

# REAL Centre

in partnership with the University of Liverpool

## Health in 2040:

### Projected patterns of illness in England

Toby Watt – [toby.watt@health.org.uk](mailto:toby.watt@health.org.uk)

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The  
Health  
Foundation

# New approach to projections – with U. Liverpool

- **Health in 2040:** First report from a long term programme of research 4 years in development with academic partners: <https://www.health.org.uk/publications/health-in-2040>
- **Focus on inequality:** part two in April, continuing from this work: <https://www.health.org.uk/news-and-comment/charts-and-infographics/quantifying-health-inequalities>
- **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.
- The model includes **trends in some key risk factors** such as smoking and obesity, relying on published epidemiological evidence.
- We model illness with 20 highly prevalent and/or high cost conditions – summarised by the Cambridge Multimorbidity Score (CMS). “Major illness” is a score above a certain threshold (1.5).

# Key messages

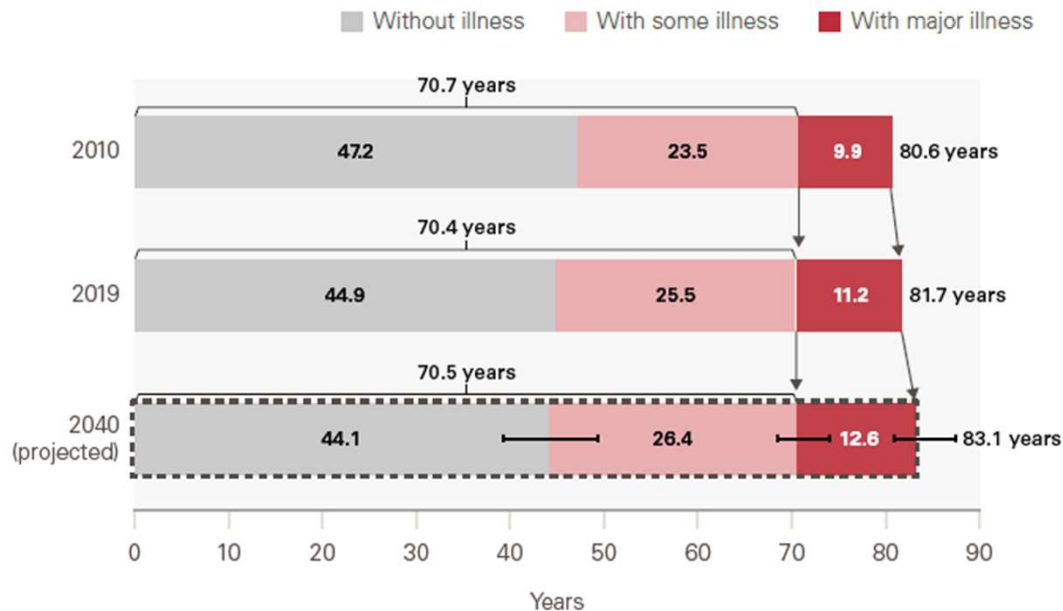
– updated Jan 2024

- 2.6 million more people living with major illness by 2040, an increase of 39%. From 1 in 6 people in England in 2019 to nearly 1 in 5.
- We project an increase in the prevalence of 19 of the 20 illnesses we looked at, including increases of more than 30% in the number of people living with conditions such as cancer, diabetes and kidney disease.
- 80% of the increase in average illness is projected to be driven by demographic changes.
- **Greater complexity of illness:** high numbers of people are projected to be living with multiple long term conditions that are predominantly managed in primary care.
- Several risk factors are moving in the right direction (e.g. smoking and cholesterol). But the benefits are mitigated by growing obesity in adults and increase lifetime risk.

# Projections for multimorbidity

# We project that the population in England will spend more time with major illness in 2040 compared to 2019

Average life expectancy at birth and years of life people can expect to spend in different states of ill health, England, 2010, 2019 and projected for 2040:



Notes: The black capped bars represent uncertainty intervals. The chart shows expectancy, which is a summary measure. In reality illness and death are distributed across all ages.

