REAL Centre

in partnership with the University of Liverpool

Current and future patterns of inequalities in diagnosed illness by deprivation

Ann Raymond

Midlands Analyst Network Huddle

The Health Foundation

Background and context

The Health Foundation
REAL Centre

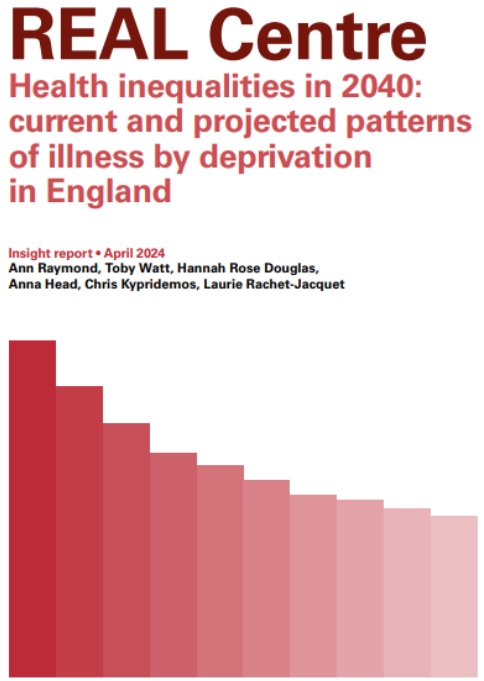
Background and context

- Wide health inequalities in England by socioeconomic deprivation: LE gap of 8 years for women and 10 years for men and a near two-decade gap in HLE
- What is our research adding?
  - We explore existing patterns of inequalities in diagnosed illness in granular detail
  - We project future patterns of inequalities in illness
  - We focus on the working-age population to show the wider economic implications associated with health inequalities.

The Health Foundation
REAL Centre

Health in 2040 series

- Long-term programme of research with the University of Liverpool. Part 1 Health in 2040 (July 2023). Part 2 – Health inequalities in 2040 (April 2024)
- **Better data:** Linked primary care, secondary care and mortality records with complete patient diagnostic history
- **Dynamic methods:** A dynamic model that gives us a better understanding of long-term illness, ageing and multimorbidity.
- **Trends linked to risk factors:** The model includes trends in some key risk factors such as smoking and obesity, relying on published epidemiological evidence.
- **Novel measure of multimorbidity:** We model illness with 20 highly prevalent and/or high-cost conditions – summarised by the Cambridge Multimorbidity Score (CMS).



The Health Foundation

The Health Foundation
REAL Centre

Methodology

The Health Foundation
REAL Centre

CMS conditions and their weights

- CMS weight based on individuals' use of primary care, emergency care or their likelihood of death
- A patient's multimorbidity score is the sum of the weights of each condition they have
- Helps us compare trends in illness over time and by population subgroups, independently of the specific combination of illnesses
- We focus on patients with "major illness" - a CMS score > 1.5

Condition	Weight
Dementia	2.50
Cancer	1.53
COPD	1.46
Atrial fibrillation	1.34
Heart failure	1.18
Constipation	1.12
Epilepsy	0.92
Chronic pain	0.92
Stroke / transient ischaemic attack (TIA)	0.80
Diabetes (type I or II)	0.75
Alcohol problems	0.65
Psychosis/bipolar disorder	0.64
Chronic kidney disease	0.53
Anxiety/depression	0.50
Coronary heart disease	0.49
Connective tissue disorders	0.43
Irritable bowel syndrome	0.21
Asthma	0.19
Hearing loss	0.09
Hypertension	0.08

