Cancer Research UK position paper on the diagnostic workforce in Wales

Diagnosing a patient at an early stage is critical to giving them the best chance of survival. NHS diagnostic services therefore play a central role to make sure more people survive their cancer diagnosis. As 1 in 2 people in Wales will be diagnosed with cancer in their lifetime, it is essential that the diagnostic workforce is sufficient and sustainable to ensure patients are diagnosed early, allowing patients to have more treatment options and ultimately a greater chance of survival. A different approach to diagnosis is needed, whereby more tests are provided to support early diagnosis, meet demand and create a sustainable service. Fundamental to achieving this is having sufficient diagnostics workforce. It is important to note that diagnostic services are not cancer-specific. People present with symptoms that need investigating, irrespective of their referral route. With very few exceptions, everyone who receives a cancer diagnosis will have undergone at least one diagnostic test.

In 2014 the Welsh Government adopted the principle of Prudent Healthcare as a framework for health policy. This aims to configure Welsh health services to meet the needs of patients in an effective and efficient way. Achieving earlier diagnosis is in line with this agenda, as it will allow NHS Wales to deliver care at the right time, make the best use of resources and is cost-effective.

The Welsh Government recently published a Parliamentary Review of Health and Social Care in Wales. It highlighted the acute workforce shortage and the rising demand in services. Recommendation 5 aims to address this through workforce planning, recruitment and retainment.

The Cancer Delivery Plan recognised shortages in diagnostic staff but did not explain how this would be tackled. This paper sets out Cancer Research UK’s position on the diagnostics workforce in Wales. We set out a summary and recommendations below. Further background and in-depth analysis can be found in the Appendix.

Summary:

- Cancer survival in Wales lags behind international comparisons. To achieve better survival outcomes for patients we must diagnose more patients at an early stage. In 2014, only 52% of cancers were diagnosed at stage 1 and 2.
- In 2014, there were 19,119 new cases of cancer in Wales.
- Achieving earlier diagnosis will involve conducting more diagnostic testing. Various drivers for more testing include a growing and aging population (and therefore increasing incidence), symptom awareness campaigns, a lower threshold of risk to refer people with symptoms, and improvements to screening programmes.
- The service is already struggling to keep up with demand, the 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.
- Diagnostic services are already struggling to deliver tests, highlighted by missed cancer waiting times and reluctance to introduce the Faecal Immunochemical Test (FIT) into the bowel screening programme before 2019 and at the optimal sensitivity.
- The data on diagnostic staffing pressures is limited, which makes it difficult to make well-informed decisions about current and future workforce planning. The data available from professional bodies show that there is a 13.1% vacancy rate reported by radiology departments and 203 staff are
performing endoscopy services but 36% of patients referred for an endoscopy are waiting longer than 8 weeks.

- While we recognise streamlining pathways will go some way in supporting diagnostic capacity, these will not overcome the shortfall in key professional groups interpreting and delivering tests in Wales. For example, there are currently not enough trained staff to fill current posts, as shown by high levels of vacancies and outsourcing.
- Cancer Research UK has published a report on the pathology service in UK, highlighting shortages in this key diagnostic profession. Reports were also published on both the imaging and endoscopy services in England, from which recommendations can be adopted.
- Workforce planning to date has been based on poor data, providers stating what they can afford rather than need to deliver clinical best practice, and it is difficult for the service to foresee innovation which may change workforce needs. The establishment of Health Education and Improvement Wales (HEIW) represents an opportunity for a more strategic approach to workforce planning in Wales but the new organisation must take a bold and strategic outlook on the diagnostic workforce.
- There are current initiatives to improve diagnostic services from the two pilots of multi-disciplinary diagnostic centres which are being run specifically for GP to refer patients who present with vague symptoms and the new National Imaging Academy for Wales which aims to help the long term workforce shortage.

Recommendations:

1. To address immediate shortages in specific workforce groups the Welsh Government and Health Education and Improvement Wales (HEIW), once established, needs to address the following:
   - **Clinical radiology**: HEIW should consider coordinated international recruitment options to address immediate shortages and increase the number of training places for 2018/19. They should aim to have at least 240 consultant clinical radiologists working across the NHS in Wales by 2020.
   - **Diagnostic radiography**: Welsh Government and HEIW need to work together to increase numbers of diagnostic radiographers.
   - **Endoscopy**: Government should increase the number of endoscopists in line with future demand, taking into account the increased referrals from the bowel screening programme. They should develop a non-medical endoscopy accelerated training programme, to expand the endoscopy workforce to meet the increasing demand.
   - **Cellular pathology**: HEIW should increase training places for pathologists in for 2018/19 to fill existing vacancies, with a programme to examine future demand and capacity requirements.

