

Longevity over the next decade: What will drive changes to assumptions over the next ten years?

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Longevity over the next decade



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•———— What we'll cover ————•

- 1 Setting the scene
- 2 Current situation: excess deaths
- 3 Longevity headwinds
- 4 Longevity tailwinds
- 5 Summary



Setting the scene



Introduction to mortality assumptions

Baseline mortality

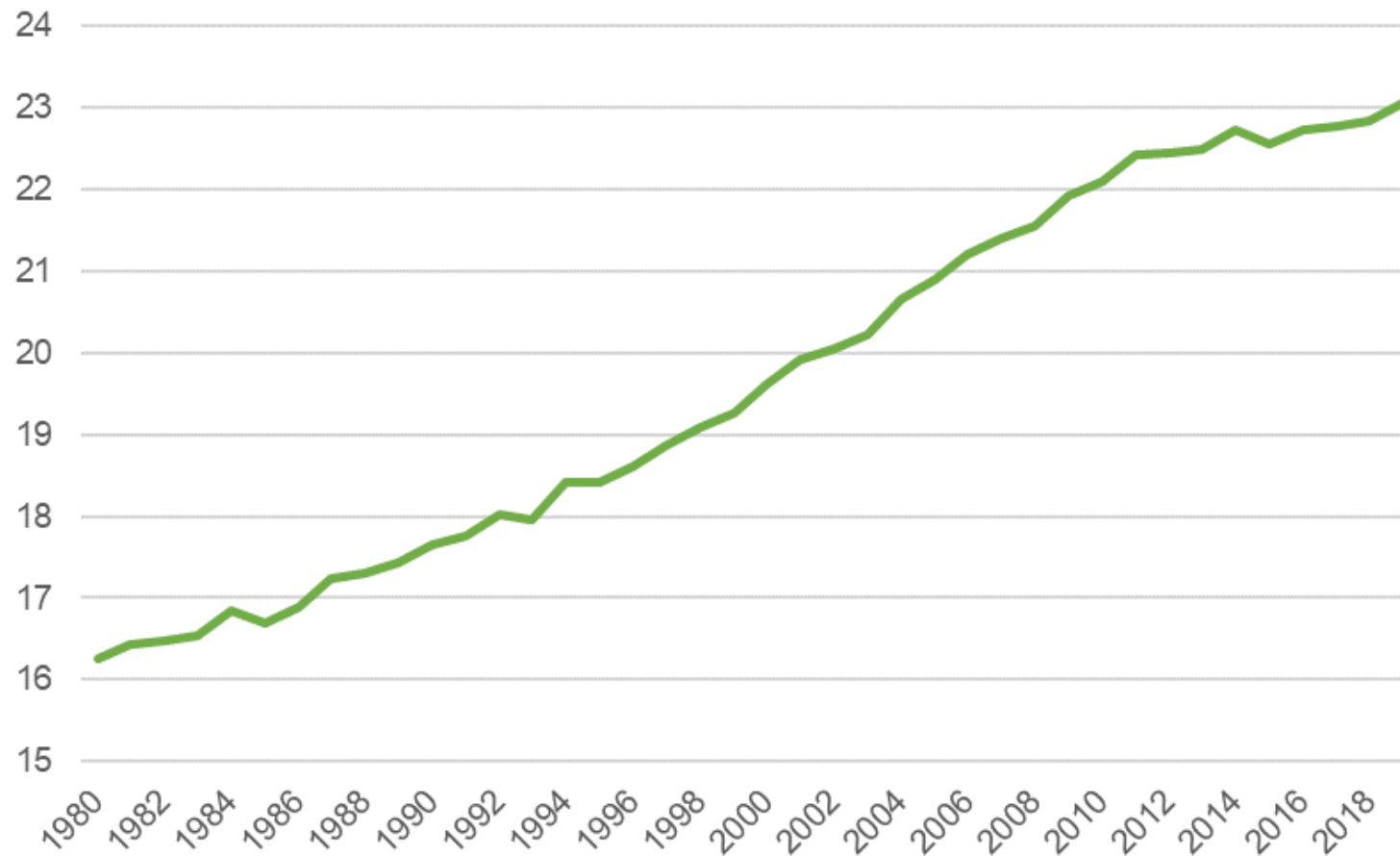
- Assesses the level of mortality that has been experienced in the past.
- A relatively objective calculation, determined using historical data.
- Judgements may arise regarding the data period to use and how to deal with outlier data or extreme events

Future mortality improvements

- Quantifies how mortality rates will change in the future.
- A subjective calculation, requiring assumptions to be made
- Generally assessed using a mortality improvements model, such as the CMI model.

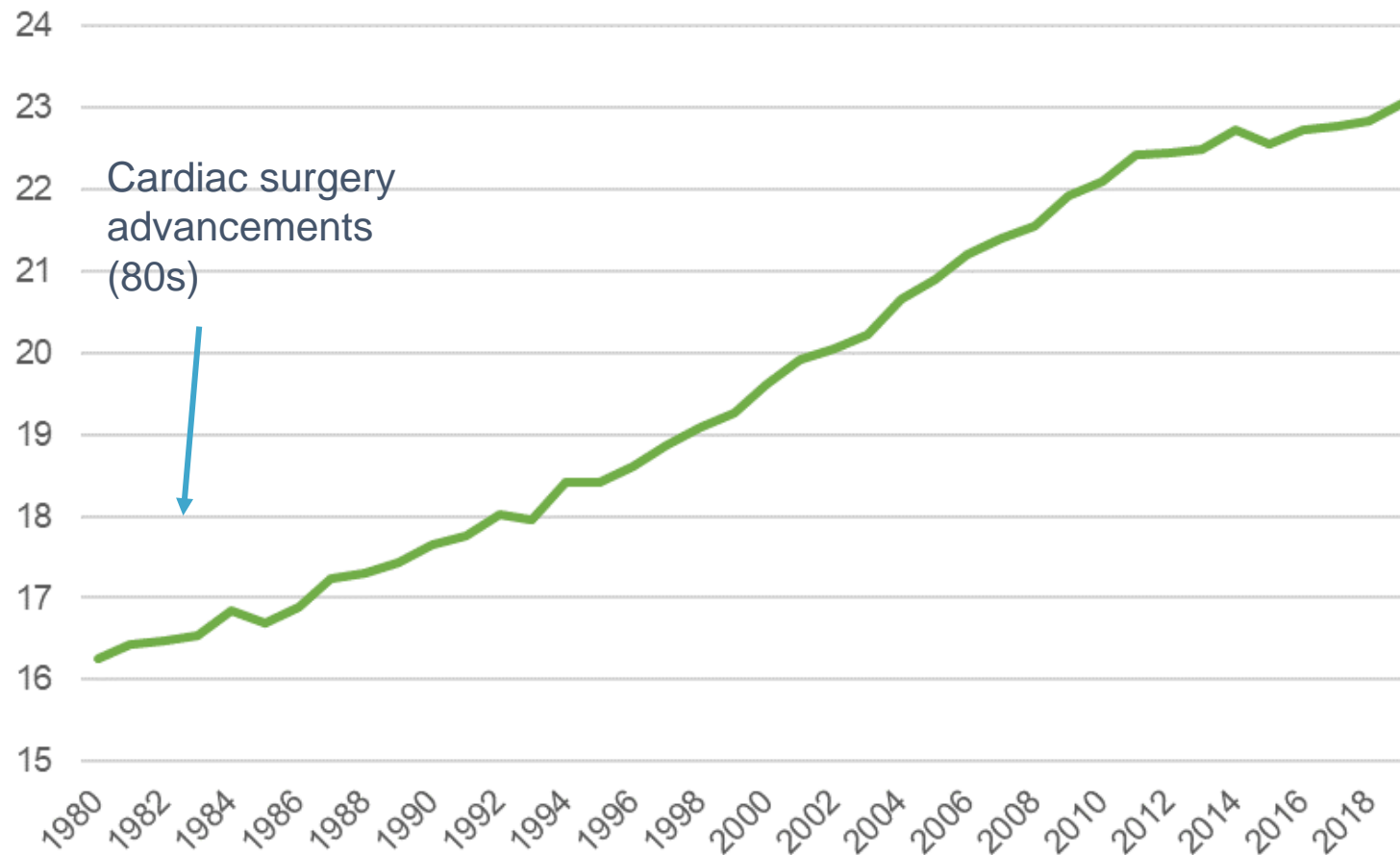
Historical trend in life expectancy

Life expectancy from age 60 in England & Wales males (years)