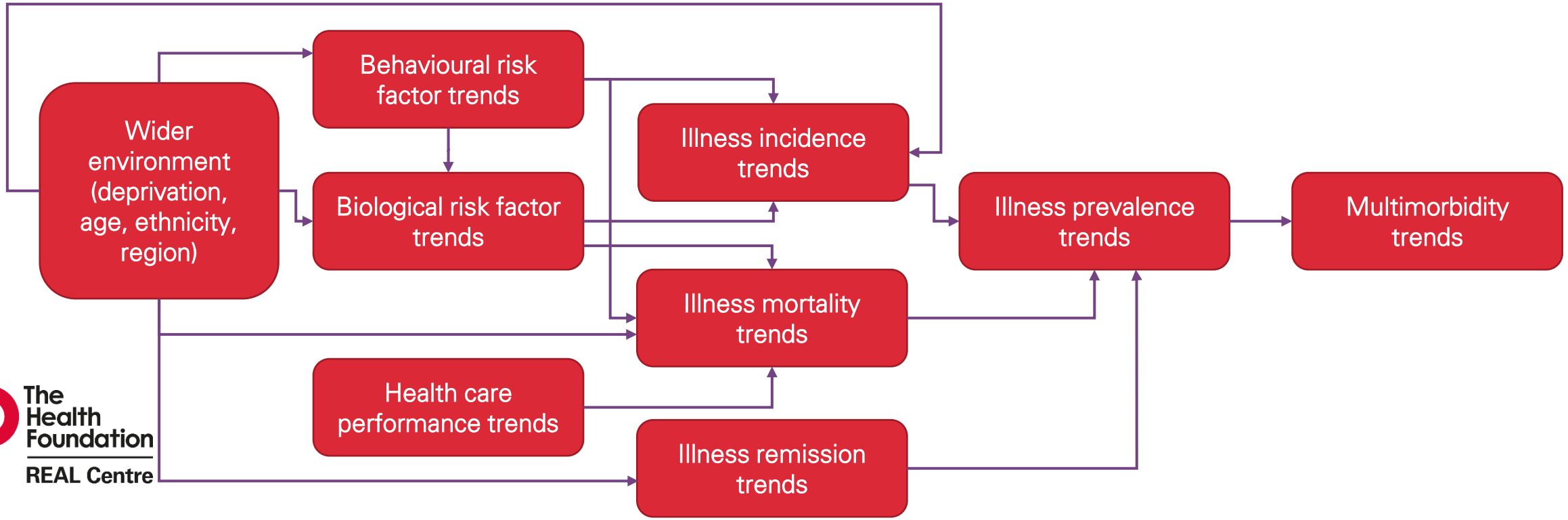
•Note: COPD = chronic obstructive pulmonary disease

The Health Foundation
REAL Centre

University of Liverpool's model structure

- The IMPACT$_{NCD}$ model that is used in this analysis combines individual-level data on demographics and major risk factors and uses estimates from literature on the causal associations between risk factors and the onset of illness and mortality.

- In microsimulation modelling, people "mathematically" live out their lives. Each year they develop conditions (go into remission) with some probability based on their characteristics and die with some probability based on their characteristics and conditions.

