

outcomesbasedhealthcare

# HEALTHSPAN<sup>®</sup> Deep Dive

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Published on: 13 May 2024

Produced in partnership with:



# HEALTHSPAN® flows

Crude **HEALTHSPAN** is the median age at which people 'leave' the Healthy / Generally Well segment over a given timeframe (either by 'moving to' another higher acuity segment, or due to death). It is a population measure of the number of years spent in good health, and the age at which people first enter a period of significant ill health.

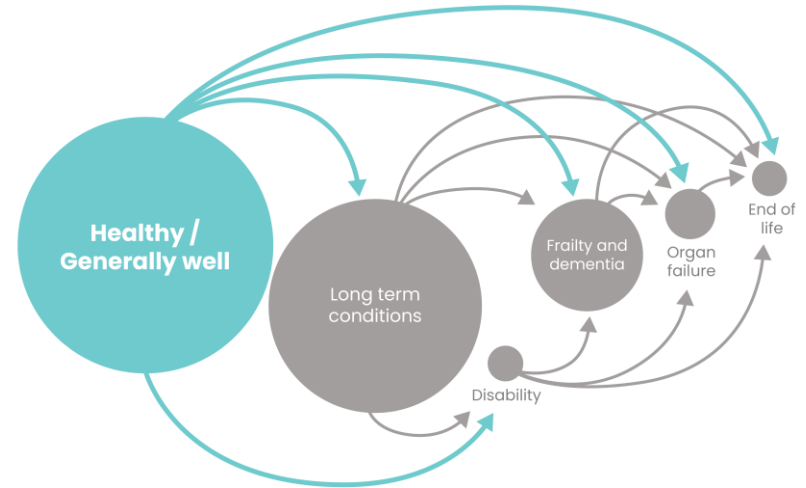
It is measured in the context of Lifespan (the age at which people die), and the ratio of HEALTHSPAN to Lifespan, which shows the proportion of a population's life spent in good health. An increasing HEALTHSPAN to Lifespan ratio indicates a tendency towards increasing system sustainability.

**HEALTHSPAN source dataset:** National Bridges to Health Segmentation Dataset

**National Bridges to Health Segmentation Dataset Reference Guide:**

- Data sources: slide 22
- Prevalence calibration against QOF: slides 16-17

**Recent JRSM paper:** Valabhji J, Barron E, Pratt A, et al. Prevalence of multiple long-term conditions (multimorbidity) in England: a whole population study of over 60 million people. *Journal of the Royal Society of Medicine.* 2024;117(3):104-117.



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This graphic shows the movements 'out of' the Healthy / Generally Well segment, which the **HEALTHSPAN** measurements reflect on subsequent slides.

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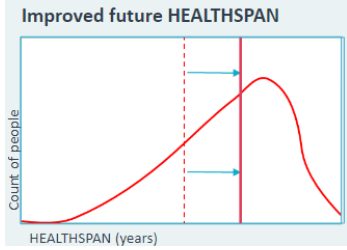
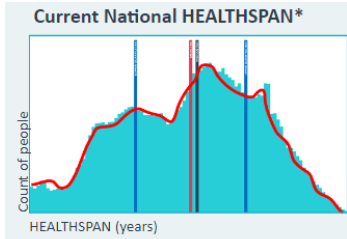
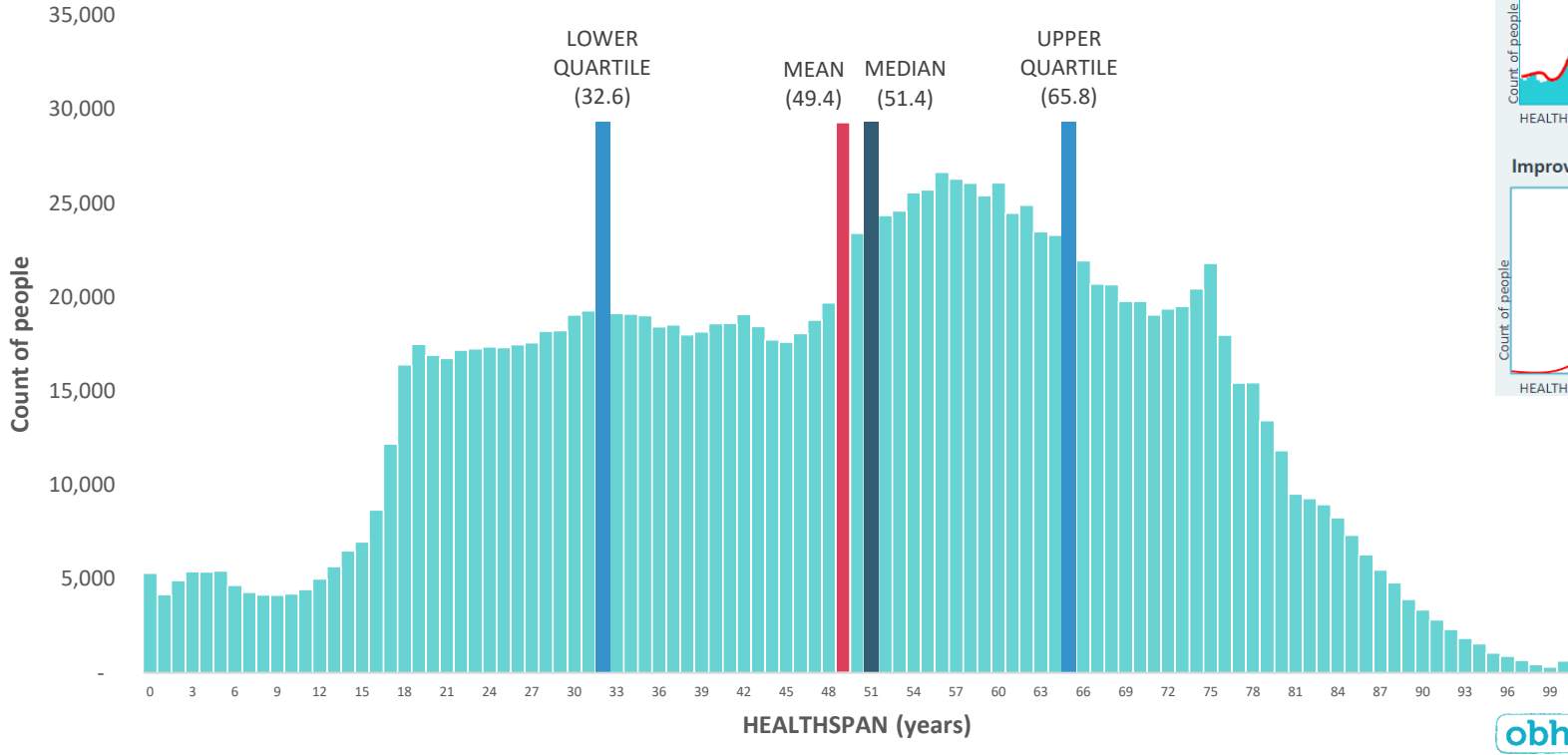
# Comparison of measures of time spent in 'good' health

HLE, DFLE and 'HEALTHSPAN' are all different but complementary measures of time which people spend in 'good' health. Used together, the measures give a comprehensive view of a population's objective and subjective 'health' status.

