CANCER RESEARCH UK POSITION PAPER: THE DIAGNOSTIC WORKFORCE IN WALES, JUNE 2019

SUMMARY
Around 19,000 people are diagnosed with cancer every year in Wales.\(^1\) Just over half of people survive their cancer diagnosis for 10 years or more, compared to 1 in 4 in the 1970s.\(^2\) However, available data for breast, colorectal, lung and ovarian cancers shows Wales persistently lags behind comparable countries for patient survival.\(^3\) Diagnosing people at the earliest stage is critical to giving patients the best chance of survival. For the 8 most common cancer types combined, survival is more than 3 times higher for those diagnosed at an early stage compared to a late stage.\(^4\)

Diagnosing more cancers earlier will rely, in part, on testing more people. We recognise that the Welsh Government has made earlier diagnosis of cancer a priority, and that NHS Wales is undertaking a series of initiatives to achieve this, including the introduction of the Single Cancer Pathway and actions in the new Statements of Intent for pathology\(^5\) and imaging.\(^6\) However, the full impact of this work can only be achieved with the right number, and type, of diagnostic staff\(^7\), carrying out and interpreting investigative tests across Wales.

This paper has been informed by an analysis of available primary data and extensive consultation with patients, healthcare professionals, civil servants and other key opinion leaders. It sets out the challenges facing Wales’s diagnostic services in the short and long term and makes recommendations for meeting these challenges.

<table>
<thead>
<tr>
<th>Numbers in post</th>
<th>RADIOLOGY(^8)</th>
<th>RADIOGRAPHY</th>
<th>CELLULAR PATHOLOGY</th>
<th>ENDOSCOPY</th>
</tr>
</thead>
<tbody>
<tr>
<td>169(^9) (155 WTE)</td>
<td>Unknown(^10). All but one Health Board struggling to recruit and retain radiographers(^11)</td>
<td>78(^12) 36% of consultants expected to retire in the next 5 years(^13)</td>
<td>203(^14)</td>
<td></td>
</tr>
<tr>
<td>Vacancy levels</td>
<td>7.2%</td>
<td>9% 36% WTE vacancy rate of band 4 radiographers(^15)</td>
<td>Approximately 30%(^16) 17% of consultants are locums</td>
<td>11% for endoscopy nurses(^17)</td>
</tr>
<tr>
<td>Estimates of staff needed</td>
<td>Demand for imaging rising approximately 10% per annum(^18)</td>
<td>Unknown</td>
<td>Estimated 8-10% annual increase in demand(^19)</td>
<td></td>
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Figure 1 - Example of challenges for diagnostic professions

Increasing patient demand
Even without initiatives to improve early diagnosis, Wales will need more diagnostic staff to meet patient need. The number of people requiring a cancer diagnosis in Wales is growing every year. In October 2018, there were 10,612 urgent suspected cancer referrals,\(^20\) the highest number since figures were routinely published in 2015.\(^21\) The number of confirmed cases of cancer is expected to increase to 25,000 per year by 2035—an increase of 6,000 cancer diagnoses from today’s levels.\(^22\)

Yet, we know services are already struggling to keep up with existing patient need, evidenced by consistently off-target waiting time performances and high vacancy rates.
Owing to an ageing population and rising co-morbidities in patients, cases are also becoming increasingly complex, meaning staff are spending longer on cases than previously. Meeting the needs of rising numbers of cancer patients will in large part depend on capacity in Wales’s diagnostic services. Staff in these services are not only crucial to cancer, but diagnose a range of diseases, meaning benefits associated with an uplift in the diagnostic workforce are not limited to cancer survival.

**Current initiatives**
The Welsh Government has taken welcome initial steps and made firm commitments to address NHS workforce shortages, detailed in the appendix. Welcome initiatives include:

- A Healthier Wales (2018) and commitment to the Quadruple Aim.
- The Detecting Cancer Earlier Programme, driving forward actions from the 2016 Cancer Delivery Plan to try and achieve shifts in stage and diagnosis for Welsh patients.
- The establishment of Health Education and Improvement Wales (HEIW).
- The new national imaging academy, which will allow new approaches to imaging training and increase the number of imaging trainees.
- Actionable government statements of intent for pathology and imaging.

A national endoscopy programme, with actionable plans to help the endoscopy workforce.