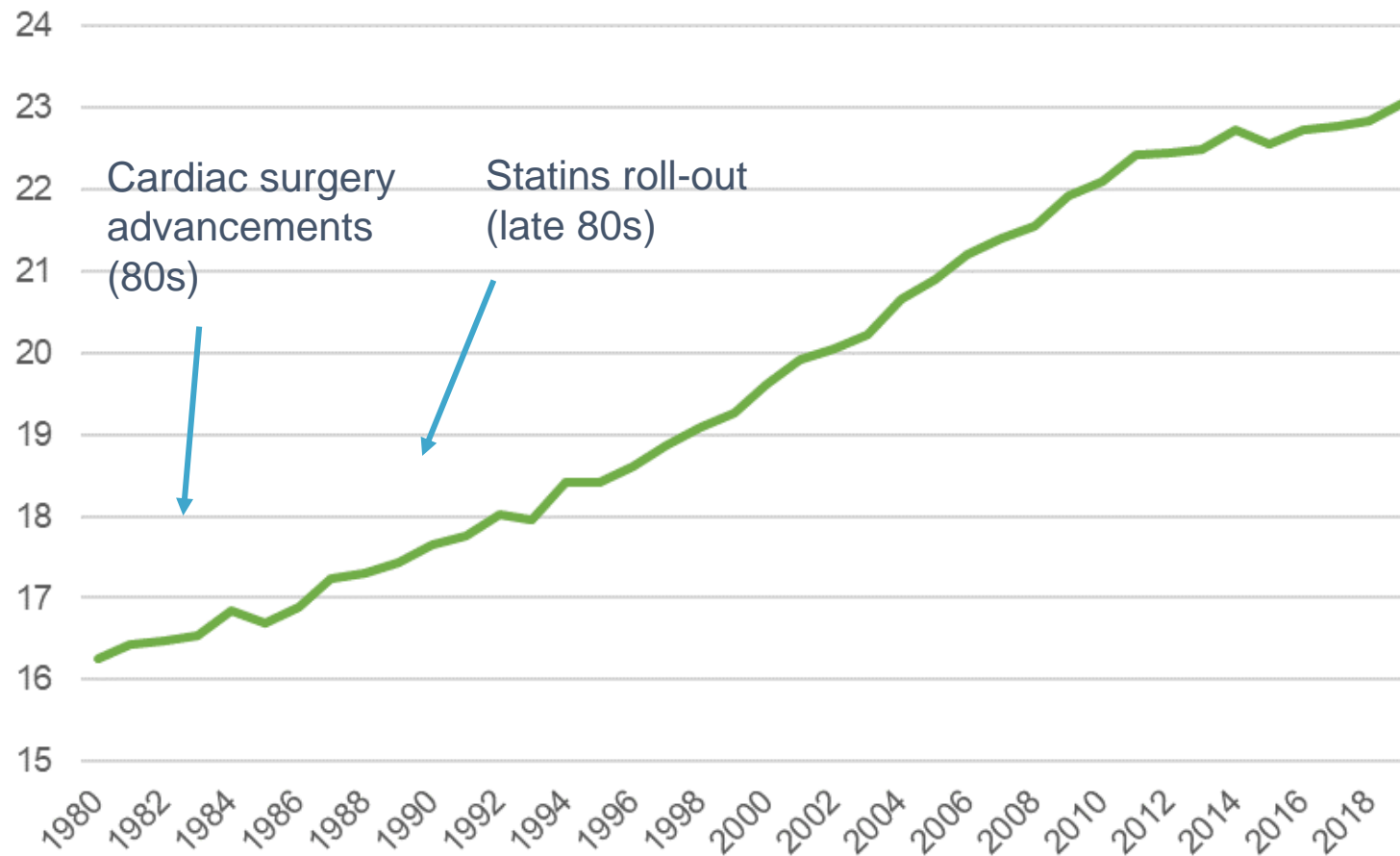
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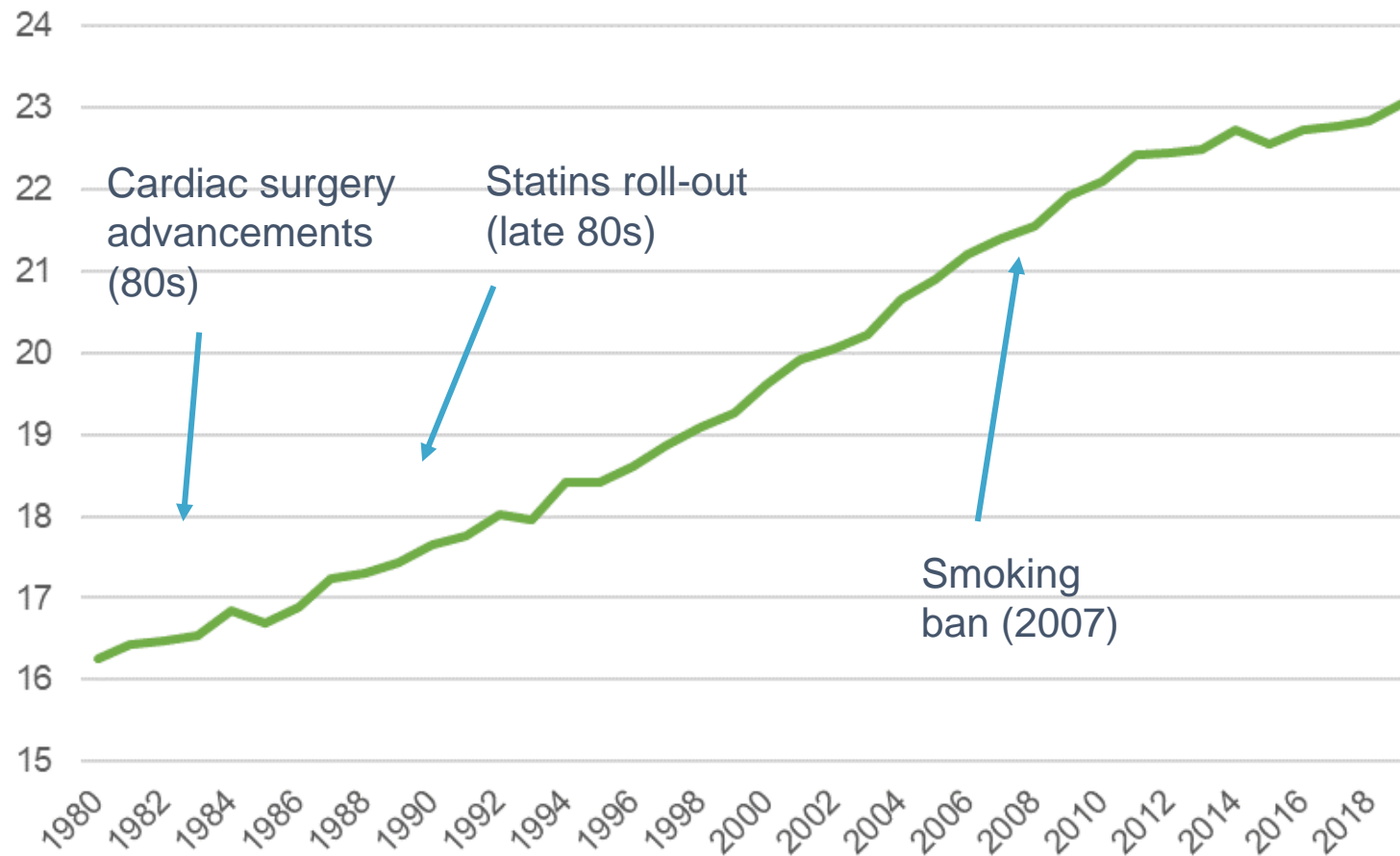
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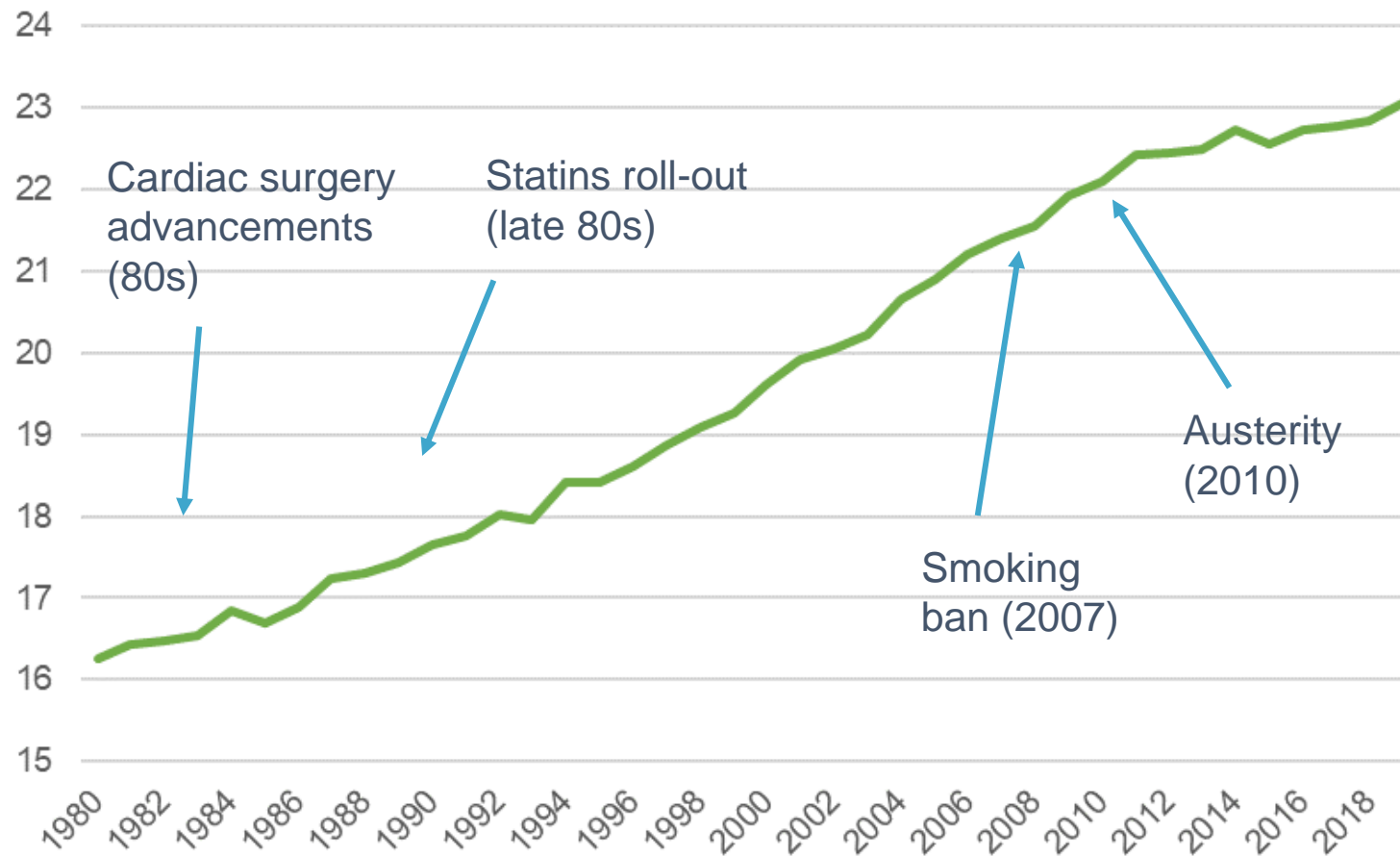
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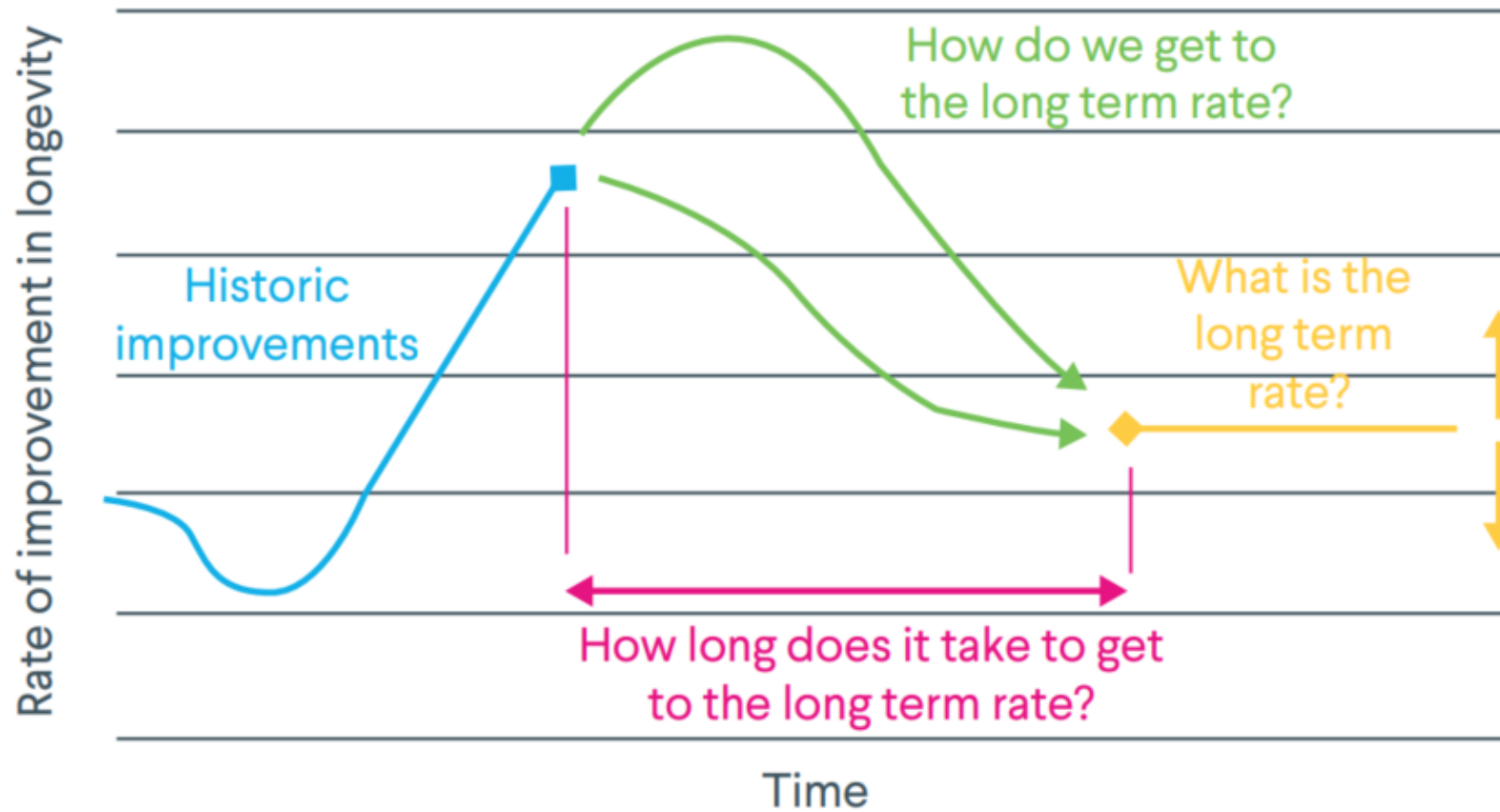


