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|  <p>GIG CYMRU NHS WALES   Iechyd Cyhoeddus Cymru Public Health Wales</p> | <p><b>Name of Meeting</b><br/>Board</p> <p><b>Date of Meeting</b><br/>26 March 2026</p> <p><b>Agenda item:</b><br/><b>4.2</b></p> |
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| <b>Analysis of healthy life expectancy patterns and drivers – progress update</b> |                                                                                                                 |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| <b>Executive lead:</b>                                                            | Iain Bell, Director of Research, Data and Digital Directorate                                                   |
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| <b>Approval/Scrutiny route:</b>                                                   | Business Executive Team – March 2026                                                                            |

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| <p><b>Purpose</b></p> <p>To update on analysis of recent trends in healthy life expectancy and potential drivers of these trends, undertaken as part of the IMTP measurement system work</p> |
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| <b>Recommendation:</b>                                                                                                     |                                                 |                                                  |                                              |                                                             |
|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|--------------------------------------------------|----------------------------------------------|-------------------------------------------------------------|
| <p>APPROVE</p> <p><input type="checkbox"/></p>                                                                             | <p>CONSIDER</p> <p><input type="checkbox"/></p> | <p>RECOMMEND</p> <p><input type="checkbox"/></p> | <p>ADOPT</p> <p><input type="checkbox"/></p> | <p>ASSURANCE</p> <p><input checked="" type="checkbox"/></p> |
| <p>The Board is asked to:</p> <ul style="list-style-type: none"> <li>Review the analysis presented in the paper</li> </ul> |                                                 |                                                  |                                              |                                                             |

**Link to Public Health Wales [Strategic Plan](#)**

Public Health Wales has an agreed strategic plan, which has identified seven strategic priorities and well-being objectives.

This report contributes to the following:

|                                                |                                                |
|------------------------------------------------|------------------------------------------------|
| <b>Strategic Priority/Well-being Objective</b> | All Strategic Priorities/Well-being Objectives |
|------------------------------------------------|------------------------------------------------|

**Summary impact analysis**

|                                                                    |                                                                                                                                                                                                                                                                                                            |
|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Equality and Health Impact Assessment</b>                       | None required, the paper provides an update on PHW's analysis of healthy life expectancy and related topics, which is designed to inform our ambition to reduce inequalities in HLE.                                                                                                                       |
| <b>Risk and Assurance</b>                                          | There is a risk that factors influencing HLE are outside of the control of PHW, meaning we are unable to act on them to achieve our ambition.                                                                                                                                                              |
| <b>Health and Social Care (Quality and Engagement) (Wales) Act</b> | All themes                                                                                                                                                                                                                                                                                                 |
| <b>Financial implications</b>                                      | Not applicable                                                                                                                                                                                                                                                                                             |
| <b>People implications</b>                                         | <p>Our analysis programme requires substantial analytical resource. We are currently constrained in analytical resource, which may influence our ability to enact next steps.</p> <p>Acting on these results will require awareness and understanding of our role in improving public health outcomes.</p> |



## 1. Purpose / situation

This paper provides an update on analysis of recent trends in healthy life expectancy (HLE) statistics in Wales, and potential factors influencing or associated with these trends.

Executive summary:

Healthy life expectancy has declined for the 4<sup>th</sup> period in a row, and we have seen a notable decline in female HLE below male. In 2022-2024 male HLE in Wales was 59.2 years, and female HLE was 58.5 years. This decline is largely driven by decreases in the proportion of people describing their health as 'good' or 'very good'. We also know that HLE has declined more in younger people than older age groups.

We are working on a large-scale workplan to understand trends in healthy life expectancy, which is exploring the relationship with access to care, the wider determinants of health (e.g. labour market outcomes, deprivation), and mental health and wellbeing.

As part of this workplan, we are seeking to understand the impact of longer and larger waiting lists on healthy life expectancy, given the recent trends seen in each.

The evidence we have so far triangulated indicates that longer waits are associated with increased mortality risk and poorer mental and physical health, which are likely to be related to recent trends in HLE. Increased numbers of people waiting and waiting longer for care may be leading to a lower proportion describing their health as 'good' or 'very good'. However, this work is in progress and these findings should be taken as indicative and interpreted with caution.

Trends in healthy life expectancy are similar to trends in disability-free life expectancy and avoidable mortality rates, but not to life expectancy, indicating people are not necessarily living shorter lives, but are living a larger proportion of their lives in poor health and developing health conditions at a younger age.

Some literature finds strong evidence that increased waits are associated with higher levels of stress and anxiety, elevated mortality risk, higher rates of emergency admissions, and increasing complexity of needs, all of which may be associated with a higher likelihood of self-reported poor health. Some literature also associates longer waits with economic outcomes like higher rates of sickness absence.

Our initial analysis of both published data and record-level hospital data highlights how waiting lists for secondary care treatment have grown in size since the pandemic, the average time spent on a waiting list has grown, and the proportion of patients waiting an extremely long time for treatment has grown.



Our analysis suggests that the decline in HLE may be related to growing waiting lists, based on the concurrence of trends in both. Waiting times have also grown most substantially for younger age groups. Our work assumes that being on a waiting list, and time spent on a waiting list, are both associated with poorer self-reported health.

A recent systematic review and meta-analysis found strong evidence that delays in surgery, systemic treatment, and radiotherapy are associated with increased risk of death for some cancer types. Specifically;

- Each 4 week delay in curative surgical treatment was associated with a 6-8% increased risk of death, for bladder, breast, colon, and head and neck cancers
- Each 4 week delay in curative systemic treatment was associated with a 9 to 28% increased risk of death for bladder, breast, colon and rectum cancers
- Each 4 week delay in radiotherapy was associated with a 3 to 117% increased risk of death for cervical, head and neck, and nasopharyngeal cancers

Our analysis continues to explore the relationship between waiting times and HLE, as well as other factors which may be influencing trends in HLE, including economic conditions and area-level deprivation. We will provide further update and more detailed findings in the coming months.

## 2. Background

HLE is PHW's overarching strategic outcome indicator. We have an ambition to return HLE to pre-COVID (2017-2019) levels by 2035, and reduce the gap in HLE between the most and least deprived areas to pre-COVID levels. In order to direct action towards achieving this ambition, we need to understand what is driving current trends in HLE, particularly;

- the downturn in recent periods in male and female HLE
- the drop in female HLE below male since 2020-2022
- the difference in HLE trends between younger and older age groups
- the wide and growing gap in HLE for both sexes between the most and least deprived areas

RDD has begun analytical work to understand the factors which may be influencing the recent decline in HLE in Wales, particularly for females, and the wide gap in HLE between the most and least deprived fifth of areas. This work began in 2025 with exploratory analyses and literature review in response to specific queries from Board and updated statistics published by ONS.

In late 2025 we also developed an extensive workplan, in collaboration with colleagues across PHW, the Our Approach to Health Inequalities programme, and WG colleagues including the CMO. We began work to implement the workplan in December 2025 and expect to continue throughout 2026/27.

This paper updates on the following;



- Initial analysis of waiting times/lists using published and record-level data
- Literature review and triangulation of evidence relating to the impact of waits on health outcomes
- Descriptive analysis of the relationship between healthy life expectancy and related health outcomes measures, including avoidable mortality rates

This paper should be read as an update on ongoing analysis. There continues to be work to improve these analyses, and exact findings may change as we continue this work. All results should be interpreted with caution and firm conclusions cannot yet be drawn from these data. We have therefore refrained from providing detailed narrative or context for the results at this stage.