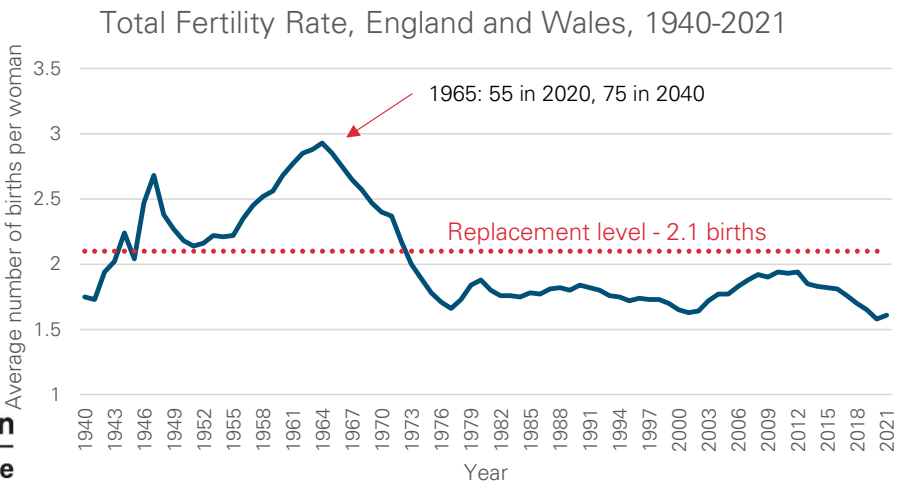
- We project life expectancy to increase by 1.4 years, on average, between 2019 and 2040.
- At the same time, the age at which individuals reach a level of major illness will remain unchanged at around 70 years.
- As a result, time spent with major illness is projected to increase from 11.2 to 12.6 years.

# Projected demographic changes – update January 2024

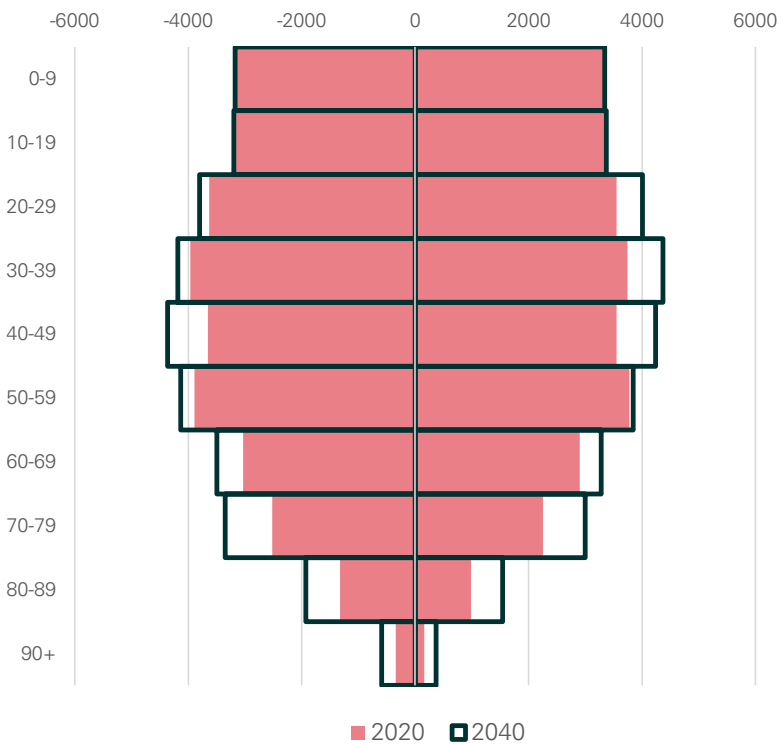
There are three key features of demography in England, now and in the future.