**Recommendations**
There is no one body or organisation that is able to deliver the changes required to Wales’ diagnostic workforce to diagnose more cancers earlier. The Welsh Government and NHS Wales – including HEIW, Local Health Boards and the Wales Cancer Network – must work together with workforce organisations, Royal Colleges, and the third sector to identify and address workforce gaps and increase diagnostic capacity. Much will be led by HEIW and the forthcoming workforce strategy, as well as HEIW’s 3-year work programme for 2019-2022. Wales need a cancer workforce equipped to care for the patients of today and tomorrow – and this is a great opportunity to make progress in delivering this.

To build on the myriad of current initiatives and deliver sustainable change to the diagnostic workforce, the following recommendations should be considered:

1. **Conduct an audit of Welsh diagnostic staff numbers**
   Robust data will underpin a more strategic approach to workforce planning and clearly identify priority areas. An audit should include: comprehensive whole-time equivalent headcount data; vacancy rates; the proportion of staff who aren’t permanent employees; expected retirements based on age profiles and; trainee numbers. This would help to address gaps in data, particularly relating to the endoscopy and pathology workforce.

   An audit should include an establishment of a best-practice baseline of current activity. Consulting clinicians on the time taken to perform various diagnostic tasks can help to create a baseline of current activity. This would help gauge the ‘true’ gap between existing numbers of staff and the numbers of staff required to deliver best-practice care for patients.

2. **Increase clinical training places in line with present and future patient need**
   Workforce planning should be based on the number of staff needed to meet patient need at any given time, not on perceived affordability or existing vacancy rates. Undertaking an audit of current staff numbers, establishing a baseline of current activity and undertaking a project to model future patient demand should help to inform how many new specialist clinical training places to open. This will show the scale of change, by profession, which will
be required. For example, urgent action is needed to address existing gaps in cellular pathology.

For future modelling, HEIW should project the number of staff needed to meet future patient demand. As well as increasing incidence, this should also factor in the likely capacity needs for early diagnosis initiatives and the introduction of new technologies. For example, increasing the sensitivity of the test in bowel screening and lowering the eligible age to 50 will impact the workloads of pathology and staff trained to perform colonoscopies.

3. **Consider innovative methods of training for endoscopy and cellular pathology**
   Based on conversations with senior clinicians, the current system of training is almost at capacity and considering the success of the accelerated ‘SPRINT’ programme for upper-GI endoscopy, new approaches to training must be considered. The new National Academy of Imaging is a welcome move to address these issues for imaging staff. Government should assess the merits of innovative methods of training for endoscopy and cellular pathology.

4. **Take a national approach to skills-mix**
   Training and employing more staff must be supplemented by utilizing existing staff more effectively, meeting the core principles of Prudent Healthcare. Skill-mix approaches enable staff to work at the top of their clinical competencies, for example nurses training to perform endoscopies traditionally carried out by a specialist doctor. They represent a cost-effective way of addressing growing patient demand for certain types of cancer tests while also providing clear career progression for allied health professionals and nurses, thereby making NHS Wales a more attractive place to work. At present there is no consistent, national approach to skills-mix in any UK nation. Regional shortages of staff should be identified and new investment made available so that more staff can train to upskill in these areas. This targeted approach can help to alleviate some short-term pressures but will require backfilling of trainees in the short-run.

*For further information or discuss this statement please contact ben.moore@cancer.org.uk*
APPENDIX

1. National initiatives to address workforce shortages 4-5
2. In-depth analysis of the diagnostic workforce by profession 5-8
3. Background: The importance of early diagnosis 8-10
4. Drivers of demand for diagnostic tests 10-12

1. NATIONAL INITIATIVES TO ADDRESS WORKFORCE SHORTAGES

The Welsh Government, NHS Wales and other decision makers are undertaking a myriad of initiatives to address challenges faced by the diagnostic workforce. These are welcome and can benefit cancer patients in Wales.

A Healthier Wales (2018) set out a long-term vision of a whole system approach to health and social care for Wales.\textsuperscript{28} It committed to the Quadruple aim, which includes having a sustainable workforce that can deliver high quality services to Welsh patients.

The Detecting Cancer Earlier Programme, which feeds into the Cancer Implementation Group, has been key in driving forward progress with actions from the Cancer Delivery Plan (2016) that aim to make a tangible shift in stage at diagnosis.\textsuperscript{29} For example, in June 2019, Wales will be the first UK nation to implement an ambitious Single Cancer Pathway, aimed at improving pathways, waiting time performance, patient experience, with the goal of diagnosing more cancers earlier.\textsuperscript{30} Further initiatives include new models of care, such as the piloted rapid diagnostic clinics in South Wales.

