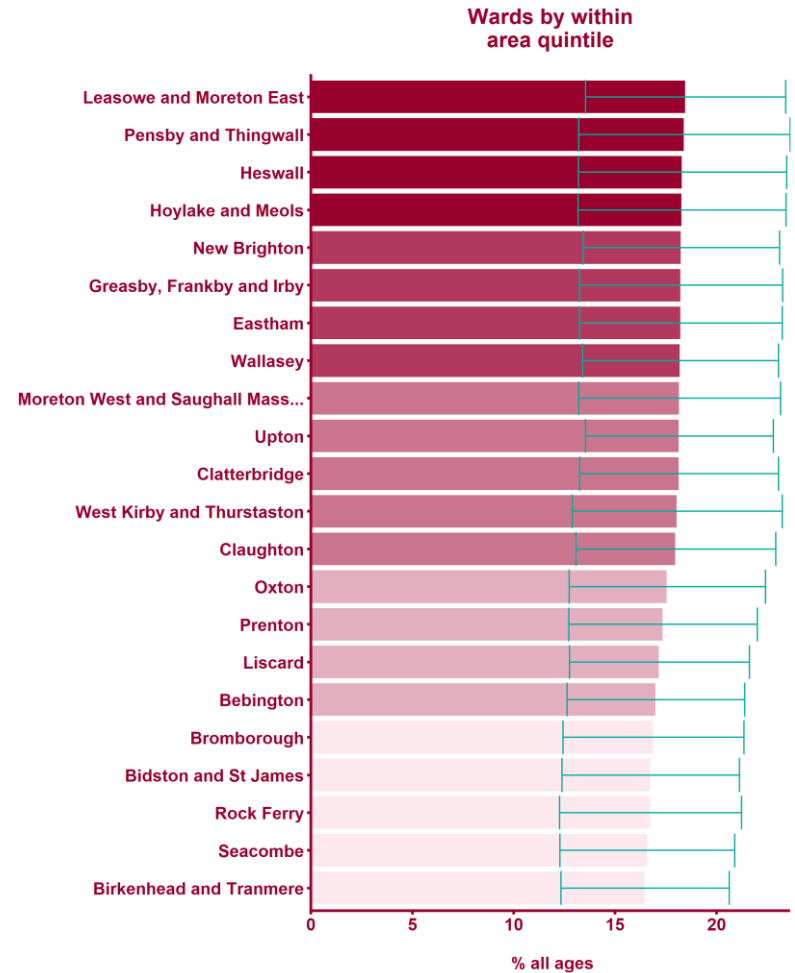
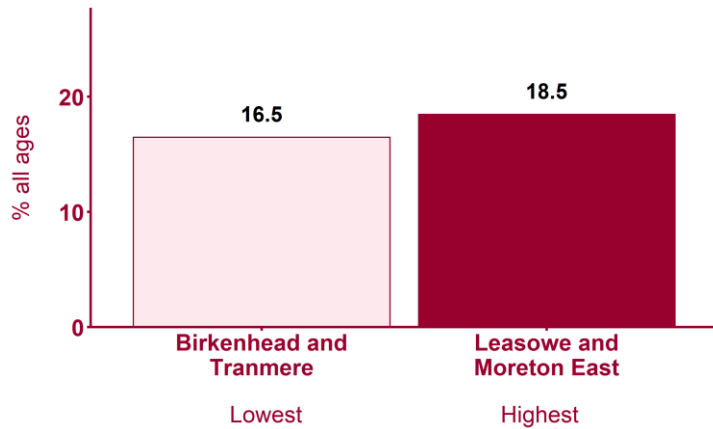
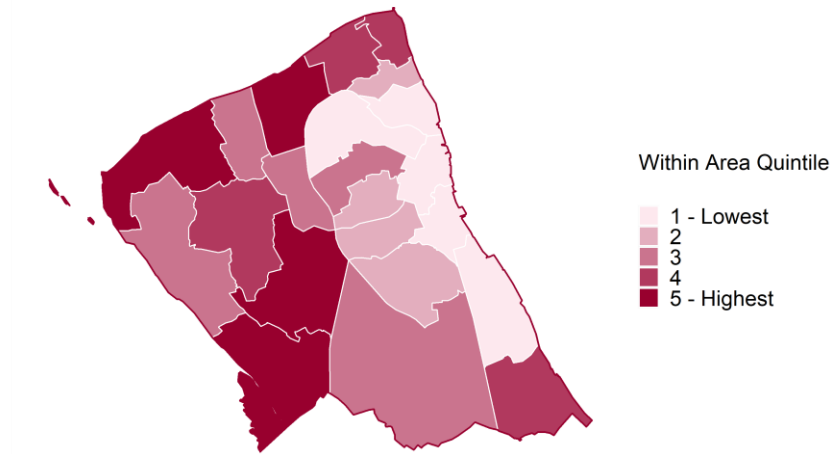


Which accounted for **21%** of all sickness absence

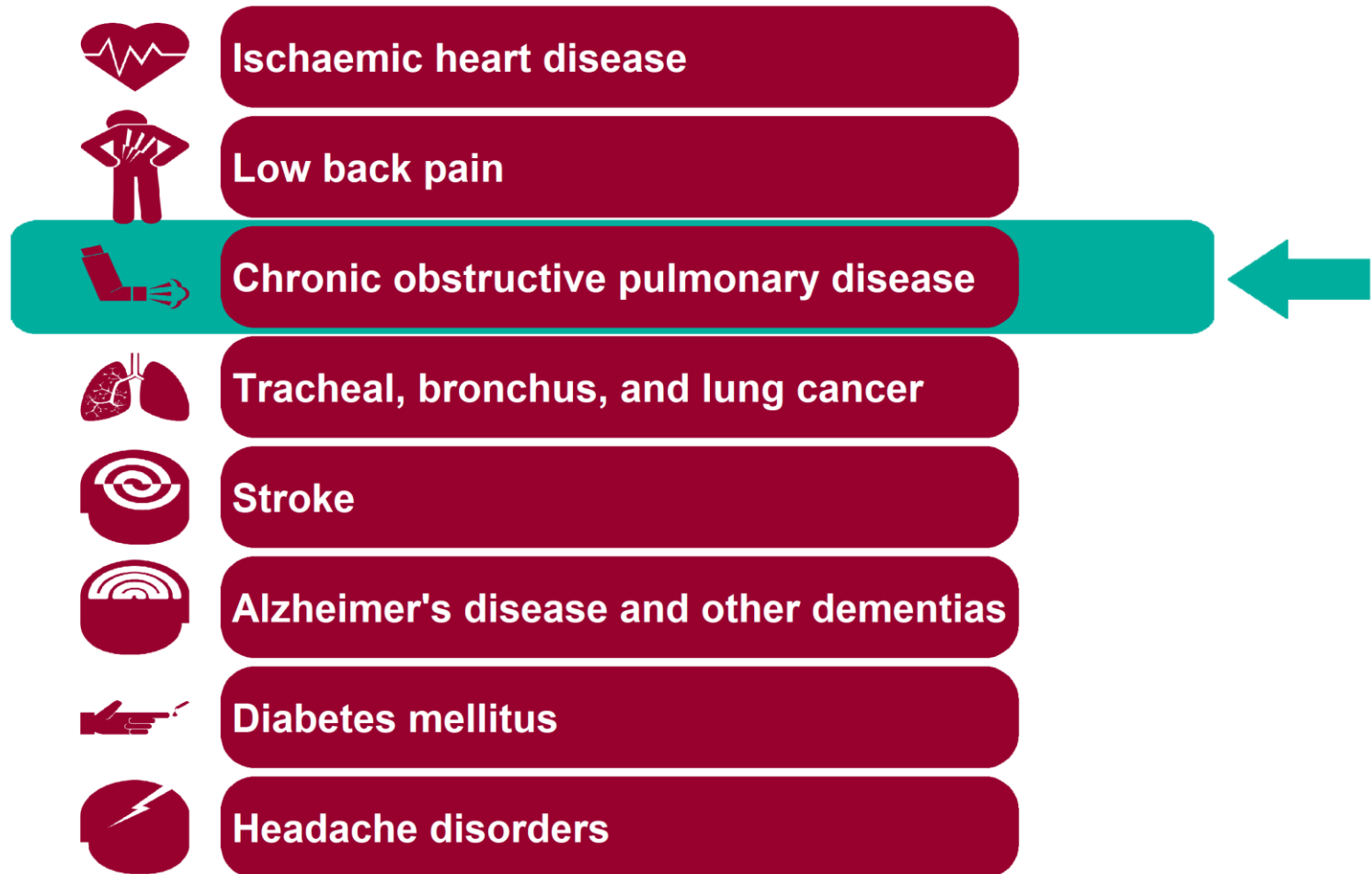
Musculoskeletal conditions are the **2nd biggest cause** of work days lost after coughs and colds



# Modelled back pain prevalence (2012)



# 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



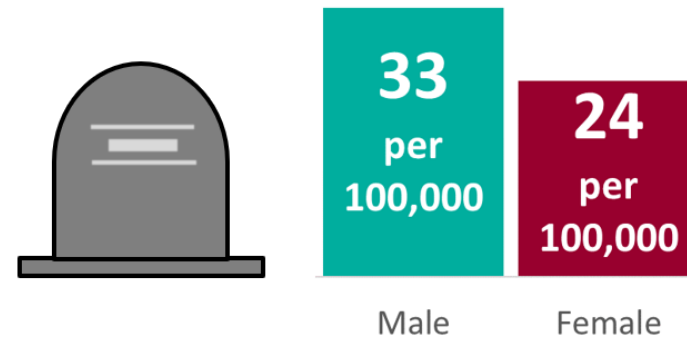
That's around **8.2%**  
of the population

There were almost

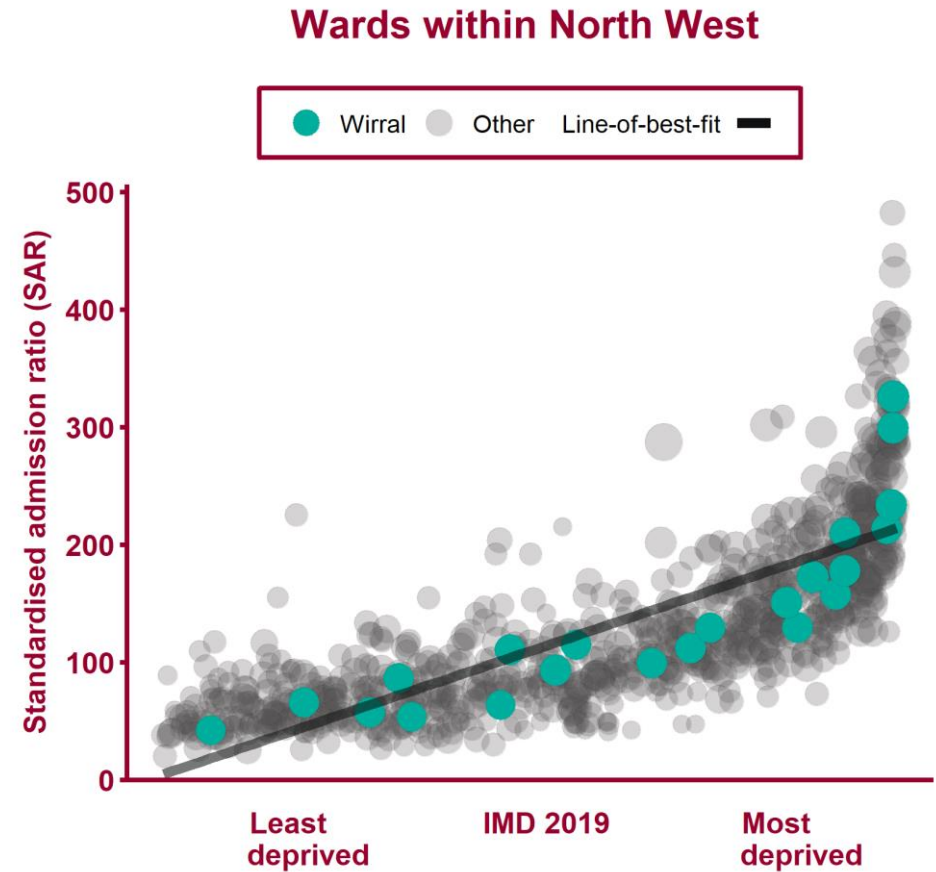
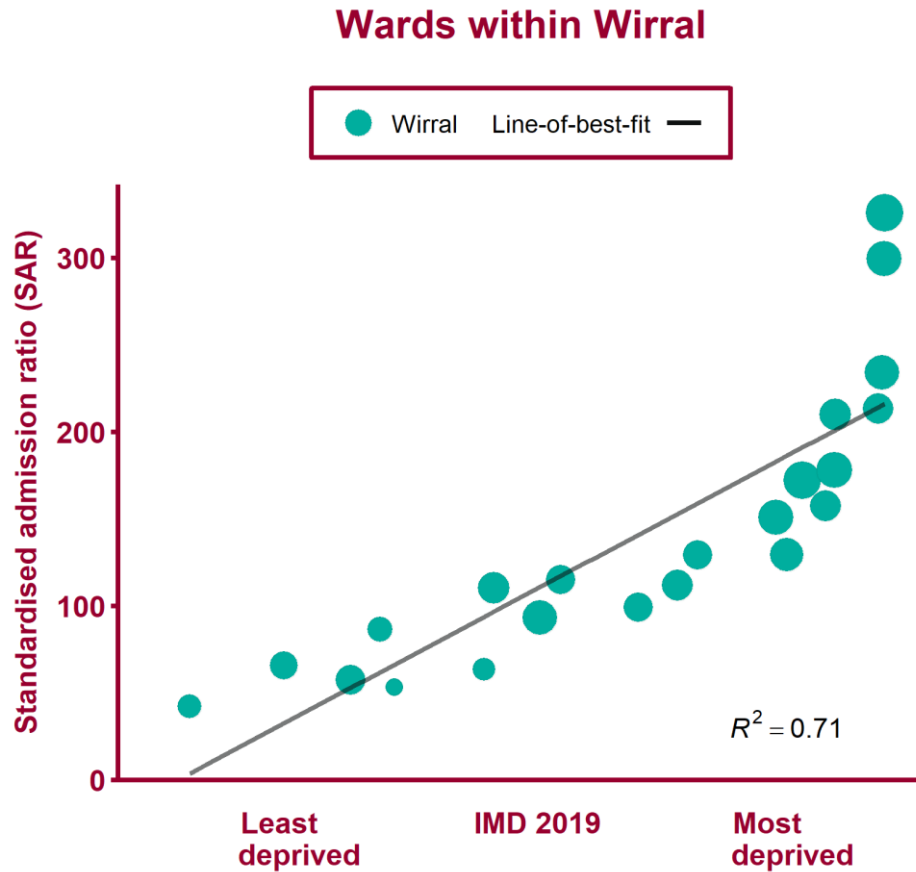
**40 thousand**  
**deaths**

from COPD in the UK in 2017

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

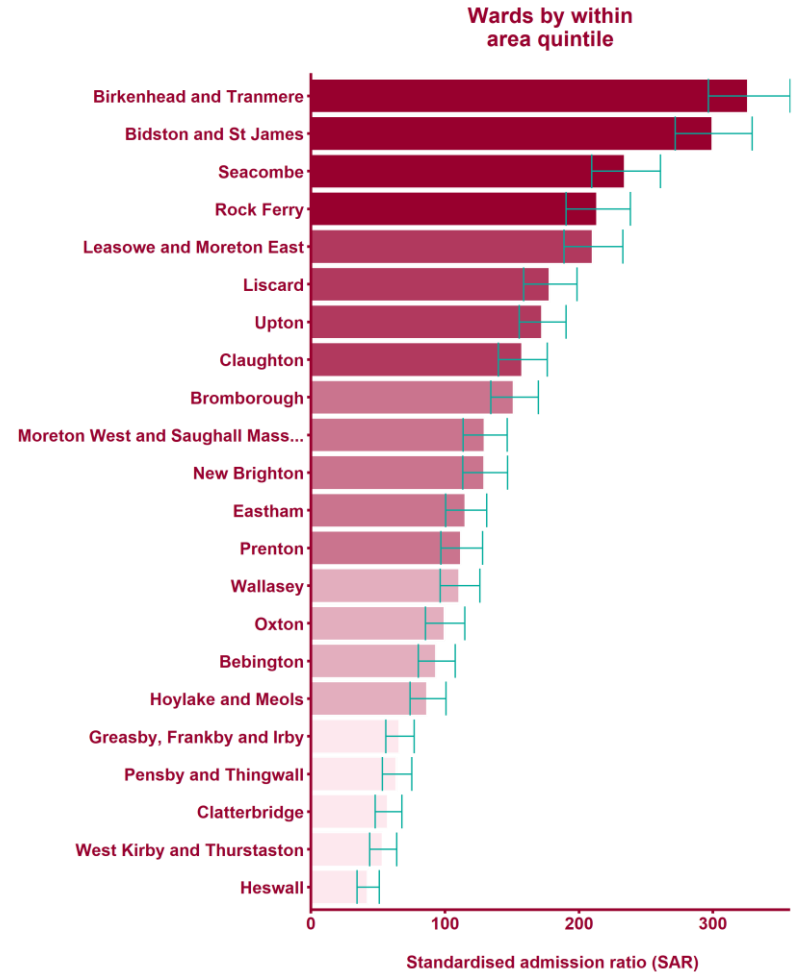
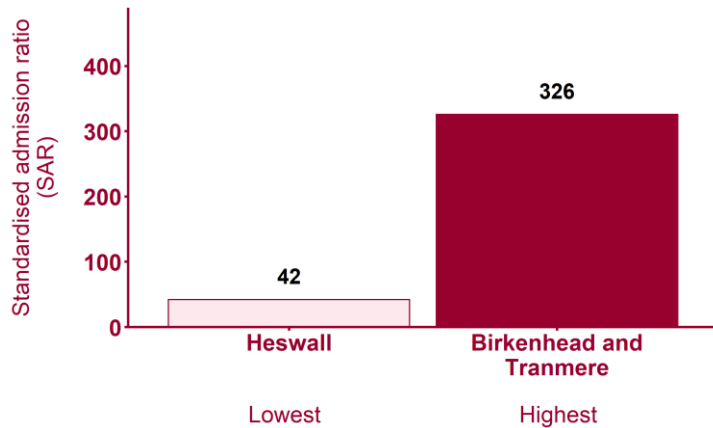
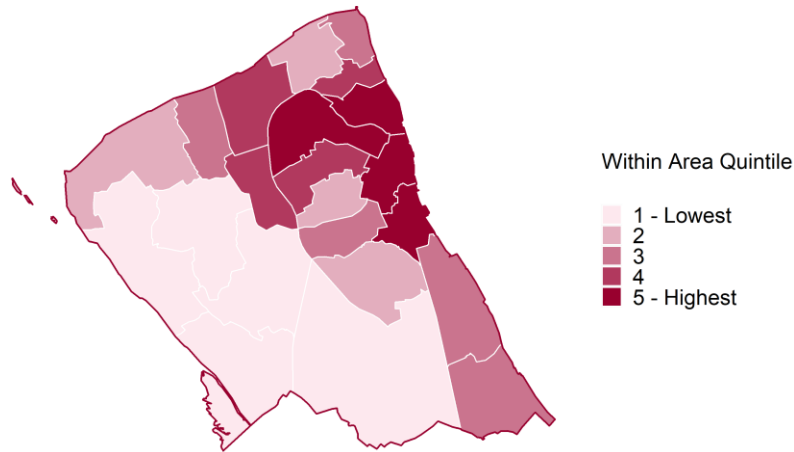