	Life Expectancy adjusted for years spent healthy		HEALTHSPAN®
	Healthy Life Expectancy	Disability-Free Life Expectancy	
<b>Definition</b>	Estimate of the span of life that a person can expect to live in "Very good" or "Good" health	Estimate of the span of life that a person can expect to live without a limiting or long-standing illness or disability	Average number of years that someone is in good health
Is the measure <b>'exact'</b> (rather than an <b>'estimate'</b> (i.e. includes unknown factors))?	X	X	✓
Does the measure include <b>predicted future changes</b> (e.g. to mortality or health)?	X	X	X
Does the measure use <b>self-reported</b> or <b>clinical data</b> ?	Self-reported	Self-reported	Clinical data
Does the measure usually evaluate <b>specific interventions</b> or <b>whole population</b> health?	Whole population	Whole population	Whole population
Does the metric measure <b>'healthy years' specifically for each person</b> in the population?	Sample	Sample	Whole population

# HEALTHSPAN<sup>®</sup> Distribution

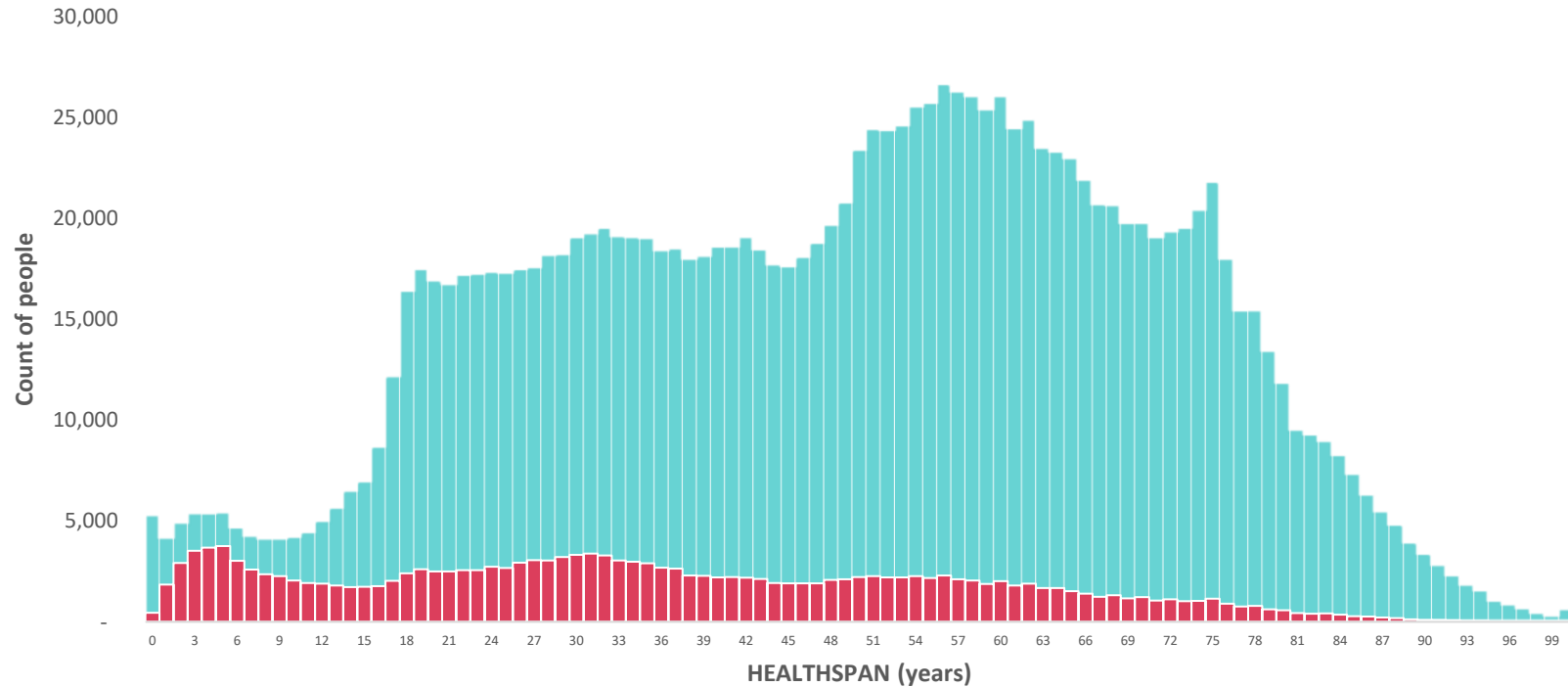
# National HEALTHSPAN® distribution by age (2022/23)



National HEALTHSPAN distribution from April 2022 to March 2023 (i.e. count of people 'leaving' the Healthy / Generally Well segment at each age)  
 National Bridges to Health Segmentation Dataset v4.0\_20230331

# National HEALTHSPAN<sup>®</sup> distribution by age (2022/23) by condition - asthma

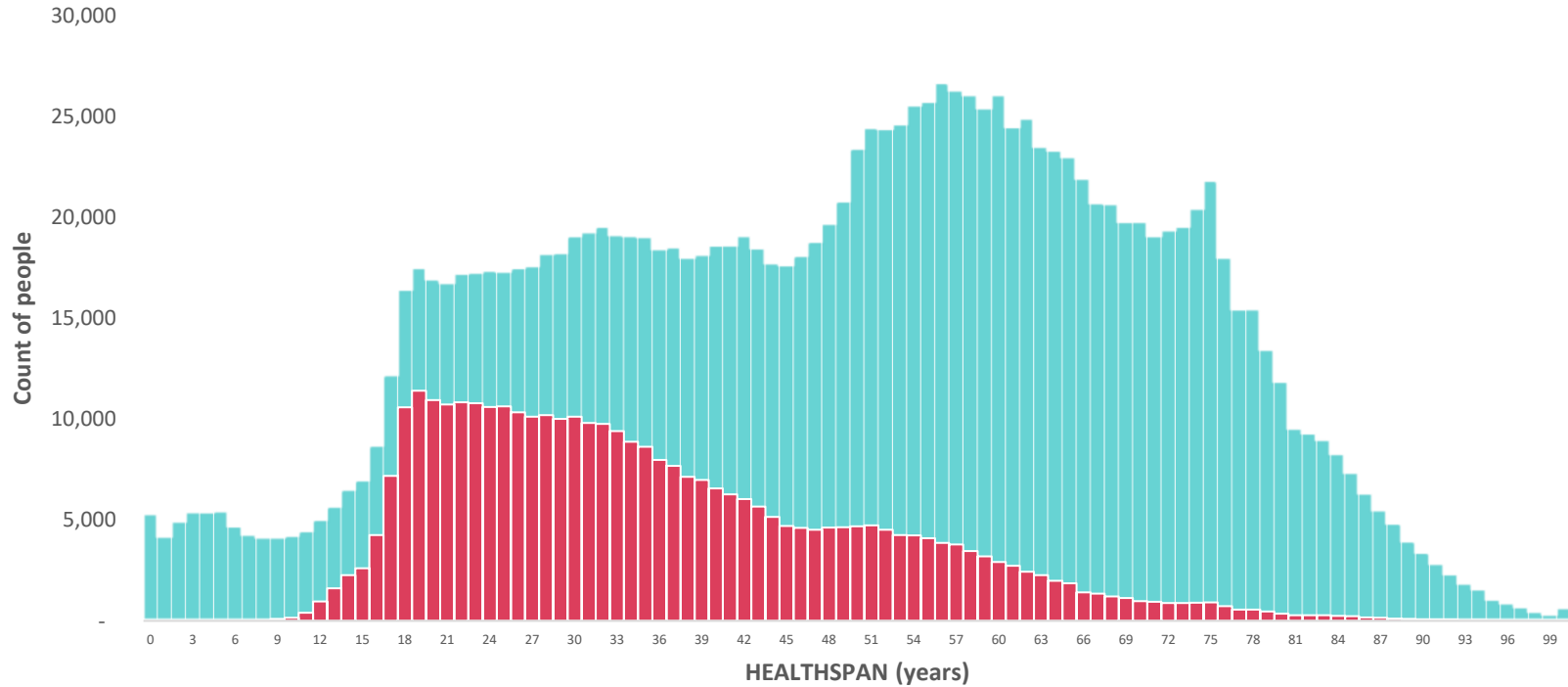
All people diagnosed with their first significant long term condition,  
and all people whose first recorded significant long term condition was asthma



National HEALTHSPAN distribution from April 2022 to March 2023 (i.e. count of people 'leaving' the Healthy / Generally Well segment at each age)  
National Bridges to Health Segmentation Dataset v4.0\_20230331