In October 2018, Health Education and Improvement Wales (HEIW) was established, bringing together existing workforce planning organisations to provide a more strategic approach to the NHS workforce.\textsuperscript{31} The establishment of HEIW is an opportunity to drive transformation in Wales’s diagnostic service, enabling staff to provide care for increasing numbers of patients. HEIW recently announced it would be developing a national workforce plan for the NHS. Diagnostic staff must be prioritised if Wales is to accelerate progress in cancer survival.\textsuperscript{32}

The new National Imaging Academy is another example of Welsh initiatives which have the potential to enable a national drive towards early diagnosis. The Academy will help to train more imaging staff and foster a skill-mix approach by, in theory, bringing together a range of imaging professionals under one training academy. The Academy has great potential to realise the ambitions of the Imaging Statement of Intent\textsuperscript{33} and help the imaging service meet the needs of Welsh patients—if used at full capacity and with a mix of imaging professions.\textsuperscript{34}

The Welsh Government has established a national endoscopy programme. This will be key in meeting the challenges of breached waiting times performances for gastrointestinal cancers, rising demand and capacity deficits in the context of new early diagnosis initiatives like FIT in bowel screening. Recent short-term measures like insourcing and outsourcing have been successful in

\textbf{Case study 1: The Imaging Academy, Pencoed}

Welsh Government launched a new £3.4m National Imaging Academy in February 2019. The state-of-the-art training Academy will allow Wales to take on more imaging trainees (diagnostic radiographers and clinical radiologists) and has the potential to help embed skills-mix approaches. The Academy was established on a business model of training 20 radiologists each year. Currently, funding allows for 13 trainees. Other imaging specialists are not yet trained through the Academy.
reducing waiting times, ‘but have come at considerable cost’ and are ‘not sustainable for the future’, according to a Welsh Assembly Health Committee inquiry on endoscopy. Further integrating skills-mix approaches will be vital to addressing shortages and rising demand, so the Welsh Government’s commitment to produce a Healthcare Scientist workforce action plan is also welcome and could help to create a sustainable multi-professional workforce model for diagnostics in Wales. The Pathology Statement of Intent set out the Welsh Government’s ambition for NHS Wales to adopt ‘flexible skills-mix approaches’ and support with future robust workforce planning. A new National Pathology Strategy Board is being set up to deliver these aims. Each are welcome announcements and Cancer Research UK would support subsequent actionable plans that build on these commitments.

2. DIAGNOSTIC STAFF UNDER PRESSURE: IN-DEPTH ANALYSIS OF THE DIAGNOSTIC WORKFORCE IN WALES BY KEY PROFESSION

We have used publicly available data to inform this report. The below is a collation of royal college data, data from other sector partners and Stats Wales figures. There is a distinct gap in data available for diagnostic radiography. A formal audit would address gaps in the following.

(i) IMAGING – DIAGNOSTIC RADIOGRAPHY AND CLINICAL RADIOLOGY

Imaging staff conduct and interpret scans for a range of cancer types like: prostate (emerging use of mp-MRI); breast (mammography and/or ultrasound) and; lung (x-ray and/or ultrasound).

<table>
<thead>
<tr>
<th>Numbers in post</th>
<th>RADIOLOGY</th>
<th>RADIOGRAPHY</th>
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<tbody>
<tr>
<td>169 WTE consultants</td>
<td>30% of consultants expected to retire by 2021. Almost 30% of consultants are now working less than full time.</td>
<td>Unknown. All but one Health Board struggling to recruit and retain radiographers</td>
</tr>
<tr>
<td>Vacancy levels</td>
<td>10% Estimated £8.8 million expenditure on outsourcing and insourcing to meet reporting requirements in 2018, up from £4.9m in 2017.</td>
<td>9% (36% vacancy rate of band 4 radiographers)</td>
</tr>
<tr>
<td>Estimates of staff needed</td>
<td>Demand for imaging rising approximately 10% per annum</td>
<td></td>
</tr>
<tr>
<td>Annual growth in staff</td>
<td>1% average increase in consultants (2012-2017)</td>
<td>Unknown</td>
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</table>

Demand for imaging services has been growing steadily across the UK for many decades. There has been an estimated increase in the overall diagnostic reporting workload of 30% in the last 5 years in the UK. In the same period, there has been an increase of 49% in the volume of CT scans and 45% in the volume of MRI scans. If imaging services are to cope with a yearly increase of 10% in demand, we will require a substantial increase in consultant radiologists and diagnostic - both general and reporting – radiographers.