### 3. Description/Assessment

#### **Section A: Healthy life expectancy**

Key points:

- Healthy life expectancy (HLE) has dropped for the 4<sup>th</sup> period in a row
- It is now less than 60 years for both sexes (59.2 males, 58.5 females)
- Similar trends have been seen in England, but the decline is much more pronounced in Wales and female HLE has only fallen below male in Wales
- HLE at birth has declined the most in younger age groups and female HLE has only dropped below male for these groups. HLE in 2022-2024 is actually higher than in 2011-2013 for males aged 50+ and females aged 65+

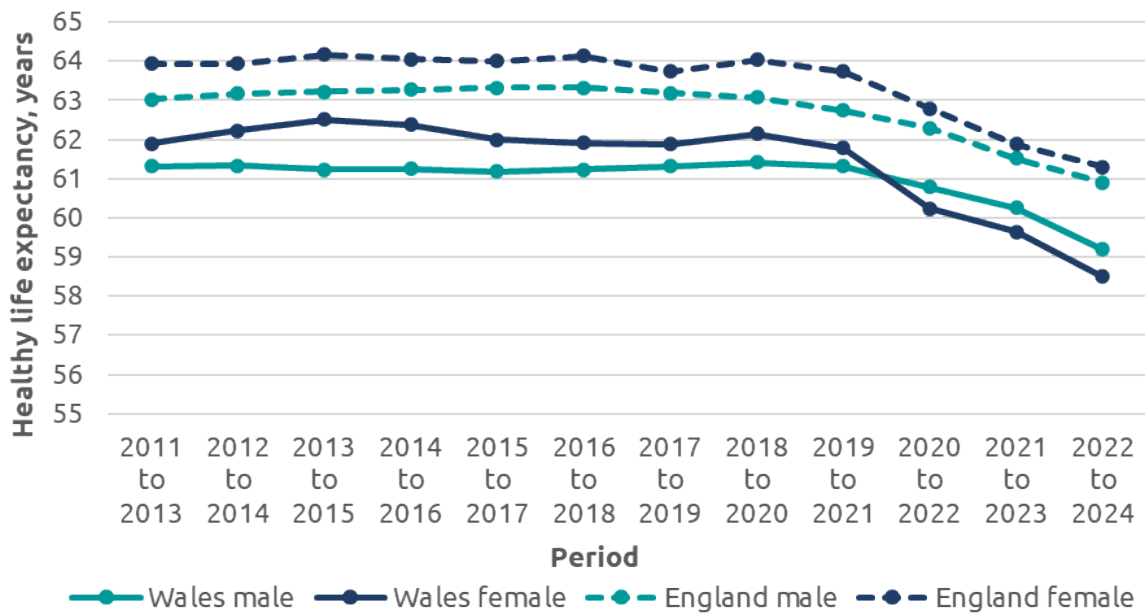
In 2022-2024, HLE in Wales dropped for the 4<sup>th</sup> period in a row for both sexes<sup>1</sup>. Male healthy life expectancy in 2022-2024 was 59.2 years, down by 1.1 years from 60.3 in 2021-2023. Female healthy life expectancy in 2022-2024 was 58.5 years, down by 1.1 years from 59.6 in 2021-2023.

Though similar trends have been seen in England, the drop off in both male and female HLE in 2022-2024 has been much more pronounced in Wales than England, and the gap between Wales and England in female HLE is now at its widest since 2011-2013.

**Figure 1: Healthy life expectancy by sex, Wales and England, 2011-2013 to 2022-2024**  
*(Office for National Statistics, 2026<sup>1</sup>)*

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<sup>1</sup> [Healthy life expectancy, UK - Office for National Statistics](#)



There is substantial variation in HLE between Health Boards and local authorities (see Appendix 1). All Health Boards other than Powys THB have seen a continued decline in HLE for both sexes in 2022-2024. Powys THB and Betsi Cadwaladr UHB have consistently had higher HLE for both sexes than Wales, whilst Cwm Taf Morgannwg UHB and Aneurin Bevan UHB have consistently had lower HLE for both sexes.

Healthy life expectancy is generally lower in South Wales compared to other areas, matching other metrics like avoidable mortality rates. Most local authorities have seen a consistent decline in HLE in recent years, other than Caerphilly. In 2022-2024 the lowest HLE for both sexes was in Merthyr Tydfil, and the highest was in Powys. This is a change since 2021-2023 when the lowest was in Torfaen and the highest was in Monmouthshire.

Healthy life expectancy is calculated by 5 year age bands (see Appendix 1). The 15-19 year old group contributes disproportionately to the overall HLE statistics, because they are the youngest age group surveyed in the Annual Population Survey (APS), and their data is used to account for missing data for younger people. Therefore, the trend in HLE for this age group is very similar to the overall trend for Wales.

However, HLE by age shows that the decline in HLE gets less severe with older age, and HLE in 2022-2024 is actually higher than in 2011-2013 for males aged 50+ and females aged 65+. Female HLE has fallen below male in ages 0-24, but older groups have seen female HLE stay above male.

In England and Scotland<sup>2</sup>, HLE has shown the same pattern in terms of steeper declines in younger age groups, but female HLE has never dropped below male for any age group in either country.

We do not yet have updated HLE by deprivation quintiles. This is expected in April 2026.

## **Section B: Waiting times/lists – published data**

Key points:

- Waiting lists have grown substantially since the COVID pandemic
- More patients are being referred for treatment. The number of pathways from referral to treatment has more than doubled in the last 5 years, to around 800,000 open pathways in July 2025 (note that patients may have multiple pathways)
- Patients are spending longer on average on the waiting list before being treated. Median waits have increased from around 10 weeks in 2019 to a peak of almost 30 weeks in 2020, and are now around 20 weeks.

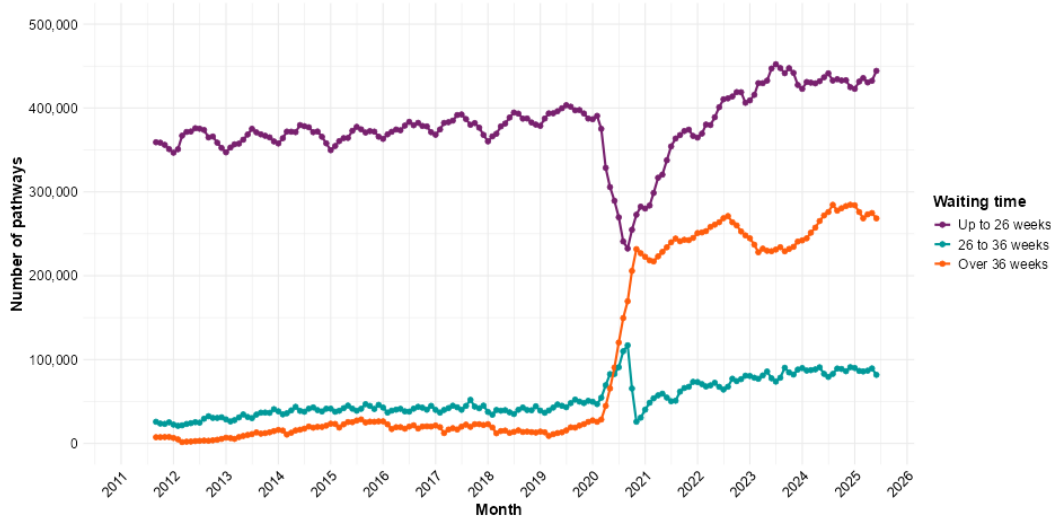
Waiting lists for treatment in secondary care following a referral in Wales have grown substantially since the COVID pandemic. Published data on unique patients are only available from March 2022 onwards, but patients can be on multiple waiting lists for different conditions, procedures, so this trend is better viewed in terms of ‘patient pathways’, which also allows us to see a longer time period (Figure 2).

The number of patients waiting over 36 weeks for treatment has increased substantially since 2020.