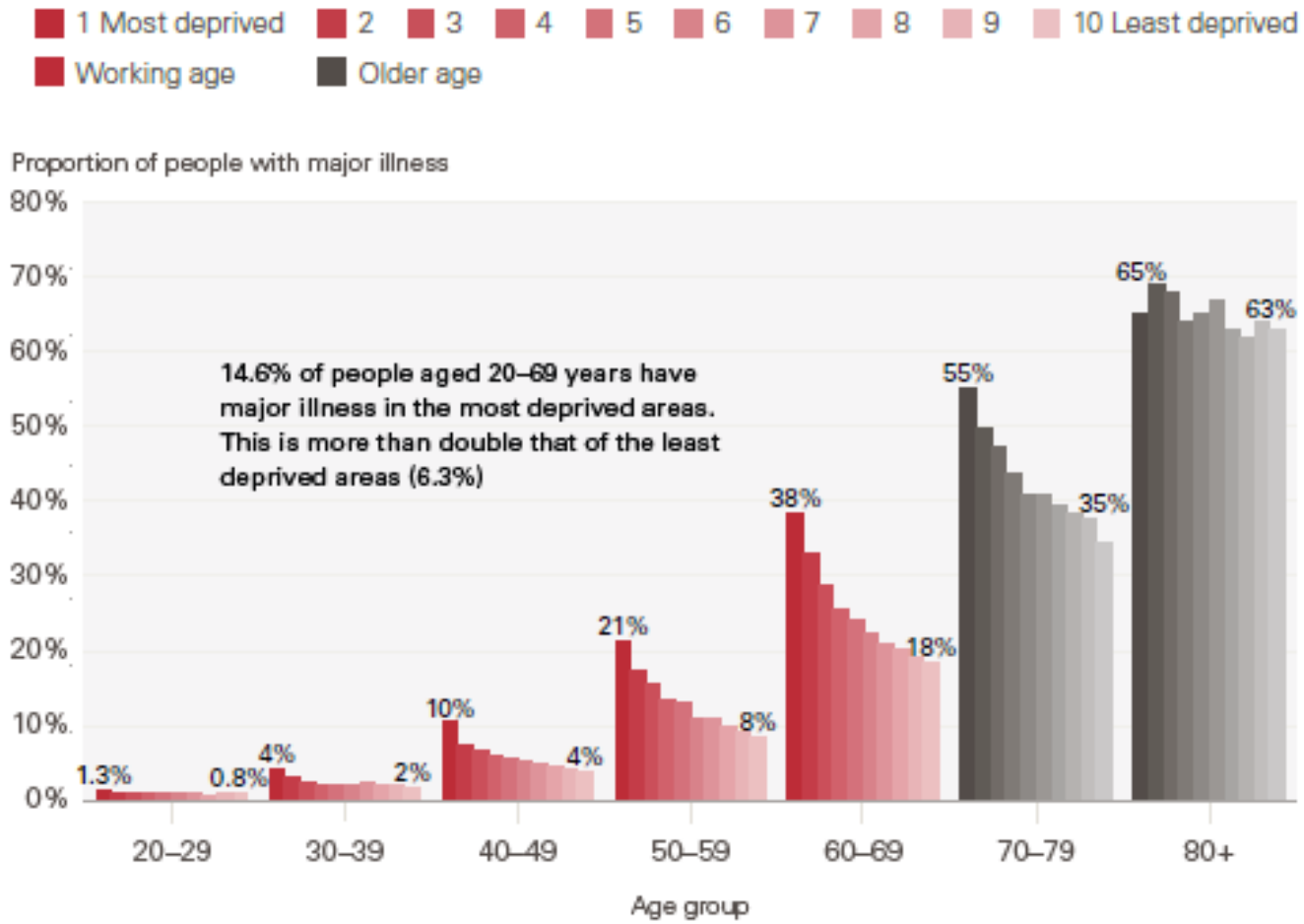


The Health Foundation
REAL Centre

Current patterns of diagnosed health inequality

The Health Foundation
REAL Centre

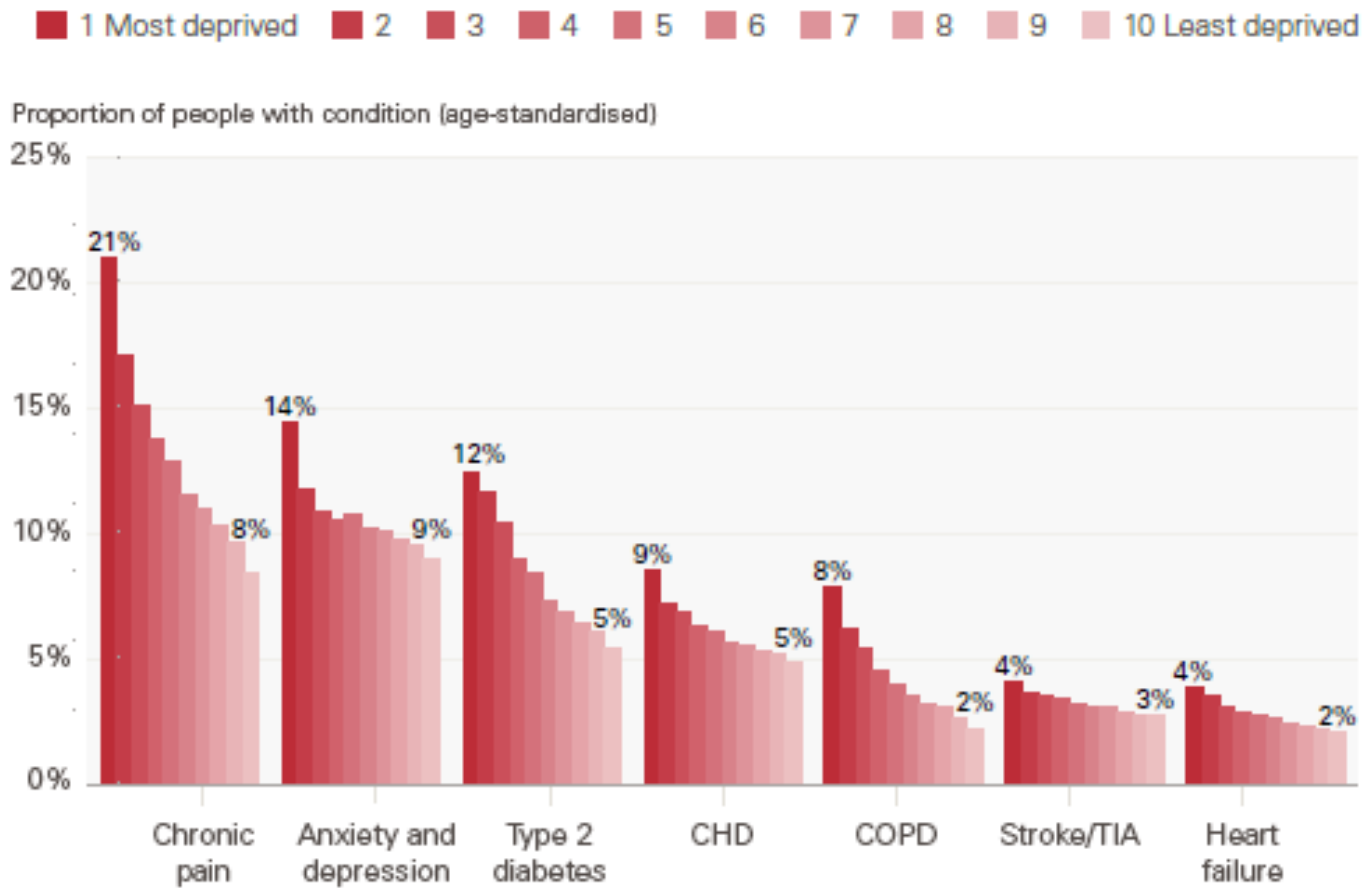
There are more working-age adults with major illness in the most deprived areas



- Inequality begins in early adulthood and grows steadily throughout working age
- By the time people reach their 60s more than 2 in 10 people in the most deprived areas have major illness compared to just under 1 in 10 people in the least deprived areas
- Health inequalities level off in the oldest age group