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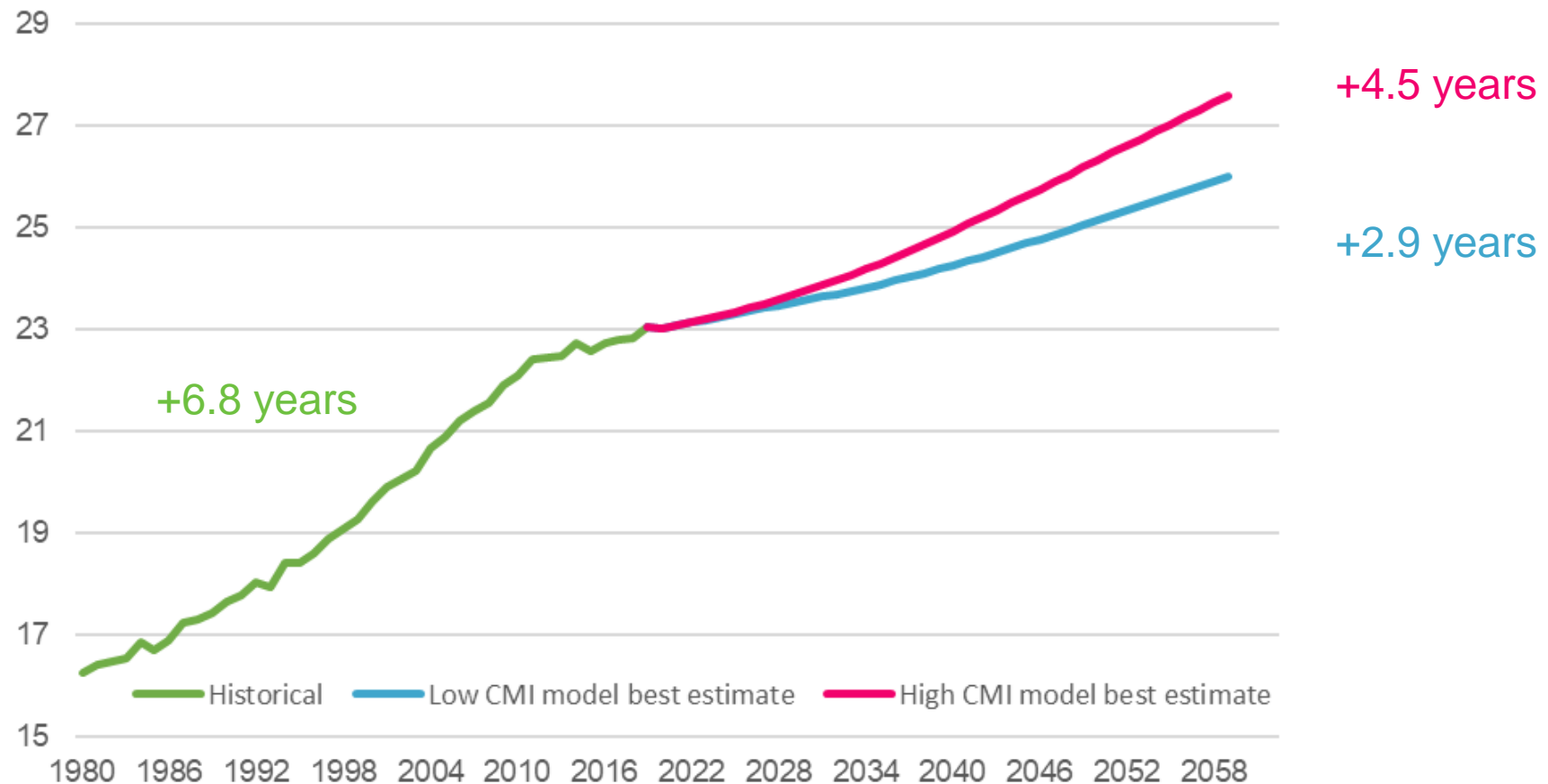