# Emergency hospital admissions for COPD (2013/14 - 2017/18)





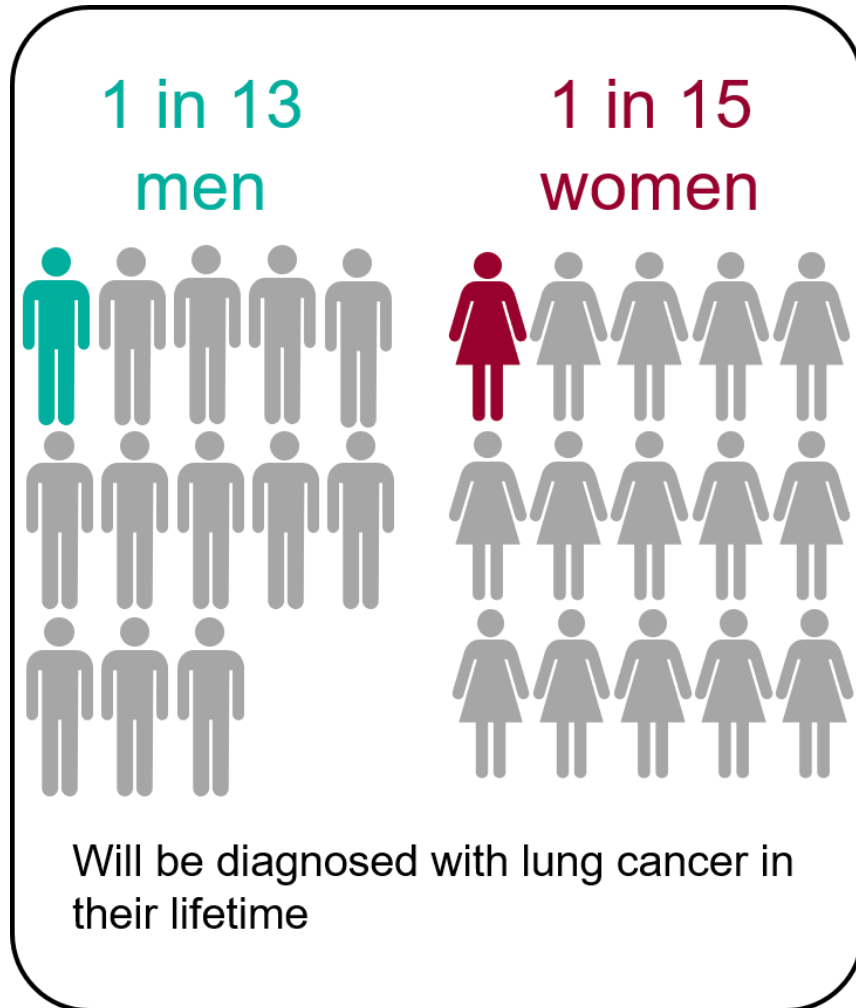
# Emergency hospital admissions for COPD (2013/14 - 2017/18)



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



# Lung cancer - National picture



## Smoking

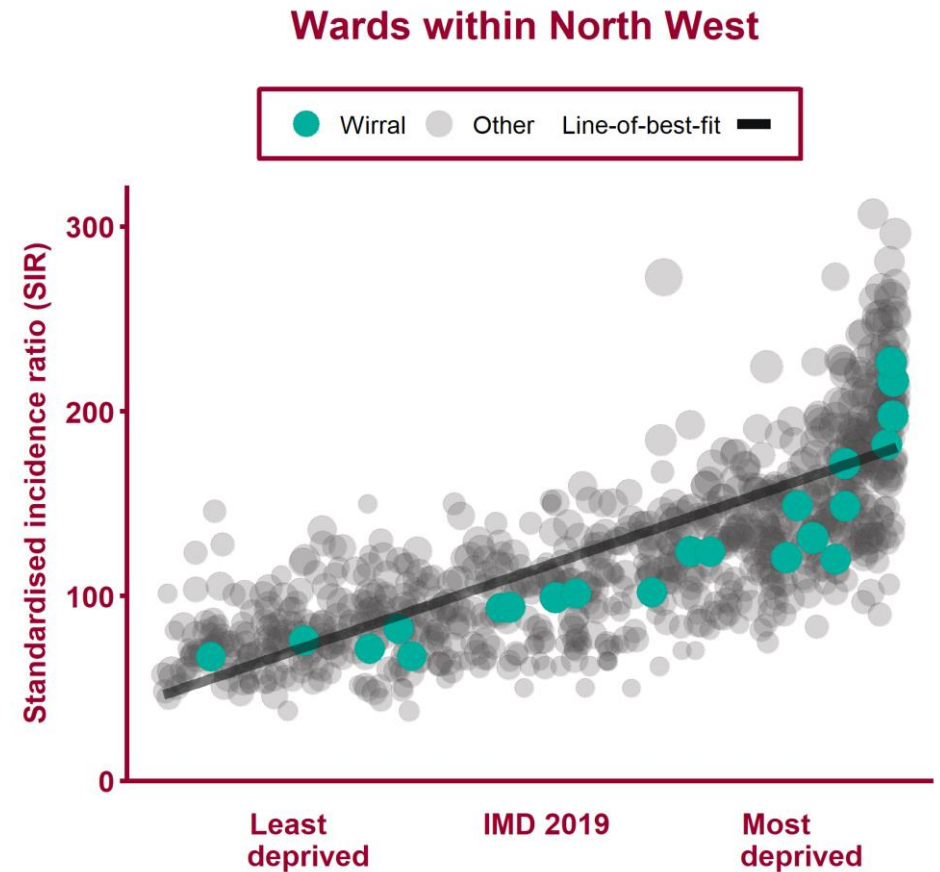
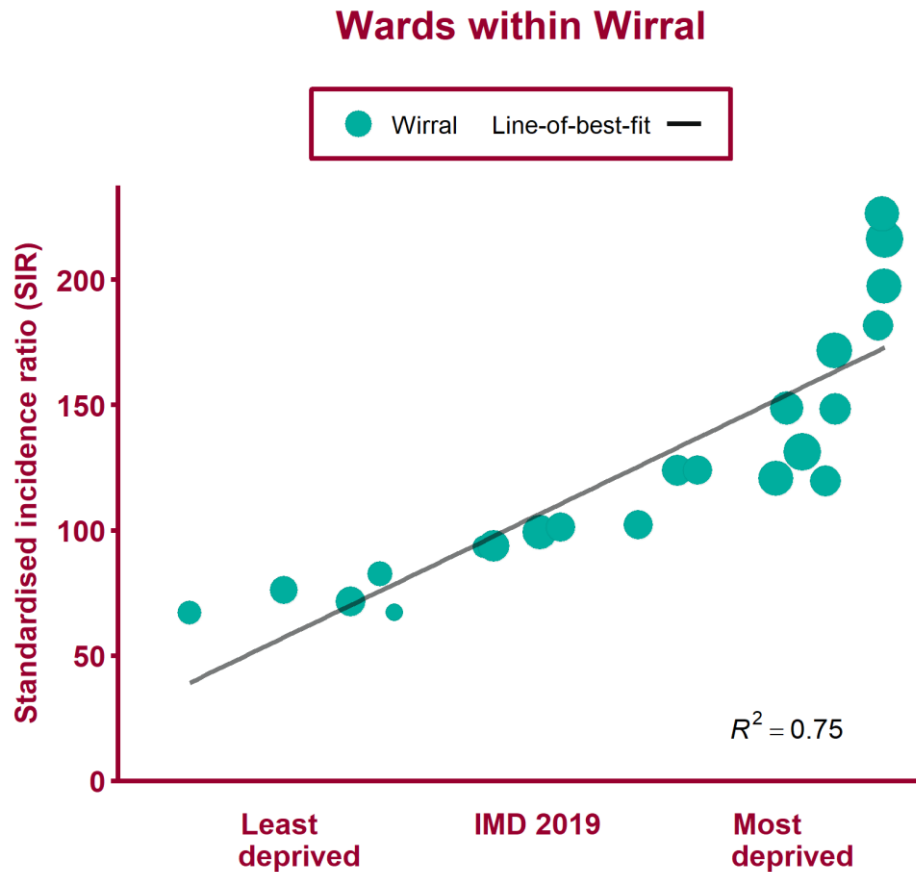
is the main avoidable risk factor for lung cancer, linked to an estimated

**72%**

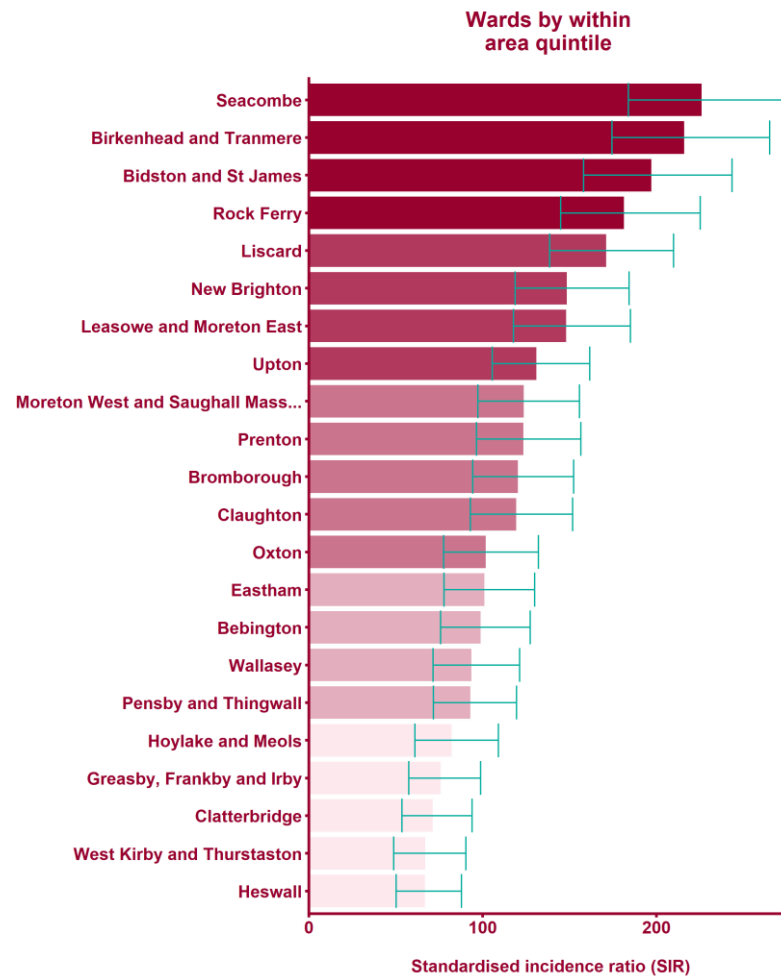
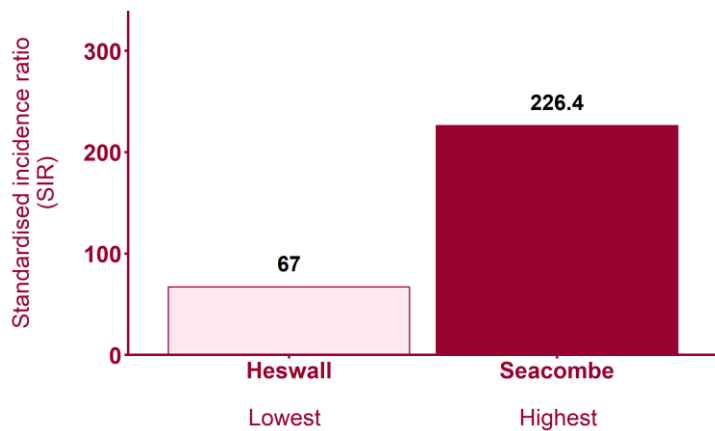
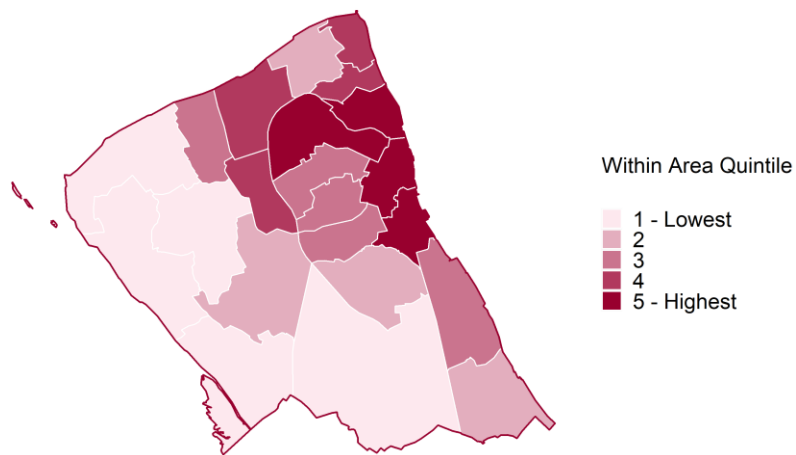
of lung cancer cases in the UK



# Incidence of lung cancer (2012 - 16)



# Incidence of lung cancer (2012 - 16)



# Global Burden of Disease: Stroke

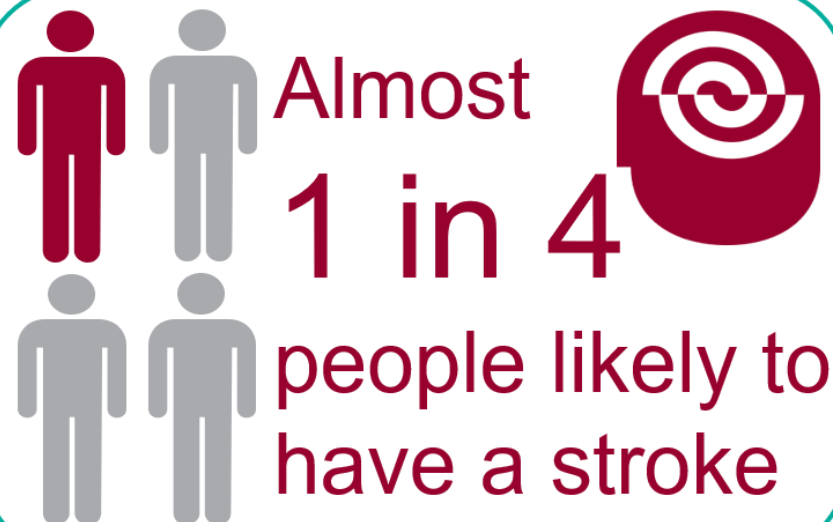


# Stroke - National picture

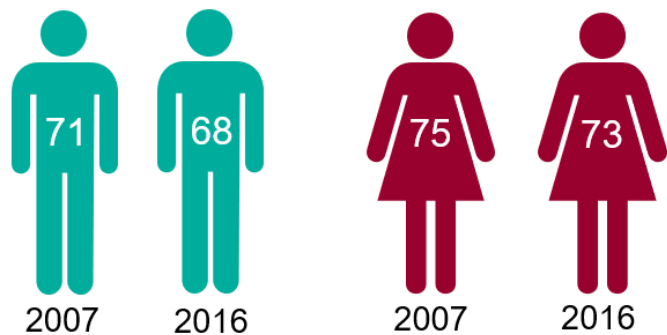
Atrial Fibrillation (AF) is a **contributing factor** to **one in five** strokes