# National HEALTHSPAN<sup>®</sup> distribution by age (2022/23) by condition - depression

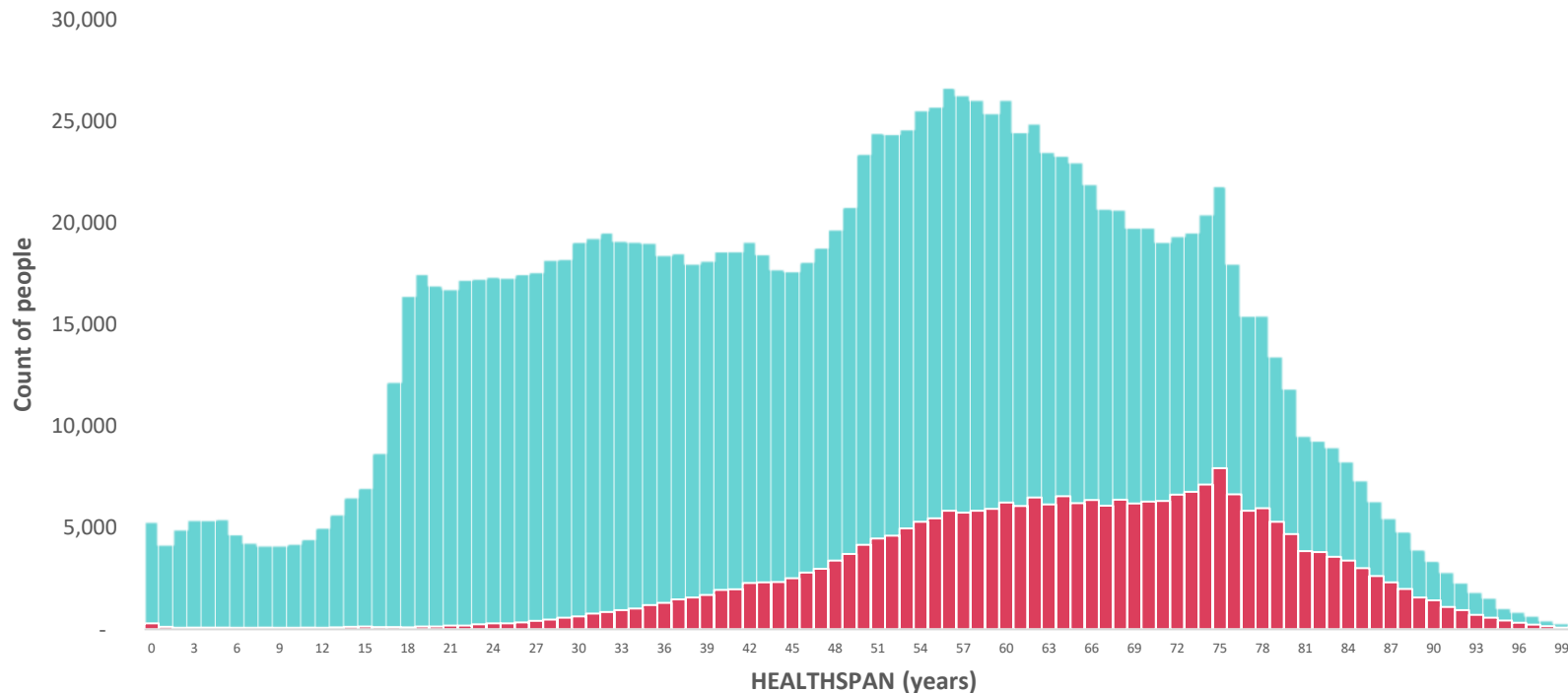
All people diagnosed with their first significant long term condition,  
and all people whose first recorded significant long term condition was depression



National HEALTHSPAN distribution from April 2022 to March 2023 (i.e. count of people 'leaving' the Healthy / Generally Well segment at each age)  
*National Bridges to Health Segmentation Dataset v4.0\_20230331*

# National HEALTHSPAN<sup>®</sup> distribution by age (2022/23) by condition - hypertension

All people diagnosed with their first significant long term condition,  
and all people whose first recorded significant long term condition was hypertension



National HEALTHSPAN distribution from April 2022 to March 2023 (i.e. count of people 'leaving' the Healthy / Generally Well segment at each age)  
National Bridges to Health Segmentation Dataset v4.0\_20230331