Widespread usage of the CMI model



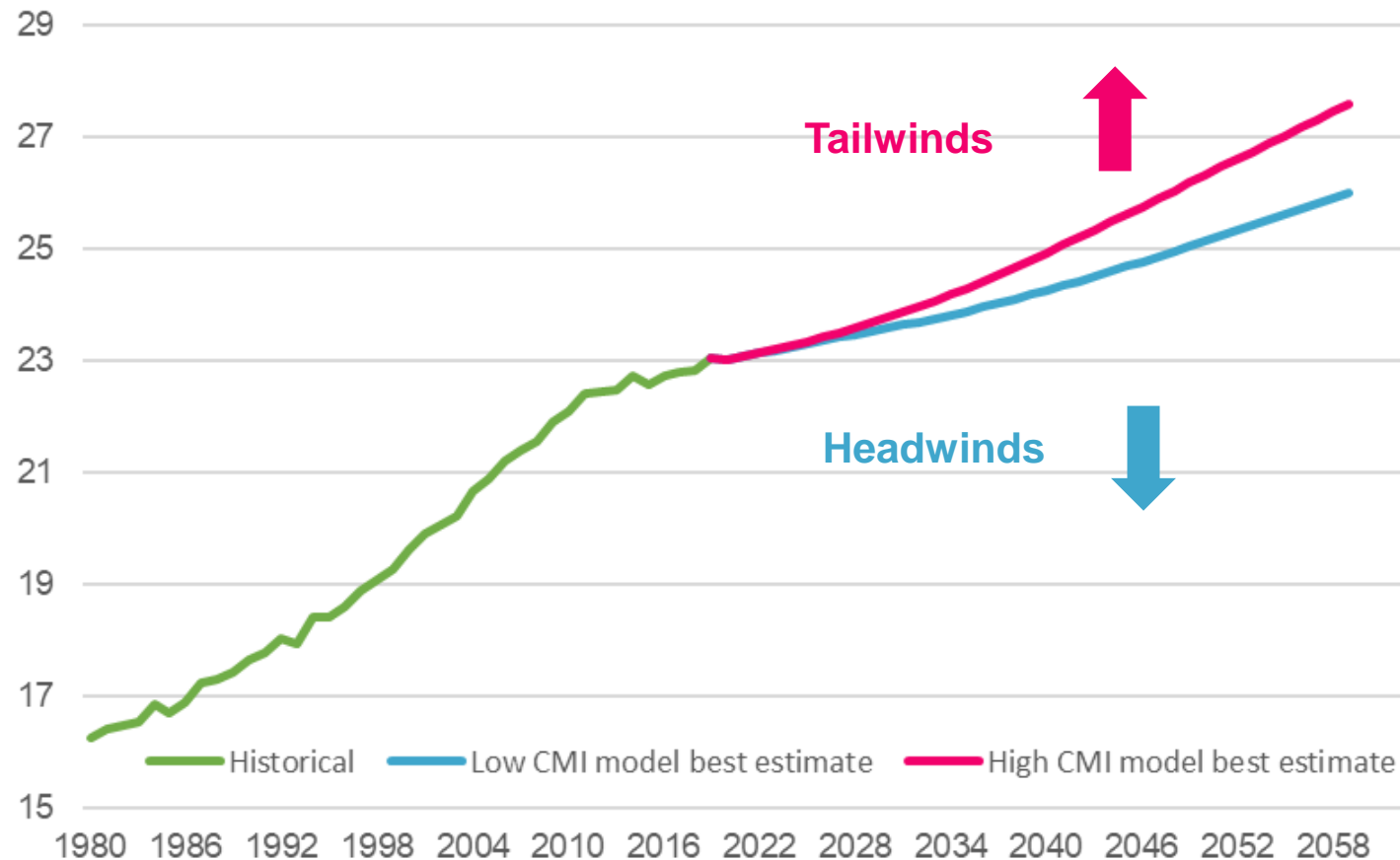
Slower trend expected in the coming decades

Life expectancy from age 60 in England & Wales males (years)



Outcome will depend on real world drivers

Life expectancy from age 60 in England & Wales males (years)