- 1. Low fertility from 1980 (below replacement)
- 2. The baby boomers + (high fertility from 1950 to 1975)
- 3. Lower mortality rates, especially in older ages
- 4. Higher levels of net migration

There are projected to be 7.3 million more people by 2040, more than half (53%) over 65s.

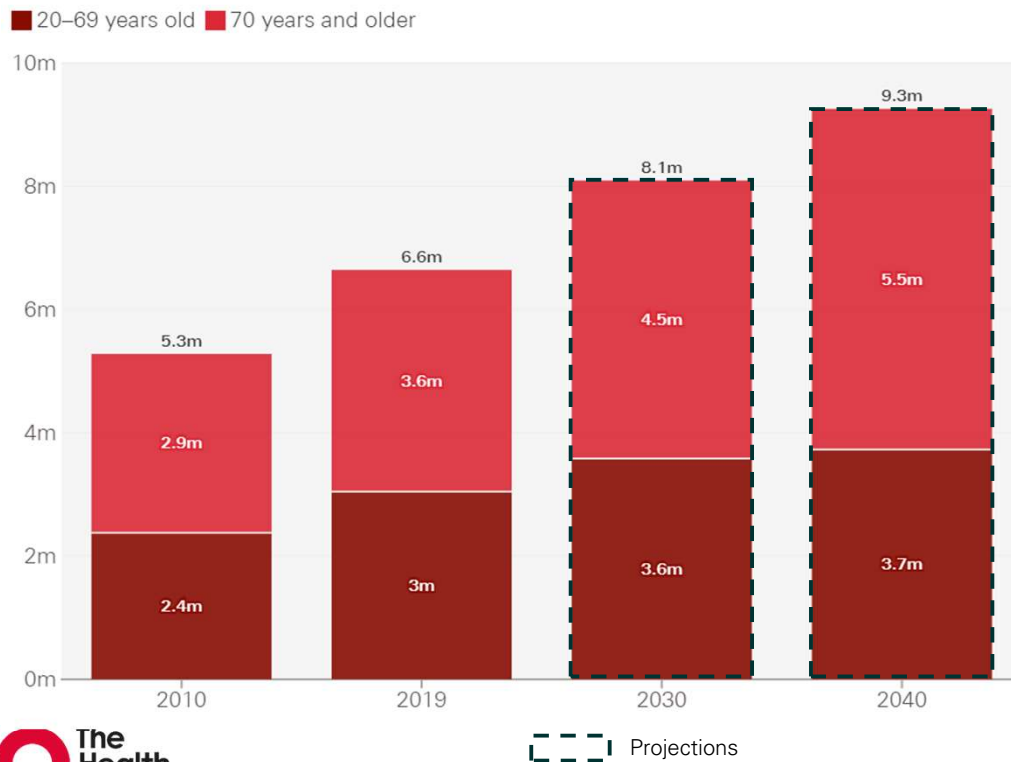


Population in England by 10-year age bands, 2020 and 2040  
000s, women left, men right