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

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

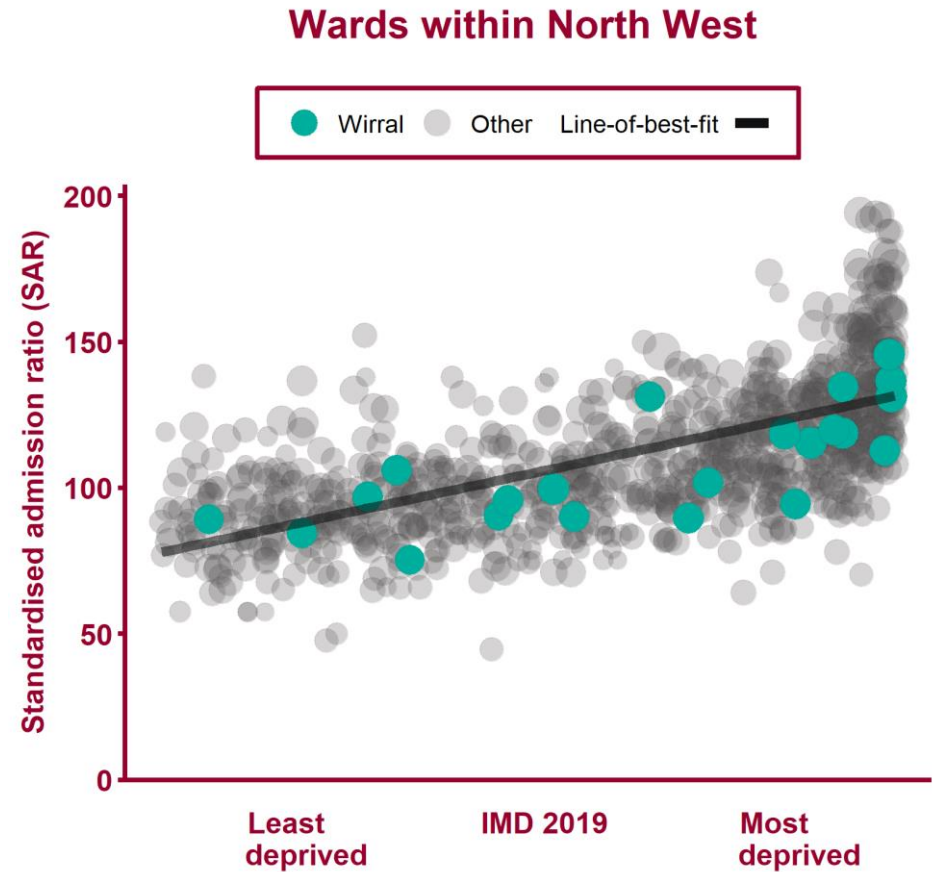
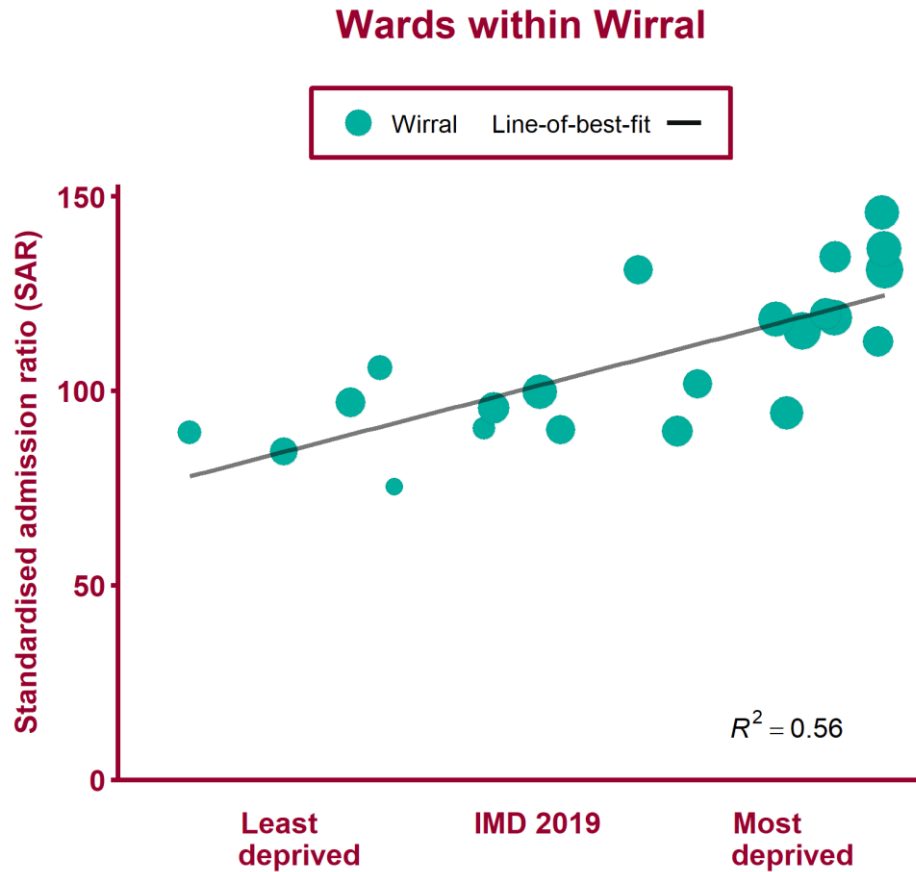


Age at first stroke is decreasing



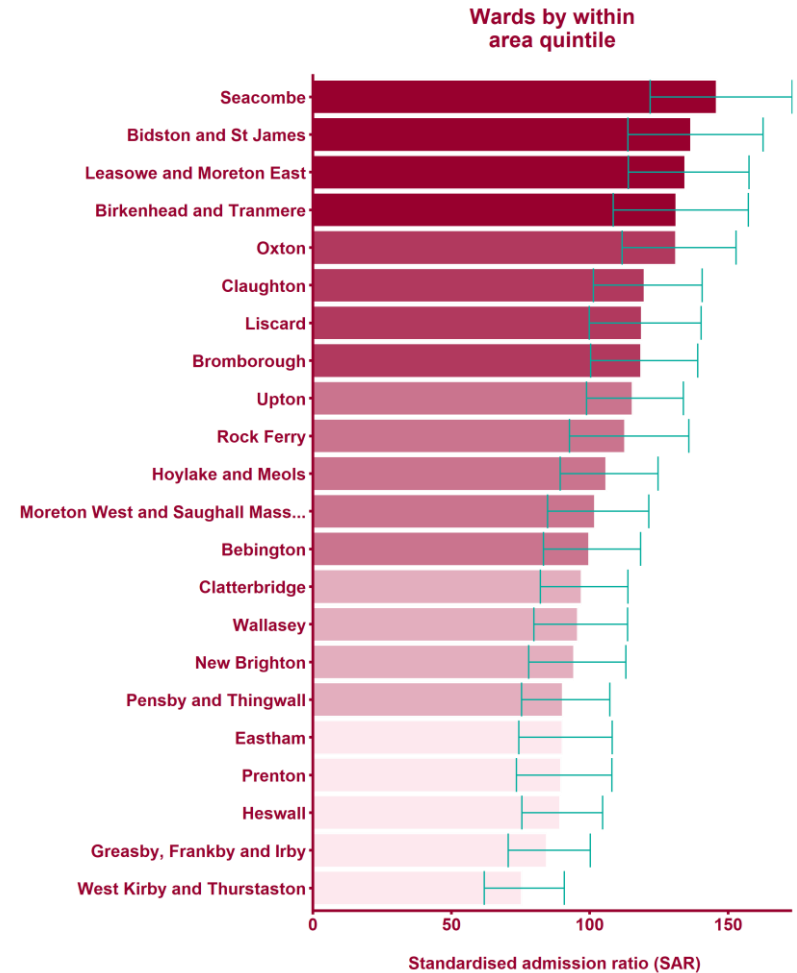
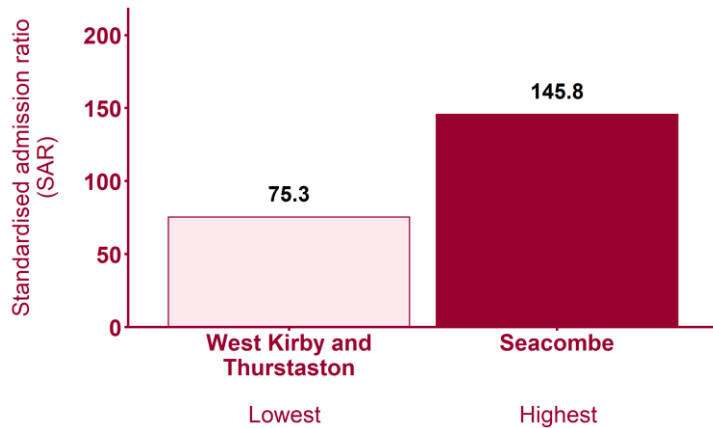
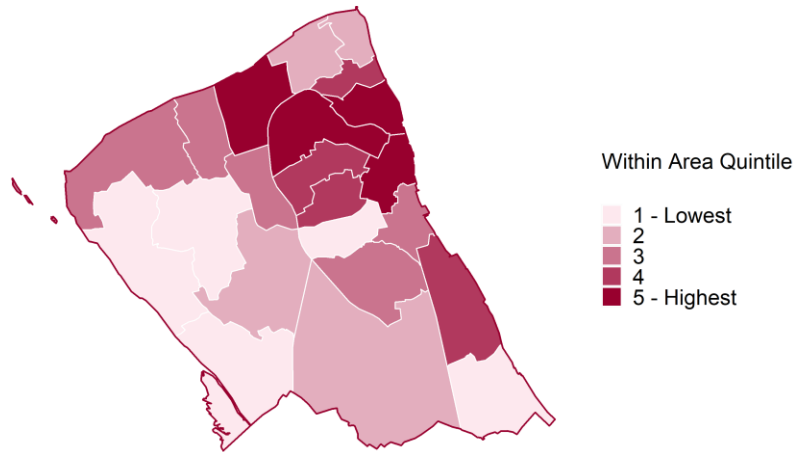
The estimated cost of acute stroke in England is **£1.7 billion** a year

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





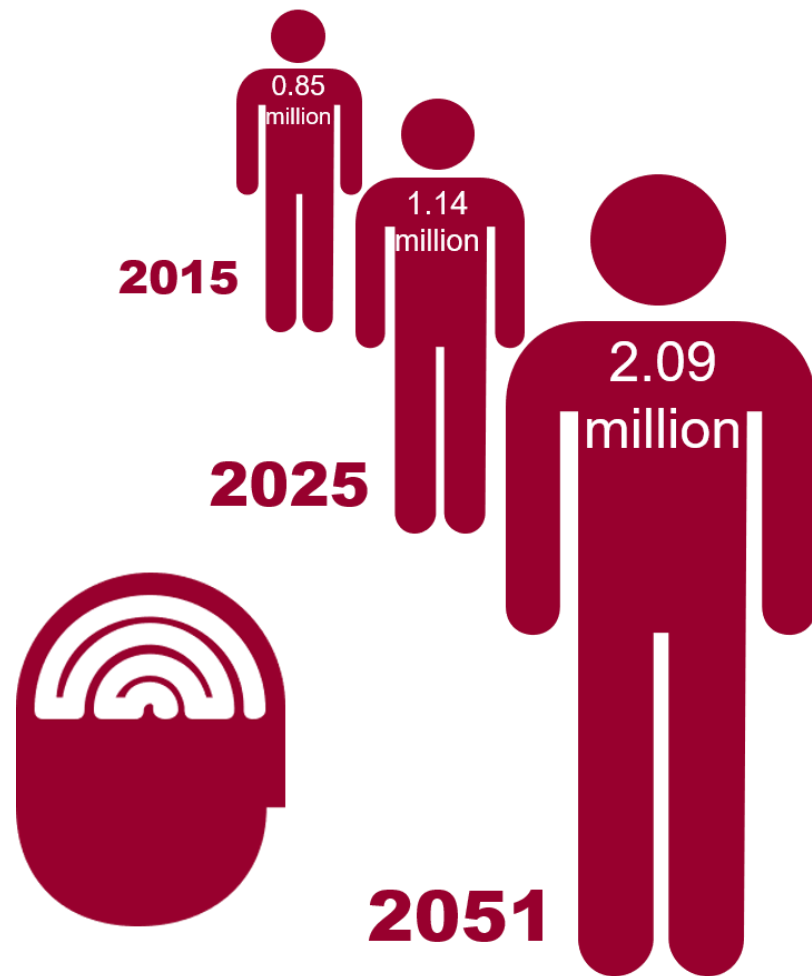
# Emergency hospital admissions for stroke (2013/14 - 2017/18)



# 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: Diabetes mellitus



# Diabetes mellitus - National picture

People with diabetes are at greater risk of:

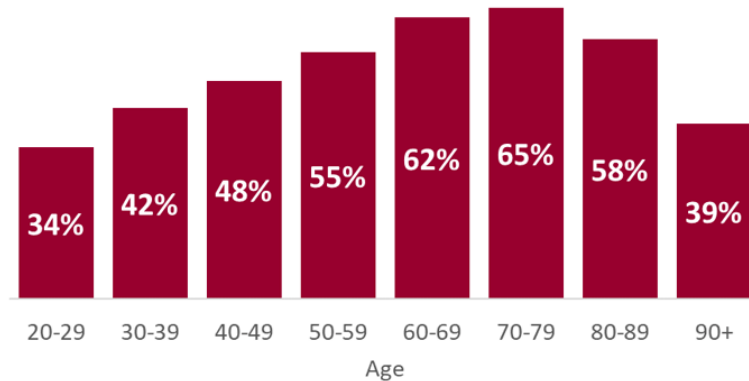
Heart attack: **2.5x**

Heart failure: **2.5x**

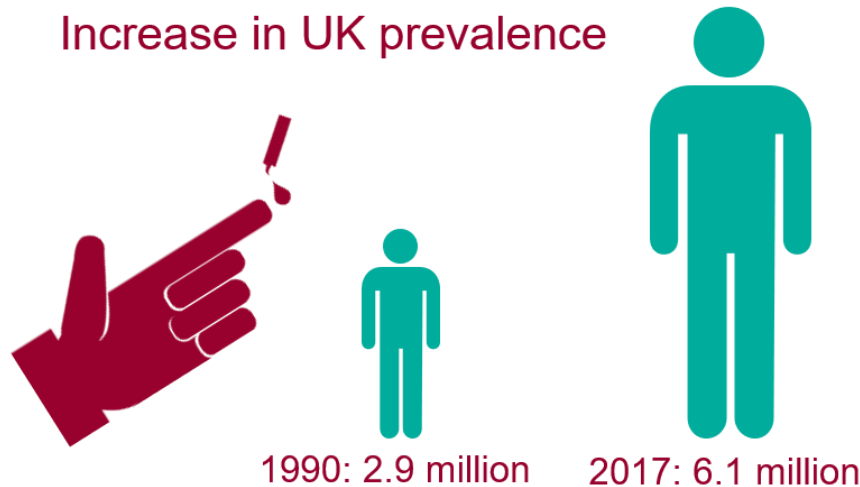
Stroke: **2x**

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**

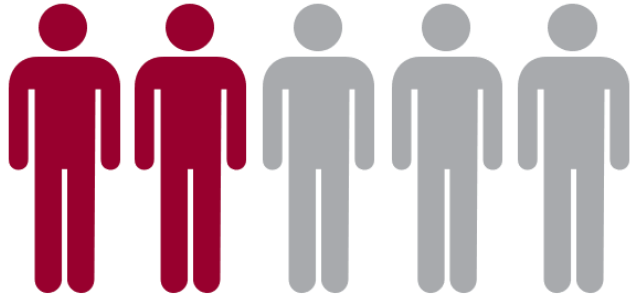
a year, 80% of which is spent on treating complications

# 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

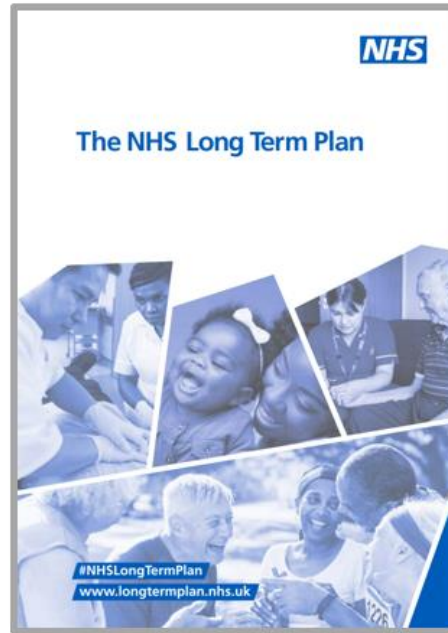
headache: **118**  
DALYs per 100,000  
people



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

**2.3 million** work days lost through sickness absence

# Health inequalities within Wirral for national strategic priorities

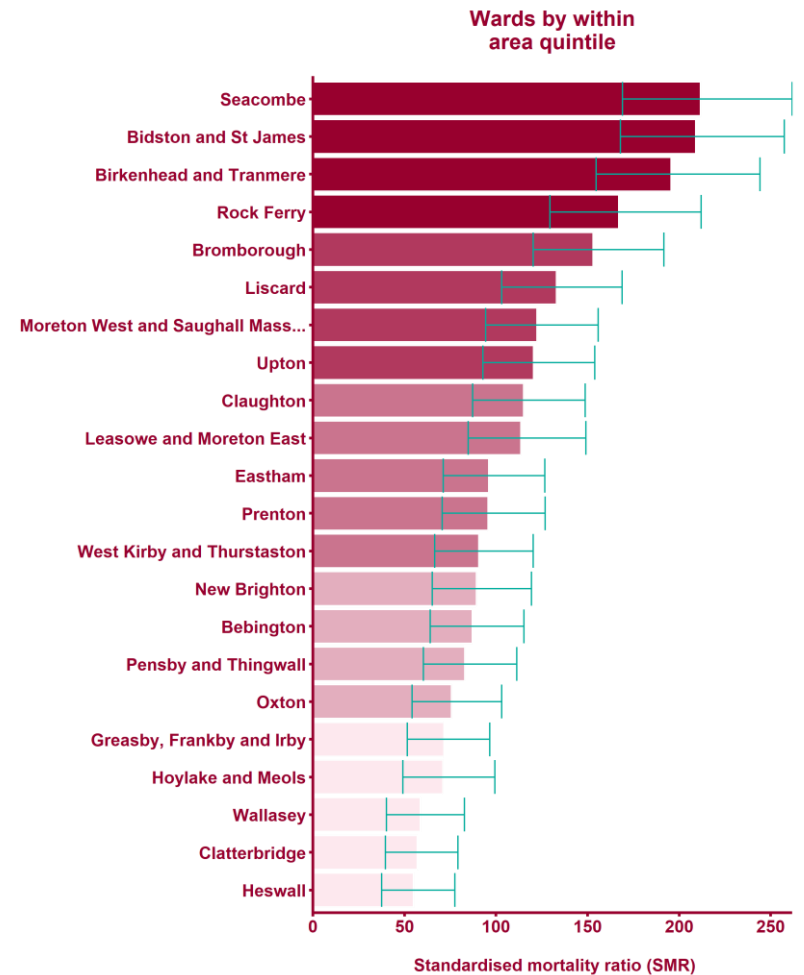
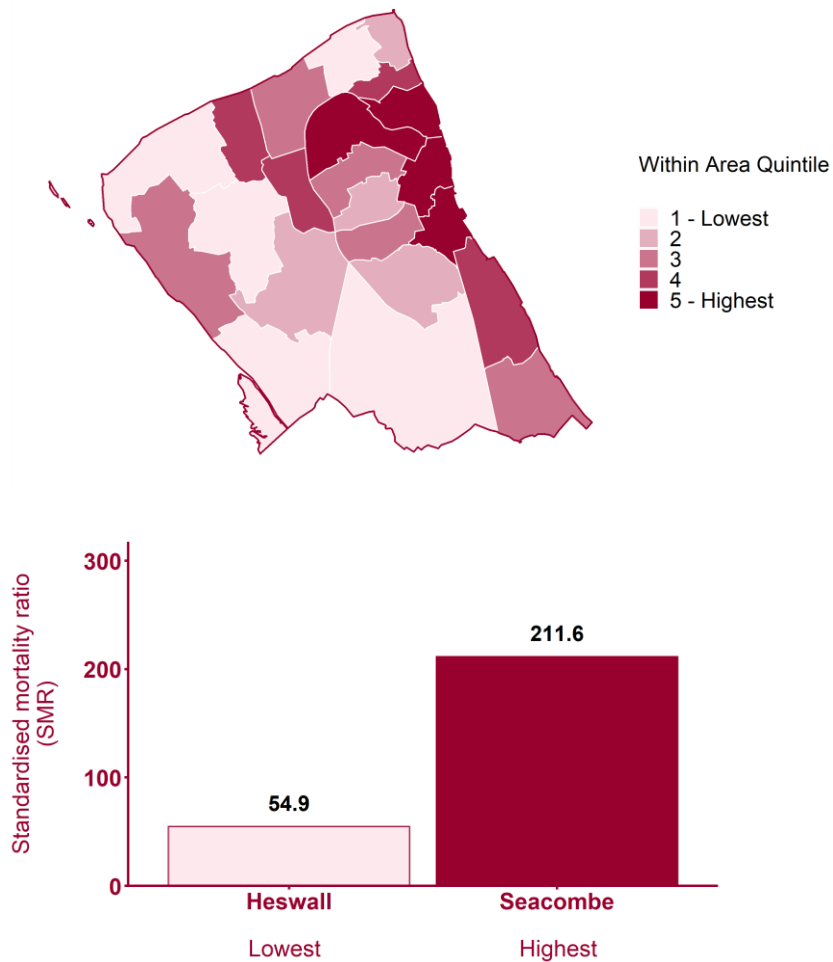