**Figure 2: Number of patient pathways from referral to treatment, by waiting time, Wales, all specialties, September 2011 to July 2025 (DHCW 2025<sup>3</sup>)**

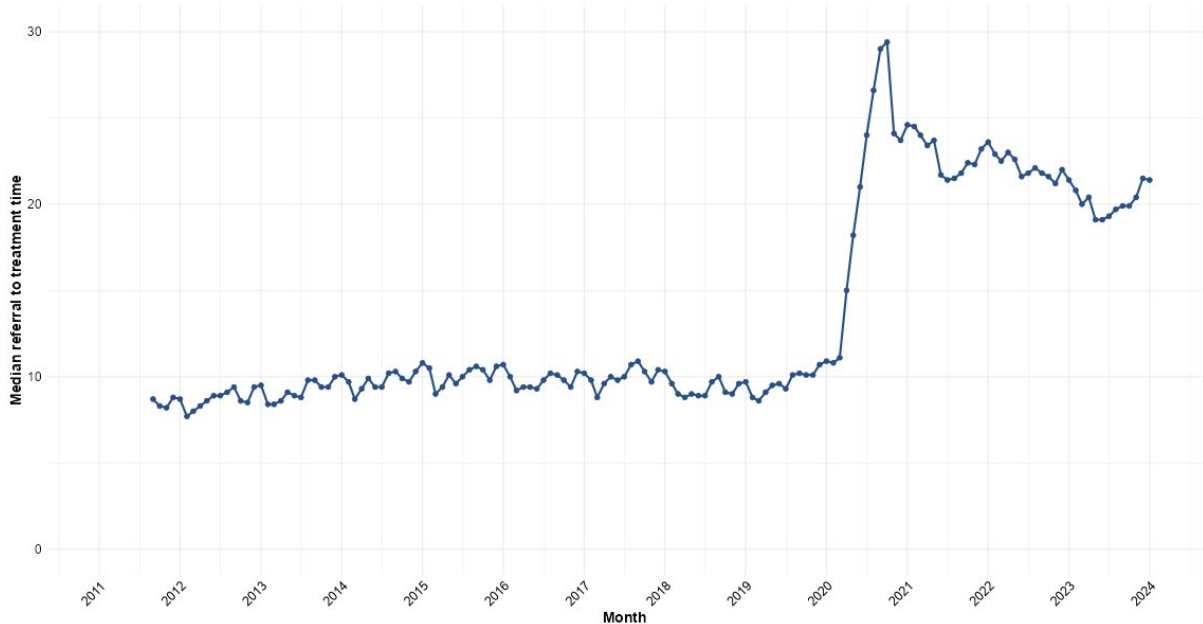
<sup>2</sup> [Healthy Life Expectancy, 2021-2023 - National Records of Scotland \(NRS\)](#)

<sup>3</sup> [Patient pathways waiting to start treatment by month, grouped weeks and stage of pathway](#)



Median referral to treatment waiting times increased significantly in 2020 (Figure 3). Although there was some recovery in the following years, median waiting times are still substantially higher than before 2020.

**Figure 3: Median referral to treatment time, Wales, all specialties, September 2011 to July 2025 (DHCW 2025<sup>4</sup>)**



A similar pattern has been seen in all Health Boards aside from Powys Teaching LHB. Median waiting times have recovered more in Swansea Bay UHB and Betsi Cadwaladr UHB, but median waits have increased in recent months in most Health Boards.

<sup>4</sup> [Referral To Treatment key measures: median and 90th percentile waiting times, totals waiting and pathways waiting 26 and 36 weeks, January 2018 onwards, by treatment function](#)



## **Section C: Waiting times/lists – hospital data**

### Key points:

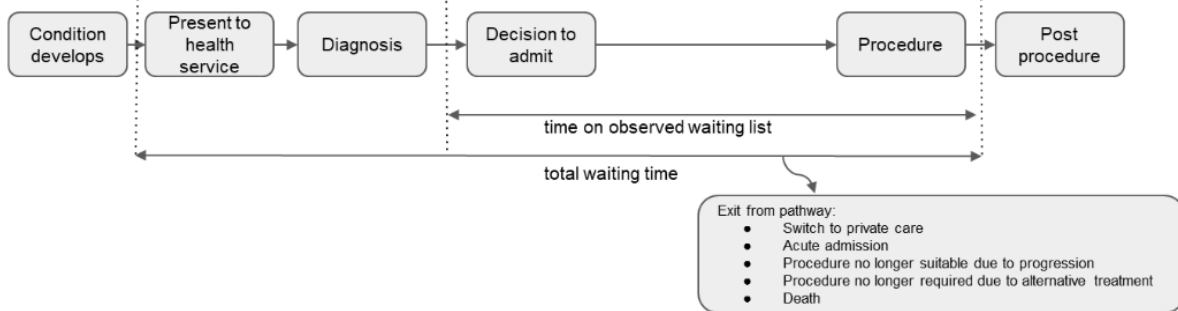
- There are differences in the patient cohorts represented in published data and in our analysis of hospital data, but the patterns in waiting times are similar
- Median waiting times have increased substantially and are higher than pre-pandemic for those aged 0-17. Median waits for older groups are lower than pre-pandemic
- The proportion of patients waiting over 36 weeks increased from around 11% in 2019 to just over 15% in 2024, and the proportion waiting over a year increased from around 5% to 11% in the same period
- The increases in the proportion of patients waiting a very long time for treatment has been more pronounced in younger age groups
- Even amongst treatment specialties with little change in median waiting times, the proportion waiting a very long time has increased substantially

### Methods and limitations:

- We have analysed waiting times for elective admissions using the Patient Episode Database for Wales (PEDW), which is the record-level hospital dataset
- Waiting times are calculated as the number of days between the decision to admit date (i.e. the date of referral) and the admission date
- Data from both Welsh and non-Welsh providers were included, but only patients who are a resident in Wales were included
- Waiting times reflect the time from referral to the first admission only. Subsequent admissions or follow-up care are not included
- Financial years refer to the year of admission, not referral
- Caveats:
  - The analysis only includes patients who are referred for an elective treatment/procedure/diagnostic test in secondary care *and* go on to receive that treatment/procedure/diagnostic test.
  - There are many reasons why a person might be referred but not ultimately receive treatment, illustrated in Figure 4. Our analysis only includes patients who reach the 'Procedure' step in Figure 4.
  - Patients still awaiting treatment at the time when data were extracted are not captured. This means longer waits are likely to be underrepresented.
  - These figures are not directly comparable with the published referral to treatment data described in Section B, which include patients who have not yet been admitted and those who may ultimately not be admitted for the reasons illustrated in Figure 4.
  - The analysis only assesses the time on an official waiting list, i.e. after a referral is made. Total waiting time encompasses other stages of the patient pathway

as described in Figure 4. See ‘Next steps’ for our plans to explore waiting times in the broader sense.