STAFF SHORTAGES

Despite this, the consultant radiology workforce has grown at a relatively modest rate of 1% per annum since 2012. Radiology departments are relying on outsourcing and overtime. In 2018, Welsh radiology departments spent an estimated £8.8m on outsourcing, overtime and insourcing, up almost £4m from 2017.
The lack of consultant radiologists is reflected in the difficulty Health Boards are having with recruitment. 7% of consultant posts are vacant and all but 1 imaging department recently reported problems with recruiting and retaining radiologists. There aren’t enough consultants to fill existing vacancies, let alone meet future demand.

The latest data available from the Society and College of Radiographers shows a 34% vacancy rate among band 4 (junior) diagnostic radiographers, which highlights a challenge with training new radiographers.

There could be scope for further international recruitment for international radiologists, as only 30% of radiology departments attempted international recruitment in 2017 compared to 50% of departments in England and 67% in Northern Ireland. Innovative approaches for international recruitment have the potential to make progress where previous efforts have failed. For example, Health Education England and the Royal College of Radiologists are trialling an ‘Earn, Learn, Return’ scheme, targeting India to bring in unprecedented numbers of consultant radiologists to England.

**SKILLS MIX**
While there has been a welcome increase in the role of reporting radiographers, there should be a national drive so that Health Boards across Wales are fully utilising this skills mix. However, this will require training time, for both trainee and consultant clinicians, and some backfilling.

**ENDOSCOPY**
Endoscopies can be performed by gastroenterologists, specialist nurses, surgeons and other trained physicians. Endoscopy services conduct scopes for several cancers, including: oesophageal and stomach (gastroscopy) and bowel (colonoscopy and/or flexible sigmoidoscopy). Survival from bowel cancer in Wales is comparatively poor – Wales is 25th out of 29 in Europe for 5-year survival. Earlier diagnosis of bowel cancer can improve survival. Doing so will require more people being tested, which in turn increases the need for diagnostic staff.

<table>
<thead>
<tr>
<th></th>
<th>Endoscopy</th>
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<tbody>
<tr>
<td>Numbers in post</td>
<td>203[^48]</td>
</tr>
<tr>
<td>Vacancy levels</td>
<td>11% for endoscopy nurses[^49]</td>
</tr>
<tr>
<td></td>
<td>Unknown for Gastroenterologists—no available public data</td>
</tr>
<tr>
<td>Estimates of staff needed</td>
<td>Estimates suggest an 8-10% annual increase in demand for endoscopy (primarily colonoscopy[^50])</td>
</tr>
<tr>
<td></td>
<td>Need to account for FIT in bowel screening, including plans to optimise the programme so that tests are more sensitive, and the participant age range is expanded in line with UK National Screening Committee recommendations.</td>
</tr>
<tr>
<td>Annual growth rate in staff numbers</td>
<td>Unknown</td>
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**DEMAND**
Demand on endoscopy services continues to grow, with estimates suggesting a 10% annual increase in demand for endoscopy in Wales. A recent Welsh Assembly review of endoscopy services unequivocally concluded: ‘It is evident that demand for diagnostic tests is outstripping capacity’.
And demand for endoscopic tests is only going to grow, as a result of an ageing and growing population and a welcome drive towards early diagnosis. The introduction of the more sensitive Faecal Immunochemical Test in bowel screening can help to diagnose more bowel cancers early and therefore accelerate progress in survival. However, to realise the benefits of FIT, more tests are going to have to be carried out and reported than ever before. FIT can be significantly more sensitive than the Faecal Occult Blood Test (FoBT) and could therefore increase the number of people being referred for follow-up endoscopy tests.

The UK National Screening Committee noted that there has been an increase in uptake of this test of 10%, which will also increase demand for endoscopy services.\textsuperscript{52} Data from analyses of the impact FIT has had on Scotland’s endoscopy services should in part inform the number of endoscopists required. The Welsh Government has committed to optimal age and sensitivity thresholds for the national bowel screening programme by April 2023.

Ongoing work, being supported by the Endoscopy Programme Board, is aiming to model endoscopy capacity and demand at a regional level and represents a welcome shift towards a more evidence-based approach to workforce planning. We would like national approaches to demand and capacity modelling to inform the number of new specialist training places that Wales needs to open. Evidence-based workforce planning should also take place alongside plans to optimise bowel screening so that this ambition can be delivered. Plans to trial the use of FIT for symptomatic patients should be monitored closely as there is little clinical consensus about whether this would have a positive or negative impact on demand for colonoscopy.