# HEALTHSPAN<sup>®</sup> Calibration

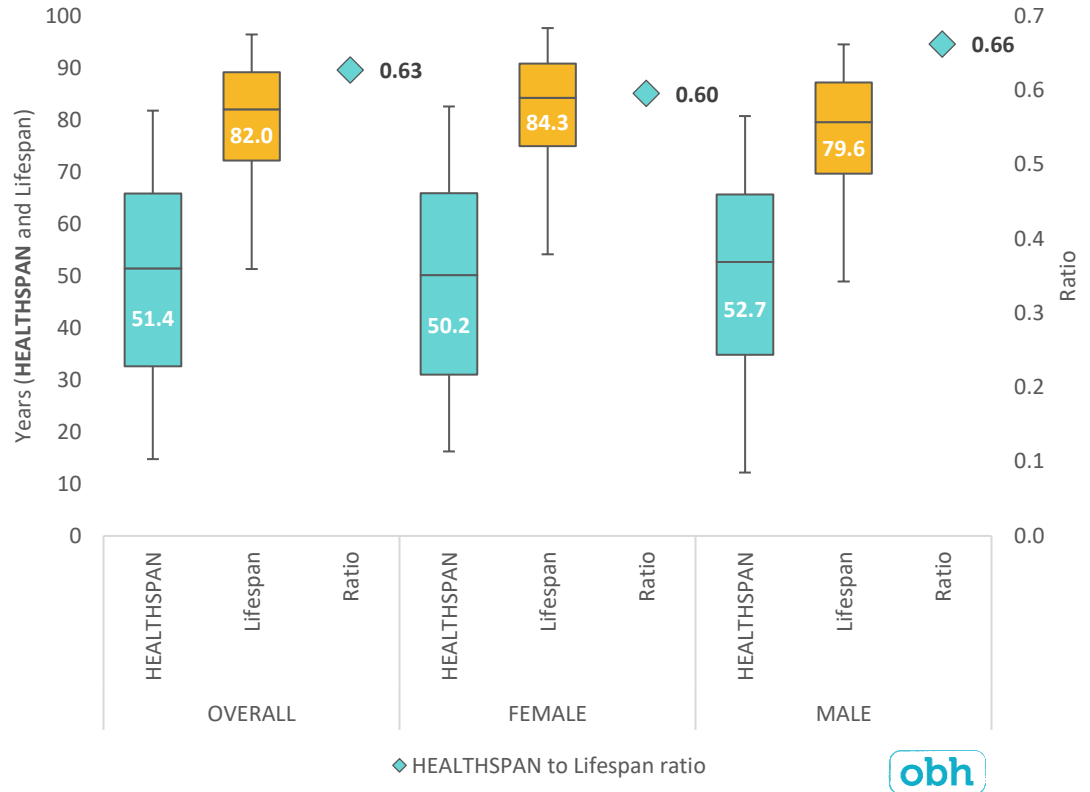


# 1. National calibration

## 1.2 National results – HEALTHSPAN® to Lifespan Ratio

### Insights - key points to note

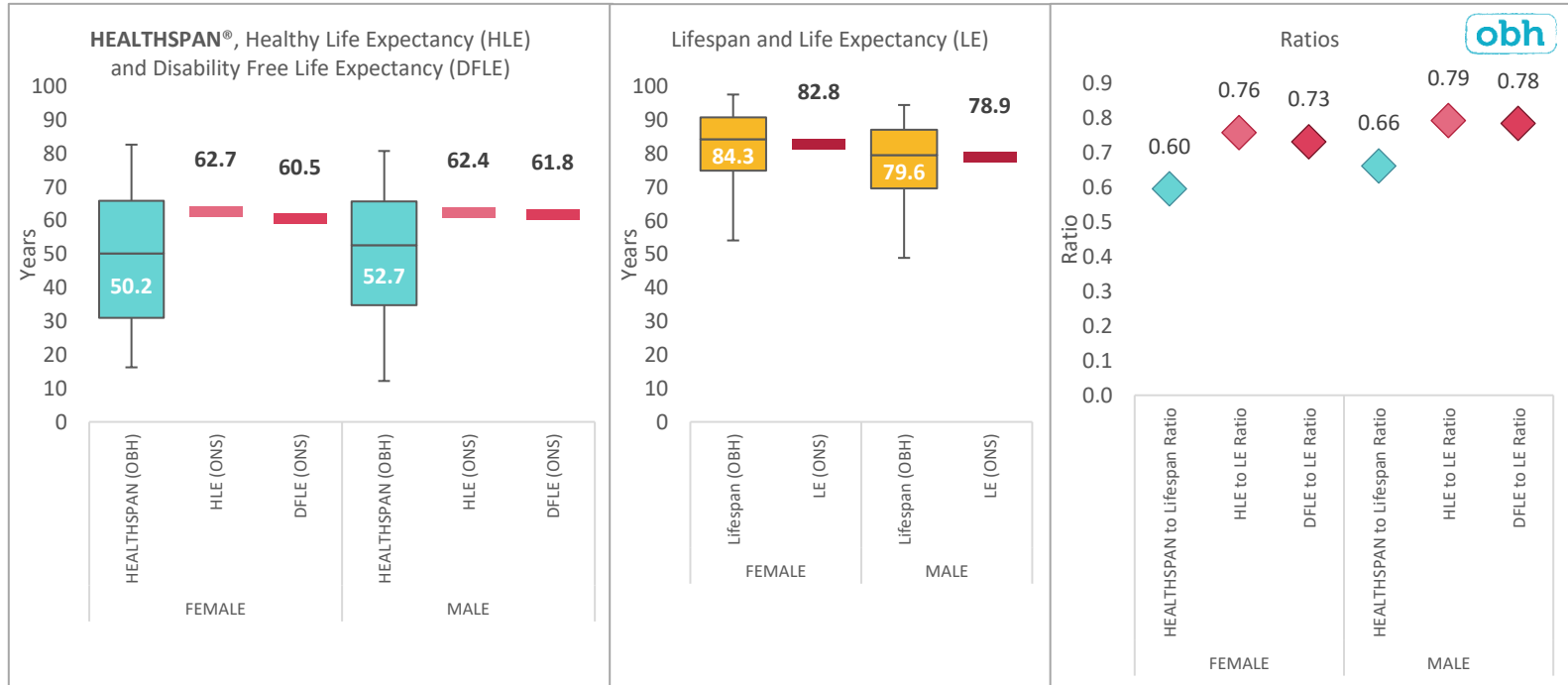
- a) Looking at the ratio of **HEALTHSPAN** to Lifespan, on average people can expect to live 63% of their lives in good health.
- b) Females, who have a greater lifespan by almost 5 years, can expect to live for longer but with a higher proportion of time spent in poorer health compared to males.
- c) This data is for 2022/23, there is an opportunity to measure changes in national **HEALTHSPAN** to Lifespan ratio over time, to monitor outcomes for 'healthy aging'.



HEALTHSPAN, Lifespan, and HEALTHSPAN to Lifespan Ratio for England in 2022/23  
(boxplots show median, interquartile range, and 5<sup>th</sup> and 95<sup>th</sup> percentiles)

# 1. National calibration

## 1.3 National results – summary of calibration across related measures (using closest available time periods\*)



### HEALTHSPAN, Lifespan, and HEALTHSPAN to Lifespan Ratio for England in 2022/23

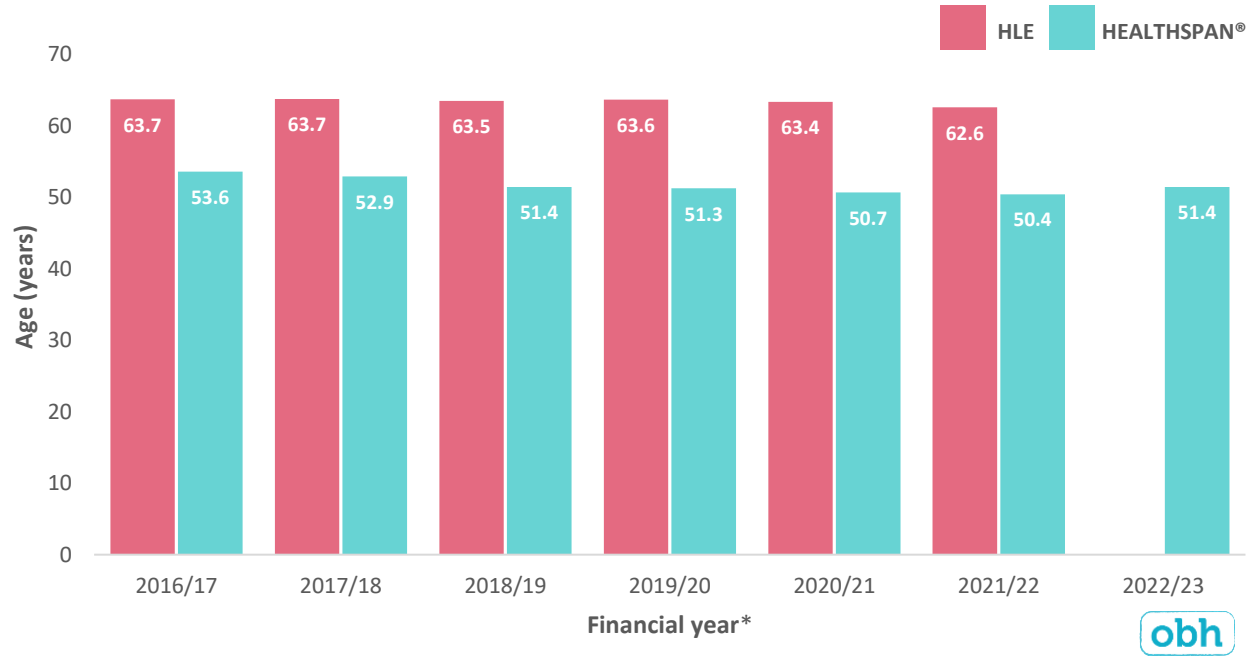
(boxplots show median, interquartile range, and 5<sup>th</sup> and 95<sup>th</sup> percentiles)

\*HEALTHSPAN and Lifespan uses data for financial year 2022/23. HLE, DFLE and LE uses latest available data (2020-22)

# 1. National calibration

## 1.4 National results – trend calibration across related measures (using closest available time periods)

HEALTHSPAN® complements Healthy Life Expectancy (HLE) by providing a dynamic, longitudinal, objective measure that precedes official statistics by several years



### HEALTHSPAN and HLE for England over time

\*For HLE this represents the midpoint of the data collection period i.e. 2016/17 corresponds to the 2015-17 (January 2015 to December 2017) HLE data collection period.

# Longitudinal HEALTHSPAN® in the PaPI Dashboard

Population and Person Insight Dashboard - Outcomes Overview: HEALTHSPAN®



This view shows population-level HEALTHSPAN®. HEALTHSPAN is an objective measure of the amount of time individuals spend in good health, as a proportion of their overall lifespan.

Geographic level:  Organisation:

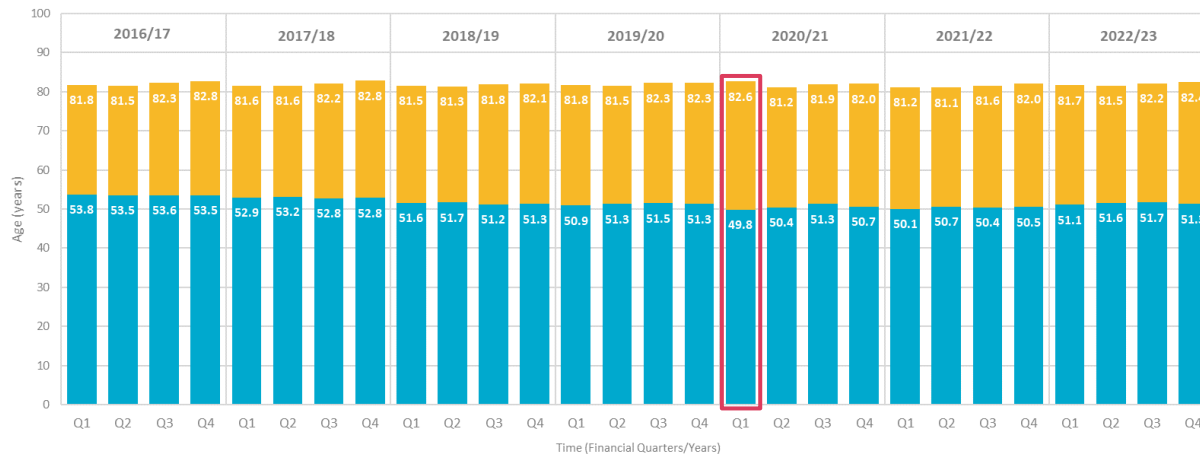
[Reset all filters](#)

[HEALTHSPAN® Quarterly](#) [HEALTHSPAN® Trend](#) [HEALTHSPAN® to Lifespan Ratio](#)

This chart shows HEALTHSPAN® and Lifespan for each quarter available. HEALTHSPAN is the average age when people develop their first significant long term condition. Lifespan is the average age of death.