**Figure 4: Logic model of waiting for an elective procedure, from Gibbs et al 2024<sup>5</sup>**

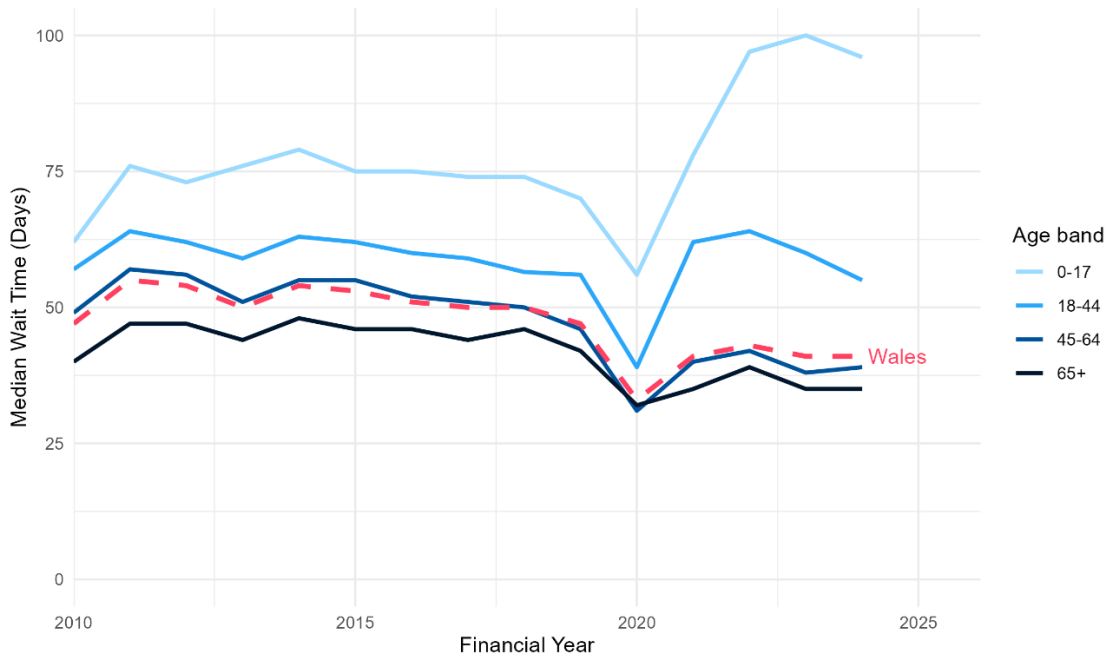


Median waiting times:

Figure 5 shows the median waiting time from referral to treatment across all treatment specialties, by age band. Prior to 2020, waiting times in Wales remained relatively stable, with a slight downward trend over time. During the COVID-19 pandemic, there was a sharp drop in waiting times. Since the pandemic, the youngest age group have seen a marked increase in median waiting times, now well above those seen pre-pandemic. People aged 18-44 saw an increase in median waits initially then a return to pre-pandemic levels. Older age groups have seen median waits stay below pre-pandemic levels.

**Figure 5: Median waiting time from referral to treatment by age band, Wales, all specialties, 2010-2025 (PEDW)**

<sup>5</sup> Gibbs, Naomi; Griffin, Susan; Gutacker, Nils; Villasenor-Lopez, Adrian; Walker, Simon (2024). A general modelling framework to estimate the impact of waiting times on health for patients undergoing elective procedures in the NHS in England. The University of Sheffield. Report. <https://doi.org/10.15131/shef.data.25219328.v1>

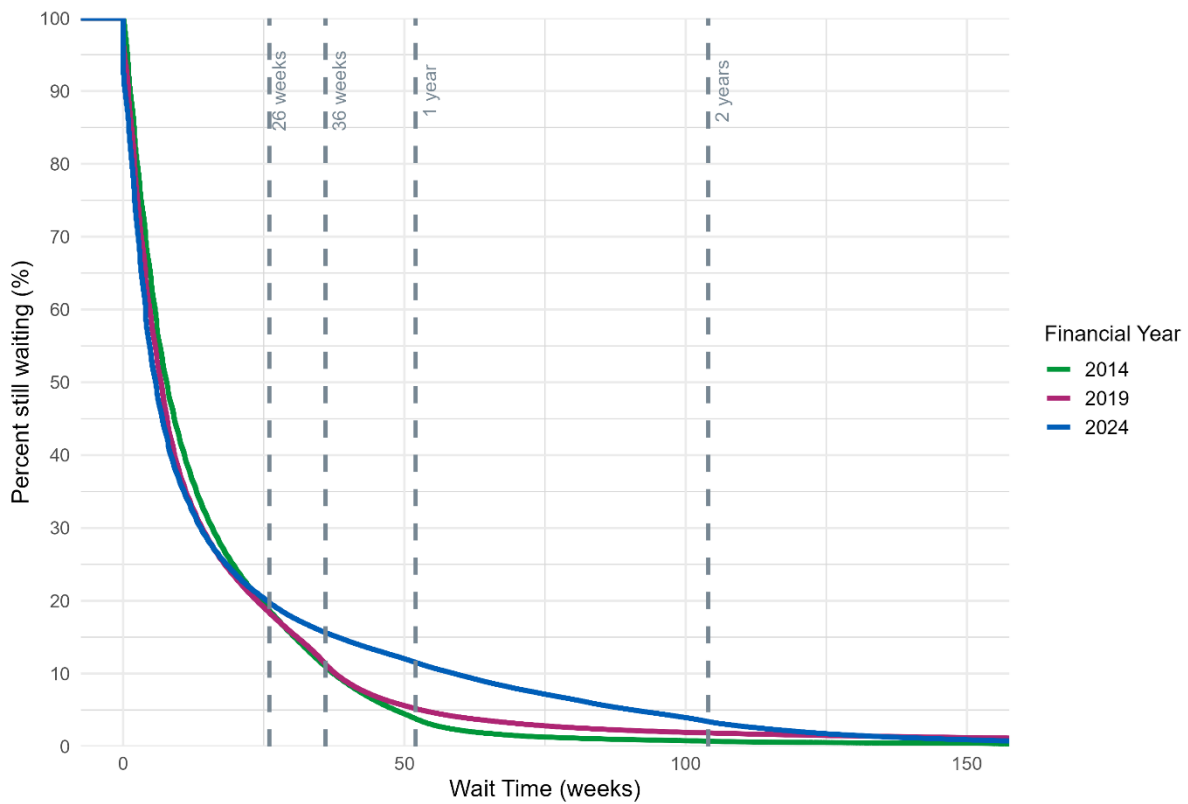


**Waits above thresholds:**

Although median waiting times provide a useful high-level summary, they do not reflect the growing number of patients experiencing long waits.

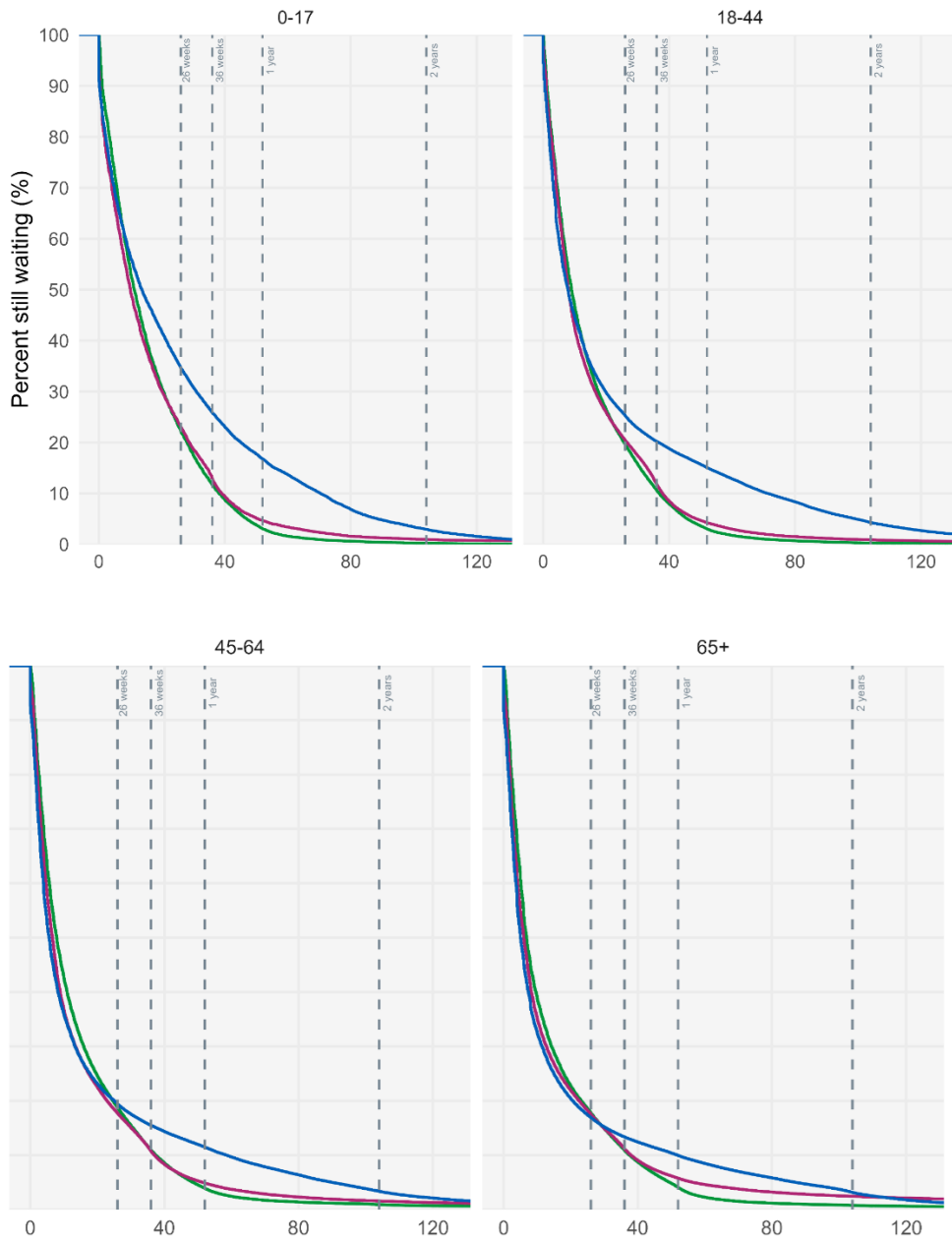
Figure 6 shows the percentage of patients still waiting by week. Across 2014, 2019 and 2024, the proportion of patients still waiting at 26 weeks has remained broadly similar at around 20%. This indicates that for roughly 80% of admitted patients, overall waiting times have not changed substantially. The most notable differences occur in the remaining 20% with the proportion of patients waiting over 36 weeks increasing from around 11% in 2019 to just over 15% in 2024, and over a year increasing from around 5% to 11% in the same period.