**The following slides include additional indicators (not already analysed) considered to reflect national strategic priorities for which data is available in Local Health at ward level**

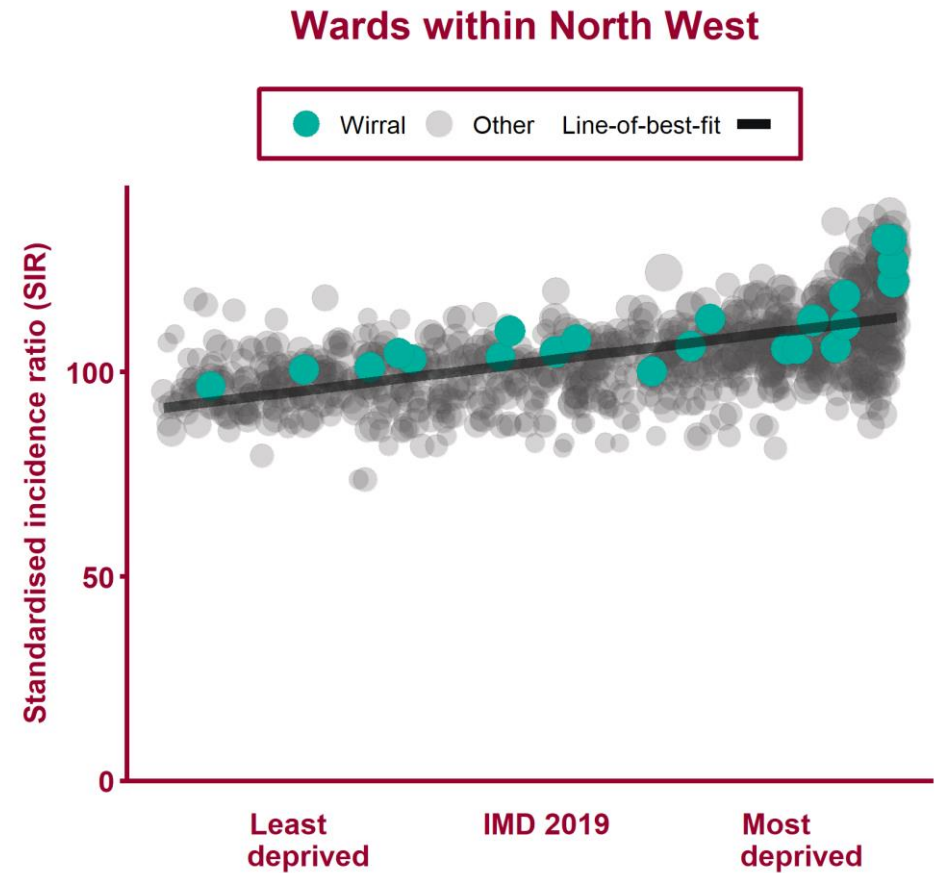
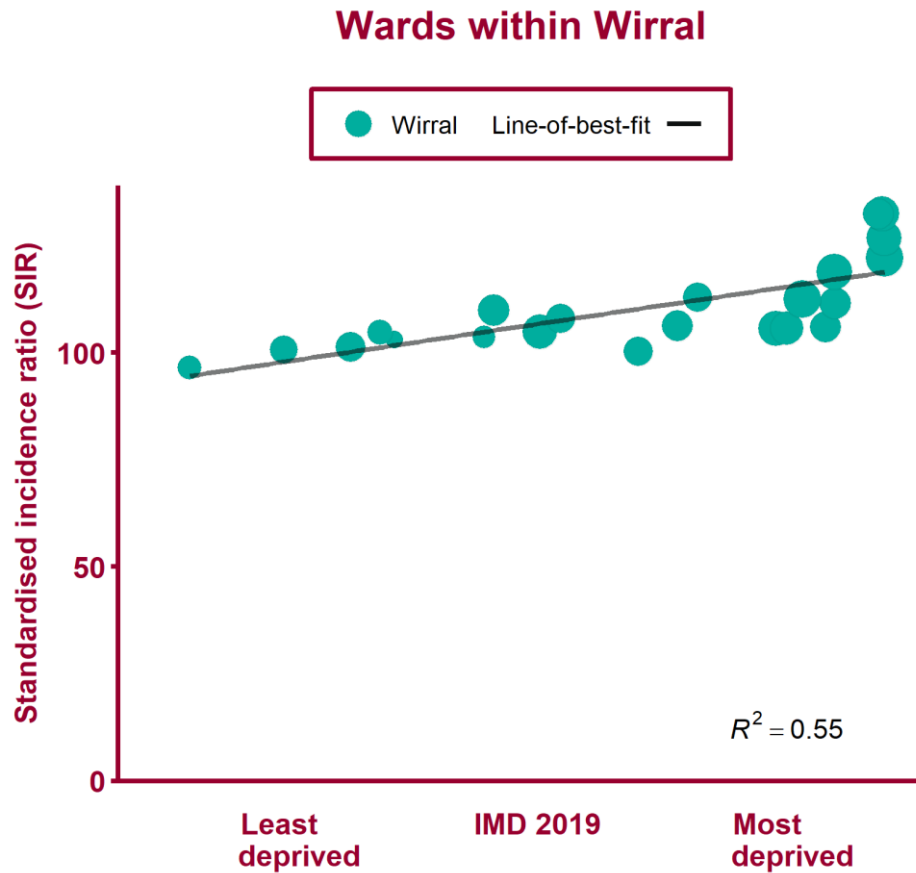




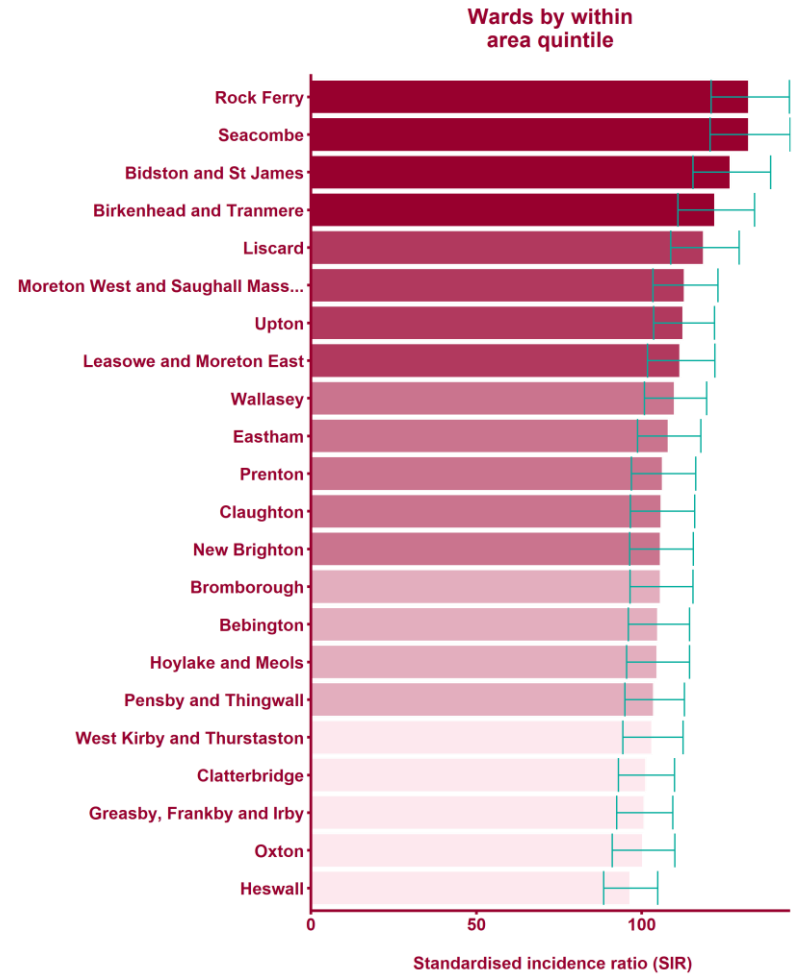
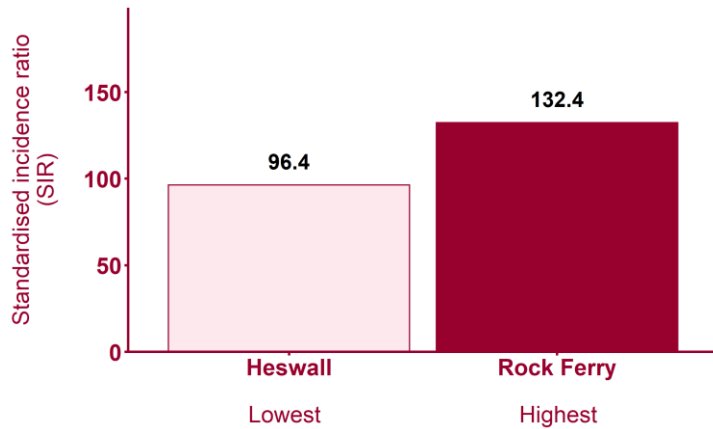
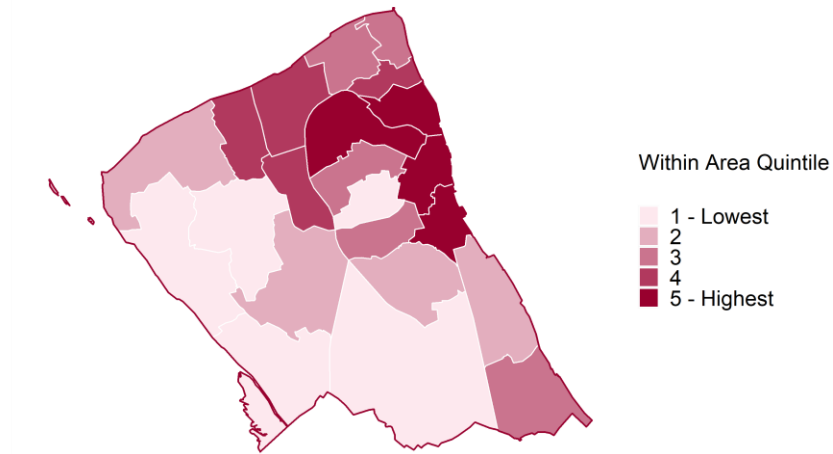
# Deaths from circulatory disease, under 75 years (2013 - 17)



# Incidences of all cancers (2012 - 16)

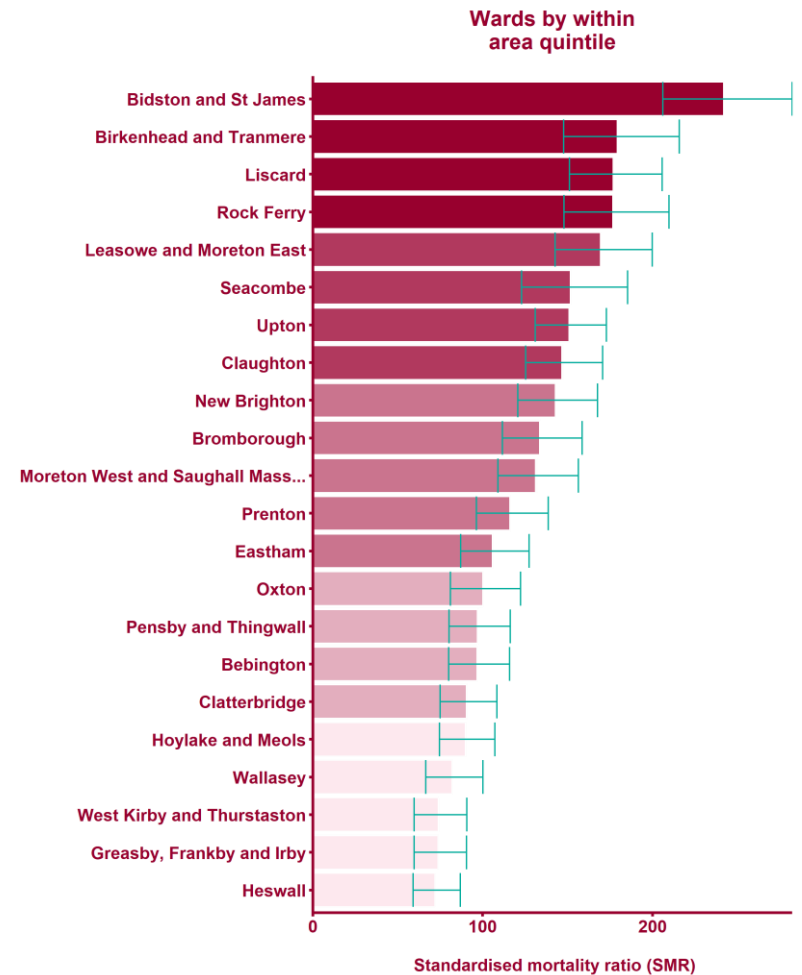
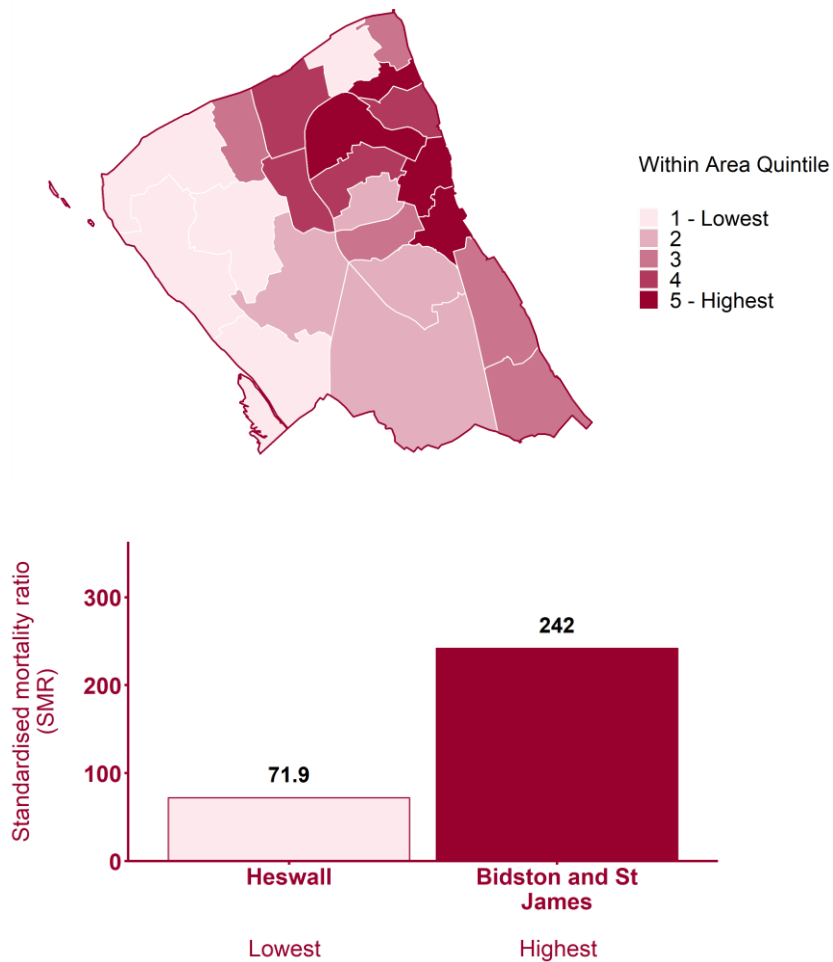