Health Foundation
REAL Centre

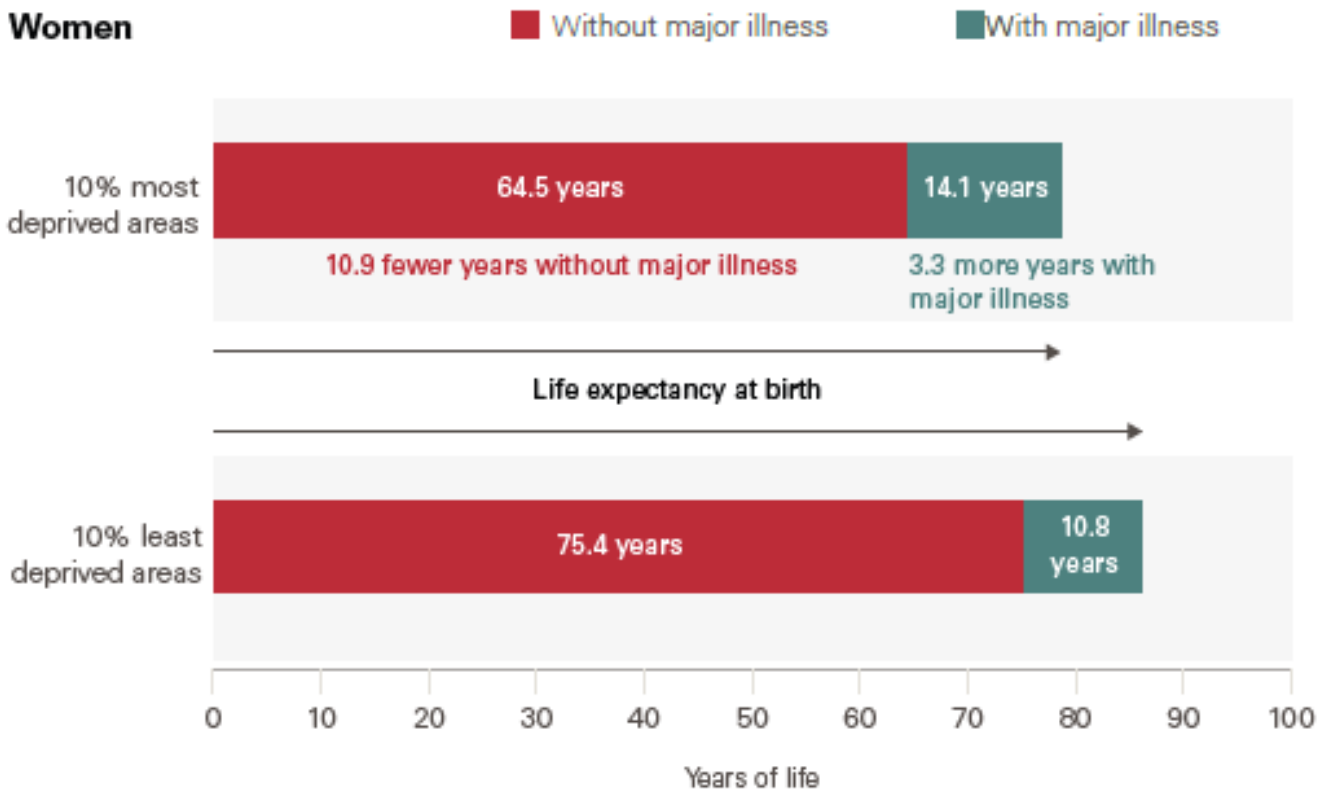
A small group of conditions contribute to most of the observed health inequalities



- Chronic pain, COPD, type 2 diabetes, CVD and anxiety and depression - key contributing conditions to health inequalities
- Prevalence of these conditions in the 10% most deprived areas at least 1.5 times that of the 10% least deprived areas
- The largest difference is in COPD: prevalence 4 times that of least deprived areas

The Health Foundation
REAL Centre

People in the most deprived areas die earlier and spend more time living with major illness