**Figure 6: Percentage of patients still on the waiting list over time, by financial year of admission (PEDW)**



When broken down by age group (Figure 7), the pattern of increasing long waits is evident across all age groups. However, the increase in long waits is especially pronounced among patients aged 0–17 and 18–44. For example, the percentage of patient aged 0–17 waiting more than a year has risen from approximately 5% in 2019 to just under 17% in 2025, highlighting a disproportionate increase in the proportion of long waits on younger patients.

**Figure 7: Percentage of patients still on the waiting list over time, by financial year of admission and age group (PEDW)**





The number of patient pathways where the waiting time from referral to treatment is above the 36-week threshold<sup>6</sup> has increased substantially. Our analysis has also shown that the proportion waiting over 36 weeks increased from 2020 onwards in almost every treatment specialty, but some saw increases starting before 2020. Even amongst treatment specialties with little change in median waiting times, the proportion waiting a very long time has increased substantially.

There have also been some notable increases in the proportion of patients waiting a year or more in certain specialties:

Between 2019 and 2025, the proportion waiting over a year increased:

- From 3.5% to 13.3% in general surgery
- From 11% to 36.9% in trauma and orthopaedics
- From 7.7% to 27.6% in ENT
- From 1.9% to 19.7% in gynaecology

Between 2019 and 2025, the proportion waiting over 2 years increased:

- From 1.2% to 3.5% in general surgery
- From 2.2% to 12.3% in trauma and orthopaedics
- From 1.7% to 7.3% in ENT
- From 0.1% to 5.8% in gynaecology

Next steps:

We will explore the potential to understand which specific procedures/treatments may be driving increased waiting times in each specialty and population group. We will also explore the potential to use the SAIL Databank to analyse primary care activity, to gain a fuller understanding of waits and the contact patients may have with healthcare prior to joining a waiting list. Lastly, we will be seeking clinical input to understand these data.

## **Section D: Impact of waiting times on health outcomes**

Key points:

- We are currently working on understanding the impact of waiting times on health outcomes
- Literature evidence suggests that long waits may have negative impacts on patients' mental health, pain, economic outcomes, and prognosis. But evidence is limited and mixed. Details can be found in Appendix 2.

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<sup>6</sup> [Planned care waiting times guidance: April 2025](#)



- DHCW analysis of PROMs data finds no association between longer waiting times and lower PROMs scores for hip and knee replacement patients. Details can be found in Appendix 3.
- A recent systematic review found strong evidence that delays in surgery, systemic treatment, and radiotherapy are associated with an increased risk of death for some cancer types. Details can be found in Appendix 4.

We are currently exploring the impact of waiting times on health outcomes through various approaches:

- Further review of existing academic and grey literature
- Replicating ONS modelling of the economic impacts of waiting times
- Exploration of primary care data in the SAIL databank to understand the relationship between secondary care waits and primary care contact
- Asking for public views on the impacts of waiting times through the Time to Talk Public Health survey in June 2026

## **Section E: Healthy life expectancy and other health outcome measures**

Key points:

- Disability-free life expectancy for both sexes followed similar trends to HLE between 2014 and 2022, and the comparison with England is similar on both metrics<sup>7</sup>
- Avoidable mortality rates for both sexes have followed similar trends to HLE since 2011<sup>8</sup>
- Trends in preventable mortality closely mirror HLE trends, but treatable mortality rates have diverged in recent periods
- Increases in avoidable mortality have been driven by deaths from circulatory conditions. There has also been substantial increase in death rates from causes relating to alcohol and drug use
- Life expectancy trends have shown a clear divergence from HLE trends, and female life expectancy is consistently higher than male. Life expectancy is purely a measure of longevity of life, and does not account for quality of life or self-reported general health<sup>9</sup>
- This indicates that recent trends in HLE are driven by a declining proportion of the population describing their health as good/very good, and increasing preventable mortality in younger ages, rather than substantial changes in overall mortality risk or average age of death

<sup>7</sup> [Health state life expectancies in England, Northern Ireland and Wales: between 2011 to 2013 and 2020 to 2022, Office for National Statistics](#)

<sup>8</sup> [https://publichealthwales.shinyapps.io/PHOF\\_Dashboard\\_Eng/](https://publichealthwales.shinyapps.io/PHOF_Dashboard_Eng/)

<sup>9</sup> [Life expectancy for local areas of the UK - Office for National Statistics](#)



#### Definitions:

- *Disability-free life expectancy – a measure of the length of life free from a limiting persistent illness that limits day-to-day activities. It is based on self-assessment of how health conditions and illnesses reduce an individual’s ability to carry out day-to-day activities like washing, dressing, cooking, shopping, and using transport*
- *Avoidable mortality – deaths occurring between the ages of 18 and 74 from causes which are considered preventable or treatable given timely and effective public health intervention*

#### Next steps:

We are exploring the relationship between HLE and other metrics at subgroup level and smaller geographical scales. We are also exploring the variation in HLE by WIMD domains and underlying indicators, and by measures of rurality.

#### 4. Recommendation

We have seen a persistent decline in healthy life expectancy in Wales, and a pronounced decline in female healthy life expectancy in particular.

Our analysis workplan to understand the drivers of trends in healthy life expectancy is progressing well.

Our analysis to date shows that average waiting times for treatment, and the proportions of patients waiting a very long time for treatment have increased substantially since the pandemic, but these increases have been concentrated amongst younger patients. There are growing numbers of patients waiting an extremely long time (over 2 years) for treatment.

There is limited and conflicting evidence about how long waiting times may be impacting patients’ health. We are continuing to explore this.

Trends in healthy life expectancy are similar to trends in disability-free life expectancy and avoidable mortality rates, but not to life expectancy, indicating people are not necessarily living shorter lives, but are living a larger proportion of their lives in poor health and developing health conditions at a younger age.

We are continuing our work on these topics and will update the Business Executive Team on an ongoing basis.

The Board is asked to:



- Review the data presented in the paper.