# Incidences of all cancers (2012 - 16)



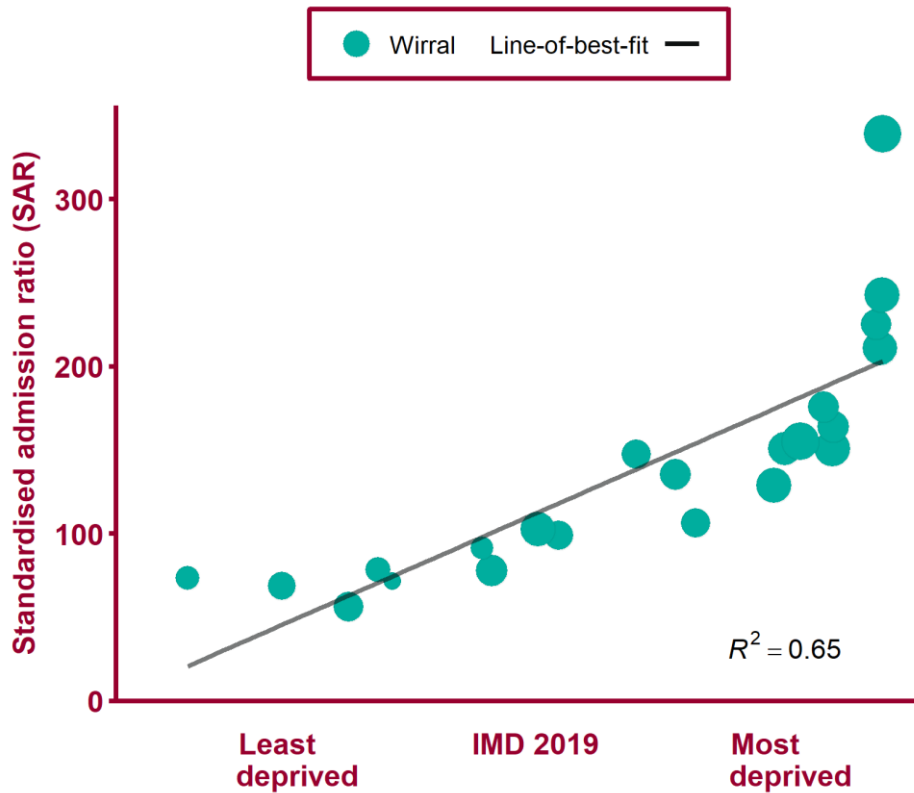


# Deaths from respiratory diseases, all ages (2013 - 17)

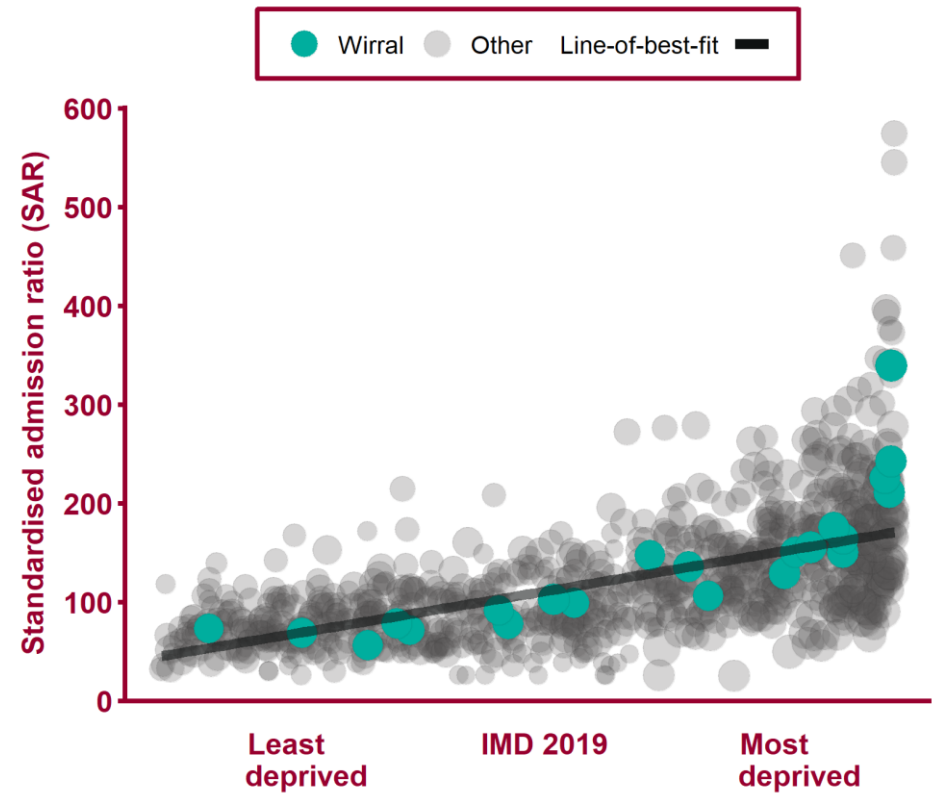


# Hospital stays for self harm (2013/14 - 2017/18)

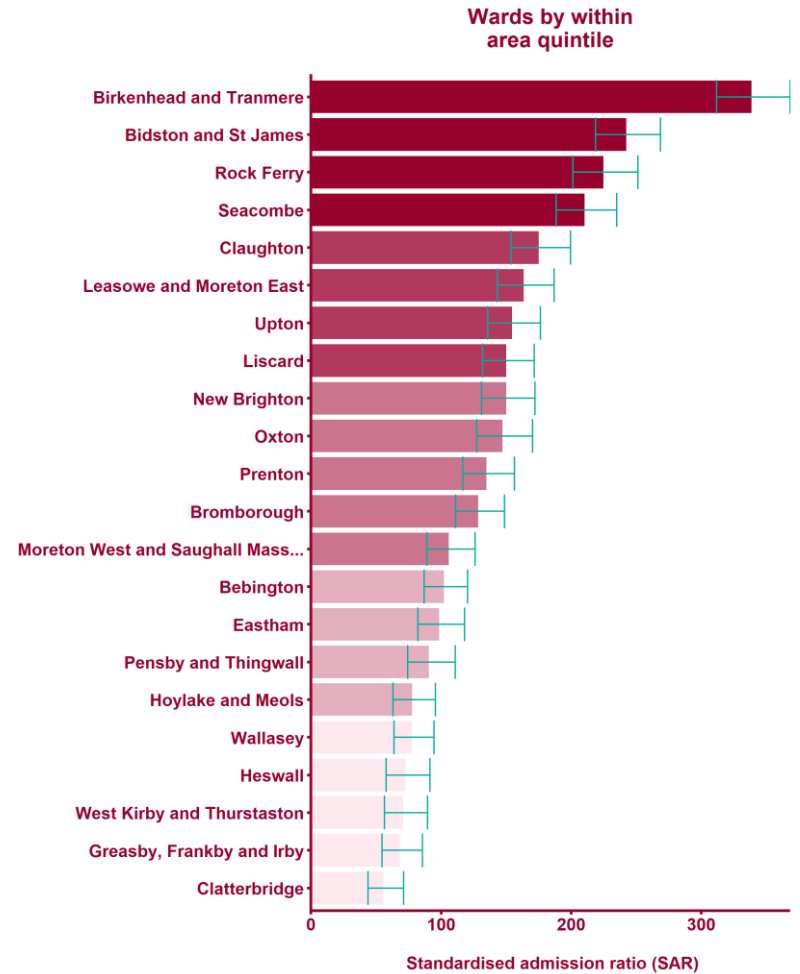
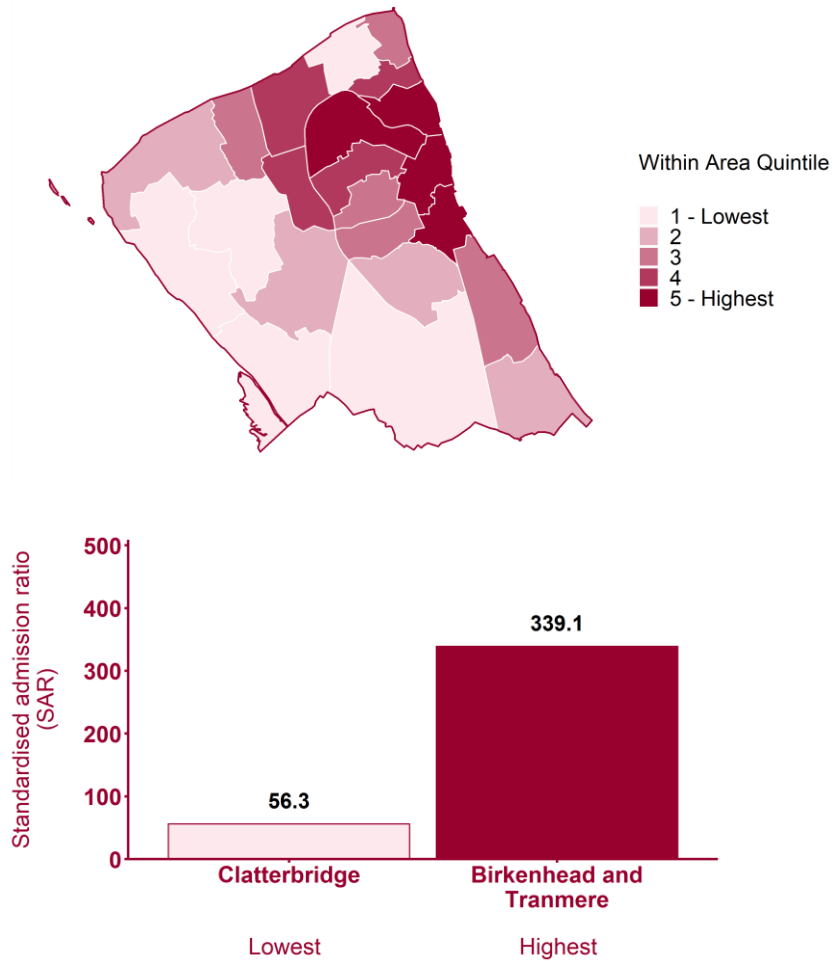
## Wards within Wirral



## Wards within North West



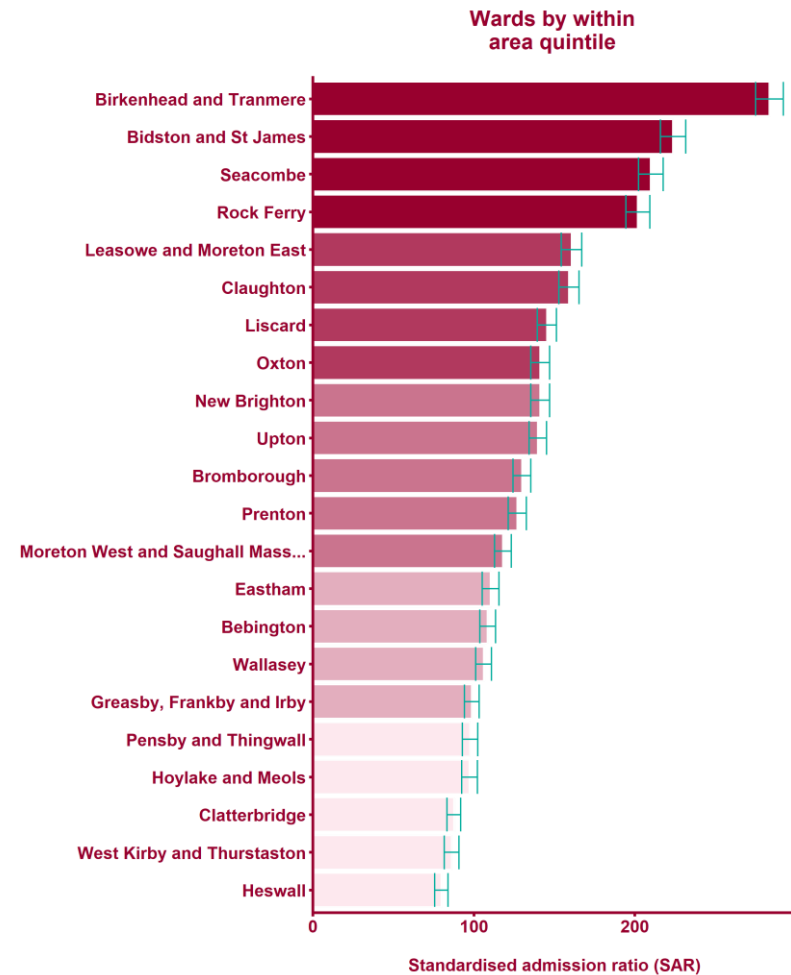
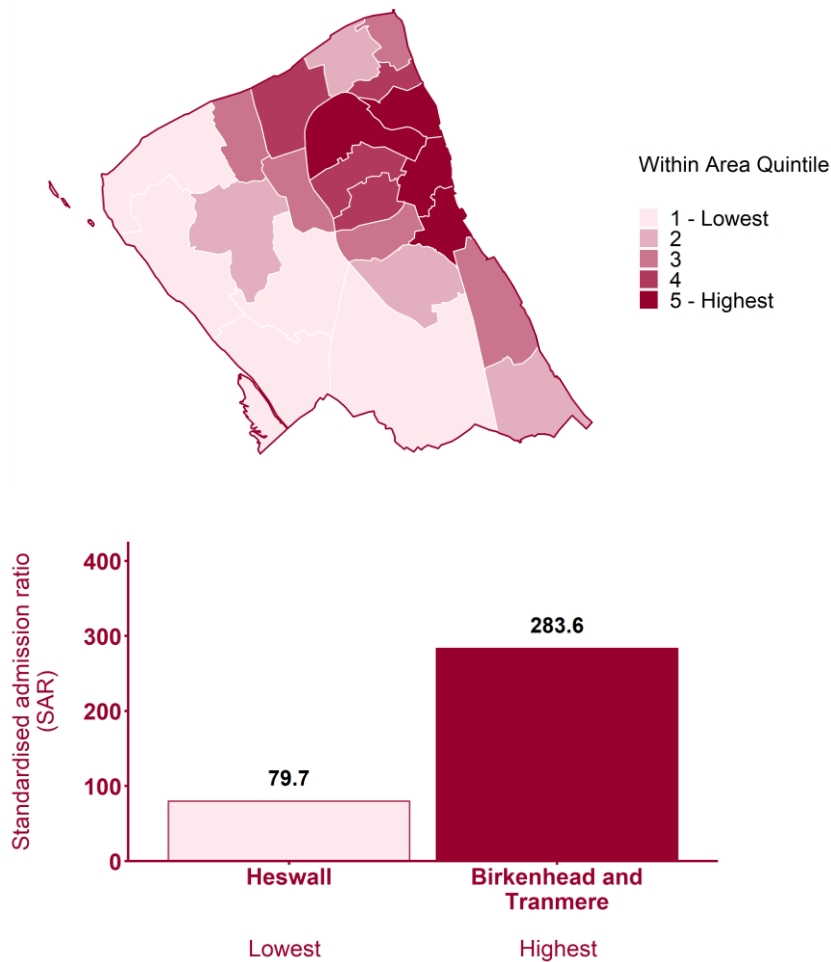
# Hospital stays for self harm (2013/14 - 2017/18)



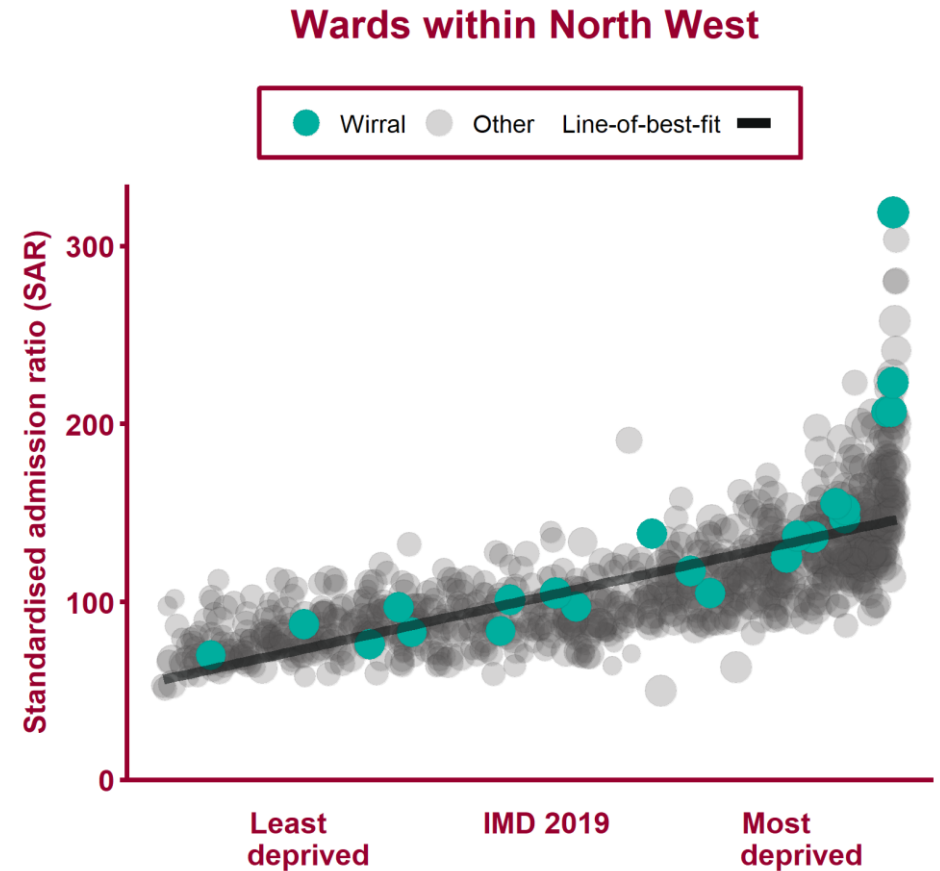
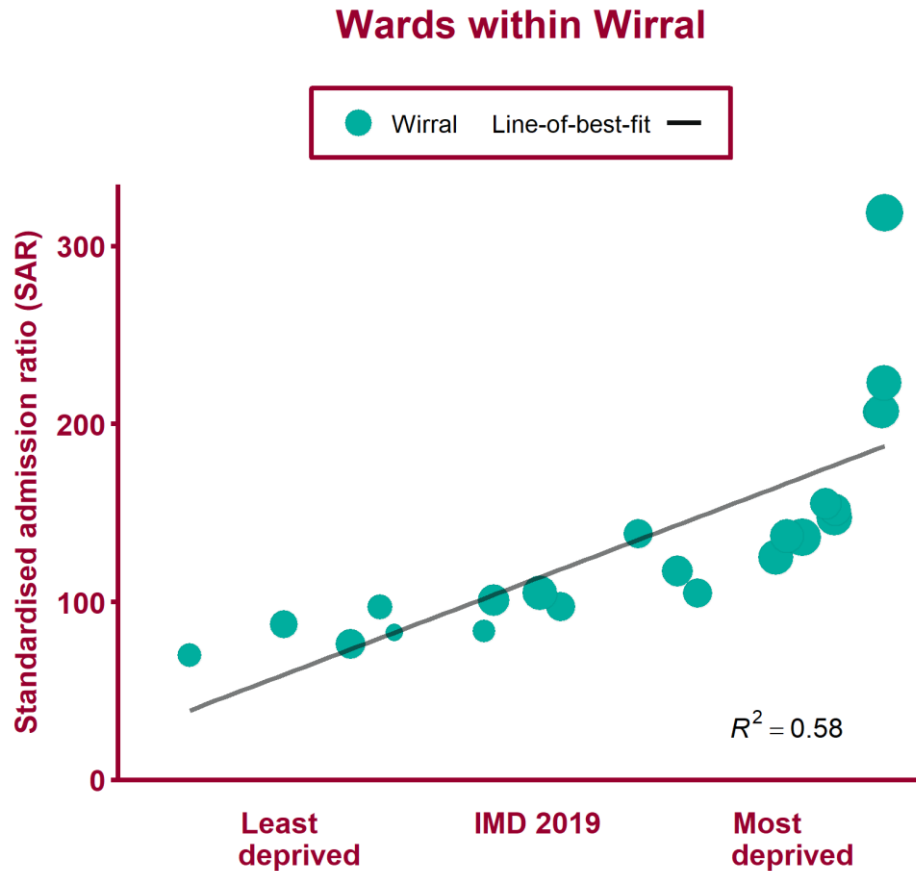