Wearables to monitor health



Diet incl. Vegetarianism

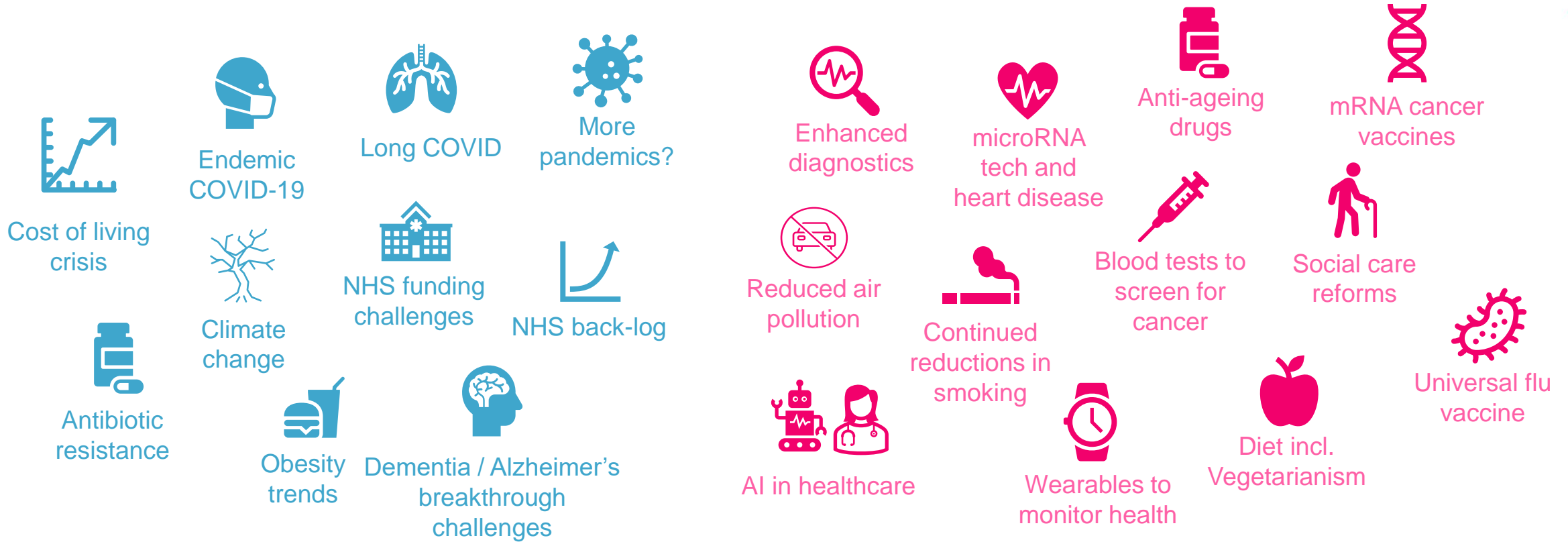


Endemic COVID-19



Obesity trends

Longevity *headwinds* and *tailwinds*

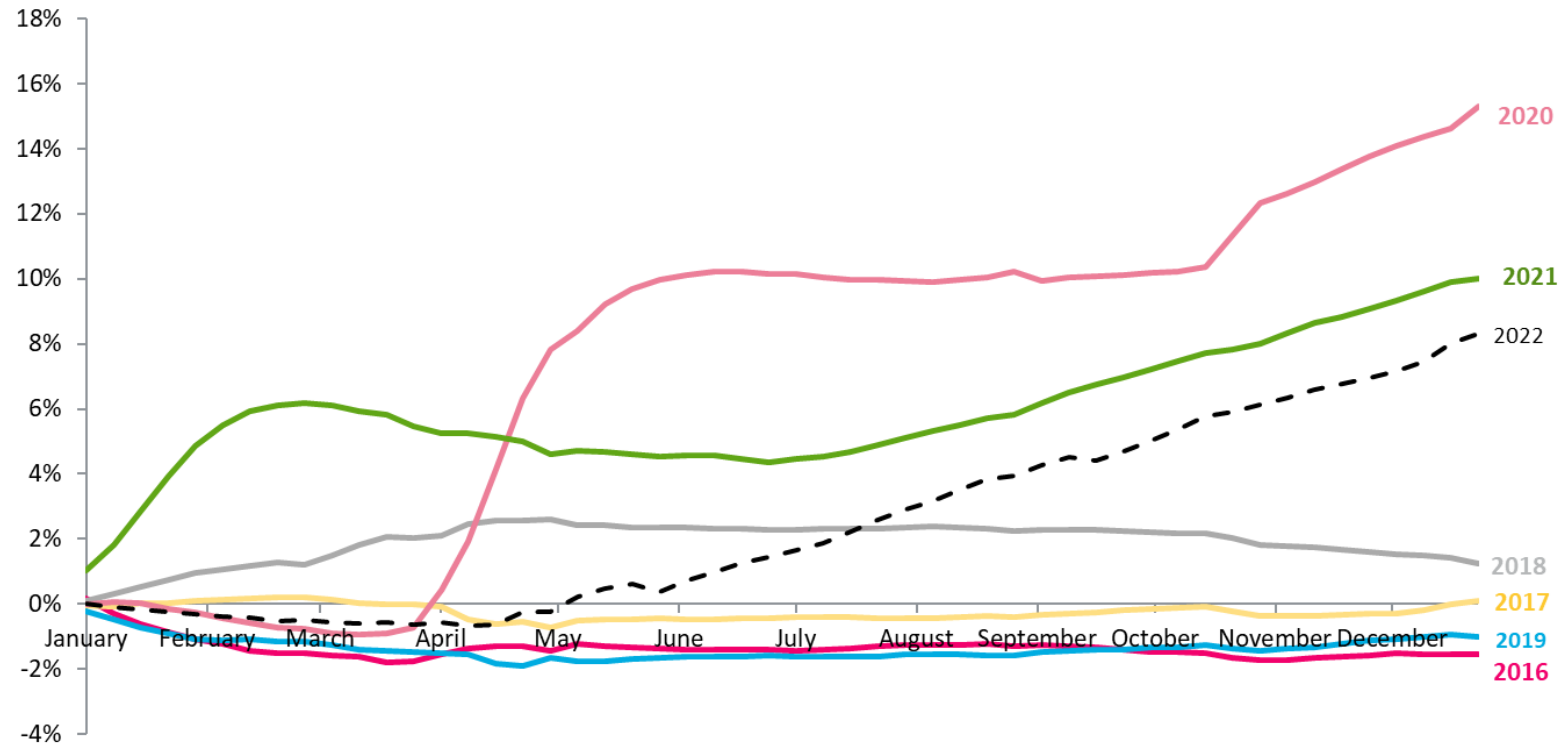


Wide range of drivers that could have an impact

Current situation: excess
deaths

Excess deaths in the UK

Cumulative excess deaths as % of average deaths over 2015 to 2019
(England & Wales)

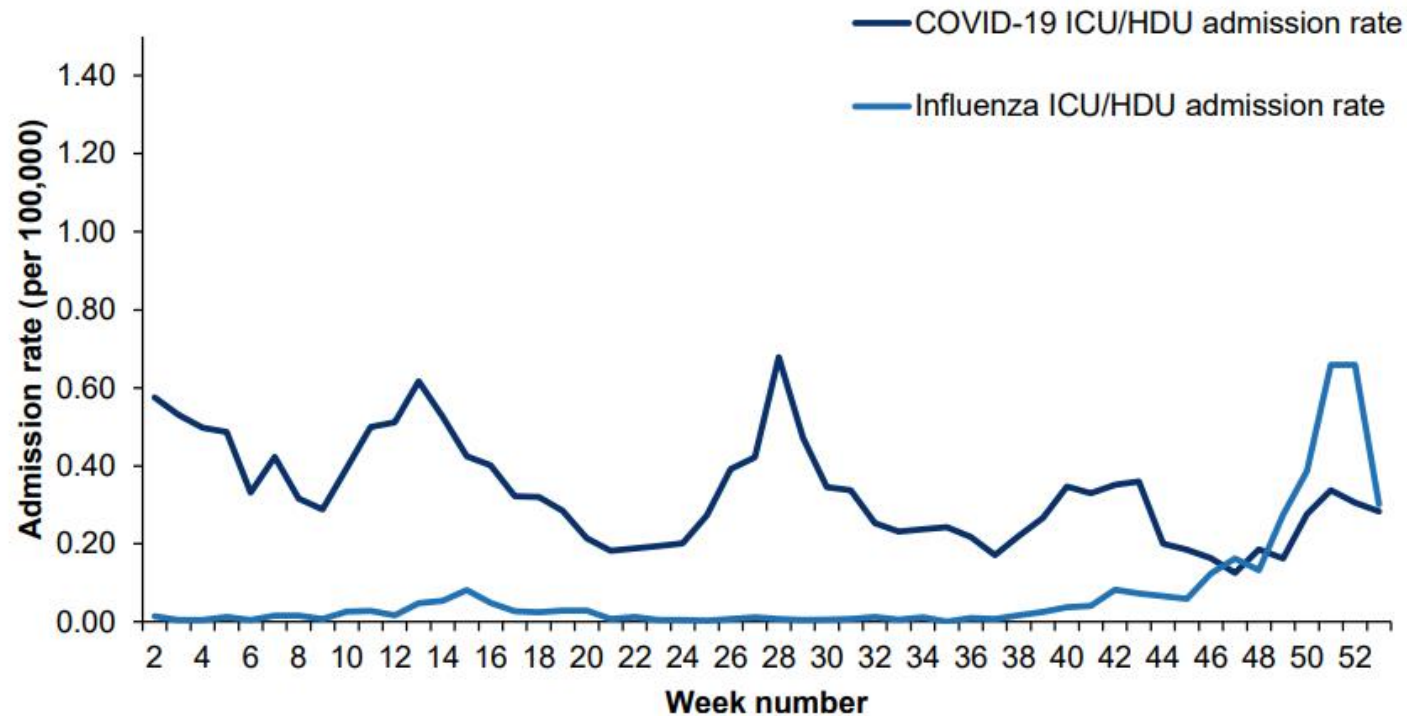


High levels of excess deaths in second half of 2022

Source: Hymans Robertson analysis of Office for National Statistics weekly death data

2022/23 Flu season

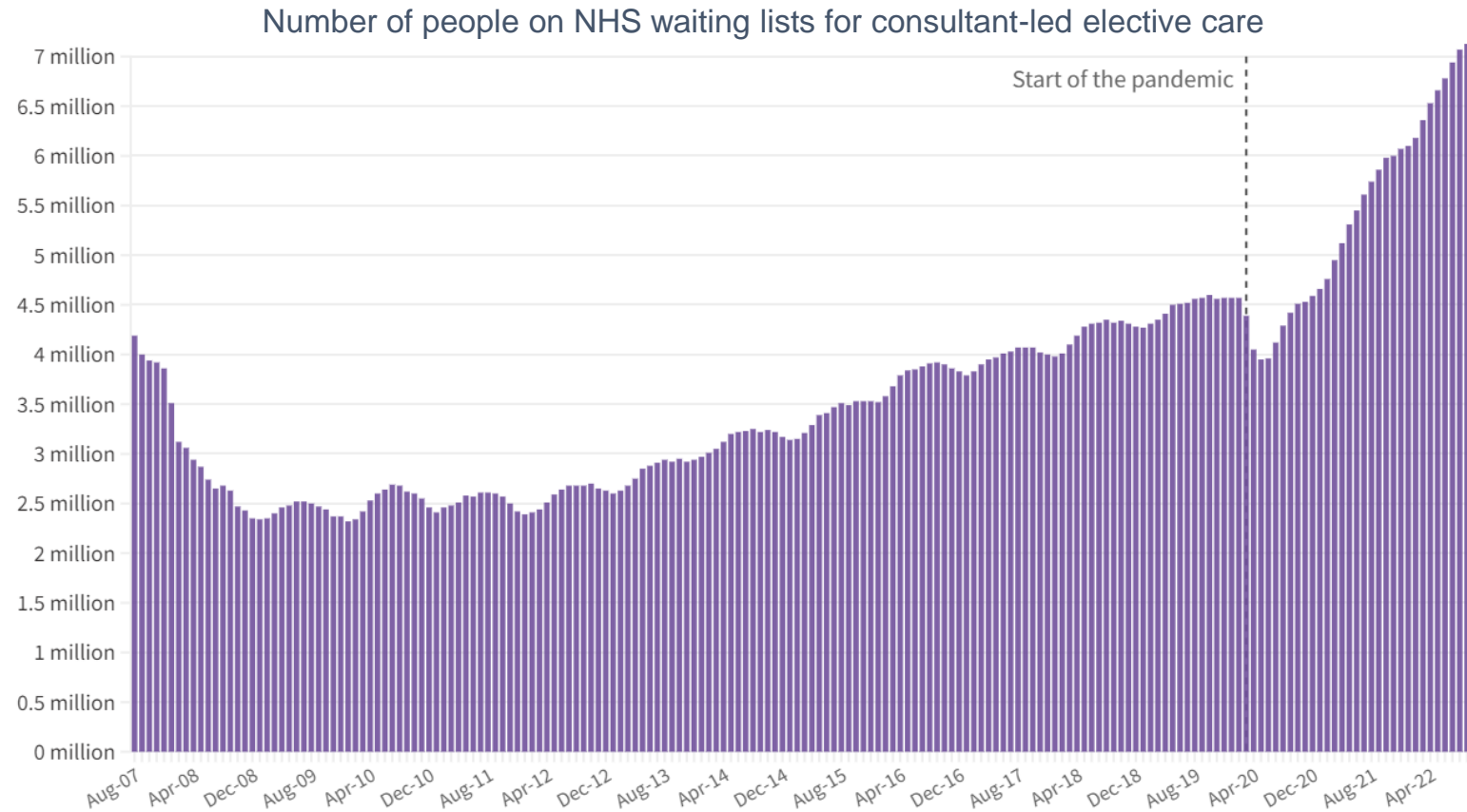
Weekly ICU or HDU admission rates of new COVID-19 and Influenza positive cases per 100,000 population