**STAFF SHORTAGES**

Approximately 1 in 10 nurse endoscopy posts are vacant.\textsuperscript{53} Some boards have had to bring teams in from England to clear backlogs.\textsuperscript{54} An audit of endoscopy workforce numbers, broken down by the type of endoscopy procedures staff are able to perform, is needed to gauge the extent of the challenge faced by endoscopy services.

**SKILLS MIX**

A non-medical endoscopy training scheme to train nurses for all types of endoscopies would help meet increasing demand. This should include colonoscopies, which is the follow-up test from an abnormal FIT. In workforce planning, consideration must be given for the time it takes to gain screening endoscopy accreditation.

Innovative incentives should be explored for nurse endoscopist training schemes, where attrition is typically high. HEIW is currently exploring developing an education programme which will include plans for the non-medical endoscopy workforce. A new, systematic approach is welcome.

**(iii) CELLULAR PATHOLOGY**

With a vacancy rate of 30%, a loss of 21 consultants since 2015, and over a third of current consultants expected to retire in the next 5 years, urgent action is required to ensure there are enough cellular pathologists to diagnose patients.

Cellular pathologists (histopathologists and cytopathologists) are scientists and doctors who look at changes in cells and tissues using a microscope to make diagnoses and guide treatments. They account for roughly 45% of all pathologists.\textsuperscript{55} Having a ‘tissue diagnosis’ made by a cellular pathologist is usually a prerequisite for starting cancer treatment, and any delays could potentially affect a patient’s outcome.
### Cellular Pathology

| Numbers in post | 78<sup>56</sup>  
36% of consultant workforce expected to retire in the next 5 years.<sup>57</sup> |
|----------------|------------------------------------------------------------------|
| Vacancy levels | Approximately 30% for consultant histopathologists<sup>58</sup>  
17% of consultants are locums. |
| Estimates needed | Unknown. Any estimate must account for the introduction of FIT in bowel screening and the impact that effective, national digital pathology could have. |
| Annual growth rate in staff numbers | Decrease in headcount by 36.8% since 2015, equivalent to loss of 21 consultants<sup>59</sup> |

### DEMAND

Demand for cellular pathology services is increasing. Cancer Research UK analysis estimates that this demand is set to increase by at least 4.5% year on year.<sup>34</sup> A national audit of cellular pathology numbers will help to gauge the gap between patient demand and pathology capacity. This should also account for the impact that the introduction of FIT will have on pathology services. While the Welsh Government has committed to a full roll out of digital pathology to support capacity, progress has been slow. This should be a priority for the Welsh Government and the National Pathology network to help meet demand and make the service a more attractive place to work.

### STAFF SHORTAGES

The vacancy rate in Welsh consultant histopathologists is currently approximately 30%. The Cellular pathology workforce is ageing in Wales, with 36% of consultants expected to retire in the next 5 years. An audit would look at the supply of particular cellular pathology groups such as cervical cytologists and map staff training and expected retirement against rising patient demand. It would also assess numbers of, and capacity to upskill, biomedical scientists in some reporting.

### SKILLS-MIX

A greater use of skills mix in pathology could also help to alleviate some pressures on the cellular pathology workforce. Biomedical scientists should be utilised to cut up specimens where possible, in accordance with ‘Principles of Good Practice for Biomedical Scientists Involved in Histopathological Dissection’.<sup>60</sup> More work needs to be done to explore the role of clinical scientists to support complex diagnostics and research. Clinical scientist input should be recognised in their job plans with backfill provided for existing duties.

### 3.BACKGROUND – THE IMPORTANCE OF EARLY DIAGNOSIS

Achieving earlier diagnosis is complex, with several ‘intervals of delay’ identified. Efforts to improve early diagnosis aim to shorten or remove these delays through a variety of interventions. The earlier a cancer is diagnosed, the greater the chance of survival. Analysis from England has demonstrated that, for the 8 most common types of cancer, a patient’s chance of survival is 3 times greater when diagnosed at the earliest stages (I and II), compared to the latest stages (III and IV).<sup>61</sup>

The Cancer Delivery Plan highlights the need to improve earlier diagnosis. It sets out the ambition to have ‘faster and less restrictive investigative testing’ but acknowledges that delivering this will require a significant increase in diagnostic capacity. Tom Crosby, Medical Director of the Wales
Cancer Network estimates that each year, 600 more people in Wales could survive their cancer by achieving earlier diagnosis.62

Case study 2: Teri, South Wales
Teri was diagnosed with bladder cancer in 2016. She was urgently referred by her GP to a urology consultant after a routine smear by a nurse. A week later she had a cystoscopy—an invasive procedure that allows doctors to see the lining of your bladder through a tiny camera attached to a tube. This cystoscopy showed abnormalities and Teri was referred to an oncologist—the doctors who exclusively focus on cancer treatment and care. From the tests she had received, the oncologist was sure Teri had bladder cancer, but this diagnosis needed to be confirmed by a pathologist. As with the distinct majority of cancers, pathologists also confirm the stage—how far a cancer has progressed—of someone’s cancer.