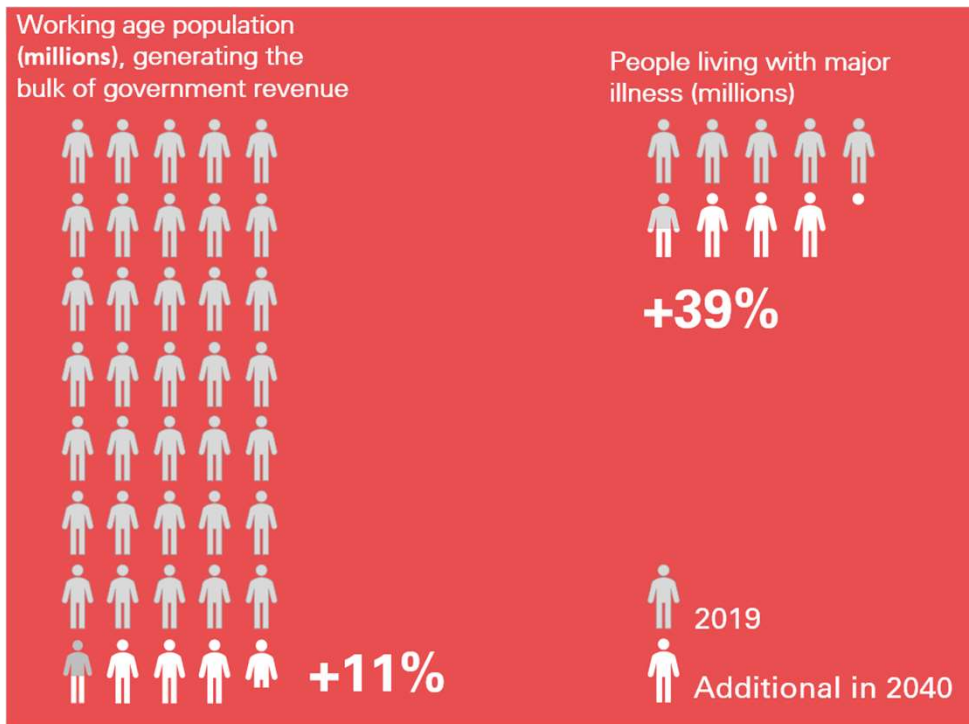
# As a result, we project that there will be 2.6 million more people with major illness by 2040

The estimated number of people living with major illness in England, past and projected



- We project 8.1 million people aged 30 and older to be living with major illness by the end of this decade and 9.3 million people to be living with major illness by 2040.
- 3.7 million of the 9.3 million with major illness (40%) in 2040 will be people of working ages.
- Notice that the increase in demand was high (1.4 million) from 2010 – 2019. During a period where investment growth was slower and the number of GPs didn't increase.

# The number of people with major illness is growing faster than the working age population



- The number of people living with major illness is projected to increase by 38% by 2040 (from 6.7m to 9.3m).
- This is nine times the rate of increase in the working age population (20–69-year-olds), which is projected to grow by 11% (from 35.5m to 39.9m).
- This creates additional pressures on working age people to care for and fund a growing population with high health and care needs.
- 2.6m (39%) is a large increase, but over the course of two decades this is manageable (1-2% per year).