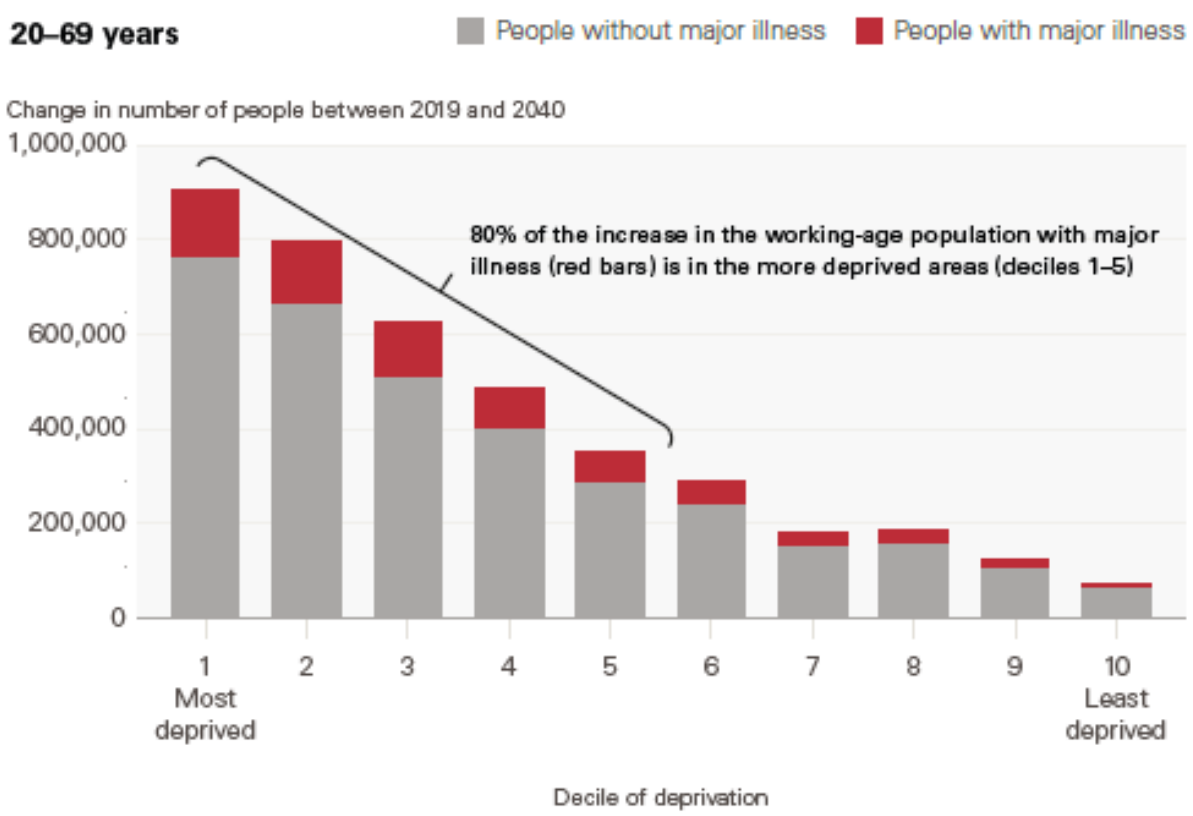
- Major illness-free LE (red section) for people in the most deprived areas a decade lower than for people in the least deprived areas.
- Men in the most deprived areas have the shortest lives on average, while women in the most deprived areas spend the longest time living with major illness.

The Health Foundation
REAL Centre

Health inequalities in 2040

The Health Foundation
REAL Centre

Health inequalities will stubbornly persist into the future with particular implications for the working age population