They took a tissue sample from Teri’s bladder and sent it to a pathology lab. This confirmed that Teri had an aggressive, muscle invasive form of bladder cancer, which was at stage II. While Teri’s experience of diagnosis on the ‘urgent suspected cancer’ pathway was positive, she did experience delays which negatively impacted her overall experience. Teri was offered to be on a clinical trial, Neoblade, that was testing the effectiveness of a new chemotherapy drug. This could have improved her chance of survival after 5 years by approximately 5%. She required an MRI scan to determine her eligibility for the trial. She waited over a fortnight for the results of this MRI scan, before her oncologist advised that she begin treatment, so as to avoid any further delays.

4. DEMAND FOR DIAGNOSTIC SERVICES
Indications that services are under pressure
Diagnostic services in NHS Wales are already struggling to keep up with demand. The existing target for 95% of newly diagnosed cancer patients, referred via the urgent route, to begin treatment within 62 days of referral has not been met since 2008. Performance against waiting times targets have suggested that issues with diagnostic capacity are delaying some patients receiving a definitive diagnosis and therefore starting treatment. There is a significant difference between those who start treatment within 31 days of diagnosis when referred via the non-Urgent Suspected Cancer (nUSC) pathway (97.3%) and those who start treatment within 62 days after referral from a GP through the
Urgent Suspected Cancer (USC) pathway (87.2%)\textsuperscript{63}. This suggests that delays in starting treatment for patients referred through the USC are caused by a bottleneck in diagnostics.

\textbf{Patients in Wales are still waiting too long}

\%

of NHS cancer patients in Wales starting treatment within 62 days of an urgent GP referral

\begin{figure}
\centering
\includegraphics[width=\textwidth]{patients_wales}
\caption{62-day cancer waiting times performance, quarterly 2010-2018}
\end{figure}

We expect that the early results from the Single Cancer Pathway, expected in summer 2019, are likely to show a dip in waiting time performance, as it will bring in many hidden waits not currently captured by the existing waiting time metrics. However, to use the Single Cancer Pathway as a baseline from which diagnostic performance, and ultimately earlier diagnosis of cancer, can be built upon will require significant focus on establishing the right workforce to deliver this ambitious plan.

\textbf{Demand for tests has increased: looking at historical trends}

Every year, more people are being referred for diagnostics tests. In addition, although difficult to compare internationally due to different health system structures, the referral rate from primary care in Wales is likely to be lower than in other countries. The International Cancer Benchmarking Partnership (ICBP) has shown that GPs in Wales consistently reported a lower readiness to refer or investigate patients with potential cancer symptoms compared to primary care physicians in other jurisdictions.\textsuperscript{64} This readiness to refer was found to correlate with increased survival in each ICBP jurisdiction.

It should also be noted that, historically, increasing activity does not entirely reflect the total level of increasing demand, as the activity is limited by the supply (or capacity) available. Waiting times data suggests that supply side factors constrain diagnostic activity\textsuperscript{65} (i.e. as demand outstrips capacity, more people are waiting for tests), suggesting there is more demand for tests than services are able to deliver. Fewer people may also be referred, or be referred differently, if GPs perceive that their patients will have to wait a long time for tests.

\textbf{Demand is going to continue increasing, and at a higher rate}

The demand for cancer tests is only going to increase. This is due to:

- A growing and aging population: around 25,000 people in Wales are projected to be diagnosed with cancer in 2035, up from 19,000 today.\textsuperscript{66}
- Efforts to improve earlier diagnosis of cancer: since the first cancer plan in 2006 in Wales, the strategic ambition to diagnose cancers earlier has grown.
There are several drivers affecting demand for diagnostics and new drivers will emerge in the coming years. However, there are some which can be identified and modelled. For example:

**NICE guidelines for referral for suspected cancer:**
The Cancer Delivery Plan states that GPs are facing challenges to “identify cancers that present with non-specific symptoms” and are showing “reluctance to refer onwards due to concerns about burdening stretched secondary care services”. Suspected cancer recognition and referral guidelines were updated and published in June 2015 and encourage GPs to refer at a lower threshold of risk. Patients should now be referred for further tests where symptoms indicate a three per cent or higher risk of cancer\(^6\) (estimates are that this threshold was approx. 10% under previous guidance). The Cancer Delivery Plan went on to highlight the importance for diagnostic services to be developed to cope with the expected increased demand.