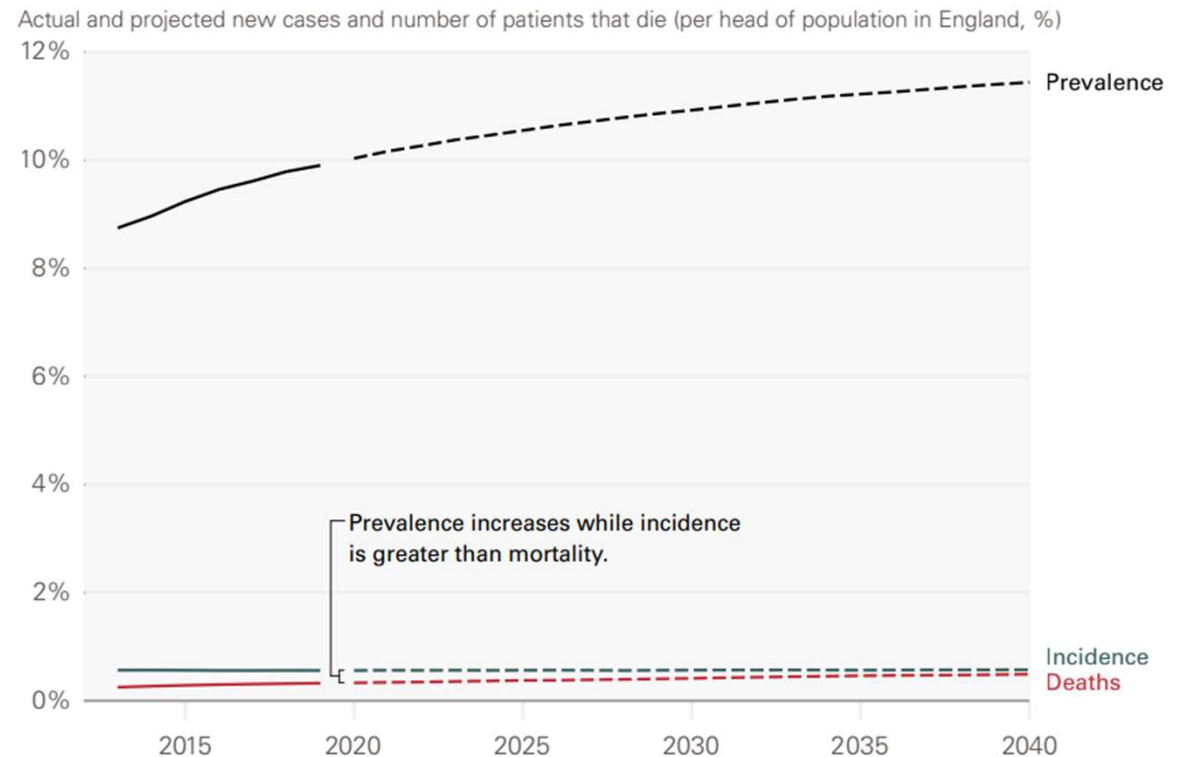


# Insights: Lifetime obesity risk

# The relationship between incidence, prevalence and mortality

- Prevalence of long-term illness in the population is determined by a combination of accumulated incidence and survival rates (and remission in some cases).
- Compared to the size of the prevalence, the “levers” of prevalence are small. Prevention, where effective, takes time to have impact.
- In the case of type II diabetes, for which prevalence has been growing, incidence rates (by age) have been and are projected to be fairly constant.
- This issue is that deaths for people with T2 diabetes are **lower** than incidence, not that incidence is increasing.

## Incidence, prevalence and deaths with type II diabetes, 2013 – 2040 (projected) in England

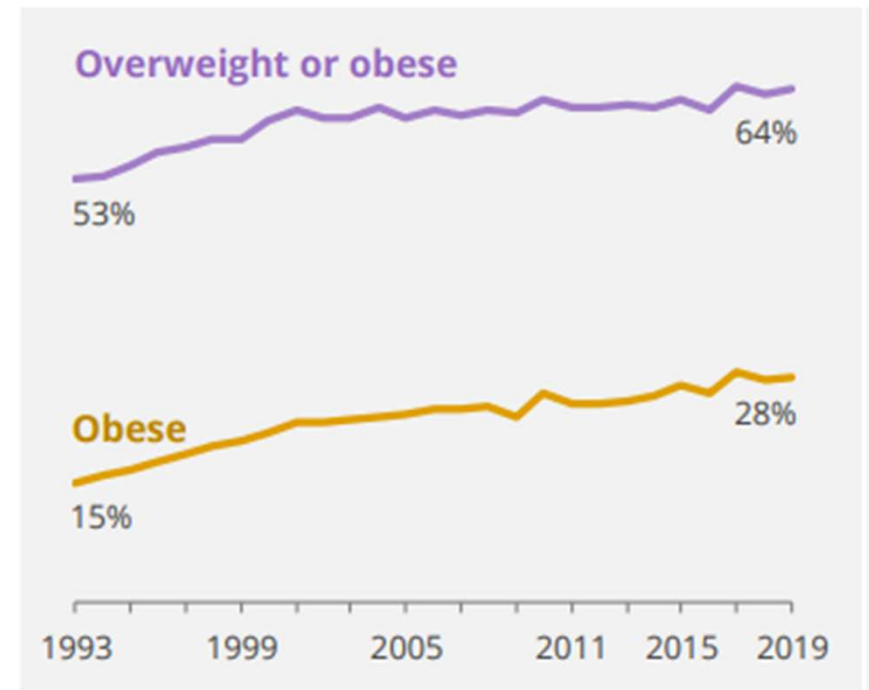


Source: Analysis of linked health care records and mortality data conducted by the REAL Centre and the University of Liverpool.