Gender:

HEALTHSPAN® Lifespan



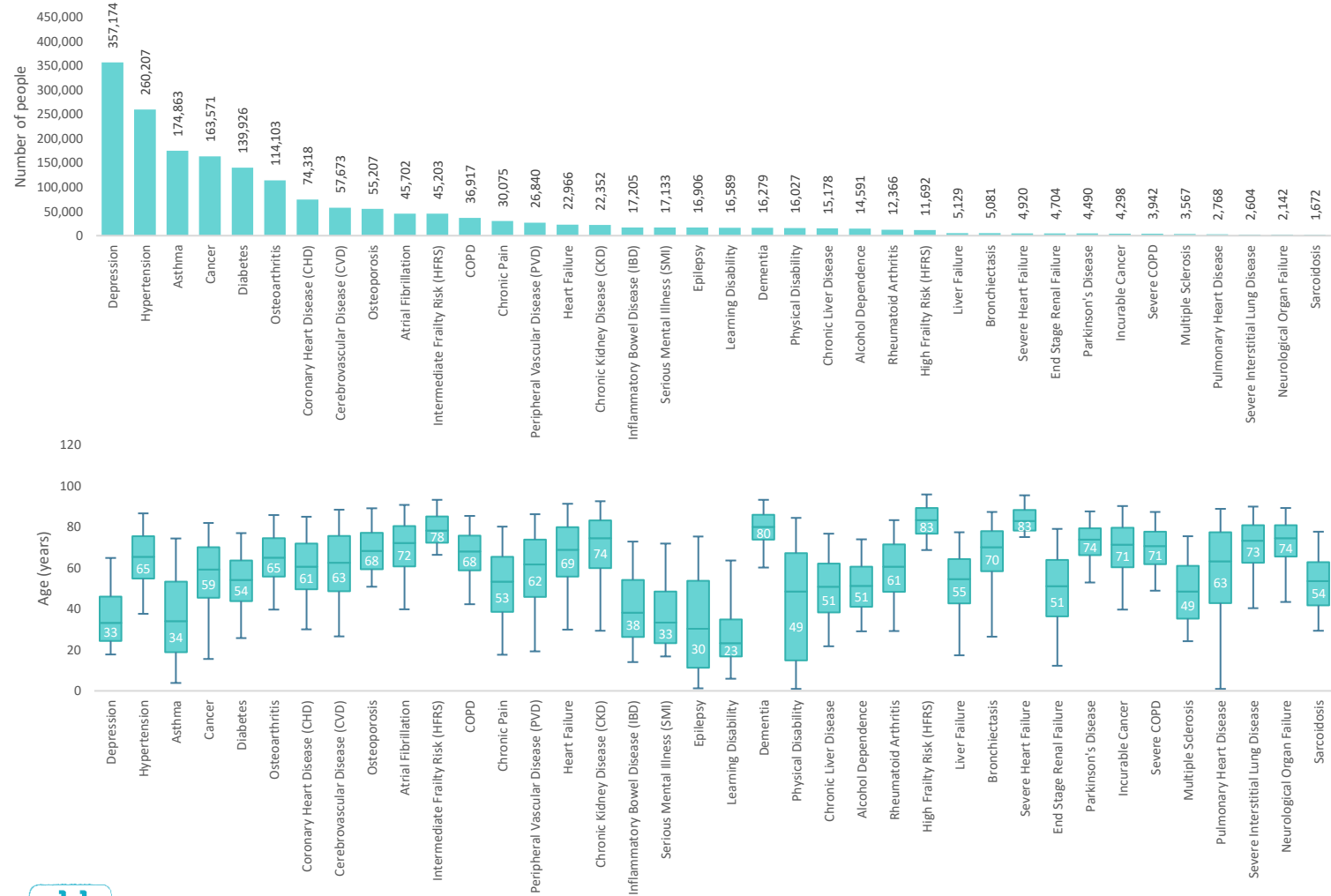
Data Source: National Bridges to Health Segmentation Dataset v4.0\_20230331

# Incidence by First Condition

# 3.1 Incidence and age of onset of FIRST conditions nationally

## Potential 'gateway' conditions?

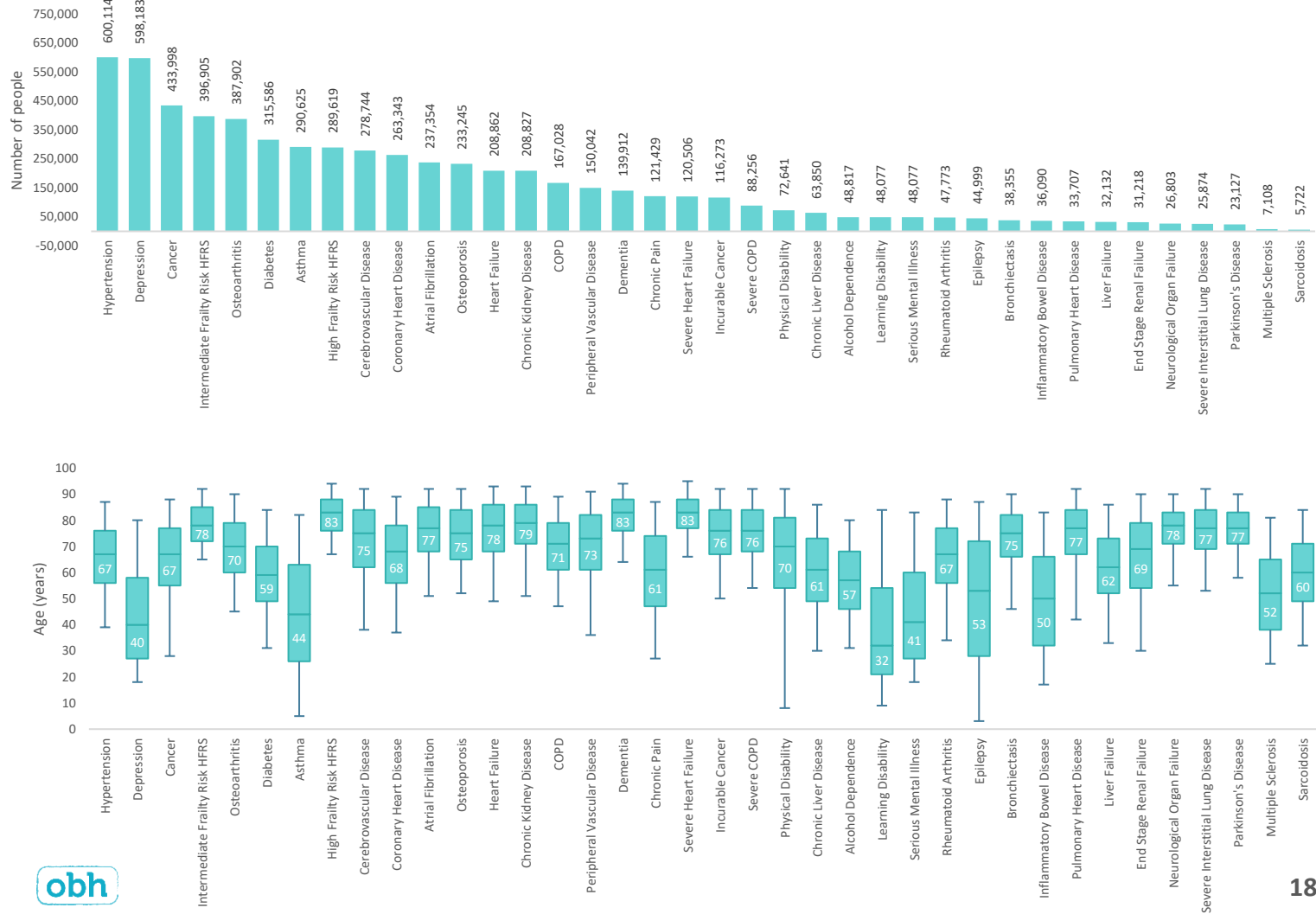
Number of people and age at diagnosis for people newly diagnosed with each condition as their first condition for England in 2022/23 (boxplots show median, interquartile range, and 5<sup>th</sup> and 95<sup>th</sup> percentiles)