## 5. Appendix 1: Analysis of healthy life expectancy patterns and drivers – progress update supporting slides

## 6. Appendix 2: Literature review evidence on the impact of waiting times on health outcomes

Some studies find negative impacts of longer waits;

- [Siciliani 2025](#) – a narrative review of 20 studies, mostly from the UK, found that health can deteriorate on waiting lists and patients may have a reduced ability to benefit from healthcare once it is received. Long waits also impact economic outcomes like sickness absence and benefits claims, and can increase mortality risk and emergency admissions rates
- [Limiri 2025](#) – narrative review finding evidence of high readmission rates, high mortality rates, increasing complexity of care needs, increased risk of preventable complications, increased rates of stress, anxiety, and depression, and poorer quality of life
- [Gibbs et al 2024](#) – there are large population health impacts from waiting times in England for routine procedures. The biggest gains from reducing waiting times would come from hip and knee replacements, but this would increase health inequalities due to the high representation of less deprived people in this patient group
- [Han et al 2021](#) – finds that in South Korean lung cancer patients there was a 15% higher mortality risk in the first year after surgery from waiting more than 30 days after diagnosis
- [Arabadzhyan 2025](#) – finds longer waits are associated with increased mortality risk for coronary bypass patients in England, with a stronger effect in older and more deprived patients
- [Hanna et al 2020](#) – systematic review finding that each 4 week delay in receiving cancer surgery was associated with a 6-8% increased mortality risk
- [Dodd et al 2025](#) – increases in waiting times for NHS Talking Therapies in England are associated with lower probability of employment and higher probability of taking time away from work
- [Prudon 2025](#) – increases in waiting times for mental health services in the Netherlands reduce the probability of employment and increase the probability of claiming benefits, with a larger effect for less educated patients
- [Bleustein et al 2014](#) – longer waiting times are correlated with poorer scores in multiple measures of patient satisfaction in the USA
- Child Health Network – a review of evidence on waiting times for children found increased waits lead to clinical deterioration, missed developmental opportunities, family stress, greater system pressures, and poorer mental health



Other studies find mixed results:

- [Nikolova et al 2015](#) – a small but statistically significant impact of increased waiting times on the health gain from hip and knee replacement surgery, which translates into large health losses at population level in England, but no impact on the effectiveness of varicose vein and hernia surgeries
- [Carlsson and Ma 2018](#) – there is no impact on CVD patients from non-emergency waiting times but a negative impact from emergency waits and excessive waits
- [Sutherland et al 2017](#) – no impact on self-reported health associated with longer times on waiting lists for hernia patients in Canada
- DHCW CEDAR Rapid literature review – poor quality evidence from which limited conclusions can be drawn, including only one study on children (see Appendix)
- [IFS 2025](#) – the Institute for Fiscal Studies found that waiting lists have not been a major factor behind recent large increases in the number of working-age adults claiming health-related benefits in England

## 7. Appendix 3: DHCW paper on the impact of waiting times on PROMs

**Question: What do we know about the potential and actual impact of waiting on population health and patient safety?**

### Exec Summary

- Available data from both published reports and Welsh service activity is limited and few insights can be drawn.
- Published evidence is not clear about the impact of waiting, a comprehensive review will take several months to complete.
- Current analysis suggests there are a variety of impacts from improvement to deterioration in symptoms and QOL and that further analysis is required to understand this.
- Three Welsh data sets may enable this now, and all will be capable of robustly answering the question in 6- 12 months' time.

### Introduction

Value transformation has enquired across the system for data sets that may answer this question. Requests have been made of relevant clinical networks and value-based healthcare teams. CEDAR were requested to do a rapid evidence review.

Responses were very limited and do not clearly evidence answers to the question.

The paper outlines some of the identified published literature (section 1) and real-world evidence (section 2) and opportunities for analysis however the longitudinal nature of waiting lists means that even where this data is now being collected it will take time to generate the required body of evidence to draw any meaningful conclusions.

## Section 1 Potential impact from published evidence

### 1. CEDAR Rapid literature review

A Rapid search of published material has found poor quality evidence from which limited conclusions can be drawn. A full evidence review could be undertaken, with a large scope and it will take a few months to undertake and report.

- **Articles:** N = 16. These come from England (n=11), with a handful from Wales (n=1), Scotland (n=1), or UK wide (n=1). Two systematic reviews had a global focus. Publication date ranged from 1989 to 2024, very few publications since 2020 so the evidence may not be reflective of the current waiting list situation and healthcare practices.
- **Methods:** A mixture of quantitative, qualitative, and modelling study was found.
- **Populations:** Adult focussed, a broad range of health conditions/pathways, from diagnosis to treatment (e.g., hip replacement, cancer diagnosis, cardiac surgery). Only one relevant study was found on children.
- **Topics:** Benefits of shortening waiting time was studied most.
- **Measures:** Those that studied change had variation in the definitions of deterioration. Outcomes include, physical functions, mental health, pain, unplanned care, mortality, hospitalisation, surgery complications, 10-year survival rate, quality of life and quality adjusted life years (QALYs).
- **Synthesis:** No quantification of the impacts of being on a waiting list could be undertaken due to the heterogeneity in conditions, pathways and outcomes identified within the rapid scoping exercise.
- **Causality:** Could not be determined due to poor quality of studies, which were qualitative or small scale and often reflected the general perception that waiting longer results in poorer health conditions or focused on the equities of waiting list lengths and outcomes.

### 2. Child Health Network review

The Child Health Network has recently published a report on waiting times for Wales. They were unable to identify data for impact; however, they do provide published evidence of impact during the waiting period from referral to treatment.

“Evidence consistently shows that long waits for child health services place BCYP at disproportionate risk due to their developmental vulnerability. For example, a 104-week wait for an ENT appointment can cause temporary deafness, speech, and language delay, and negatively affect behaviour and educational progress. Delays can also increase costs, as BCYP may require ongoing audiology and hearing aids instead of timely surgical treatment. Service-level and national data show that prolonged waits lead to clinical deterioration, missed developmental opportunities, poorer mental health, increased family stress, widening inequalities, and greater system pressure through higher costs and more complex

presentations.” Child Health Strategic Clinical Network, NHS Wales P&I, Report on Child Health Waiting List in Wales (January 2026)

## **Section 2: Available data sets within NHS Wales**

### **Children and young people**

There is currently too limited PROM collection across all paediatric services to be able to progress any analysis on the impact of waiting times on children and young people. However, PROMs pathway is starting to be implemented in pockets and over time these will allow to generate insights into knowledge.

### **Adults**

- 5 Data sets have been identified that may provide limited insights at this time.
- Three will need further investigation and analysis.
- Three have the potential to answer the question within the next twelve months.