It has also been found that people have expressed a clear preference for diagnostic testing at all risk levels, and individuals want to be tested at risk levels below those stipulated by UK guidelines.\(^6\) This suggests that when patients may have a greater appetite for testing than currently catered for.

Estimates of the impact of these guidelines on endoscopy activity were laid out in a NICE costing report\(^6\) that was published alongside the draft guidelines (Note that these figures were not updated when the final guidelines were published). This model suggested that the change in referral criteria and thresholds would result in an increase of between 5% and 15% of referrals for lower GI endoscopies. Furthermore, they assumed that 85% of lower GI referrals would result in an endoscopy.

**Improving bowel screening:**
In 2017/18, 55.7% of those invited participated in the bowel screening programme.\(^7\) While this was an increase on previous years and the only screening programme to experience an uplift in uptake, there is still scope for significant improvement. Few interventions for detecting cancer earlier and improving mortality have more evidence for effectiveness than bowel cancer screening. Several improvements to the programme are being delivered currently: efforts to increase uptake, for example the recent Be Clear on Cancer bowel screening campaign in February-March 2018, and the phased introduction of the Faecal Immunochemical Test (FIT) in January 2019 (expected full roll out Summer 2019).

With the introduction of FIT screening and the potential to change age range, several different models could be explored. **It is concerning that capacity constraints are driving the decision to set the FIT threshold for its introduction to the bowel screening programme at a relatively insensitive level.**\(^7\)

Capacity restrictions within endoscopy mean that the target for introducing the optimal age and sensitivity of FIT recommended by NICE has been set to April 2023. Offering bowel screening from age 50 is deemed by the UK National Screening Committee (NSC) to be both cost-effective and clinically effective, but the FOBT has not been extended to this age group in Wales because of endoscopy capacity restraints.\(^7\) It is estimated that if Wales were to offer bowel screening from the age of 50 and reduce the sensitivity of the test to 120 150ug of Hb per gram of faeces, there would need to be considerable additional endoscopies every year. The Welsh Government have predicted that implanting a 150 threshold will result in an additional 350 screening colonoscopies annually in Wales.\(^7\)
References

1 Based on the number of new cases of all cancers (ICD10 C00-C97) excluding NMSC (C44) diagnosed in Wales in 2015
3 The International Cancer Benchmarking Partnership (year??): Cancer survival in Australia, Canada, Denmark, Norway, Sweden, and the UK, 1995–2007 an analysis of population-based cancer registry data
4 Based on data calculated in England, Public Health England demonstrated that, for the 8 most common cancers combined, when diagnosed at an early stage (I and II) survival was 81%, falling to 26% when diagnosed at later stages (III and IV)
7 While a range of professions are vital to the diagnosis of cancer, including GPs and haematologists, this paper focuses on histopathologists, endoscopists, diagnostic radiographers and clinical radiologists involved in diagnosis. For pragmatic reasons, we couldn’t include an analysis of all diagnostic professions. We have selected these groups for a combination of factors: there is relatively good data available for professional groups; the professional groups are highly numerate; and significant portions of people affected by cancer will encounter at least one of these professions.
9 Figure for consultants. As vacancy rates were not provided by all boards to the Audit Wales review of Radiology Services, cited figures are an approximation for the national picture.
11 Royal College of Pathologists (2015), Review of the NHS (Wales) Workforce – Call for Evidence Questions
15 Figure for Consultant Histopathologists. Data collected by the Royal College of Pathologists Wales Regional Council and shared with CRUK December 2018
Based on increased volume in CT and MRI scans in the UK, 2012-2017. Cited in Royal College of Radiologists (2018), Clinical Radiology workforce census 2017
https://www.rcr.ac.uk/system/files/publication/field_publication_files/bfcr185_cr_census_2017.pdf

Welsh Association for Gastroenterology and Endoscopy (2018), Written submission to the Health, Social Care and Sport Committee Inquiry into Endoscopy Services:

Received and confirmed urgent by a specialist

The 7 months with the most urgent suspected cancer referrals were all in 2018. Stats Wales, 2018 [Accessed December 2018]