## 3.2 Incidence and age of onset of ALL conditions nationally

Number of people and age at diagnosis for all people diagnosed with each condition for England in 2022/23 (boxplots show median, interquartile range, and 5th and 95th percentiles)



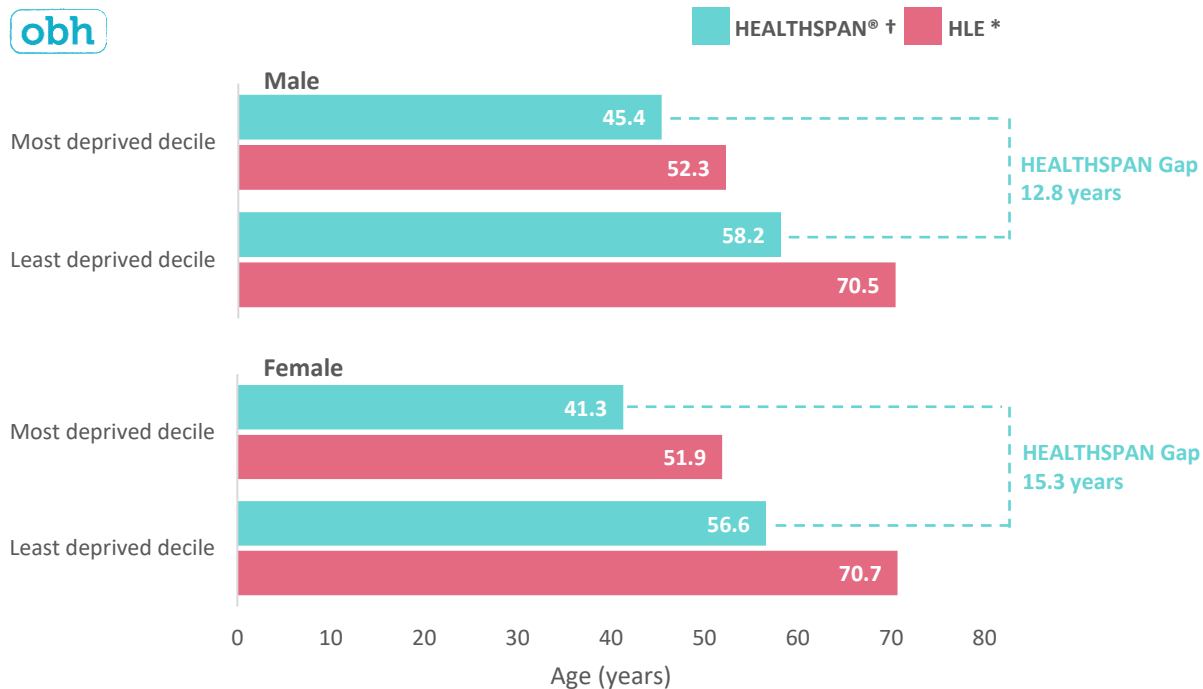
# Health Inequalities

## 4. Health inequalities

### 4.1 National health inequalities - what is the relationship between deprivation and health?

The difference between HLE and HEALTHSPAN reflects the **delay before objective ill health is perceived as subjective ill health**.

This suggests a potential combination effect where the **most deprived not only get sicker sooner**, they also **feel worse sooner** after developing their first significant condition.



\* Data for England from ONS publications for the most recent comparable period available 2018-20

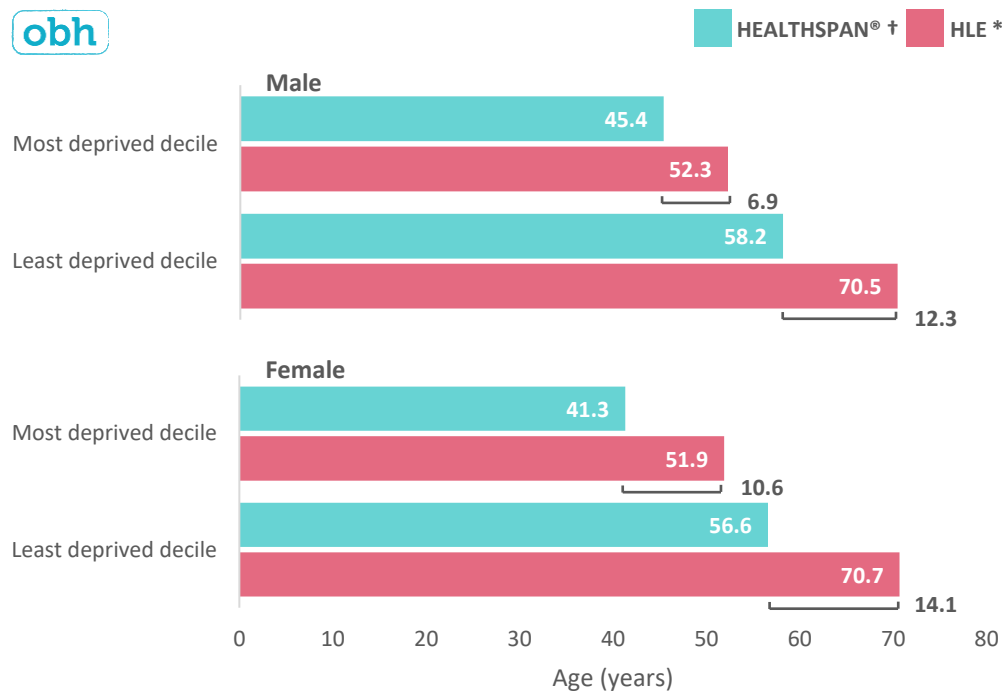
† Data for England from National Bridges to Health Segmentation Dataset for financial year 2022/23

## 4. Health inequalities

### 4.1 National health inequalities - what is the relationship between deprivation and health?

The difference between HLE and HEALTHSPAN reflects the **delay before objective ill health is perceived as subjective ill health**.

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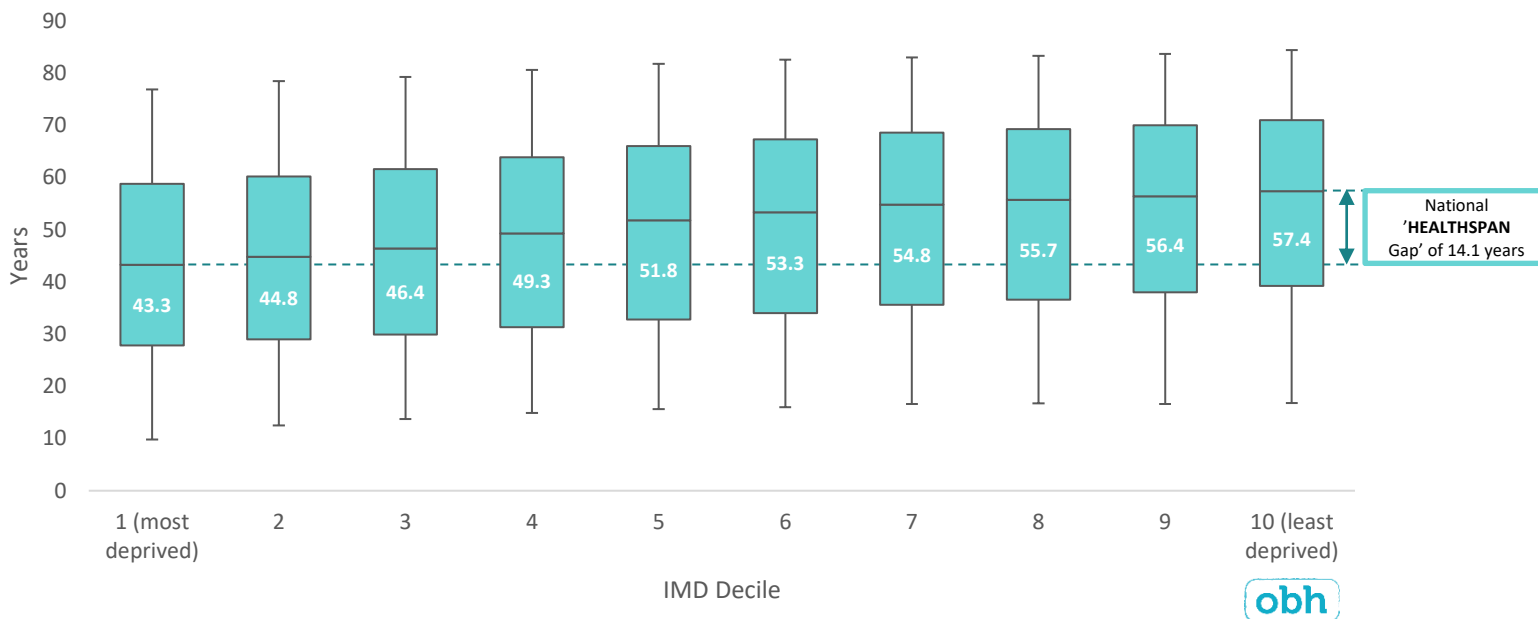
## 4. Health inequalities