2. The Welsh Government and Health Education and Improvement Wales should take a more strategic approach to workforce planning:
   - To address data gaps and inaccurate workforce planning, the Endoscopy Implementation Group, National Imaging Programme Board and National Pathology Board must ensure that accurate information is being recorded and this is communicated to HEIW.
   - Conduct and publish an audit of the cancer workforce to help inform current vacancies and inform future work planning.
   - A more strategic approach to current and future workforce planning is needed, which is based on best-practice and clinical need. This includes radiologists, radiographers, endoscopists and pathologists. Actions could include upskilling some workers, as well as introducing incentives for skilled staff to remain in the NHS after retirement.
We would also like to see the following actions taken, broken down by organisation:

**Health Education and Improvement Wales (HEIW)**
- Forecasts by HEIW should (for example) include the demand from the bowel screening programme. More capacity is needed to perform colonoscopies which are the follow up test required from an abnormal FIT so forecasts should include the number of endoscopists needed to deliver the best screening programme.
- Ensure that any changes to medical school places or speciality training allocations should be implemented as soon as possible. This should include a commitment to train more radiologists, radiographers, endoscopists and cellular pathologists.
- Consider coordinated international recruitment options for clinical radiology. This should be done with expert input from The Royal College of Radiologists. We estimate that at least 80 more consultant clinical radiologists would be needed by 2020. The coordination from Global Health Exchange would help break down barriers with Tier 2 visas and health board HR departments.
- Run a non-medical endoscopy accelerated training programme, to expand the endoscopy workforce to meet the increasing demand.
- Explore the need for accelerated training schemes, such as dissection and reporting for biomedical scientists; or advanced practitioner radiographers for reporting some images.

**NHS Wales**
- Ensure that current efforts to achieve the 62 day cancer waiting times target and the new Single Cancer Pathway, when established, are sustainable and take into account future demand. This should mean that solutions include recruiting more workforce.
- Explore ways to support Health Boards with:
  - Telereporting
  - Networked approach to imaging and pathology
  - International recruitment
  - Retaining staff nearing retirement
- Work with professional bodies to encourage use of skills mix approaches.
- Ensure that policy changes and new models of service delivery are clearly articulated with their workforce needs to HEIW, Wales Cancer Network and Providers. This should include the numbers estimated for the optimal introduction of FIT, HPV primary testing and the use of NICE referral guidelines along with new models of diagnostics such as multidisciplinary diagnostic centres.

**Welsh Government**
- Conduct and publish an audit of the cancer workforce to help inform current vacancies and inform future work planning.
- Consult key stakeholders to ensure current and future medical students and trainees are recruited and retained. This consultation should include:
  - Professional bodies, such as the Royal Colleges
  - British Medical Association
  - General Medical Council
  - Research organisations, including medical research funders

**Wales Cancer Network**
- Continue to monitor demand and capacity, particularly as part of the Detecting Cancer Earlier programme, including pathology which is not currently captured in the government diagnostic waiting times statistics. Ensure that accurate information about workforce needs are flagged to HEIW. This will support the work to address data gaps and inaccurate workforce planning.
Health Boards
- Ensure that accurate information about workforce needs are flagged to the relevant Local Education Providers. This will support the work to address data gaps and inaccurate workforce planning.
- Employ more diagnostic staff in line with best clinical practice and not just affordability.
- Put staff forward to take part in accelerated training schemes, such as that for non-medical endoscopists.

Professional bodies
- Ensure that the findings from their workforce surveys are shared with Local Education Providers, NHS Wales and HEIW to support workforce planning.
- Work collaboratively to ensure that the implementation of skills mix changes – such as radiographer reporting – is done to improve capacity and skills development where possible.
- Establish where other professional groups could conduct more interpretation of the scans they request: using international comparisons where radiologists have shared their duties with clinicians.

Future focus
While addressing immediate shortages, efforts should also be made in parallel to explore solutions to reduce demand or change practice.