Higher number of hospital admissions for flu than for COVID-19 in December 2022

ICU is intensive care unit, HDU is high dependency unit
Source: UK Health Security Agency: [National flu and COVID-19 surveillance report](#)

NHS waiting times



The Royal College of Emergency Medicine has estimated that delays in A&E are leading to 300-500 additional deaths per week

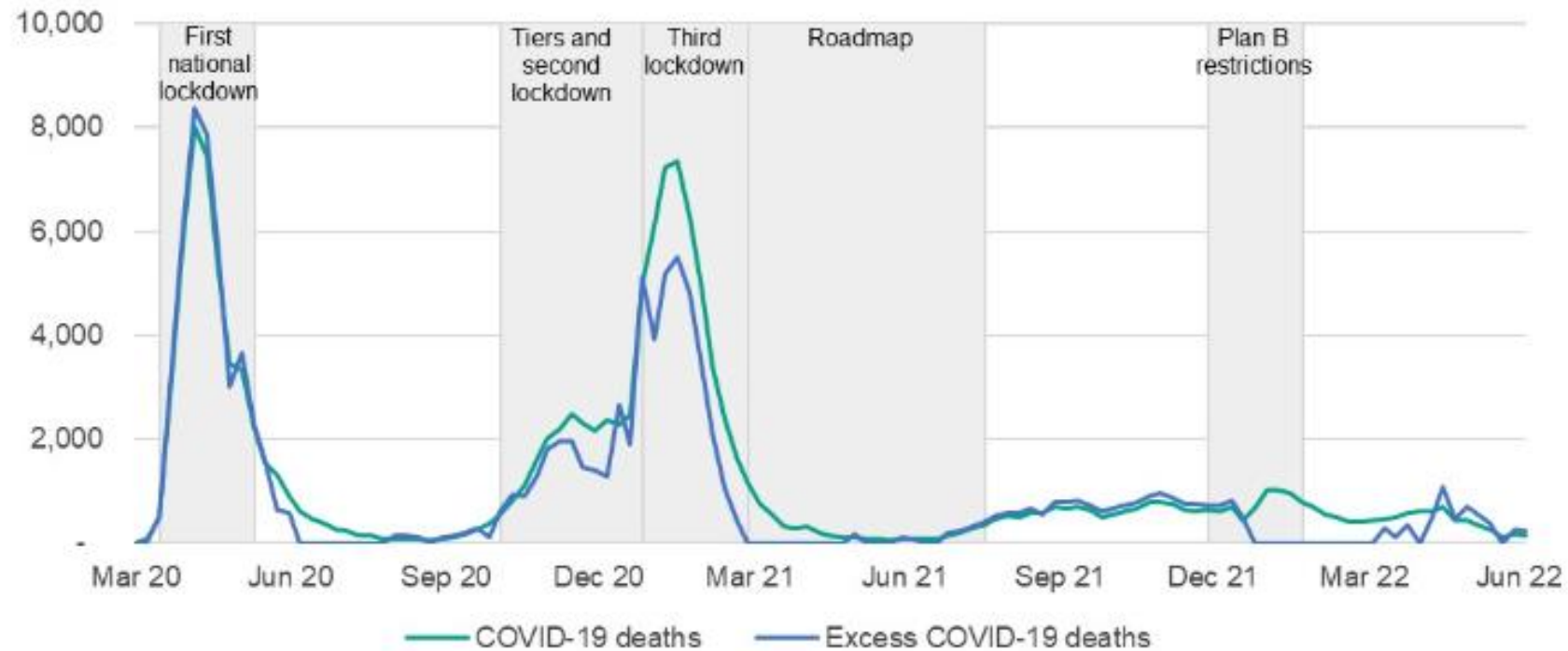
Source: BMA (British Medical Association) analysis of NHS England Consultant-led Referral to Treatment Waiting Times statistics

Longevity headwinds



COVID-19

Weekly deaths and excess deaths involving COVID-19, England

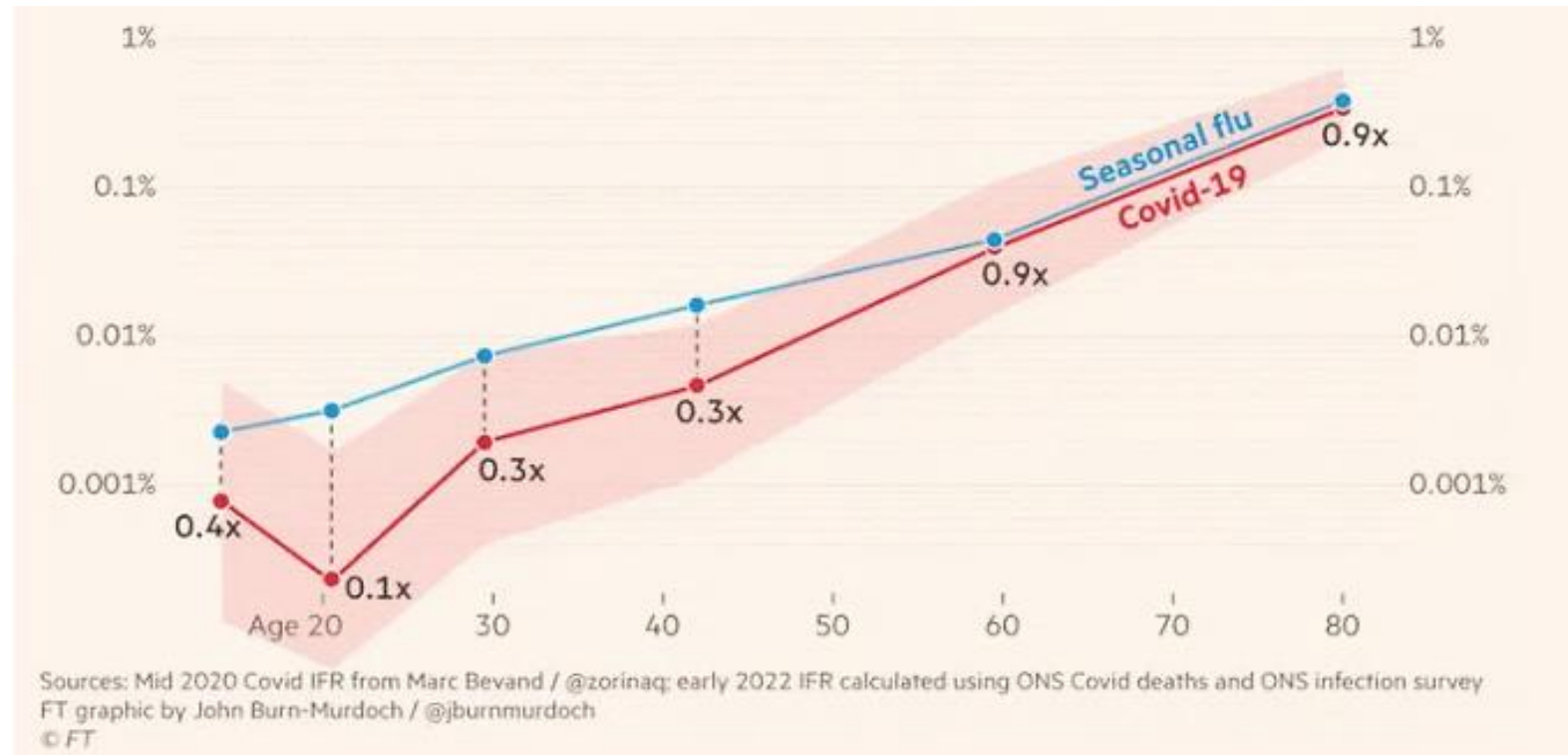


Source: Office for National Statistics - Death registration data, England

COVID progressing from a pandemic to an endemic disease

COVID-19

Infection fatality ratio by age for COVID-19 and seasonal flu at March 2022 (log scale)