### 4.2 National HEALTHSPAN® by deprivation decile, in the National Segmentation Dataset

#### Insights

#### Key points to note

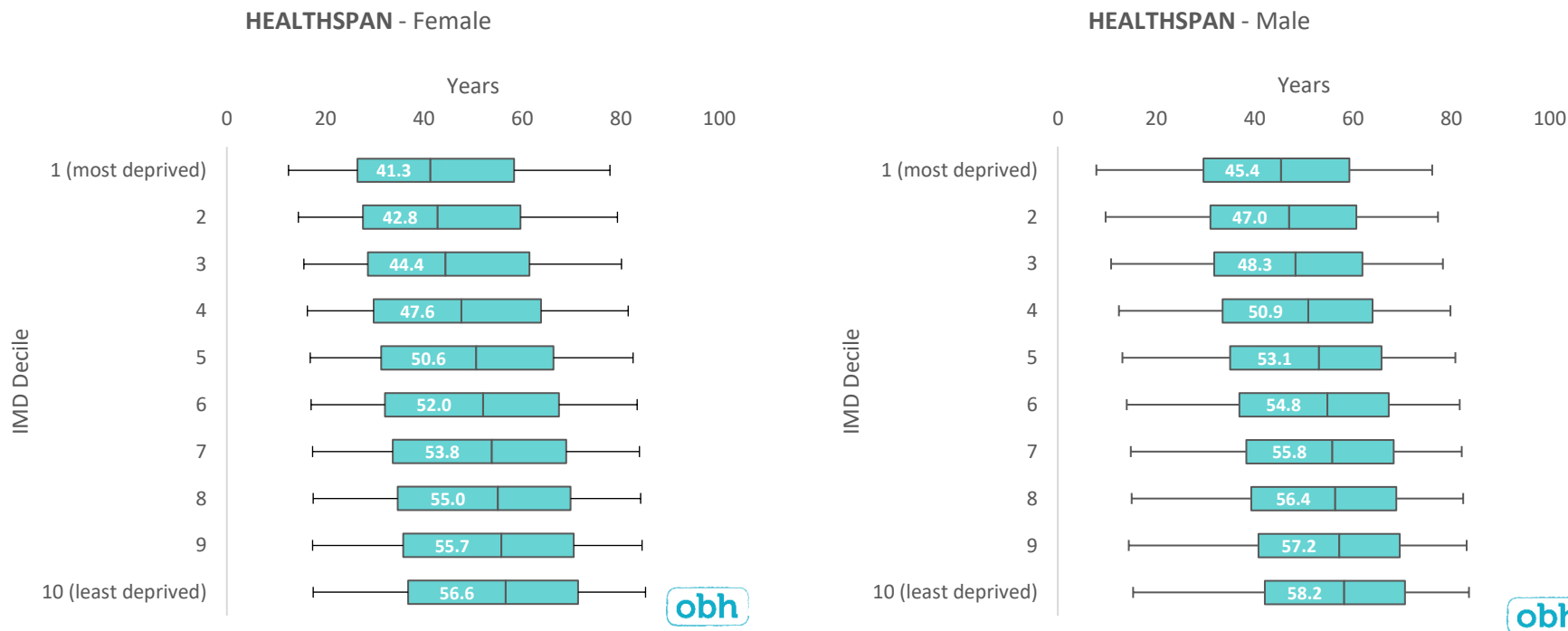
- There is a systematic relationship between deprivation and **HEALTHSPAN**, known as the social gradient in health.
- People in the most deprived decile can expect to develop significant chronic conditions on average 14 years earlier than those in the least deprived.



HEALTHSPAN for England by national deprivation decile (IMD) for people of all ages, 'leaving' the Healthy / Generally Well segment in 2022/23, in the National Segmentation Dataset (boxplots show median, interquartile range, and 5<sup>th</sup> and 95<sup>th</sup> percentiles)

## 4. Health inequalities

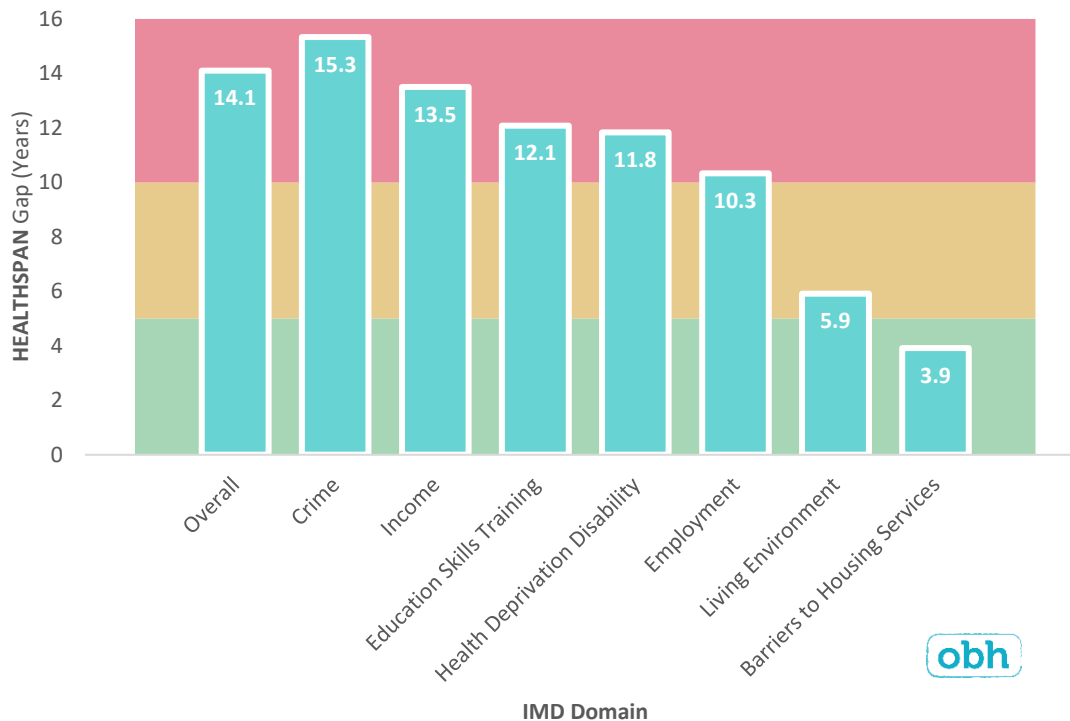
### 4.3 National HEALTHSPAN® in Females and Males by deprivation decile, in the National Segmentation Dataset



HEALTHSPAN for England by national deprivation decile (IMD) for people of all ages, 'leaving' the Healthy / Generally Well segment in 2022/23, in the National Segmentation Dataset (boxplots show median, interquartile range, and 5<sup>th</sup> and 95<sup>th</sup> percentiles)