Artificial Intelligence
Explore use of Artificial Intelligence for diagnostic tests, and establish data standards so that this could be introduced and used widely in the NHS. Data quality and large datasets are likely to be needed to fully test and research AI approaches. Regulators will need to establish the level of evidence and safety they are comfortable with when AI is used to augment the work of imaging and pathology teams. Underpinning this will be a need for sustainable and secure information technology infrastructure.

Early detection
Cancer Research UK are funding research which aims to find pre-symptomatic disease, using tests for biomarkers – such as liquid biopsies and tests for circulating tumour DNA. These could significantly change the way people are investigated for cancer in future. It could lead to a different sequence of investigations (with a ‘biopsy’ undertaken first, before a scan or scope), or a need for less scans or scopes after liquid biopsy triages some patients and rules out cancer.
Appendix

Contents:
1. Background – why early diagnosis is important and more testing needed
2. Demand for diagnostic services – current and future (including drivers behind this)
3. Current situation with workforce, including in-depth analysis for the following diagnostic services:
   - Imaging (page 11)
   - Endoscopy (page 14)
   - Pathology (page 15)

1. Background

Early diagnosis is key to improving survival
Cancer that’s diagnosed at an early stage (before it’s had the chance to develop and spread) is more likely to be treated successfully. For some of the most common types of cancer, survival is more than three times higher when the disease is diagnosed at its earliest stages.\(^1\) It is also cheaper to treat early stage cancer. For example, data for England shows an early stage colon cancer patient would incur approximately £3,400 in NHS treatment costs on average, whereas a late stage patient would incur £12,500.\(^2\) There is no reason to suggest that these figures would be significantly different for Wales. As it is cheaper to treat early stage cancer, if Wales diagnosed more people at an earlier stage it would make the best use of resources and therefore be prudent healthcare.

International comparisons suggest that survival in the UK lags behind other comparable countries\(^3\) with Wales doing poorly when compared to the other UK nations. A potential driver of this survival gap is because the UK as a whole is comparatively poorer when it comes to diagnosing cancer early.\(^4\) 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.

![Intervals of delay](image)

Figure 1: Intervals of delay, Adapted from Olesen, F., et al. (2009). "Delay in diagnosis: the experience in Denmark." Br J Cancer

For example, ensuring people take part in relevant screening programmes can contribute to the proportion of bowel, breast and cervical cancers diagnosed early. Symptom awareness campaigns can curtail the patient interval by encouraging individuals to visit their GP. NICE suspected cancer recognition and referral guidelines may lead to a shorter primary care interval.

It is clear that all these elements to drive earlier diagnosis must continue to operate in tandem. For
example, recent results from the 2016-17 National Survey for Wales 39% of respondents find it difficult to make a convenient GP appointment. Recent resource in primary care is essential as most people are diagnosed with cancer having visited their GP.

**Achieving earlier diagnosis will require more investigative tests**

Ultimately, to drive improvements in earlier diagnosis more people will need investigative tests. This is in part because the population is growing and aging, increasing demand even in a ‘do nothing’ scenario. But evidence suggests that performing more tests leads to better outcomes. For example, analysis shows on average, oesophago-gastric cancer patients belonging to GP practices with the lowest rates of gastroscopy are at greater risk of poor outcomes.

Whilst we acknowledge that productivity of some diagnostic services could be improved by increasing efficiency, these productivity gains are unlikely to release the capacity that’s needed. Productivity improvements have been explored in the past and there are ongoing improvements through changes to pathways and processes, as explored through initiatives such as the Multidisciplinary Diagnostic Centre and the Single Cancer Pathway.

Different use of existing workforce, such as safe adoption of skills mix approaches may also be useful. It is possible that use of technology, such as digitisation or networking could improve diagnostic services. Demand for some diagnostic tests could be reduced through more targeted approaches, so that tests are given to the most appropriate people at the right time: these potential ‘triage’ tests, such as using Faecal Immunochemical Test (FIT) for high risk symptomatic patients, need research to explore and ascertain safe and effective usage. Cancer Research UK is contributing to improving efficiency through several initiatives, including providing resources and tools for health professionals and service managers. However, even with these efforts, achieving world-class cancer outcomes will require an increase in diagnostic capacity.

The Cancer Delivery Plan highlights the need to improve earlier diagnosis and the potential benefits of achieving this even with no new screening programmes or new diagnostic technologies. 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 600 more people could survive their cancer by achieving earlier diagnosis.