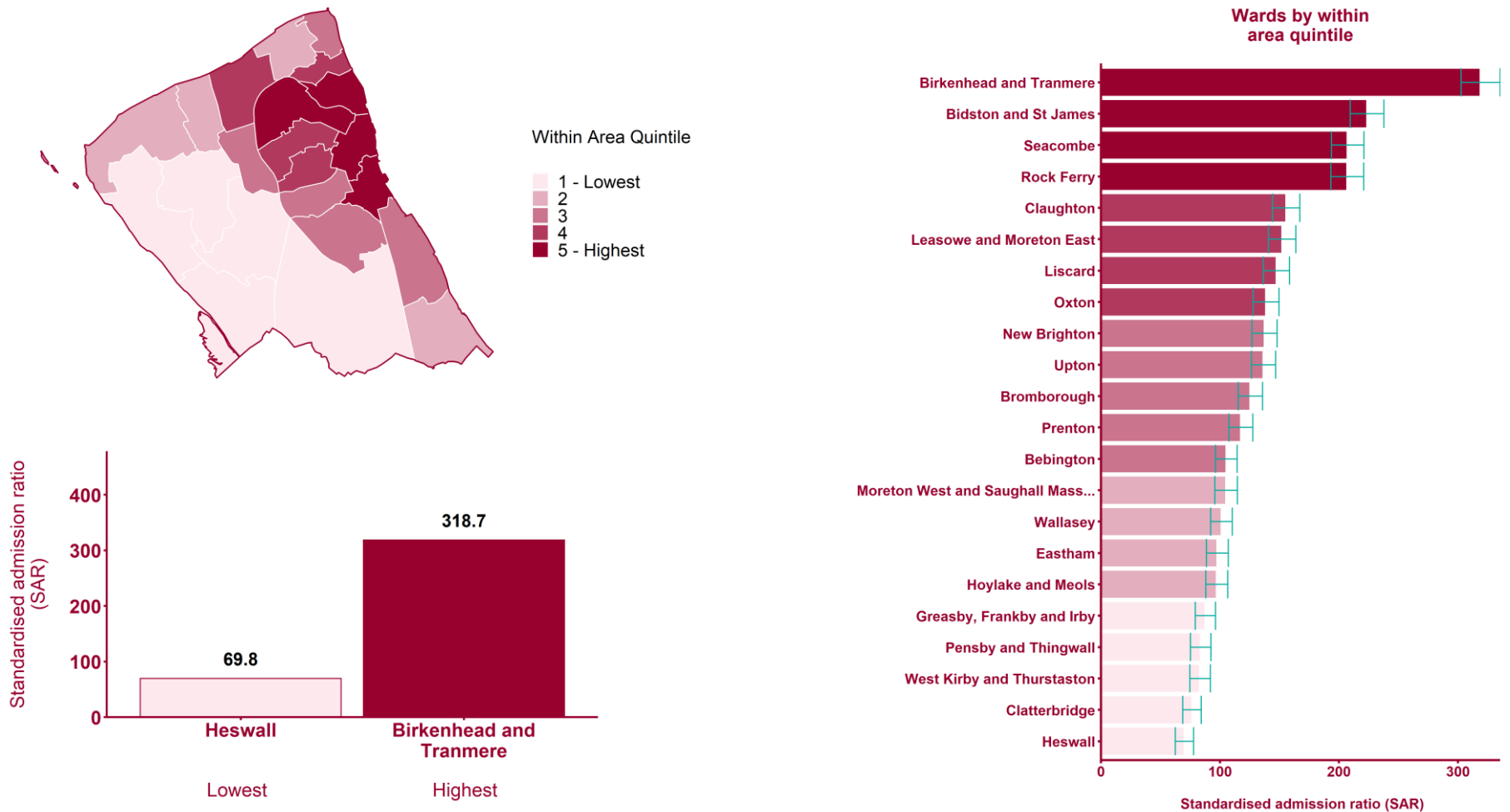
# Hospital stays for alcohol-related harm, Broad definition (2013/14 - 2017/18)



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

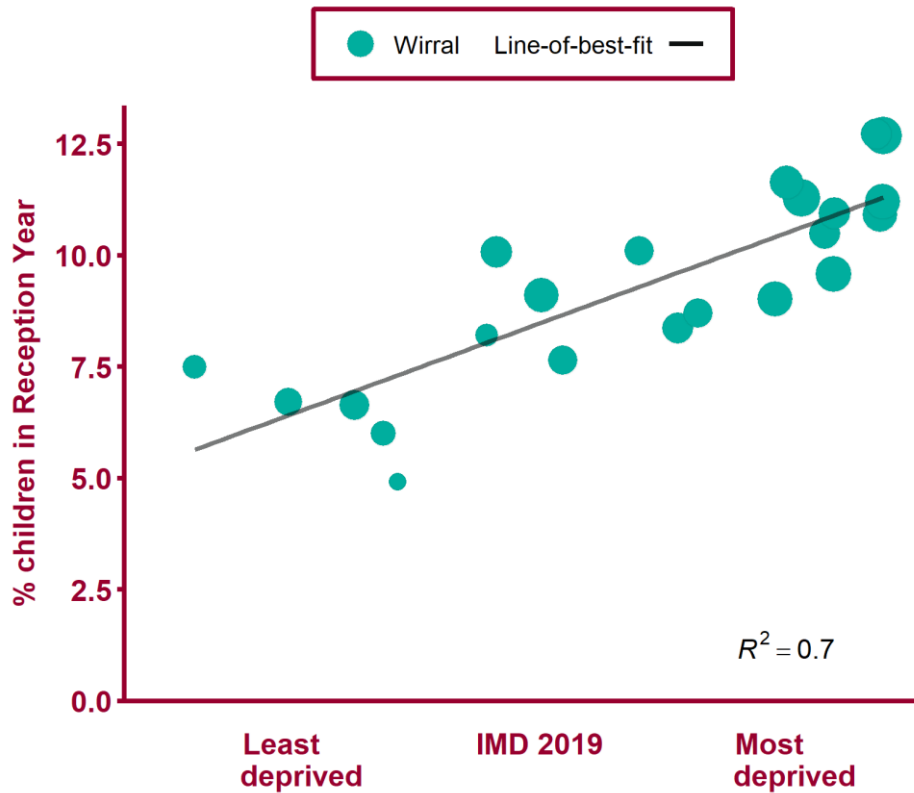


# Hospital stays for alcohol-related harm, Narrow definition (2013/14 - 2017/18)

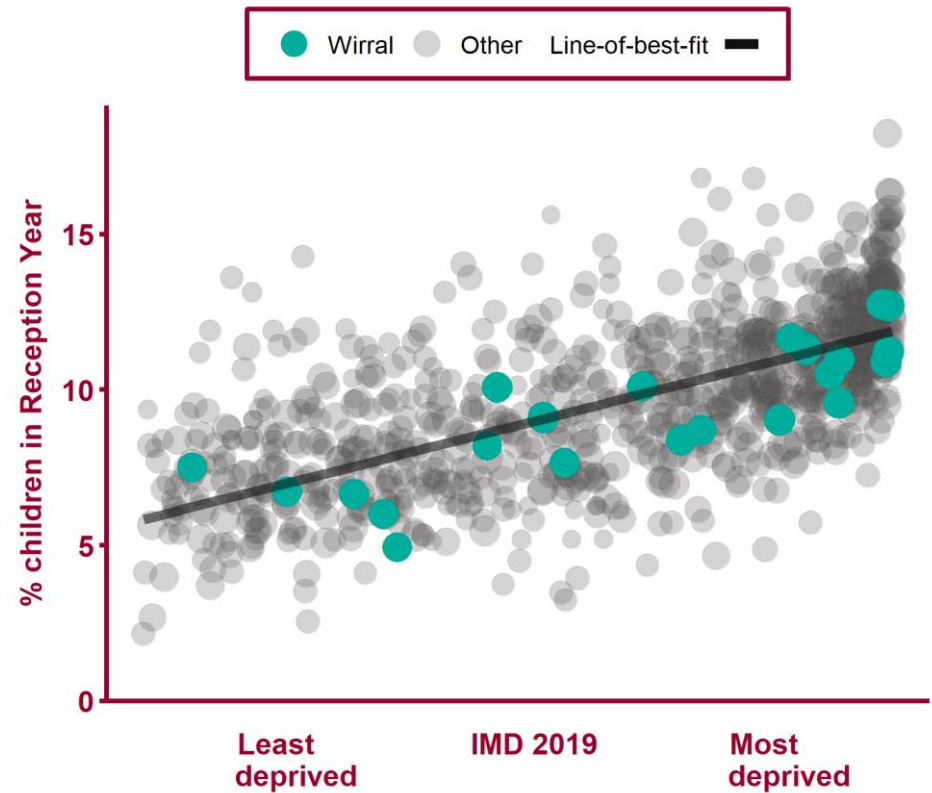


# Obese children, Reception Year (2015/16 - 2017/18)

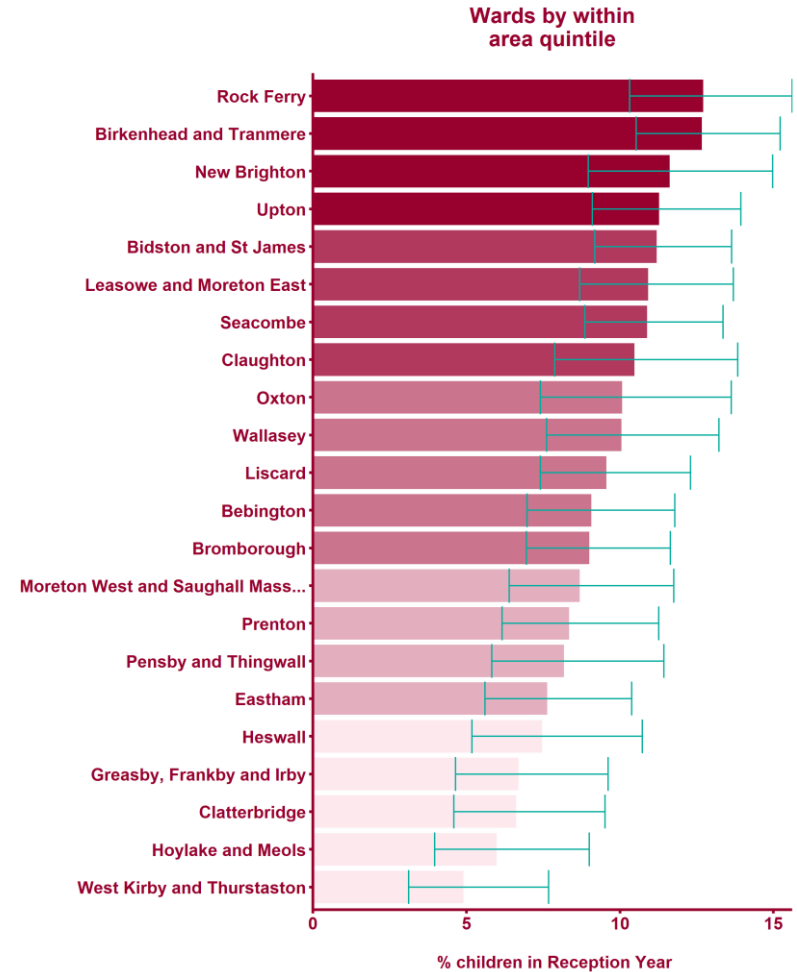
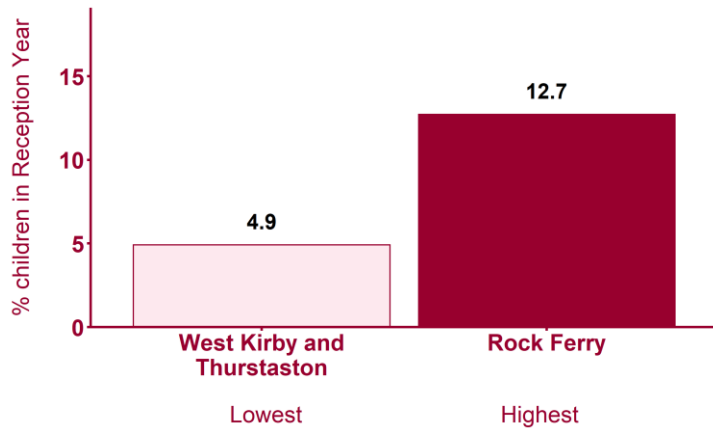
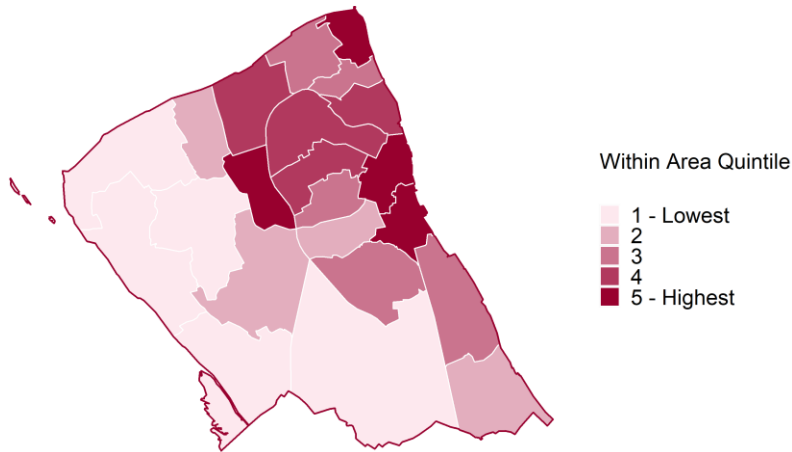
### Wards within Wirral



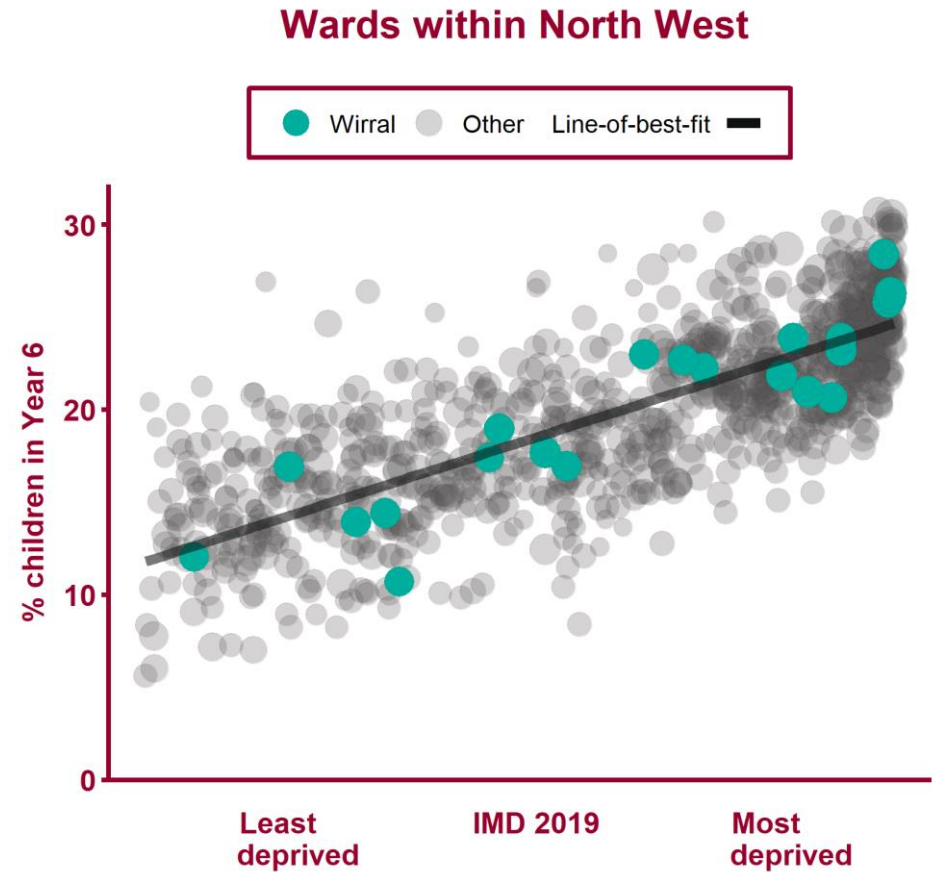
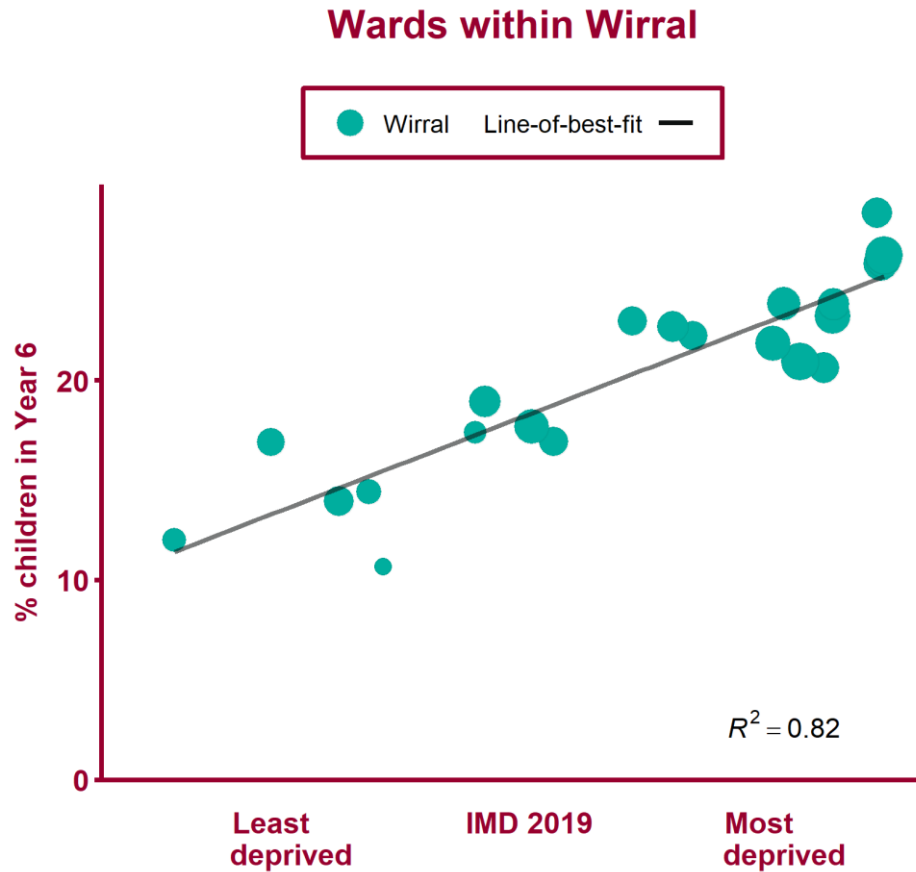
### Wards within North West