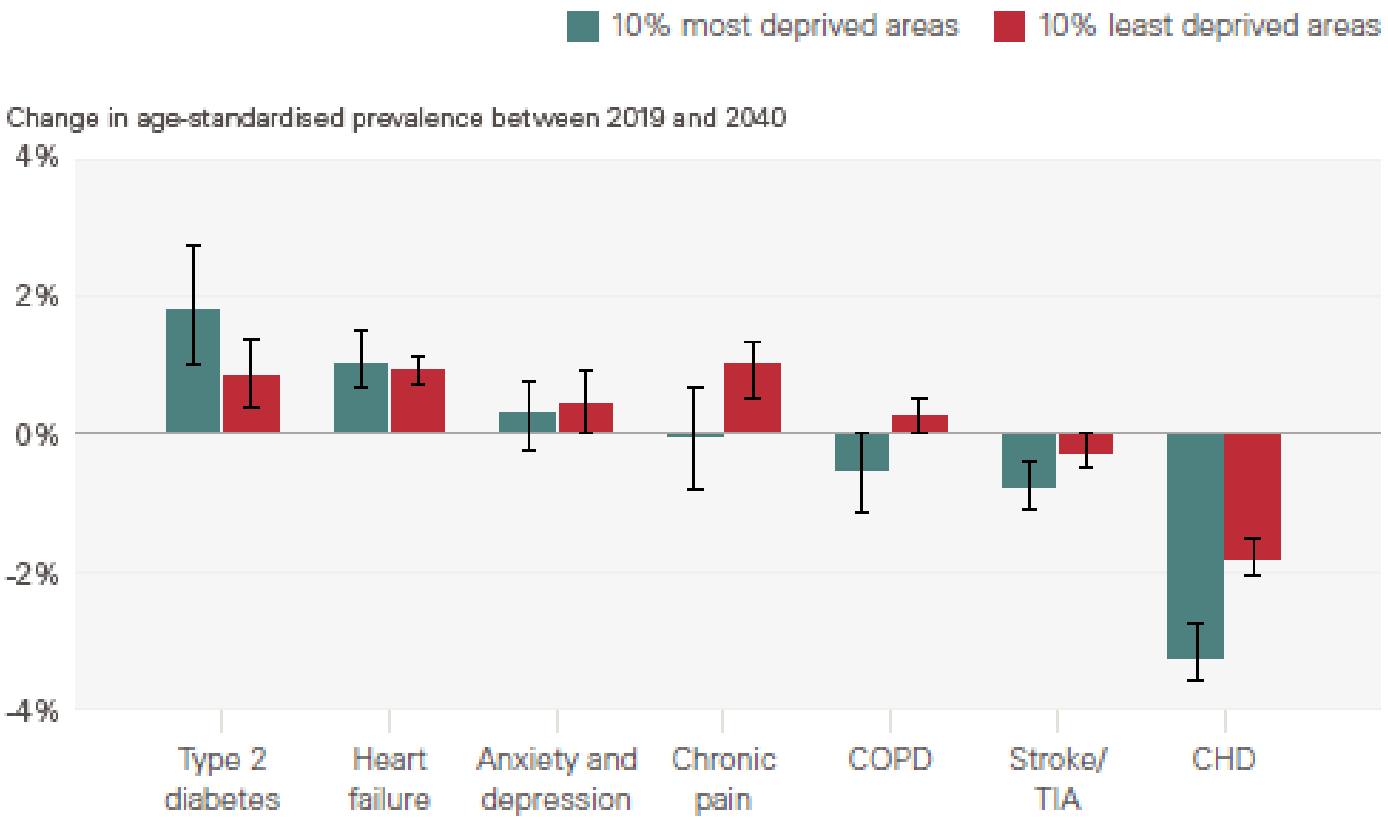


- Inequalities in major illness will persist, with the gap in major illness-free life expectancy between the 10% most and least deprived areas projected to remain at around a decade.

- We project the overall number of working-age people experiencing major illness to grow from 3 million (2019) to 3.7 million (2040).

The Health Foundation
REAL Centre

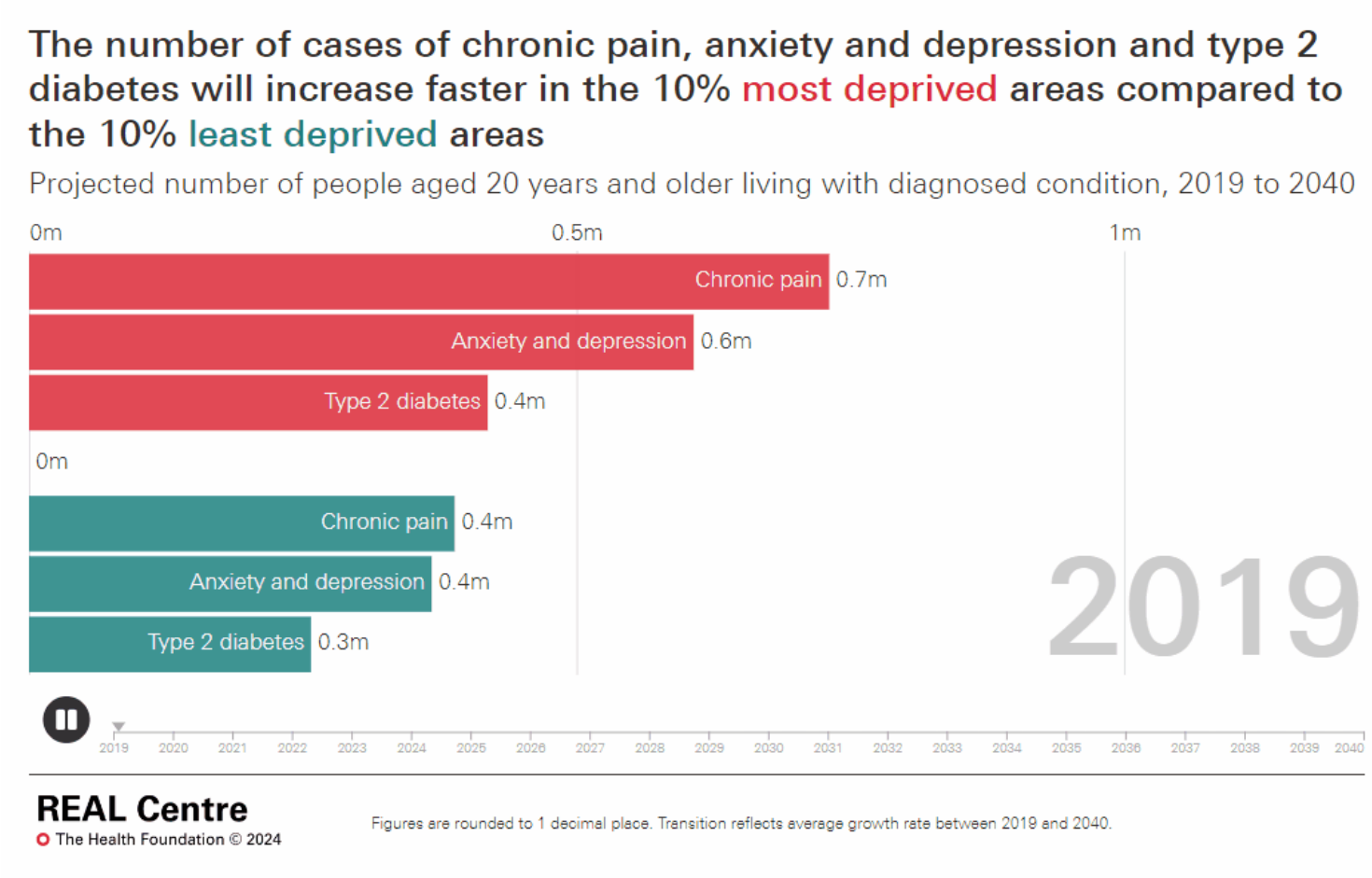
Different conditions show different patterns of changing inequality by 2040