2. **Demand on diagnostic services**

**Indications that services are under pressure**

The service is already struggling to keep up with demand, the 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 suggest 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 after diagnosis (97.2%) and those who start treatment within 62 days after referral from a GP (86.5%)\textsuperscript{12}. This indicates diagnostics is the bottleneck. As mentioned, we acknowledge that there are efficiencies in the 62 day pathway to be gained through changing how the pathway operates, and streamlining processes. However, even with these gains, the system will not be able to increase productivity indefinitely without more staff. There is an underlying mismatch between growing demand for tests and the diagnostic capacity within the NHS.

**Demand for tests has increased: looking at historical trends**

Every year, more people are referred for 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{13} This readiness to refer was found to correlate with survival in each ICBP jurisdiction. There is a strong likelihood that this readiness to refer is related to availability of diagnostic tests to primary care.

It is important to note that diagnostic services are not cancer-specific. People present with symptoms that need investigating, irrespective of their referral route. With very few exceptions, everyone who receives a cancer diagnosis will have undergone at least one diagnostic test. Diagnostic services must be considered holistically. Improving diagnostic capacity purely for patients who are on an urgent pathway should not come at the expense of those on routine waiting lists as this would also have detrimental effects on people with other conditions and some with cancer.
Table 1 Snapshot of number of patients waiting more than eight weeks for radiology and endoscopy tests for June 2017

<table>
<thead>
<tr>
<th>Diagnostic Area</th>
<th>Number of Patients waiting for tests: June 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Between 8 and 14 weeks</td>
</tr>
<tr>
<td>Radiology</td>
<td>1182</td>
</tr>
<tr>
<td>Endoscopy</td>
<td>1583</td>
</tr>
</tbody>
</table>

Source: StatsWales

Data on the number of patients waiting more than eight weeks for pathology tests are not currently captured by StatsWales. To provide a greater understanding of the pressures on diagnostic pathways in Wales and help provide insight into current workforce planning we recommend that activity levels and waiting times for pathology are captured.

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 (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.

**Demand is going to continue increasing, and at a higher rate**

This demand for 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.
- Efforts to improve earlier diagnosis of cancer: since the first cancer plan in 2006, evidence and strategic ambition to diagnose cancers earlier have increased.

We know that there are several drivers for increased diagnostic demand – some of which are not yet known. However, there are some which can be identified and modelled:

**NICE guidelines for referral for suspected cancer:**

The Cancer Delivery Plan says that “the challenge for GPs to identify cancers that present with non-specific symptoms and a 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. These 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 (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. 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 contained in a NICE costing report 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 2016/17, only 53.4% of those invited participated in the bowel screening programme. Few interventions for detecting cancer earlier and improving mortality have more evidence for effectiveness than bowel cancer screening. Even with this high level of effectiveness, several changes could be introduced to improve the bowel screening programme. A combination of improvements are being delivered currently: efforts to increase uptake, and the introduction of the Faecal Immunochemical Test (FIT), which, depending on the sensitivity implemented, has the potential to be much more sensitive than guaiac Faecal Occult Blood Test (gFOBT).

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 recommendation to set the FIT threshold for its introduction to the bowel screening programme at a relatively insensitive level. The FIT threshold of 150ug of Hb per gram of faeces is driven to achieve the same level of colonoscopy as the current gFOBT. This is far less sensitive than other countries, and the least sensitive out of the UK nations delivering FIT.

Other changes, which are not currently being pursued, include extending the age range to include younger ages. 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 gFOB test has not been extended to this age group in Wales because of endoscopy capacity restraints.

In the longer term, Wales should consider the introduction of a bowel scope screening programme, as a one-off test for everyone at age 55. Extensive research shows that it can reduce the risk of bowel cancer by a third, and reduce the number of bowel cancer deaths by 43% in those screened. This would require an endoscopy workforce which would be able to support the increased demand.

Other early diagnosis interventions and innovation
Symptom awareness campaigns and innovative diagnostic pathways and models such as multidisciplinary diagnostic centres may shift diagnostic demand, or increase it. These will need to be considered when planning the training and employing of diagnostic staff.