# Long(er) run obesity trends

- Since (at least) the early 90s there has been a step change in food environments in the UK.
- The current, obesogenic environment has shifted as high calorie dense food is more readily available and more affordable and other lifestyle factors have changed.
- The recent slow-down doesn't mean that the growth in risk is over.
- The increased risk of developing diabetes in a **single year** is not that big. The danger is the accumulated lifetime risk.
- 60-year-olds today were 30 in 1993. Therefore 60-year-olds in 2040 will have increased lifetime risk.

**Obesity levels increased from 15% in 1993 to 28% in 2019.**

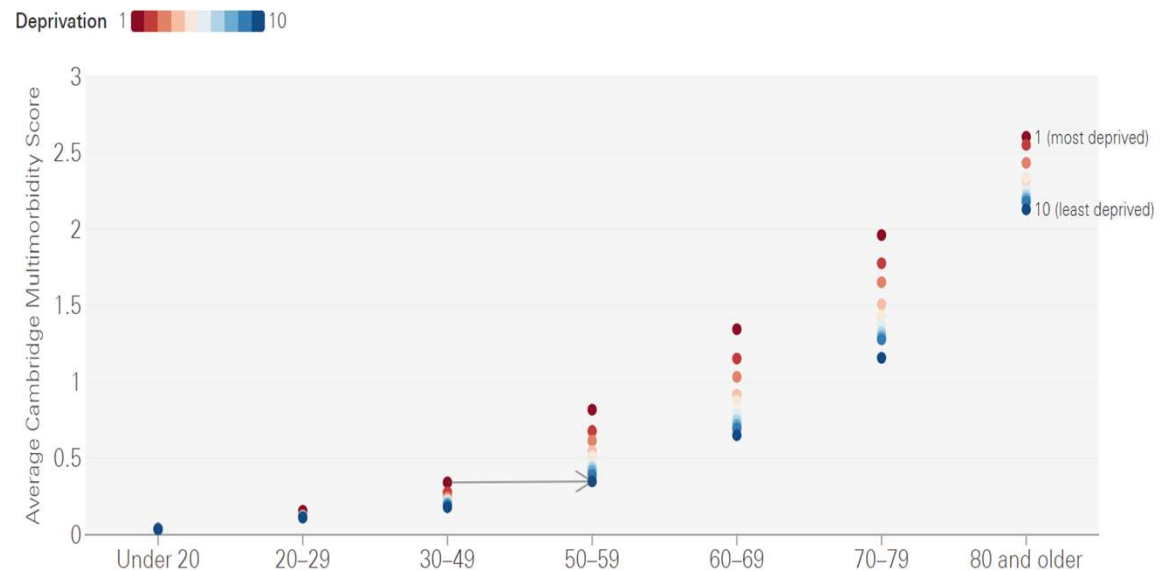


# Insights: Inequality

# Better data – more insight into inequality (2019)

- We are working on projections for ill health by socioeconomic group to be published next month. But using linked data we were able to learn more about health inequality in England now.
- Major illness is defined as a Cambridge Multimorbidity Score (CMS) of over 1.5. We can also show the average CMS to compare rates of illness across socioeconomic groups.
- There is at least “10 year gap” between diagnosed illness in the most and least deprived areas in England.
- E.g. the average level of illness of illness for a 60-year-old women in the most deprived areas, is the same as a 76-year-old woman in the least deprived areas.