- Declining smoking rates across the country are showing positive effects through a projected reduction in the proportion of people with coronary heart disease and stroke.
- By contrast, inequalities are growing in type 2 diabetes with a faster growth in the most deprived areas due to growing obesity.

The Health Foundation
REAL Centre

Chronic pain, type 2 diabetes and anxiety and depression will continue to be the most prevalent conditions in the most and least deprived areas



The Health Foundation
REAL Centre

Implications of our findings

Wide health inequalities in England are projected to persist with implications for health and the wider economy

- The early onset of major illness in the most deprived areas has significant implications for people's quality of life, their loved ones and their local communities.
- The conditions with the greatest projected growth are all largely managed in primary care which will need significant investment. Primary care in more deprived areas has fewer GPs relative to health need and this imbalance needs to be corrected.
- Prevention is key: We need population-wide government policies tackling the biggest risk factors that shape health outcomes – obesity, smoking, alcohol use, poor diet and physical inactivity.
- But this needs to be accompanied by long-term effort across government and the economy to address the underlying causes of health inequality such as housing, income and employment.

The Health Foundation
REAL Centre

Wide health inequalities in England are projected to persist with implications for health and the wider economy

- Inequalities in the health of the working-age population pose a challenge to labour supply and worker productivity and represents a massive lost opportunity hampering economic recovery and growth. It also exacerbates existing economic inequalities.
- Separate Health Foundation research has found that there are now as many people **in work** with work-limiting health conditions as people **out of work** with such conditions.
- There is also a persistent employment and earnings gap between those who report having work-limiting health conditions and those who do not.
- The coming increase in the State Pension age increases the likelihood of financial hardship for those who have to drop out of the workforce due to poor health.
- Tackling health inequalities should be considered a prerequisite to economic prosperity.

The Health Foundation
REAL Centre

Ann.Raymond@health.org.uk @Ann__Raymond

FULL REPORT (WITH TECHNICAL APPENDIX):
https://www.health.org.uk/publications/health-inequalities-in-2040
GITHUB:
https://github.com/HFAnalyticsLab/Patterns_of_diagnosed_illness_for_England_using_CPRD_HES_ONS_data
https://github.com/ChristK/IMPACTncd_Engl

The Health Foundation
REAL Centre