3. Current situation with the diagnostics workforce

Demand across NHS Wales has grown at a faster rate than staffing levels. Since 2009/10 demand on Welsh hospitals has risen by 2.5%, with the number of whole-time equivalent NHS staff having increased by just 1.6% over the same period. There is also considerable geographic variation in the extent of staffing shortfalls. In December 2015, Powys Health Board had a 15% vacancy rate for doctors whereas Cym Taf Health Board had a 2% vacancy rate. Patients living in North and Mid Wales also have significant issues in needing to travel large distances for appointments, in some cases to South Wales or England.

The data on diagnostic staffing pressures is limited, which makes it difficult for health bodies to make well-informed decisions about workforce planning. Healthcare providers may report staff figures and vacancies to HEIW based on their projected available budgets, rather than the staff required to deliver best practice care and treatment to patients. The projection for workforce needed will therefore be driven by affordability, not by projections for how many staff is required to deliver a world-class health service.

It is also difficult to predict future patterns of work (e.g. British Society of Gastroenterologists have previously said the emergence of bowel screening was not fully anticipated, and therefore their workforce did not experience a planned increase to match for this increasing demand.)
To improve workforce, we can tackle this in three ways:

- Train and recruit more staff
- Retain current staff
- Use skill mix approaches

The following framework (developed by the Health Foundation) can be used to consider the issues for each professional group:

1. **Workforce planning:**
   - numbers in post, vacancy levels, likely number in 2020, estimates needed for 2020 and growth rate in numbers per year

2. **Education and training:**
   - how many being trained, training duration and nature of training

3. **Professional regulation**

4. **Pay, terms and conditions:**
   - pay cap and contracts

5. **Motivation, engagement and leadership:**
   - NHS as an attractive place to work; Brexit making it uncertain to what extent we will be able to attract, recruit and retain staff from outside the UK in to the NHS in the future.

6. **Innovation and changes:**
   - skills mix approaches, technology such as artificial intelligence, networking, telereporting.

We use this framework to explore components of the diagnostic workforce below.

4. **Current initiatives to improve diagnostic services**

**Restructuring of diagnostic services and new clinical roles**

Multi-disciplinary diagnostic centres may lead to new models needing to be commissioned and staffed. Two pilots are being run specifically for patients presenting with vague symptoms. There are also discussions about more generalist diagnostician roles being helpful when people present with non-red flag (more vague symptoms) – this may be an extension of a GP’s expertise, or might be a new role that needs to combine understanding of a range diagnostic tests and pathways.

**Imaging Academy**

A new National Imaging Academy for Wales will be based in Pencoed and will be running by August 2018. This aims to increase the number of radiologists being trained which will help address the long term workforce shortage. By 2020, they expect to be training 20 radiologists a year, a 35% increase on the current number of trainees. This academy will be extended to include radiographers, sonographers and other imaging professionals.
**In depth: Imaging**

Imaging services conduct scans for several cancer types, including:

- **Breast**: mammography and/or ultrasound
- **Lung**: chest xray and/or CT
- **Prostate**: emerging use of MRI
- **Brain**: MRI

Demand for imaging services has been growing steadily for many decades. The exact increase cannot be determined as this is currently not captured but it can be assumed that the demand for imaging is outstripping supply as the target of 95% of NHS cancer patients to start treatment within 62 days has been missed since June 2008.

Growth rates for radiologists and radiographers have not been sufficient to keep up with demand growth, and this difference between demand growth and workforce growth has been too great for the NHS to bridge through productivity improvements. 25

The current number of consultants (whole-time equivalents) is 84 consultants short of international comparisons even if the current vacancy rate is filled. The number of consultants expected to retire by 2021 will be replaced by those currently in specialty training which means that there is a need for international recruitment to address the immediate shortages in clinical radiology. As well as better long term future workforce planning. Figure 12. The current and future projections for clinical radiology in Wales.

![Clinical Radiology WTE](image)

**RADIOLOGY**

Address immediate shortages with international recruitment of 74 more radiologists in the next two years. Increase training places for radiologists. Ensure comprehensive use of skills mix approaches.

<table>
<thead>
<tr>
<th>1. Workforce planning: numbers in post</th>
<th>216(^w) (152 WTE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>216(^w) (152 WTE)</td>
<td>30% of consultants expected to retire by 2021</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Vacancy levels</th>
<th>13.1% (23 WTE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.1% (23 WTE)</td>
<td>Estimated £4.5 million additional expenditure to meet reporting requirements.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Likely number in 2020</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unknown</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Estimates needed for 2020</th>
<th>240 (to reach international comparisons).</th>
</tr>
</thead>
</table>
Matching international comparisons will allow Wales to achieve faster diagnosis for patients and meet cancer waiting times.

| Growth rate in numbers per year (previous trend) | 15% (2010-2016) – 2.5% on average annually. |

2. **Education and training:**
   - 41 being trained in 2016.
   - 13 new trainees 2017/18. New imaging academy will allow for 20 trainees per year by 2020. \(^{37}\)
   - The training pathway takes at least 5 years specialisation, after medical school and foundation years.