Diagnosed illness (average Cambridge Multimorbidity Scores) by age group and deprivation (IMD decile), 2019/20



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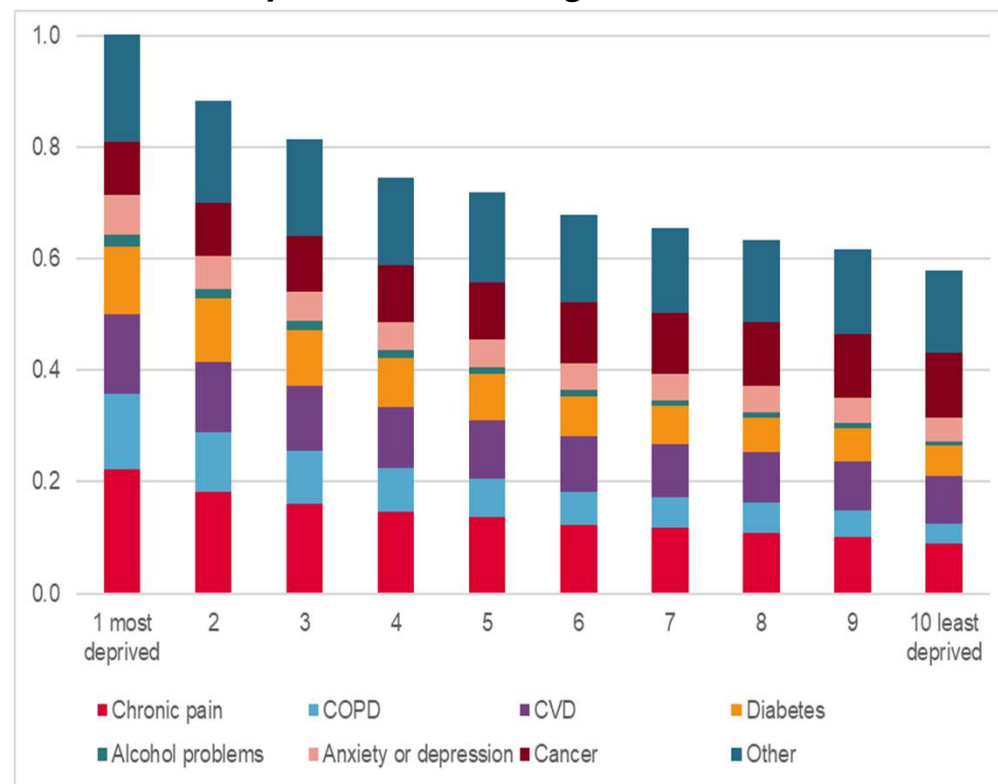
Source: REAL Centre analysis of patient level primary care data (CPRD) linked to HES and ONS mortality data. • The Cambridge Multimorbidity Score is calculated at a patient level, with the average score for each deprivation decile age-standardised to the European Standard population.

Published here: <https://www.health.org.uk/news-and-comment/charts-and-infographics/quantifying-health-inequalities>