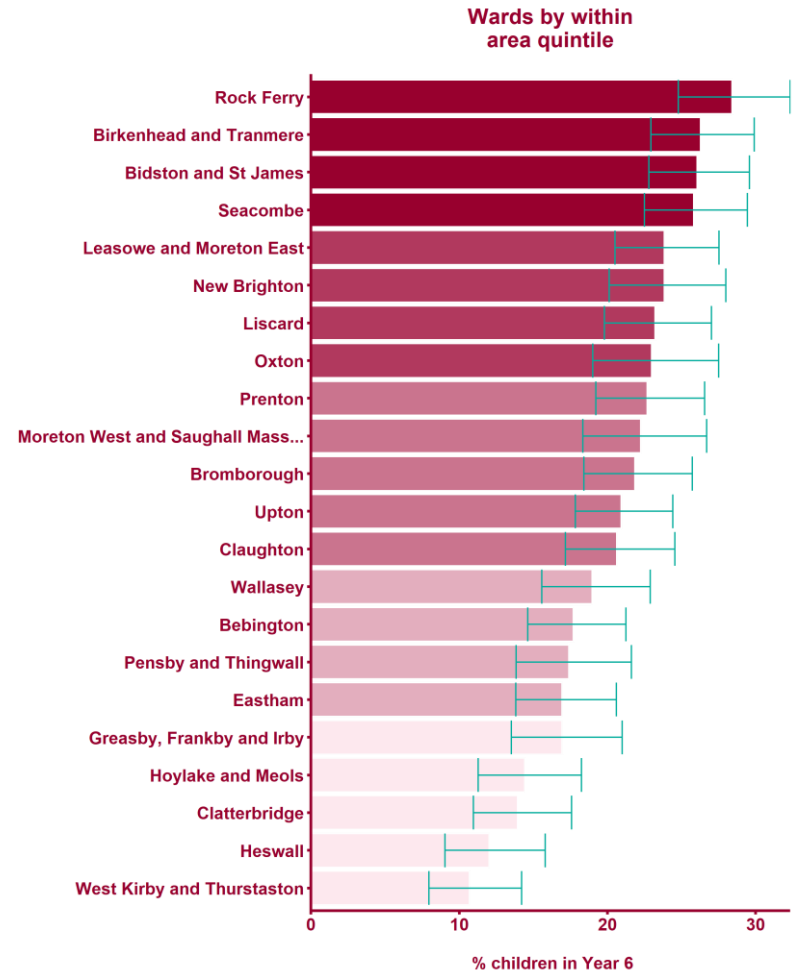
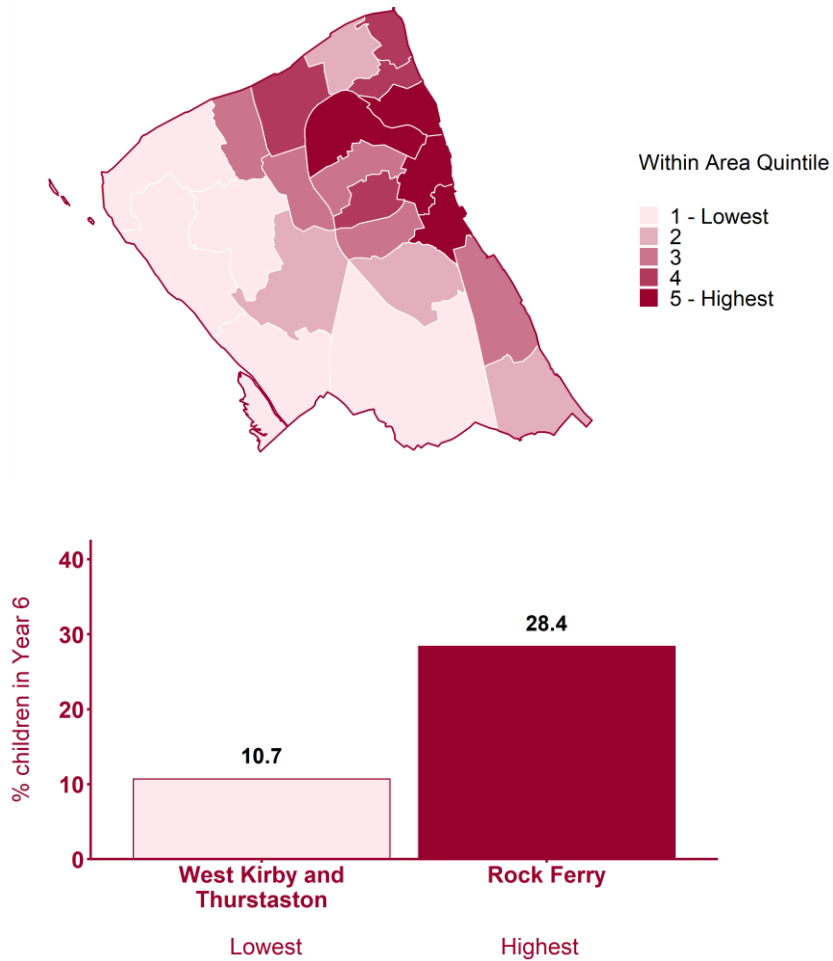
# Obese children, Reception Year (2015/16 - 2017/18)



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



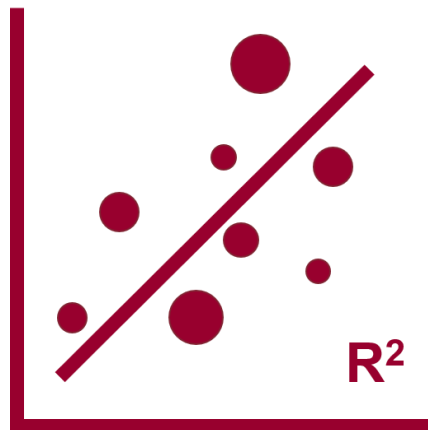
# Obese children, Year 6 (2015/16 - 2017/18)





# Further health inequalities strongly associated with deprivation in Wirral

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



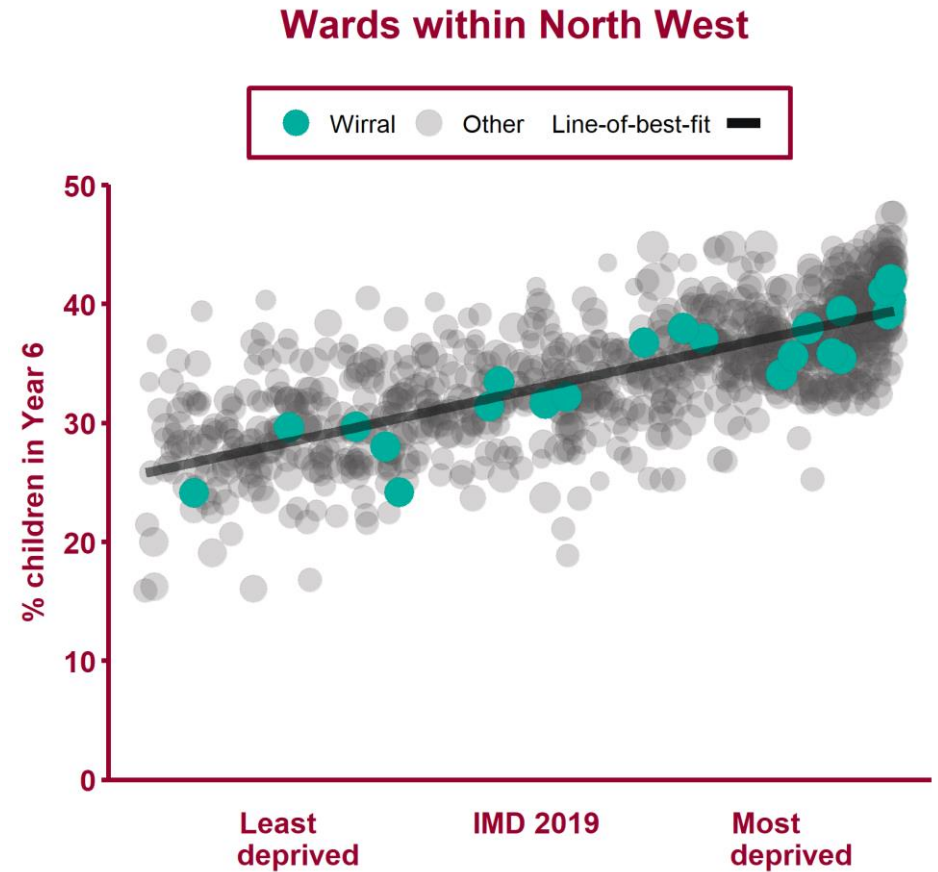
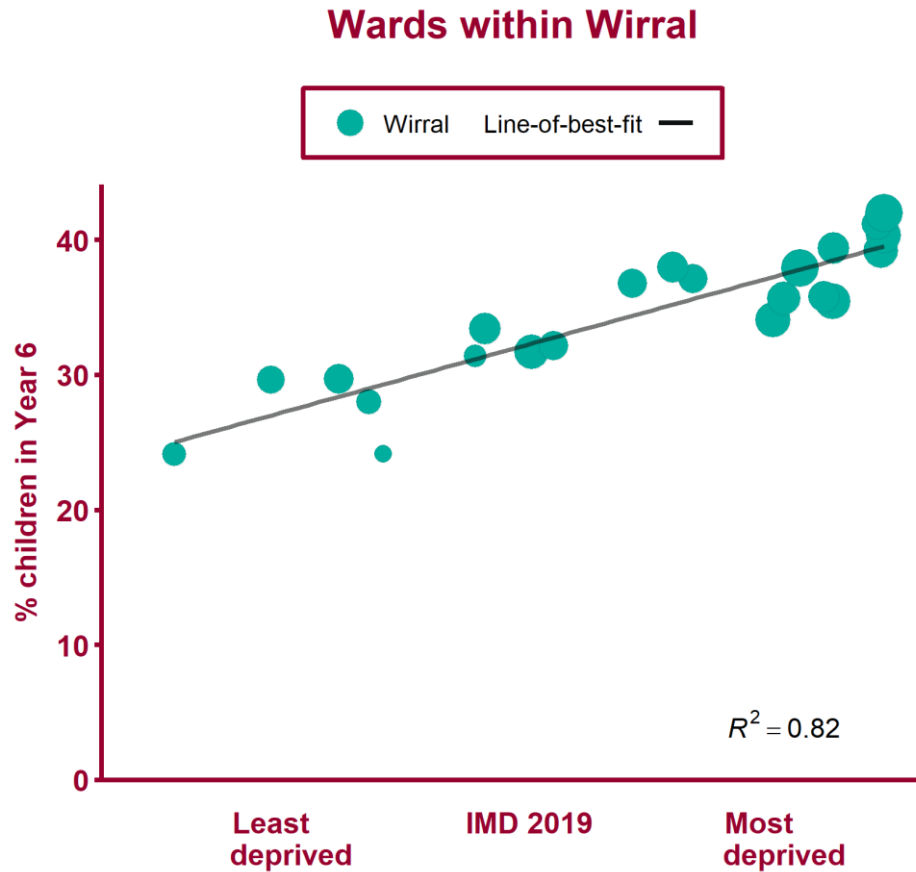
The following slide lists those indicators most strongly associated with deprivation locally, with the top three (not already analysed) explored further

# Health inequalities within Wirral

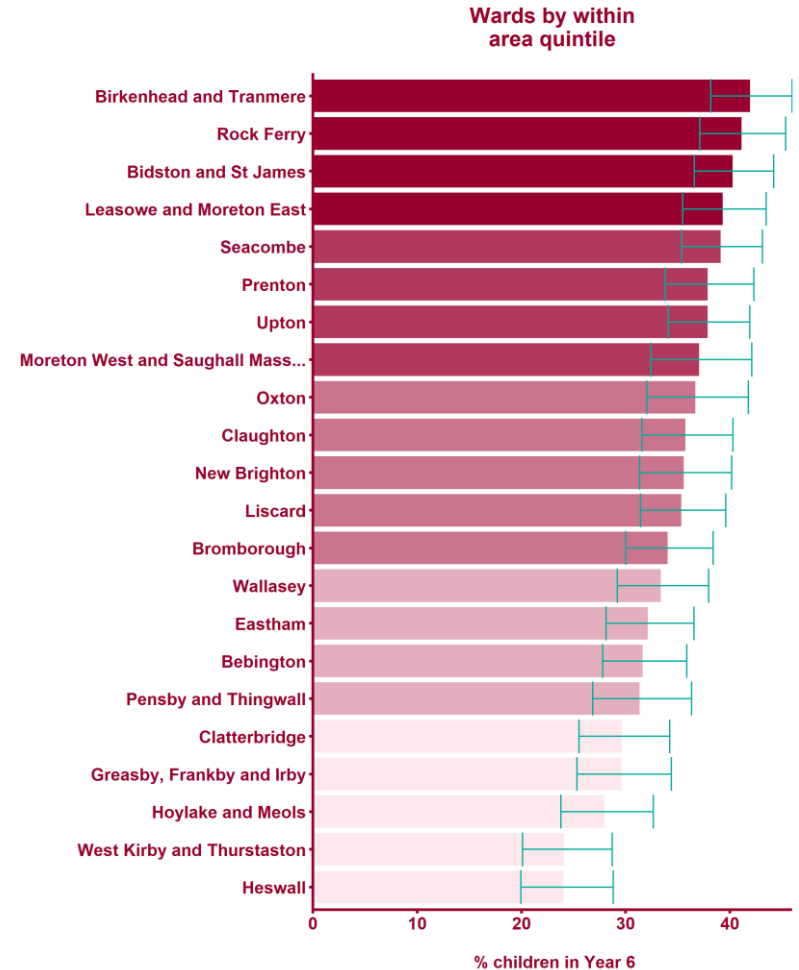
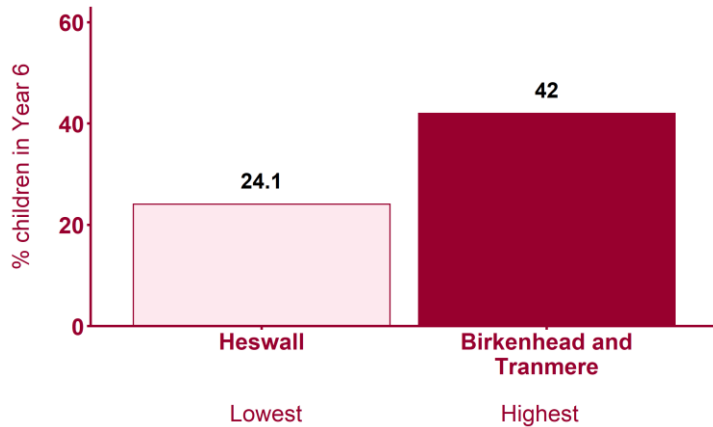
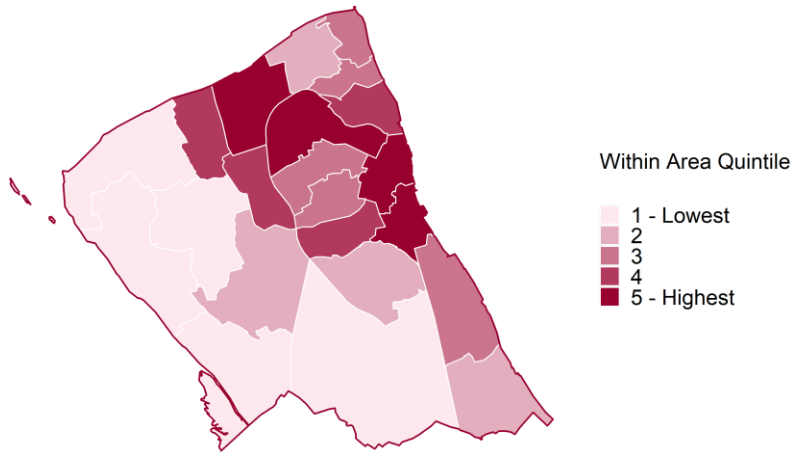
(Sorted by R-squared value)

<b>Indicator</b>	<b>R-squared value</b>
Obese children, Year 6	0.82
Children with excess weight, Year 6	0.82
Emergency hospital admissions for all causes	0.80
Percentage with a limiting long-term illness or disability	0.80
GCSE Achievement	0.77
Deaths from respiratory diseases, all ages	0.77
Incidence of lung cancer	0.75
Life expectancy at birth for females	0.74
Life expectancy at birth for males	0.73
Children with excess weight, Reception Year	0.72
Deaths from all causes, under 75 years	0.72
Deaths from circulatory disease, all ages	0.71
Emergency hospital admissions for COPD	0.71
Deaths from all causes, all ages	0.70
Obese children, Reception Year	0.70