3. **Professional regulation**
   - Remove barriers to international recruitment if there are any, including accelerated access to Tier 2 visas.

4. **Pay, terms and conditions:**
   - Consultant contracts could be made flexible to minimise people retiring early.
   - Changes (i.e. removal) of the NHS pay cap and subsequent pay increases may contribute to recruitment and retention.

5. **Motivation, engagement and leadership:**
   - NHS Wales needs to be seen as an attractive place to work. NHS Wales should continue to use the campaign This is Wales. Train. Live. Work. to motivate staff to work in Wales by highlighting the professional challenge and good quality of life.

6. **Innovation and changes:**
   - Need comprehensive embracing of skills mix approaches so there is widespread and safe use of radiographer reporting. Also worth exploring clinicians interpreting the scans they request (using international models).
   - Investigate Artificial Intelligence, net worked solutions, telereporting.

---

### DIAGNOSTIC RADIOGRAPHY

Ensure widespread use of radiographer reporting, maintain training numbers and monitor impact of bursary changes

| Workforce planning: numbers in post | Unknown - SCoR are currently conducting a workforce survey so WG and HEIW should consult with them once the findings are published. |

| Vacancy levels | 12.4% (22.8% WTE vacancy rate of band 5 radiographers) \(^{18}\) |

<table>
<thead>
<tr>
<th>Likely number in 2020</th>
<th>Unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimates needed for 2020</td>
<td>Unknown</td>
</tr>
<tr>
<td>Growth rate per year (historical trends)</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

2. **Education and training:**
   - Training for radiographers can take 5 years (including 3 years undergraduate degree and 2 years post-graduate).
<table>
<thead>
<tr>
<th>Potential to increase the amount of people trained as reporting radiographer.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3. Professional regulation</strong></td>
</tr>
<tr>
<td><strong>4. Pay, terms and conditions:</strong></td>
</tr>
<tr>
<td><strong>5. Motivation, engagement and leadership:</strong></td>
</tr>
<tr>
<td><strong>6. Innovation and changes:</strong></td>
</tr>
</tbody>
</table>

**Sonography**
Sonography does not have a separate registration to diagnostic radiography and it is difficult to ascertain the number of sonographers due to lack of data captured. They undertake non-obstetric ultrasounds which are a crucial part of cancer diagnosis.
In depth: Endoscopy:
Endoscopy services conduct scopes for several cancer types, including:
- Oesophageal and stomach – gastroscopy
- Colorectal – colonoscopy and/or flexible sigmoidoscopy