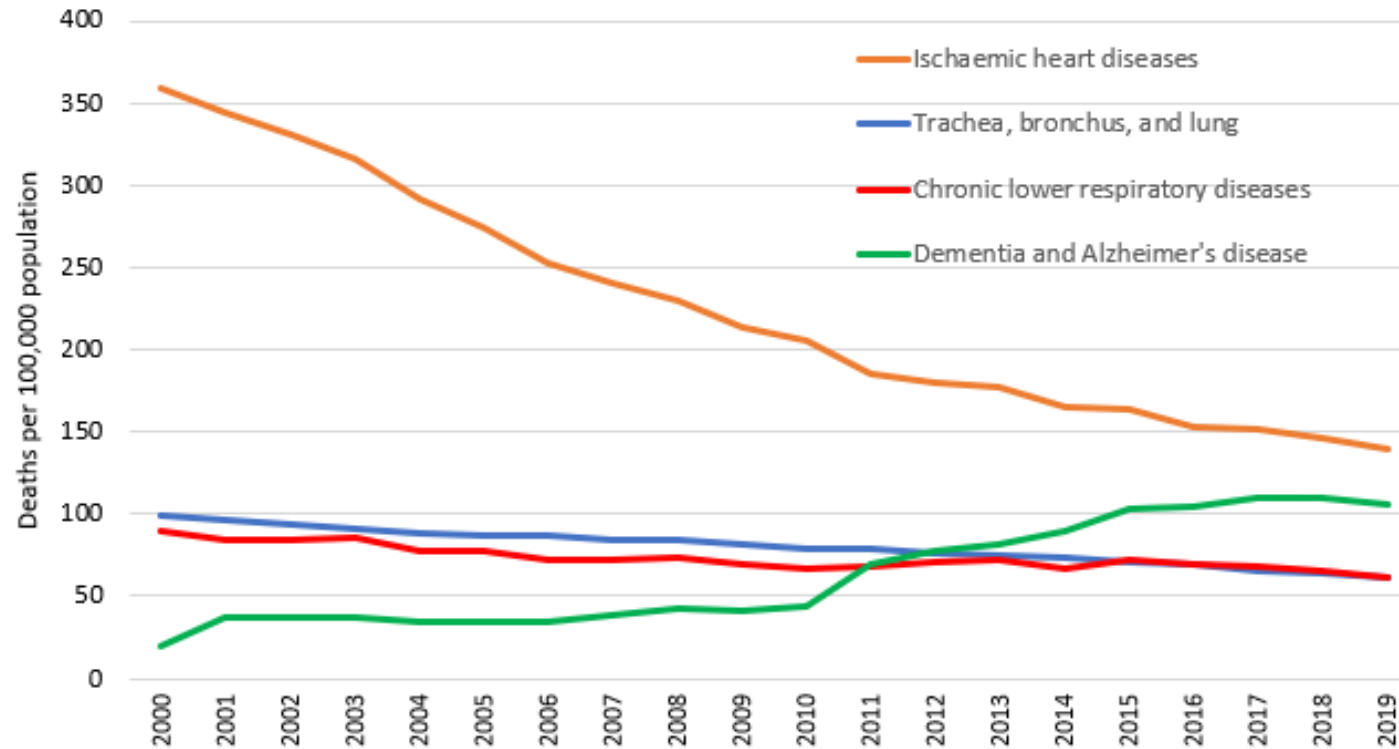


Source: Financial Times, March 10 2022

Severity of endemic COVID may be similar to flu at older ages

Dementia & Alzheimer's

Age-standardised mortality rates for leading causes of death (men)



Source: Office for National Statistics - Death registration data, England

Dementia and Alzheimer's an obstacle to future mortality improvements

Dementia & Alzheimer's



Alzheimer's / Success of experimental new drug hailed as 'historic moment'

Source: *The Guardian* 29/9/2022

Benefits of new treatments may be slow to emerge

Dementia & Alzheimer's

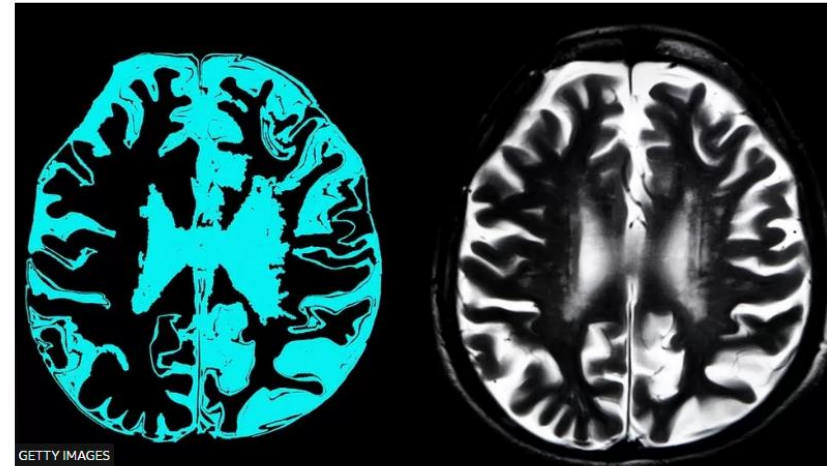


Alzheimer's / Success of experimental new drug hailed as 'historic moment'

Source: *The Guardian* 29/9/2022

Alzheimer's drug aducanumab not approved for use in EU

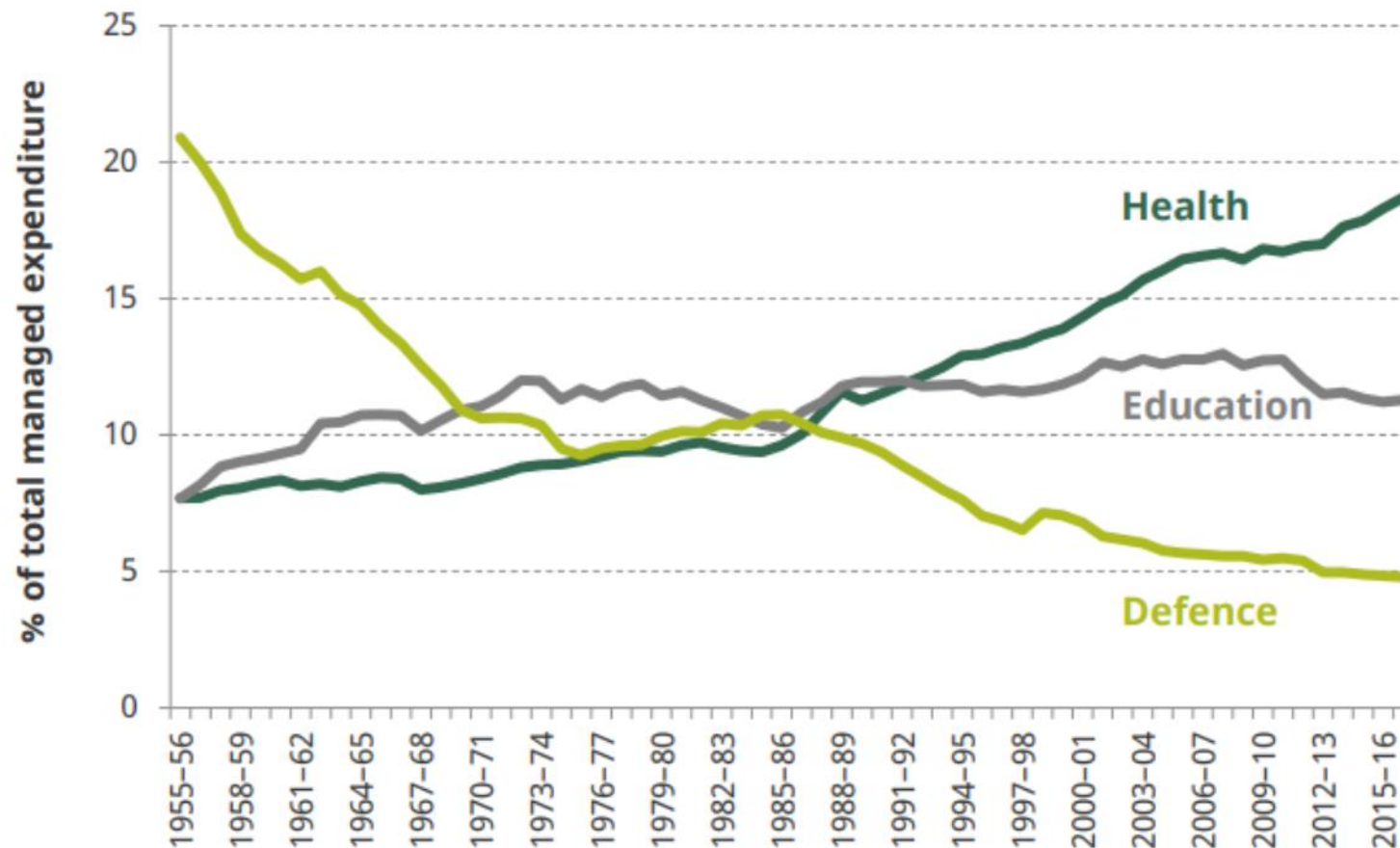
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Source: *The BBC* 17/12/2022

Benefits of new treatments may be slow to emerge

NHS funding



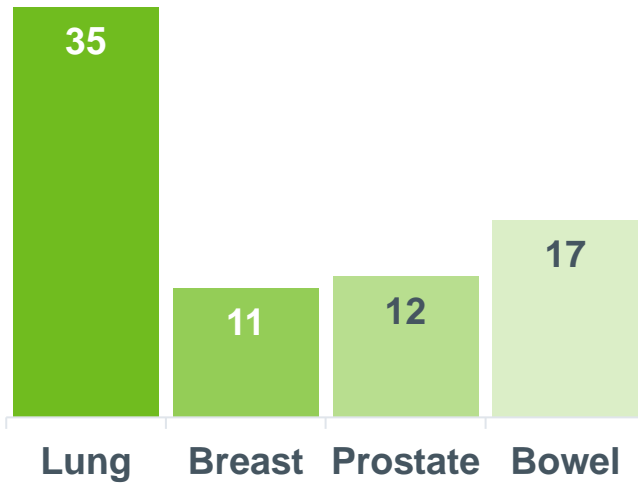
Challenge to find additional sources of NHS funding