## This measure of health inequality is driven by a small number of conditions

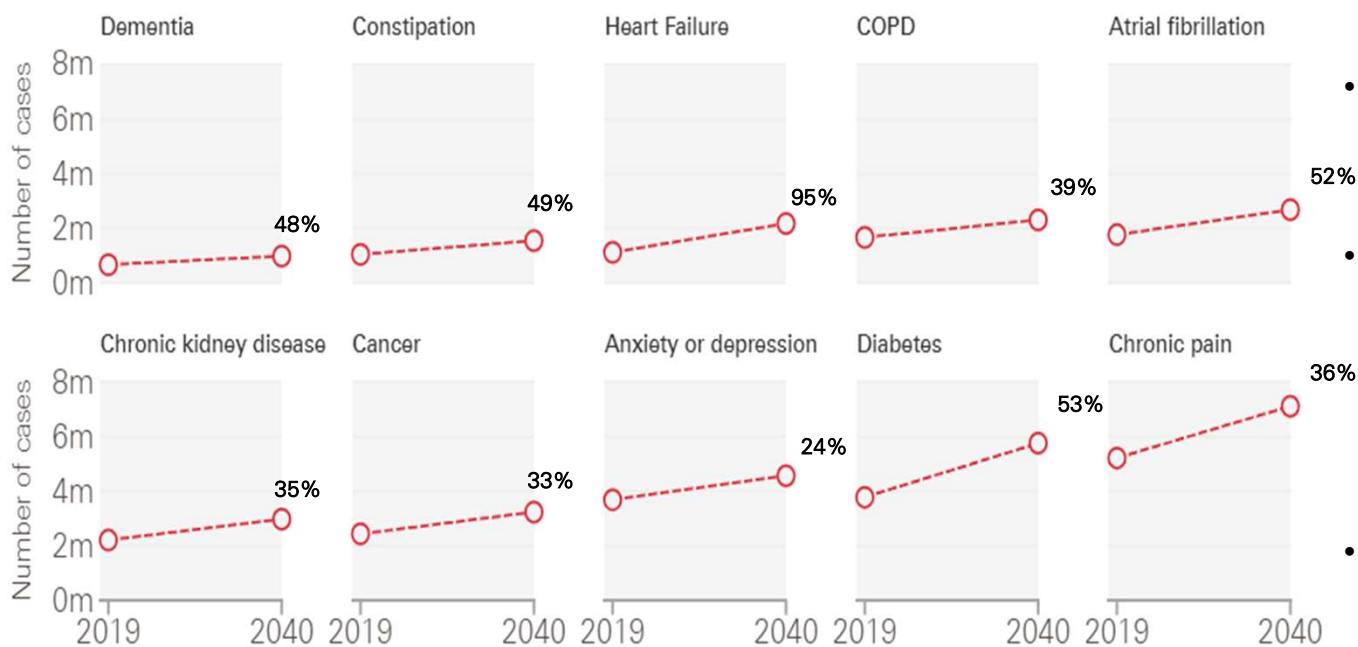
- The average CMS can be broken down by contributing illness.
- Diagnosed illness is almost twice the level in the most compared with the least deprived 10% of areas.
- A small number of conditions - chronic pain, COPD, CVD, diabetes and anxiety and depression dominate the disease “gap”.
- It is a “weighted” prevalence, chronic pain is a largest bar not because it is the most prevalent, but because it has high prevalence and a high score.

**Average Cambridge Multimorbidity Score, age standardised by IMD decile in England, 2019**



# Millions of additional disease cases – with particular pressure for primary care and community services

Projected total number of diagnosed cases for the ten conditions contributing the most to the Cambridge Multimorbidity Score among those aged 30 years and older, including demographic changes, England, 2019 and projected for 2040



- The biggest rates of increase are for chronic pain and diabetes, both over 1.5 million.
- We also project over a 30% increase in the number of people living with cancer, COPD and chronic kidney disease.
- In most cases, these increases are driven by population ageing rather than a rise in age-specific rates or earlier onset: rates of illness rise with age – for example 1 in 5 people aged 80–84 has type 2 diabetes, more than double the rate of those aged 55–59.
- Information like this will help inform decisions about which aspects of public service capacity will need to grow. This is indicating community and primary health services. Especially in deprived areas.

# Implications



## **We need to clearly understand the imminent future of illness in England to better prepare the health and care system**

- Longer life is an immediate consequence of better health technology and delivery. However, on average the increased life expectancy has happened “after illness”, predominantly driven not by better health but better management of conditions through health care.
- Increasing levels of and lifetime risk from living with obesity are contributing to this and appear to be undoing some other improvements.
- Given more people are projected to be living with major illness and multiple conditions, helping people to live well with illness will be a key challenge for the health service.
- Focusing on prevention and innovation is vital for reducing the impact of illness on people, the economy and society: the strongest arguments for prevention reside in the wider effects of ill health (not just health services).
- A move towards a stronger evidence base through better links between health and the economy and a better understanding of the drivers of health inequality will be vital. Developing the information that local government can use to meet need now and in the future.
- Health inequality in 2040: a report to be published in April – takes a detailed look at the future of health inequality.