<table>
<thead>
<tr>
<th>ENDOSCOPISTS</th>
<th>ESTIMATES SUGGEST AT LEAST 40% UPLIFT IN AMOUNT OF ENDOSCOPY DEMAND BY 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create a non-medical endoscopist training programme and make sure this extends to colonoscopies. Increase training places for doctors performing endoscopies.</td>
<td></td>
</tr>
<tr>
<td><strong>7. Workforce planning:</strong> numbers in post</td>
<td>203&lt;sup&gt;29&lt;/sup&gt; Endoscopies can be performed by, gastroenterologists, surgeons and other doctors. It would be helpful for future workforce planning and for the introduction of FIT in bowel cancer screening to have this data.</td>
</tr>
<tr>
<td>Vacancy levels</td>
<td>Unknown. Although the latest figures from StatsWales for June 2017 show that 36% of patients referred for an endoscopy are waiting longer than 8 weeks.</td>
</tr>
<tr>
<td>Likely number in 2020</td>
<td>Unknown but estimates suggest at least a 40% increase in endoscopy demand.</td>
</tr>
<tr>
<td>Estimates needed for 2020</td>
<td>Depends on FIT threshold and how many NMEs are retained and trained in colonoscopy.</td>
</tr>
<tr>
<td>Growth rate per year</td>
<td>Unknown.</td>
</tr>
<tr>
<td><strong>8. Education and training:</strong></td>
<td>Wales do not currently have a non-medical endoscopy training scheme for nurses who could be trained to perform endoscopies which would help with the increasing demand. This should be expanded to colonoscopies, which is the follow-up test from an abnormal FIT.</td>
</tr>
<tr>
<td><strong>9. Professional regulation</strong></td>
<td></td>
</tr>
<tr>
<td><strong>10. Pay, terms and conditions:</strong></td>
<td>Changes (i.e. removal) of the NHS pay cap and subsequent pay increases may contribute to recruitment and retention</td>
</tr>
<tr>
<td><strong>11. Motivation, engagement and leadership:</strong></td>
<td>NHS Wales needs to be seen as an attractive place to work. NHS Wales should continue to use the campaign This is Wales. Train. Live. Work. to motivate staff to work in Wales by highlighting the professional challenge and good quality of life.</td>
</tr>
<tr>
<td><strong>12. Innovation and changes:</strong> skills mix approaches, technology such as artificial intelligence, networking, telereporting</td>
<td>Making full use of skills-mix approaches by allowing non-medical endoscopists to undertake endoscopies where appropriate. Potential for FIT in symptomatic to be used to reduce demand – subject to evidence.</td>
</tr>
</tbody>
</table>
In depth: Pathology
Figure 13 shows the average number of requests for histopathology in the laboratories involved in the Keele Benchmarking Service across the UK. A high proportion of histopathology requests are linked to cancer investigations but not all of them. These data show on average an increase in histopathology requests per laboratory of 4.5% per year.

Figure 13: Histopathology average total requests to labs involved in Keele Benchmarking Service

<table>
<thead>
<tr>
<th>CELLULAR (HISTO and CYTO) PATHOLOGISTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase training places for pathologists and explore coordinate international recruitment.</td>
</tr>
<tr>
<td>13. Workforce planning: numbers in post</td>
</tr>
<tr>
<td>Vacancy levels</td>
</tr>
<tr>
<td>Likely number in 2020</td>
</tr>
<tr>
<td>Estimates needed for 2020</td>
</tr>
<tr>
<td>Growth rate per year</td>
</tr>
<tr>
<td>14. Education and training:</td>
</tr>
<tr>
<td>15. Professional regulation</td>
</tr>
<tr>
<td>16. Pay, terms and conditions:</td>
</tr>
<tr>
<td>17. Motivation, engagement and leadership:</td>
</tr>
</tbody>
</table>
use the campaign This is Wales. Train. Live. Work. to motivate staff to work in Wales by highlighting the professional challenge and good quality of life.

| 18. **Innovation and changes:** skills mix approaches, technology such as artificial intelligence, networking, telereporting | Making full use of skills-mix approaches through:
Ensuring biomedical scientists are being utilised to cut up specimens where possible, in accordance with ‘Principles of Good Practice for Biomedical Scientists Involved in Histopathological Dissection’.
Exploring 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.
Ensuring widespread use of biomedical scientist reporting following their completion of the Biomedical Scientist reporting programme.
Investigate Artificial Intelligence, networked solutions (including through digital pathology), telereporting. |
References

7. https://www.bmj.com/content/63/2/250
12. http://bmjopen.bmj.com/content/5/5/e007212.full
17. http://www.thelancet.com/journals/lanonc/article/PIIS14702045(15)30457-0/abstract
21. Bowel cancer screening by Faecal Occult Blood (FOB) testing for men and women aged 50 to 74 was recommended by the UK NSC in July 2003 (the meeting minutes are available)
22. PEDW Data, Headline Figure, 2009/10 to 2014/15
24. It should be noted that the 2014 RCR workforce census (https://www.rcr.ac.uk/sites/default/files/publication/bfcr153_census.pdf) suggests only a 1.7% increase in consultant radiologist numbers in total over the last two years with the workforce shrinking in some parts of the country. This indicates that workforce shortages may be more pressing than this report suggests. Both figures show demand outstripping capacity – the question is to what degree. More work should be done to understand the differences in the figures in order to plan appropriately.
25. RCR census of 2015 workforce, consultants (all grades 3978)
28. SCoR 2016 diagnostic radiographer workforce report – vacancies (all bands 12.4%)
29. Joint Advisory Group for GI Endoscopy 2017 GRS census for NHS units in Wales
31. Review of the NHS (Wales) Workforce – Call for Evidence Questions