#### **1. Legacy PROM insights**

- **Speciality:** hip and knee arthroplasty
- **Data:** PROMS - EQ5D5L (health QOL)
- **Collection period:** 2019 to 2021
- **Current insights:** no significant change in quality of life associated with increased waiting time. However, receipt of any rehab/ wellbeing intervention during this time is unknown.
- **Potential:** no further analysis is possible currently



**Impact of Waiting Times on Patient-Reported Quality of Life for Hip and Knee Procedures**



**60,536 patients** were on waiting lists for a total of **74,967 hip and knee procedures** carried out between 2015 and 2026

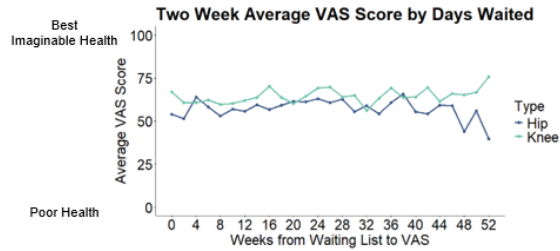
Patients waited a median of **286 days** from waiting list start to admission

**1,730 patients** completed at least one EQ-5D-5L and EQ-VAS score within one year after starting on a waiting list

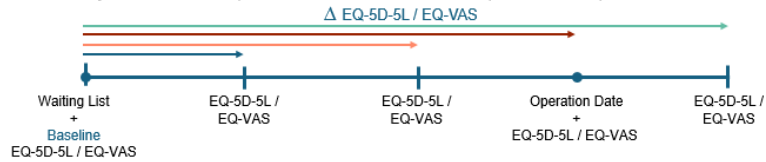
Patients in this cohort waited a median of **300 days** from waiting list start to admission

PROM scores were completed a median of **174 days** after waiting list start

**No significant change** was observed in EQ-VAS or EQ-5D-5L score as waiting time increased after accounting for multiple PROM measurements per patient and adjusted for age, sex, provider, procedure type and deprivation ( $p > 0.05$ )



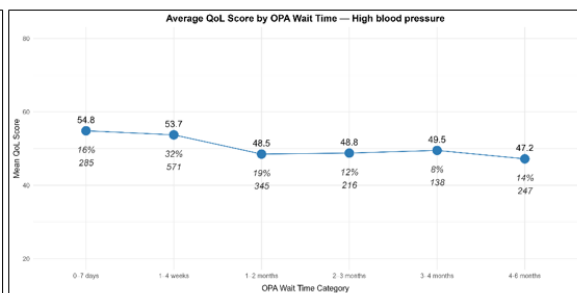
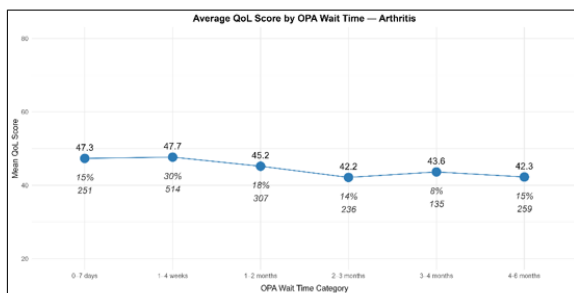
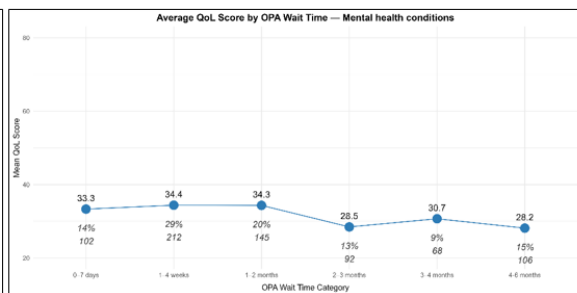
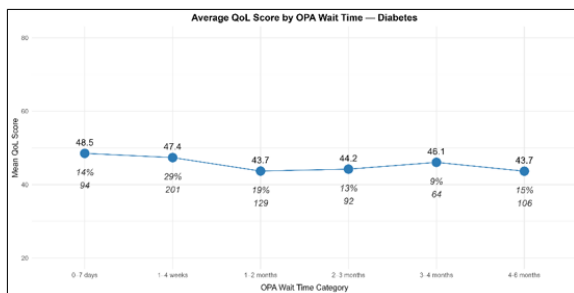
**Next Steps:** Reliable repeated measures for intra-patient comparisons

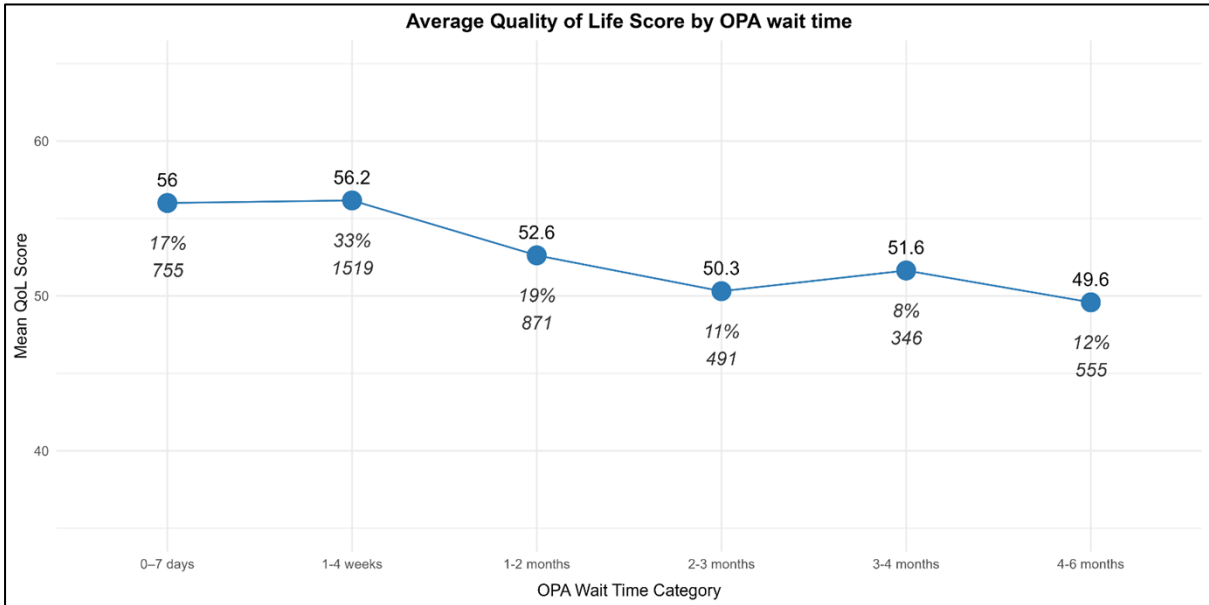


**2. OECD PaRIS study insights**

- **Specialities:** all people in the sample that reported waiting for intervention
- **Data:** Quality of life
- **Collection period:** Snapshot in summer 2023
- **Current Insights:** for those waiting up to 6 months for care, longer waiting time was associated with lower quality of life score. Causation is not possible to conclude upon.

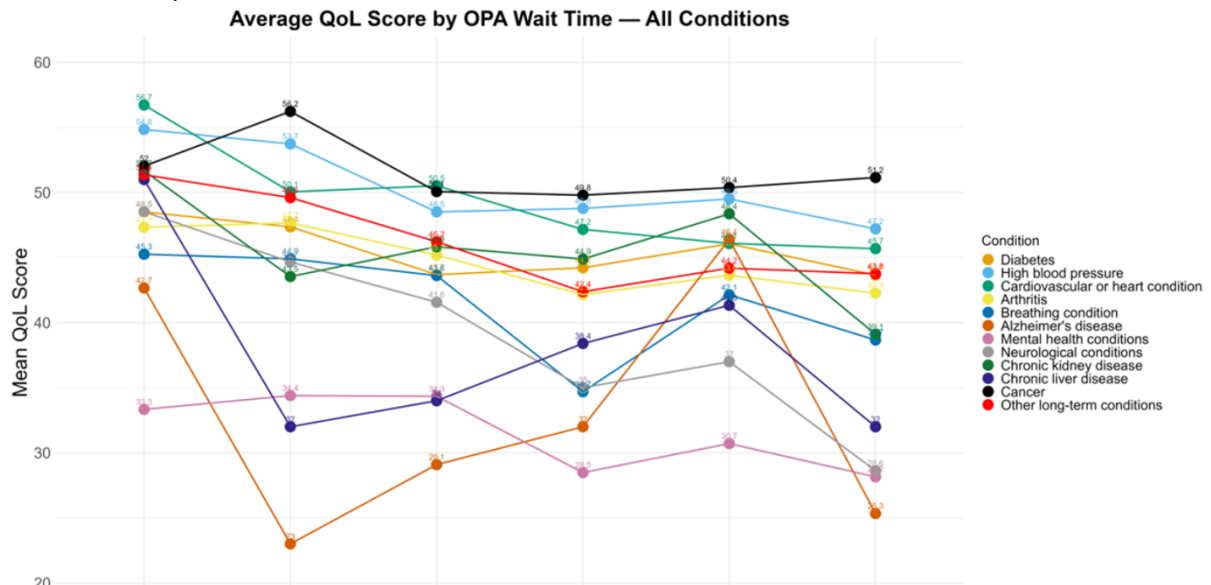
**Average quality of life score by OPA wait time by chronic condition**





Lower quality of life was reported by women, those unable to work, those in higher deprivation, younger patients those with lower education.