Longevity tailwinds

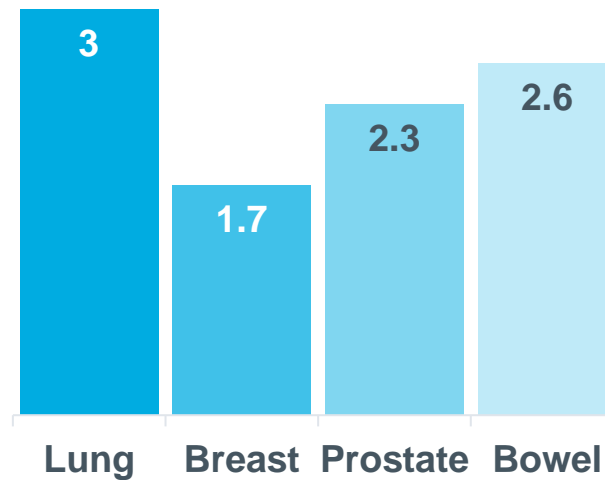


Recent cancer statistics

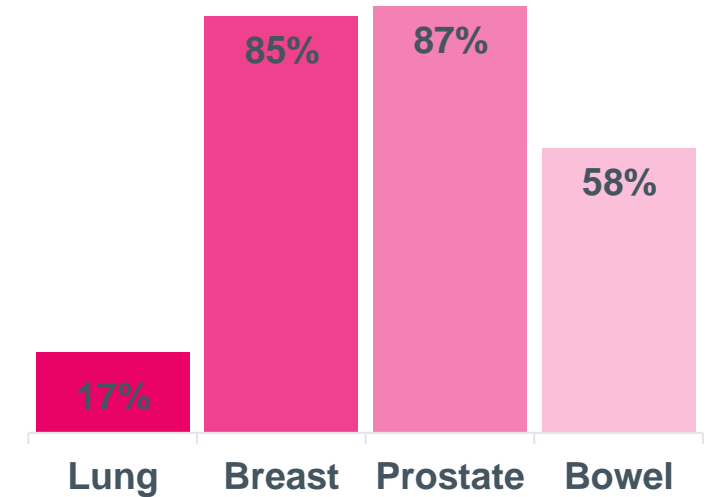
Number of deaths p.a.
(thousands, UK, 2017-2019)



Average stage at
diagnosis (England, 2019)



5-year survival rate
(England, diagnosed in 2013-2017)



Sources: Number of deaths - [Cancer Research UK](#). Note deaths for breast cancer for 2016 -2018. Average stage at diagnosis – Hymans Robertson analysis of National Disease Registration Service ([NDRS](#)) data, 5 year survival rates – [ONS](#), Note average rate shown for men and women for lung and bowel cancer.

Huge potential for lung cancer mortality improvements

Lung cancer screening

Hundreds of people diagnosed with cancer early through life-saving NHS lung checks

[NHS](#), April 2022



**Targeted Lung
Health Check
Programme**

What is it?

Mobile trucks
Low dose CT scanning
AI solutions to read images

Who is eligible?



ages
55 - 74

Estimated 1.5m invited
by 2024/25

Does it work?

77% of cancers caught
at either stage 1 or 2
(vs. < 33% in 2018)

Nationwide roll out could boost mortality improvements in cancer

Anti-ageing drugs: *Metformin*

Will This Diabetes Drug Slow Down Aging?

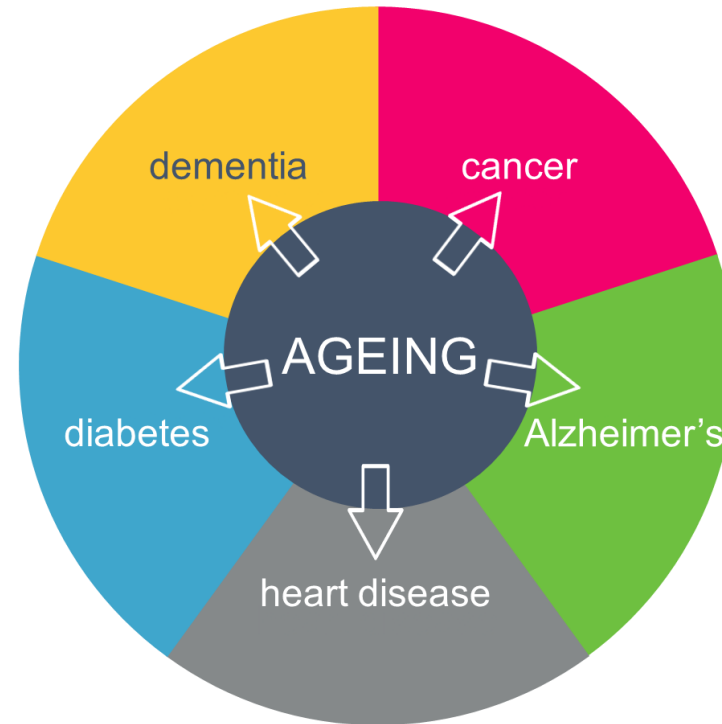
[Healthline, 2022](#)

As billionaires race to fund anti-aging projects, a much-discussed trial goes overlooked

[STAT news, 2022](#)

Diabetes Drug Metformin Shows Potential Benefit in Large COVID-19 Trial

[Northwestern medicine, 2022](#)



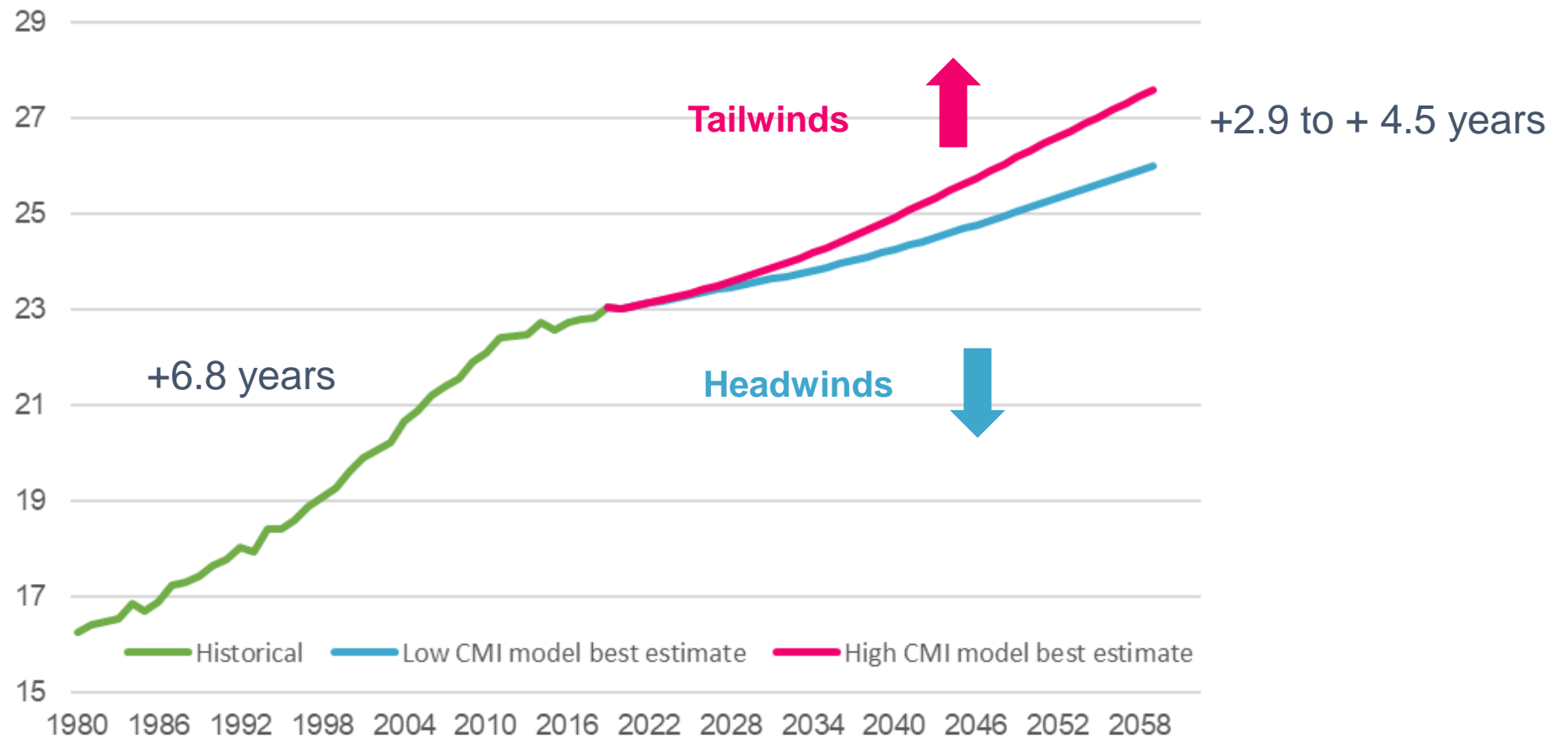
Anti-ageing drugs could have a material impact in the longer-term

Summary



Slower trend expected in the coming decades

Life expectancy from age 60 in England & Wales males (years)



Benefits of a driver-based perspective

Best estimate assumptions



- Sense checking CMI projection



- Deriving allowance for COVID-19



- Avoid herding of assumptions

Stressed assumptions



- Event risk calibration



- Stress and scenario testing



- Horizon scanning

Driver-based approach compliments extrapolative models

Thank you

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