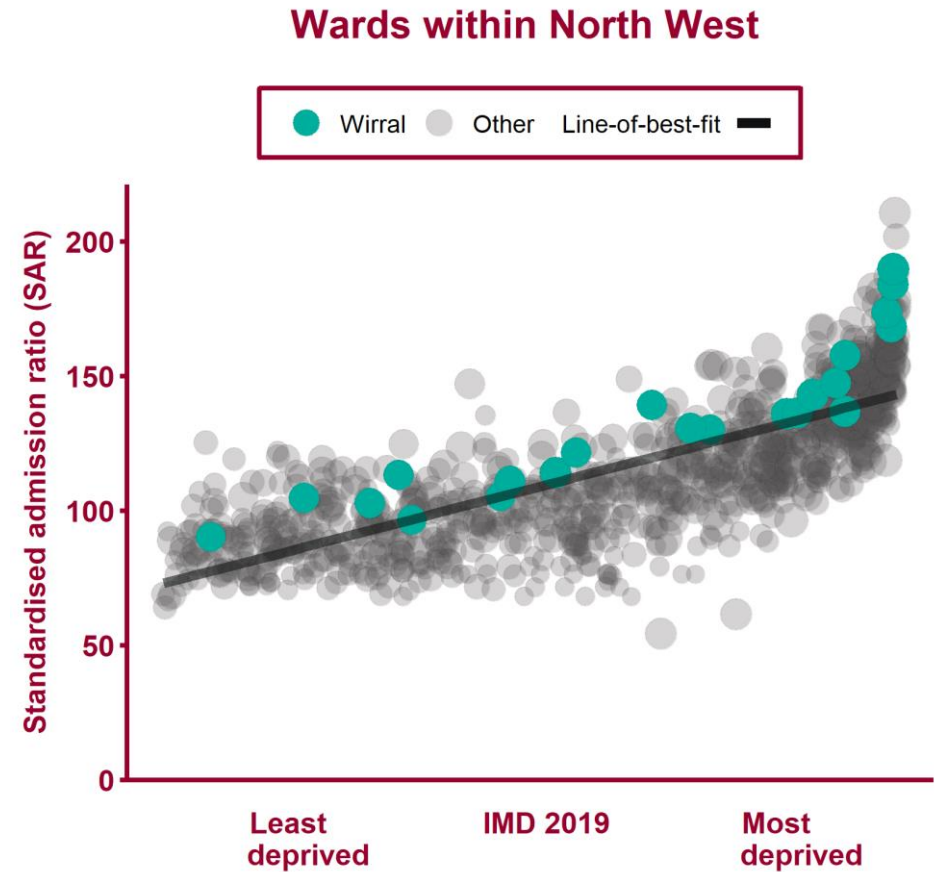
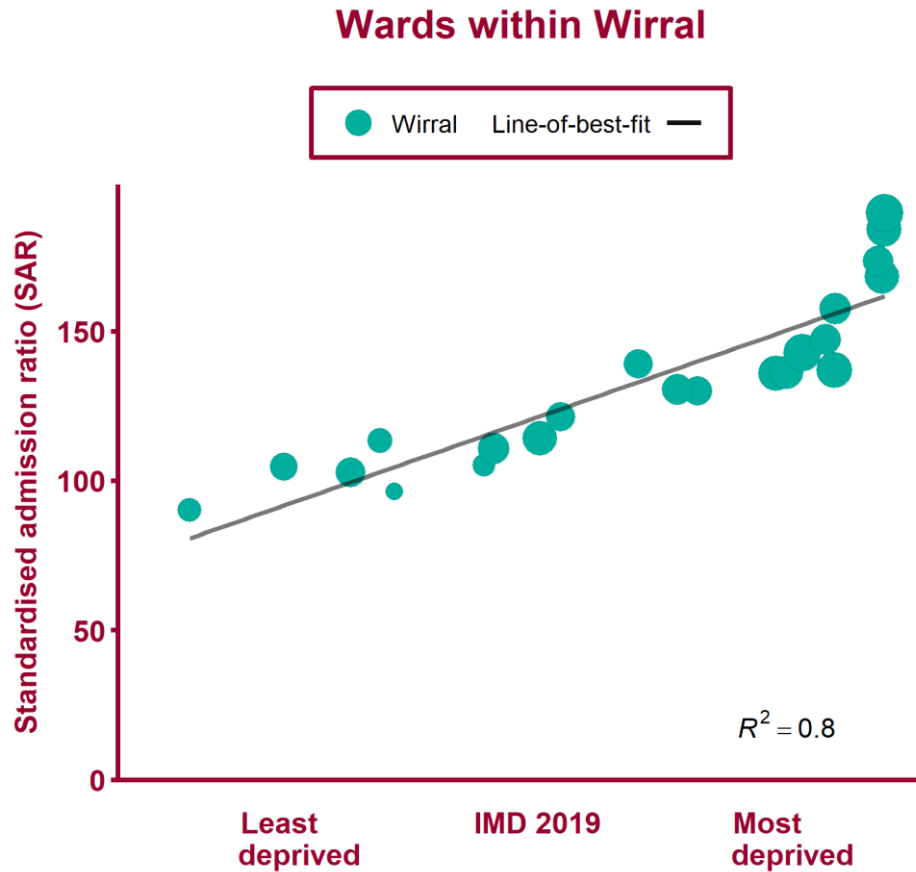
# Children with excess weight, Year 6 (2015/16 - 2017/18)



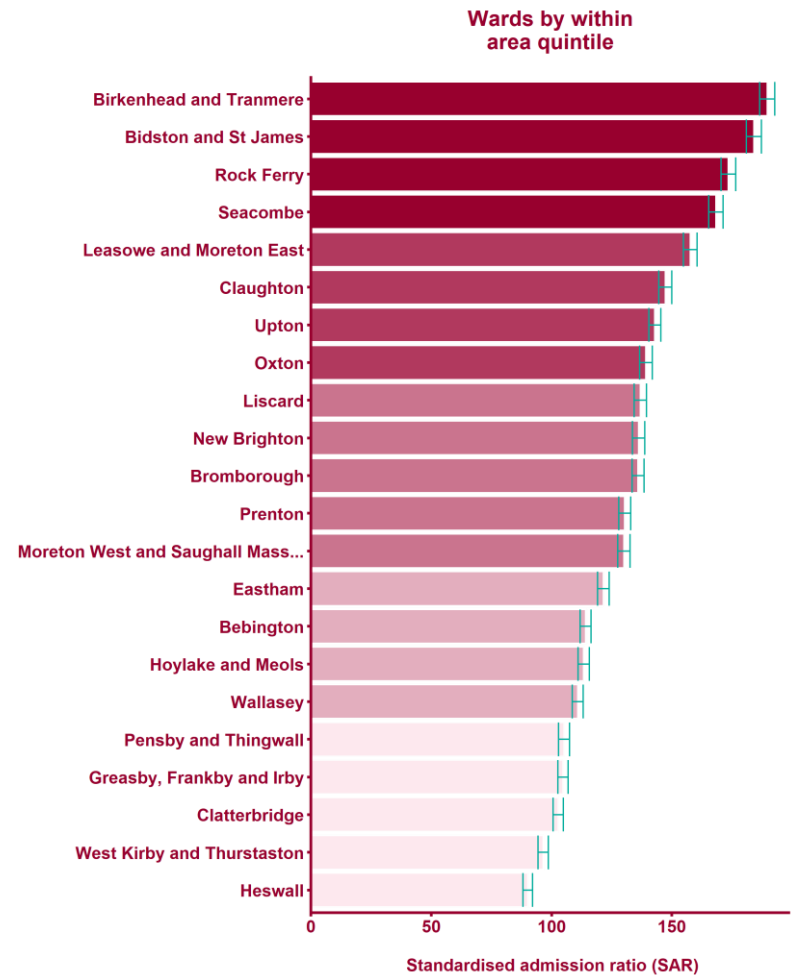
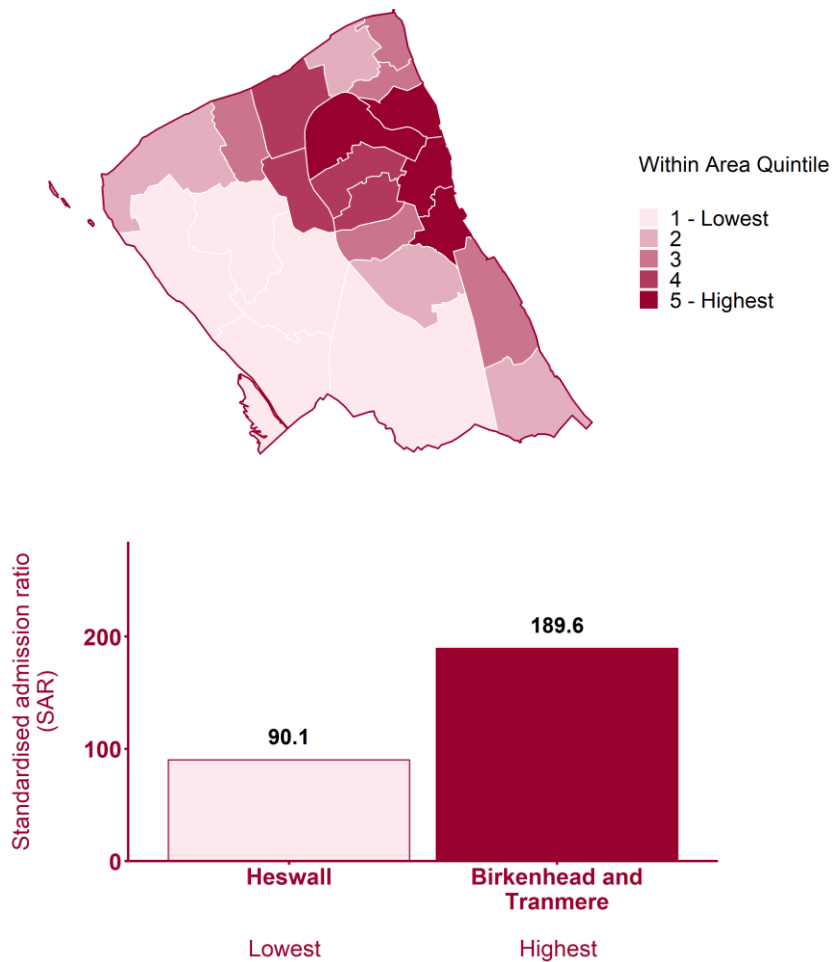
# Children with excess weight, Year 6 (2015/16 - 2017/18)



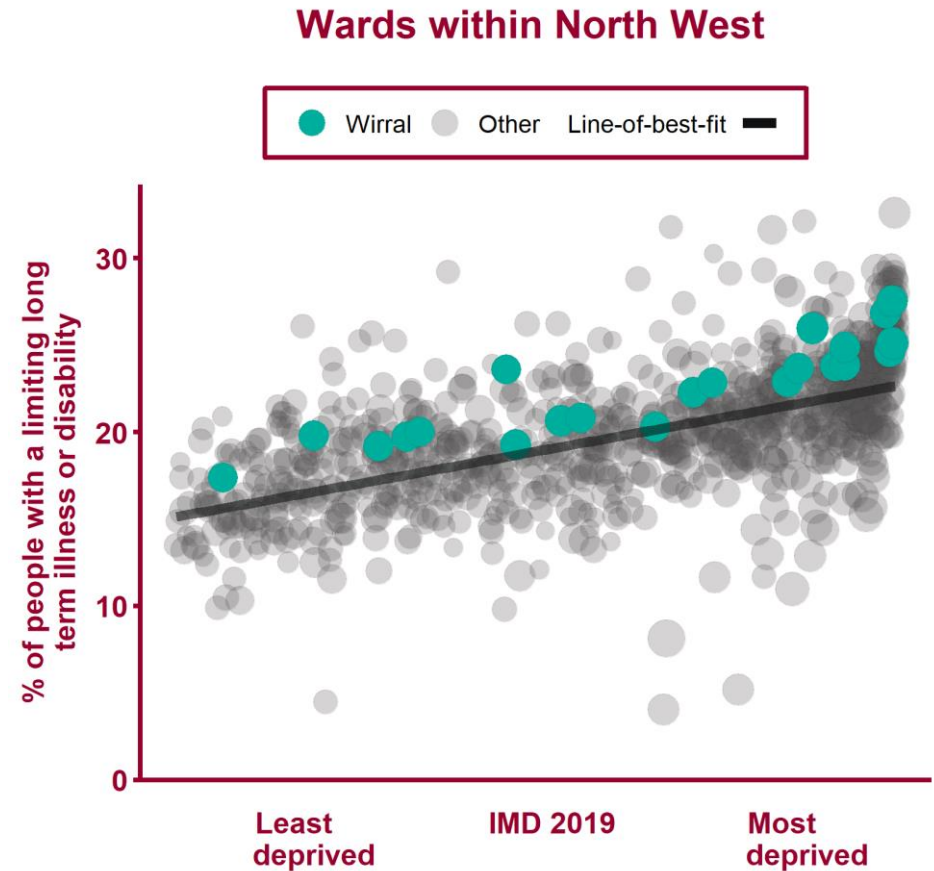
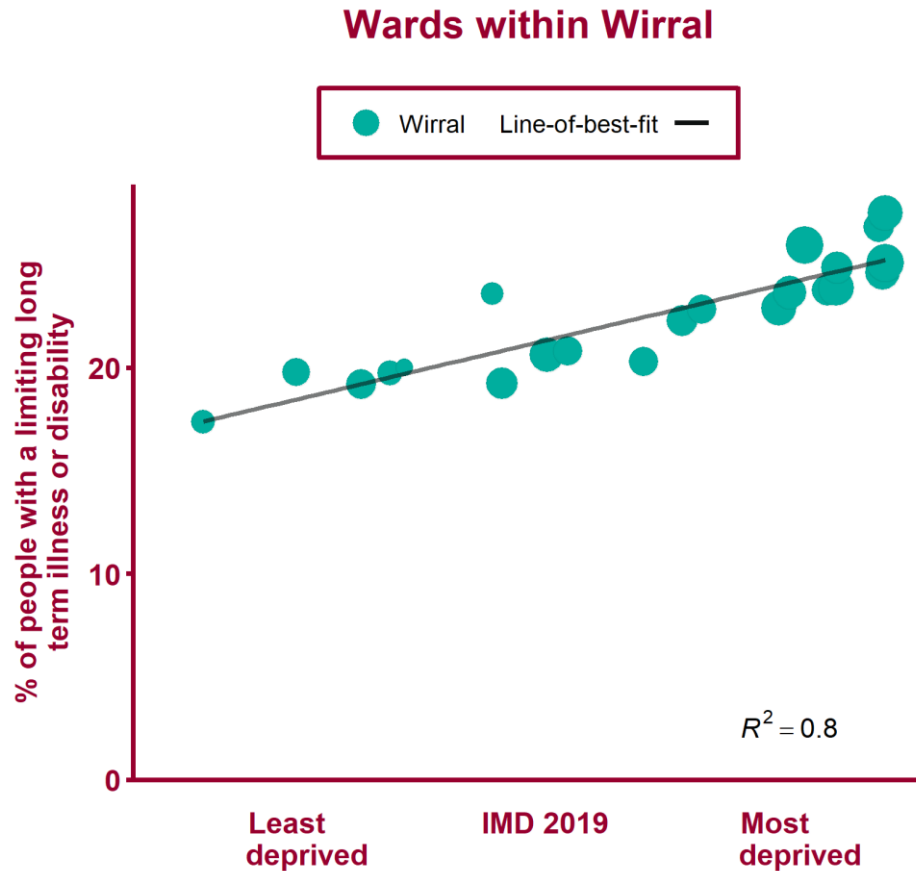
# Emergency hospital admissions for all causes (2013/14 - 2017/18)



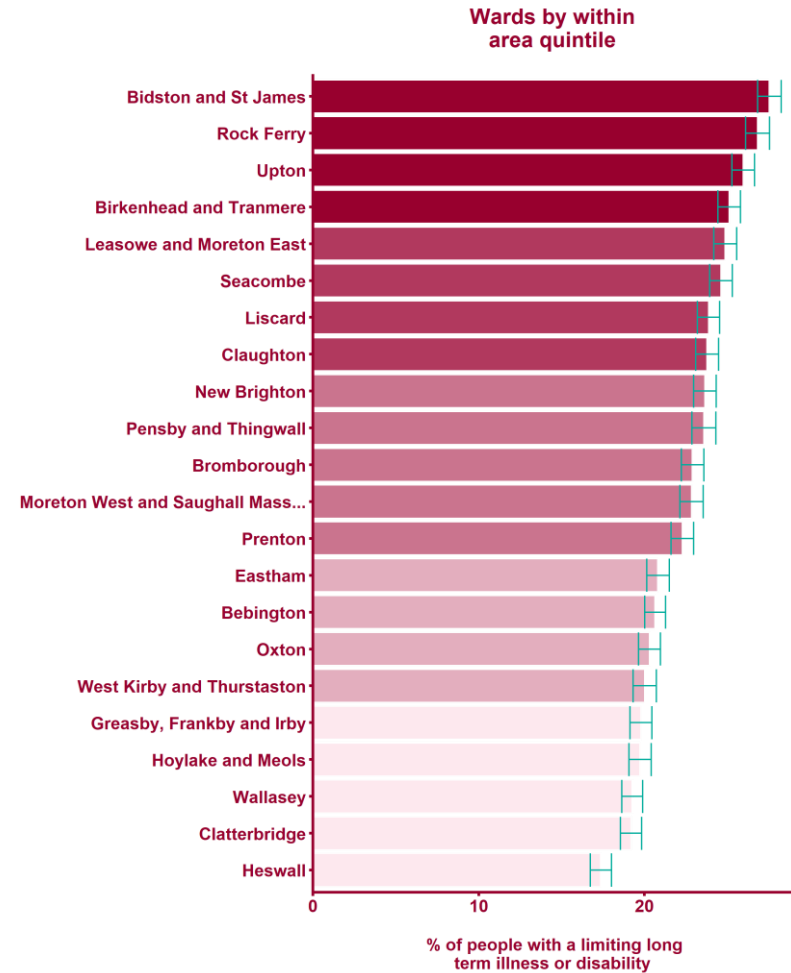
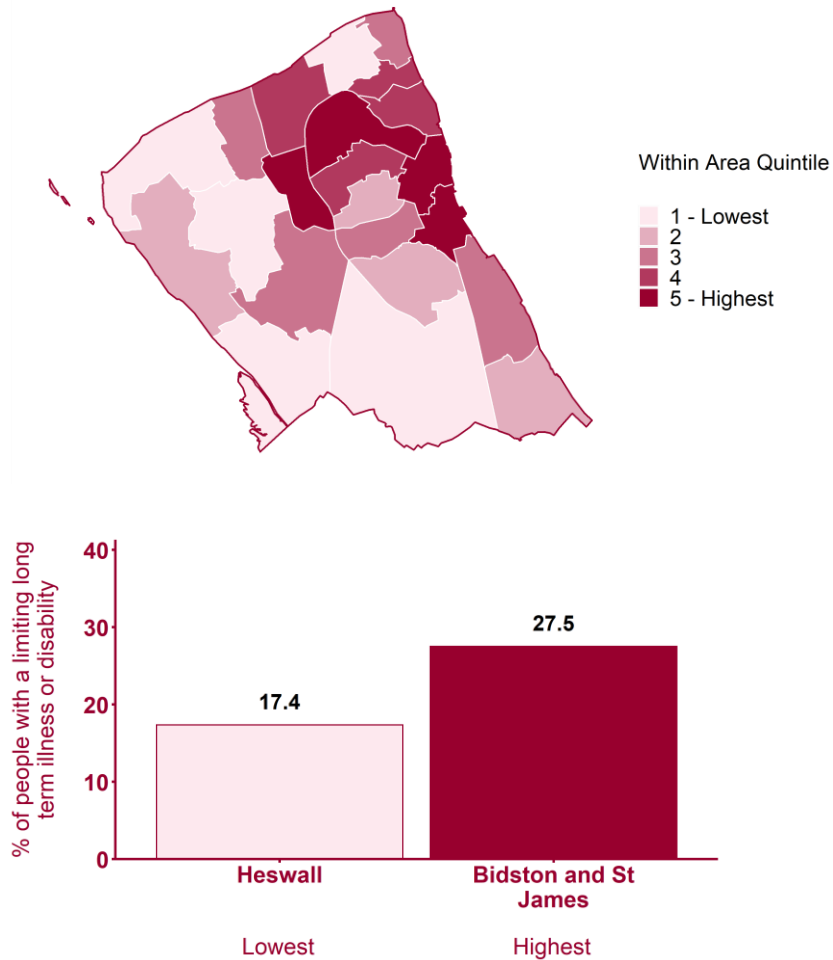
# Emergency hospital admissions for all causes (2013/14 - 2017/18)



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



# 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:

[LKISNorthWest@phe.gov.uk](mailto:LKISNorthWest@phe.gov.uk)