There are differences between conditions groups with mental health and diabetes associated with lower QOL scores.



**Potential:** no further analysis is possible currently

### 3. Community MSK in Cardiff and Value UHB

- **Speciality:** Community MSK Therapies and CMATS

- **Data:** PROMS data from three questionnaire MSK health questionnaire (symptoms), EQ5D5L (health QOL) and ReQOI (wellbeing)
- **Collection period:** 6 months current
- **Current insights:** highly variable impact during wait that regresses to mean of no change – small groups that significantly deteriorate or improve which require further investigation.
- **Potential:** Large data set building, Further analysis possible in 6 months

#### 4. Waiting Well in Swansea Bay

- **Specialities:** stage 1 (initial opinion) and stage 5 (surgical) lists for Gynaecology, general surgery and vascular and will be shortly rolled out to ENT and urology.
- **Data:** PROMS data from EQ5D5L (health QOL) and Modified Clinical Frailty Scale with Crane (Comprehensive Risk Assessment and Needs Evaluation).
- **Collection period:** Current - frailty score 2 years and EQ5D5L <6 months.
- **Current insights:** A baseline has been formed for EQ5D5L and will soon be receiving first six monthly follow up data that will be able to answer the question, another 12 months will be required to understand the full impact. Frailty scores have been used to guide intervention and therefore have limited ability to provide insights of waiting without intervention. Team is however able to look at this if required.
- **Potential:** Large data set building, further analysis is possible in 6-12 months

#### 5. Orthopaedic Waiting List initiative (OWLi) in Swansea Bay

- **Speciality:** hip and knee arthroplasty
- **Data:** PROMS – EQ5D5L (health QOL) and Oxford hip or knee score (symptom burden)
- **Collection period:** current, 2 years
- **Insights:** data set has been used to inform interventions whilst waiting so limited ability to therefore have limited ability to provide insights of waiting without intervention. Team is however able to look at this if required.
- **Potential:** further analysis is possible now

#### Conclusion

Published evidence is not clear about the impact of waiting, a comprehensive review will take several months to complete.

Available data set has very limited insights to answer the question. Current analysis suggests there are a variety of impacts from improvement to deterioration in symptoms and QOL and that further analysis is required to understand this. Three data sets may enable this now, and all will be capable of robustly answering the question in 6- 12 months' time.

#### 8. Appendix 4: Evidence on the impact of cancer treatment delay on mortality



There is strong evidence that delays in surgery, systemic treatment, and radiotherapy are associated with an increased risk of death for some cancer types. Therefore, policies aimed at reducing system level waiting times for cancer treatment may lead to improved survival outcomes in the general population (Hanna et al., 2020).

Hanna et al. (2020) found that the evidence for an association between treatment delay and increased mortality was significant ( $P < 0.05$ ) for 13 out of 17 indications (cancer type plus treatment modality). Specifically, a delay in **curative surgical treatment** was associated with an increased risk of mortality for the following cancers: bladder, breast, colon, and head and neck, with a 6 to 8% increased risk of death for each four week delay in surgical treatment for these cancers.

A delay in **curative systemic treatment** was associated with an increased risk of mortality for the following cancers: bladder (neoadjuvant treatment), breast (neoadjuvant treatment), breast (adjuvant treatment), and colon and rectum (adjuvant treatment), with a 9 to 28% increased risk of death for each four week delay in systemic treatment for these cancers.

A delay in **curative radiotherapy treatment** for head and neck cancer and cervical cancer was also shown to be associated with an increased risk of mortality for the following cancers: cervical (adjuvant radiotherapy), head and neck (radical radiotherapy), head and neck (adjuvant radiotherapy), and nasopharyngeal, with a 3 to 117% increased risk of death for each four week delay in radiotherapy treatment for these cancers. However, there were limited high quality data on curative radiotherapy treatment, meaning a meta-analysis was not conducted for this treatment modality.

\*The authors note that “a delay of less than four weeks should not be justified as safe based on our findings”. Additionally, this review only examined evidence on 7 cancer types; additional evidence may be available for other cancer types.

### Technical Evidence Quality Appraisal

Hanna T P, King W D, Thibodeau S, Jalink M, Paulin G A, Harvey-Jones E et al. Mortality due to cancer treatment delay: systematic review and meta-analysis. *BMJ* 2020; 371: m4087. doi:10.1136/bmj.m4087

Hanna et al. (2020) investigated the impact of delay in cancer treatment (surgery, systemic treatment, and radiotherapy) on the risk of death for seven main cancer types: bladder, breast, colon, rectum, lung, cervix, and head and neck. They estimated hazard ratios for overall survival for each four week increase in delay, representing the risk of death from any cause for patients experiencing treatment delay compared with those who did not experience treatment delay. Treatment delay was defined as time from diagnosis to treatment for the first treatment (definitive surgery or radiation), and from time of surgery to treatment for



adjuvant indications (chemotherapy or radiation after surgery). Only studies classed as high validity were selected. 34 retrospective observational studies were included in the final meta-analysis and narrative synthesis. Most studies were conducted in the US or Canada, with one study each conducted in China, Korea and Taiwan.

The association between delay and increased mortality was significant ( $P < 0.05$ ) for 13 of 17 indications. The hazard ratios and corresponding 95% confidence intervals for each indication of these 13 indications are shown below:

- > Curative surgical treatment: bladder cancer (HR=1.06, 95% CI=1.01 to 1.12); breast cancer (HR=1.08, 95% CI=1.03 to 1.13); colon cancer (HR= 1.06, 95% CI=1.01 to 1.12); head and neck cancer (HR=1.06, 95% CI=1.04 to 1.08).
- > Curative systemic treatment: bladder cancer (neoadjuvant treatment) (HR= 1.24, 95% CI=1.03 to 1.50), breast cancer (neoadjuvant treatment) (HR= 1.28, 95% CI=1.05 to 1.56), breast cancer (adjuvant treatment) (HR=1.09, 95% CI=1.07 to 1.11), colon and rectum cancer (adjuvant treatment) (HR= 1.13, 95% CI=1.09 to 1.17).
- > Curative radiotherapy treatment: cervical cancer (adjuvant radiotherapy) (HR= 1.23, 95% CI=1.00 to 1.50); head and neck cancer (radical radiotherapy) (HR= 1.09, 95% CI=1.05 to 1.14); head and neck cancer (adjuvant radiotherapy) (HR= 1.03, 95% CI=1.01 to 1.05); nasopharyngeal cancer (HR= 2.17, 95% CI=1.03 to 4.57).

Overall this appears to be a medium-high quality study, with the following limitations:

1. Most studies were conducted in US or Canada, none in the UK or Europe. However, biologically, the results are likely to still have been transferrable.
2. This review only looked at the outcome overall survival. Other outcomes that may need to be considered include cancer spread (metastasis) and psychological outcomes, such as wellbeing and quality of life, associated with delayed waiting times for cancer treatment.
3. For some treatment modalities (e.g. radiotherapy), only one primary paper was included for each cancer type meaning a meta-analysis was not possible and the certainty of evidence for these outcomes is lower than if a meta-analysis had been performed.
4. This was a systematic review and meta-analysis of observational studies, so there is a risk of residual confounding;
5. Only Ovid Medline database used for search of primary studies meaning some studies may not have been identified;
6. Publication bias was not explored.