Public Health Wales (2019), Cancer patients with other chronic health conditions in Wales: GP Cluster Network Incidence, prevalence and all Wales survival:
http://www.wcisu.wales.nhs.uk/incidence-prevalence-and-survival-comorb

Welsh Government (2018), A Healthier Wales

Welsh Government (2016). Wales Cancer Delivery Plan 2016-2020:

Vacancy rates are always a conservative measure of staff shortages, since Local Health Boards make decisions to bid for roles based on affordability and other strategic factors. For example, if a Board had a long-standing vacancy rate for 2 consultant radiologist posts, they may not see it worthwhile to bid for funding for 3 additional posts, even if they feel they need a total of 5 consultant radiologists to meet patient demand. Local decisions about the staff needed are also having to be made on varying quality of data. A poor evidence-base informing bidding for new posts can also distort the utility of vacancy rates as a proxy for workforce gaps.

Welsh Government (2018), A Healthier Wales:

Welsh Government (2016). Wales Cancer Delivery Plan 2016-2020:

As suggested by the Minister for Health and Social Services’ answer to Janet Finch-Saunders’s written question around the cancer workforce (April, 2019): ‘Health Education and Improvement Wales (HEIW) is working with the Cancer Implementation Group and will be working with the Clinical Oncology Subcommittee to support improved workforce planning for cancer services across the whole of Wales. During 2019-20, HEIW will develop workforce solutions to support NHS organisations in improving care in a number of priority areas, including cancer and diagnostic services’

Welsh Government (2019), Pathology Statement of Intent:

Ibid.


As stated in Welsh Government (2018), Healthcare Science in NHS Wales:

Welsh Government (2019), Pathology Statement of Intent:
Unless otherwise stated, data for clinical radiology taken from the latest RCR Clinical Radiology Workforce Census (2019). 

Auditor General for Wales (2018), Radiology Services in Wales.


Based on increased volume in CT and MRI scans in the UK, 2012-2017. Cited in Royal College of Radiologists (2018), Clinical Radiology workforce census 2017:
https://www.rcr.ac.uk/system/files/publication/field_publication_files/bfcr185_cr_census_2017.pdf

Ibid.

The Royal College of Radiologists (2019), Clinical radiology workforce census 2018:

Auditor General for Wales (2018), Radiology Services in Wales


Ibid.

Bowel Cancer UK (2018), A spotlight on Bowel Cancer in Wales: Early Diagnosis Saves Lives

Joint Advisory Group for GI Endoscopy 2017 GRS census for NHS units in Wales
https://www.thejag.org.uk/Downloads/National%20Policies%20and%20Reports/170817_April2017GRS_Analysis%20of%20service%20information.zip

Bowel Cancer UK (2018), written evidence to the Health, Social Care and Sport Committee Inquiry into Endoscopy Services:

Welsh Association for Gastroenterology and Endoscopy submission to the Health, Social Care and Sport Committee Inquiry into Endoscopy Services.

National Assembly for Wales Health, Social Care and Sport Committee (2019) ‘Endoscopy Services in Wales’ review:

Evidence given by Welsh Government to the National Assembly for Wales Health, Social Care and Sport Committee (2019) ‘Endoscopy Services in Wales’ review, included in final review:

Bowel Cancer UK (2018), written evidence to the Health, Social Care and Sport Committee Inquiry into Endoscopy Services

British Medical Association Wales (2018), written evidence to the Health, Social Care and Sport Committee Inquiry into Endoscopy Services (2018)

Cancer Research UK (2016), Testing times to come? An evaluation of pathology capacity across the UK:
https://www.cancerresearchuk.org/sites/default/files/testing_times_to_come_nov_16_cruk.pdf

Royal College of Pathologists (2018), Histopathology workforce census:

Based on internal data collected by the Royal College of Pathologists Wales Regional Council
Based on data provided by the Royal College of Pathologists and the Institute of Biomedical Science, Histological Dissection: https://www.ibms.org/education/higher-and-expert-qualifications/diploma-of-expert-practice/histological-dissection/  

Based on data calculated in England, Public Health England demonstrated that, for the 8 most common cancers combined, when diagnosed at an early stage (I and II) survival was 81%, falling to 26% when diagnosed at later stages (III and IV)  


NICE NG 12 suspected cancer recognition and referral guidelines: http://www.nice.org.uk/guidance/NG12/  


http://record.assembly.wales/WrittenQuestion/77001  

Bowel cancer screening by Faecal Occult Blood (FOBT) testing for men and women aged 50 to 74 was recommended by the UK NSC in July 2003 (the meeting minutes are available)  