## 4. Health inequalities

### 4.4 National HEALTHSPAN® Gap broken down by IMD domains

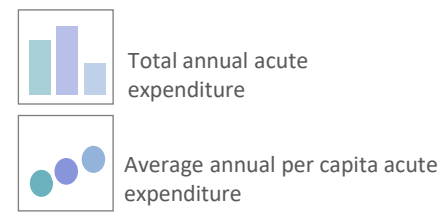
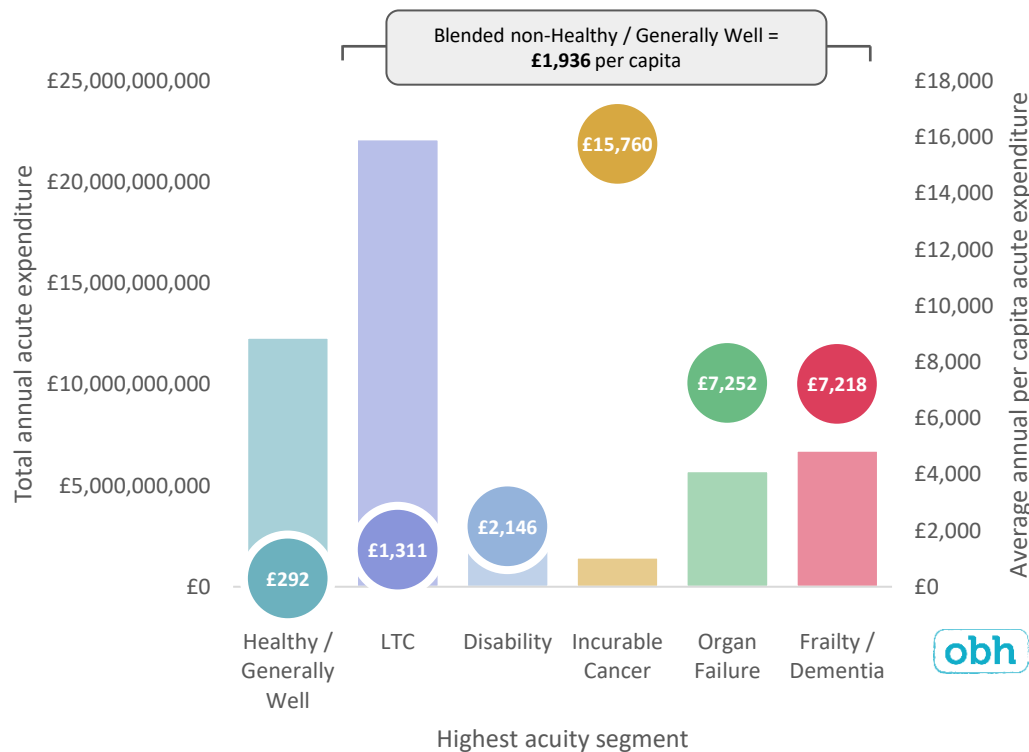


HEALTHSPAN Gap by deprivation domain (IMD 2019)  
for people of all ages, 'leaving' the Healthy / Generally Well segment in 2022/23, in England  
Pragmatic 5 year gap bandings are visualised on the chart to support comparison between domains

# Financial Implications



# Typical acute expenditure by segment



Cross Reference: [All Party Parliamentary Group for Longevity. The Health of the Nation. A Strategy for Healthier Longer Lives. February 2020.](#)  
[\(Key Paper G: Measuring National Healthy Lifespan Using Objectively Recorded Health and Care Data\).](#)

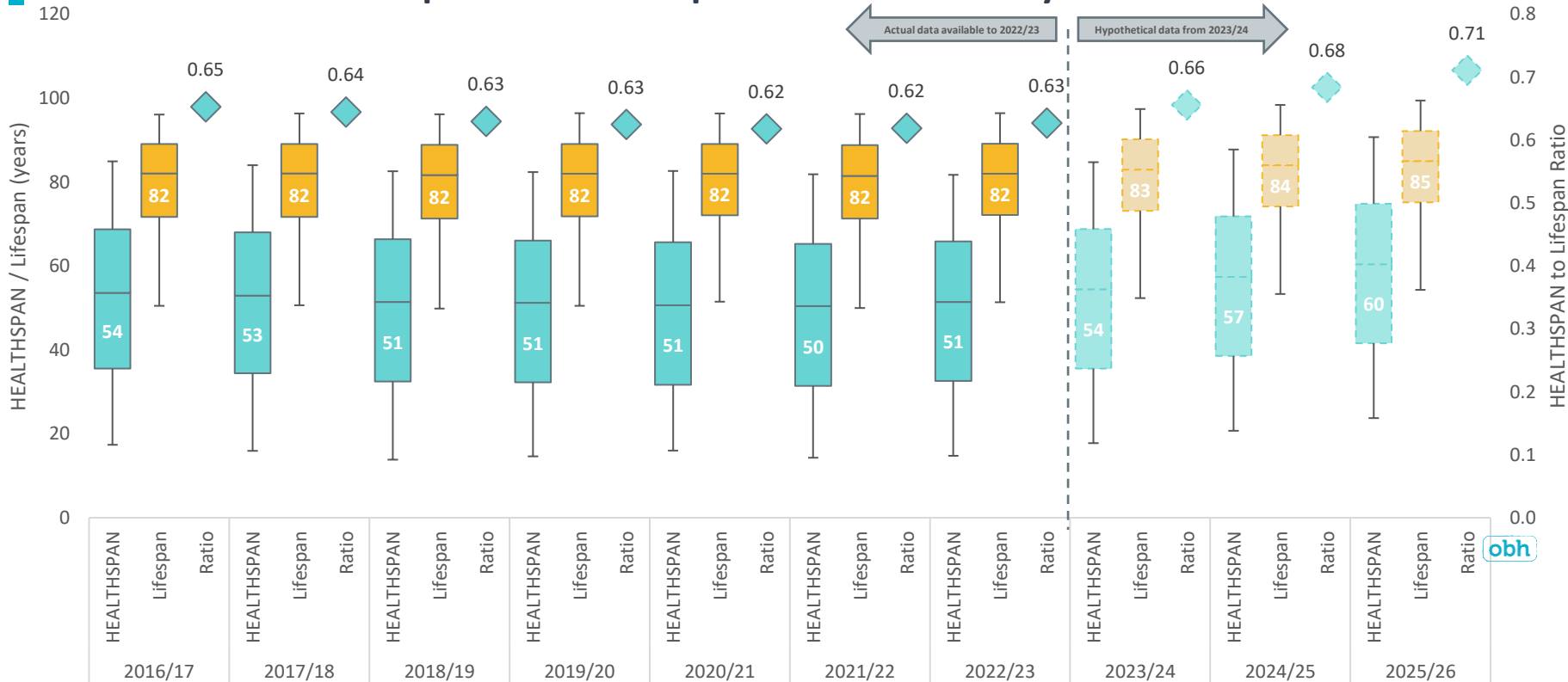


**Total and per capita acute expenditure** (admitted patient care, outpatient and A&E) for England by highest acuity segment - October 2021 to September 2022

Derived from data in the PaPI Dashboard (<https://apps.model.nhs.uk/report/PaPi>) as of 03/05/2024 (Segmentation Dataset v3.0\_20220930)

**Note:** average per capita figures are per person year, not per admission/event

# HEALTHSPAN® to Lifespan Ratio - compression of morbidity



HEALTHSPAN, Lifespan, and HEALTHSPAN to Lifespan Ratio for England, with illustrative\* example of increasing HEALTHSPAN to Lifespan Ratio in future years

(boxplots show median, interquartile range, and 5<sup>th</sup> and 95<sup>th</sup> percentiles)

\*Hypothetical data, not a forecast or projection

## Useful links

- [Population and Person Insight \(PaPI\) FutureNHS Workspace](#)
  - [National Bridges to Health Segmentation Dataset page](#)
  - [National Segmentation Dataset Reference Guide](#)
  - [HEALTHSPAN® Data page](#)
  - [HEALTHSPAN Insights page](#)
- [Recent JRSM paper](#): Valabhji J, Barron E, Pratt A, et al. Prevalence of multiple long-term conditions (multimorbidity) in England: a whole population study of over 60 million people. *Journal of the Royal Society of Medicine*. 2024;117(3):104-117.
- [PaPI Dashboard](#)

## outcomesbasedhealthcare

The Outcomes Based Healthcare® team of clinicians, developers, data scientists, NHS data analysts, economists, and data governance specialists share a deep commitment to supporting sustainable healthcare, and transforming the way healthcare measures and funds success.

We offer specialist advice, advanced tools and data driven technologies to help commissioners and providers make a reality of value-based healthcare strategies and outcomes-based contracts.

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