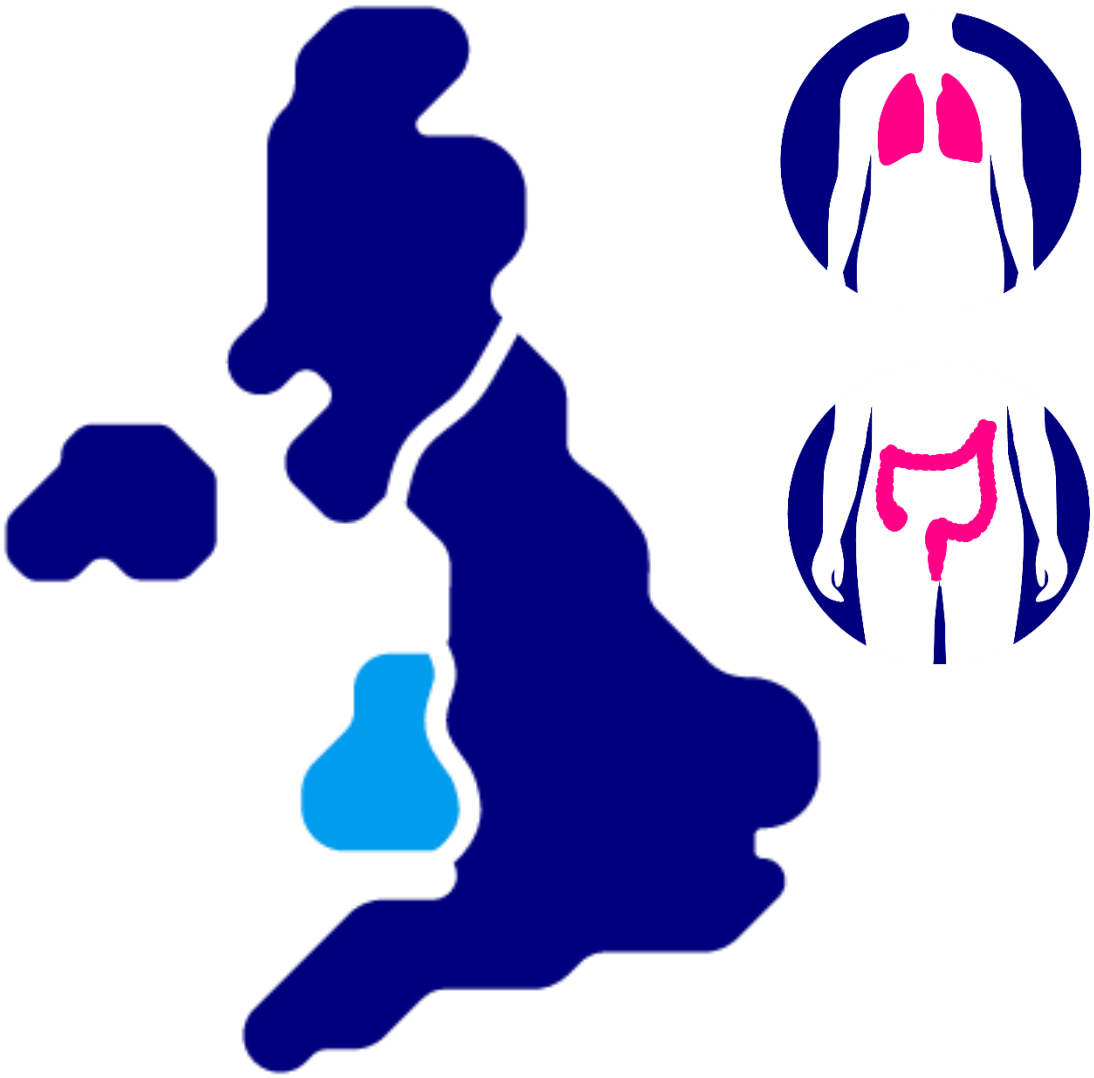

Impact of the COVID-19 pandemic on symptom reporting and management of bowel and lung cancer in Wales

April 2025

CANCER RESEARCH UK

Together we are beating cancer

Contents

Reference

This report should be referred to as follows:

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About Cancer Research UK

We're the world's leading cancer charity dedicated to saving and improving lives through research. We fund research into the prevention, detection and treatment of more than 200 types of cancer through the work of over 4,000 scientists, doctors and nurses. In the last 50 years, we've helped double cancer survival in the UK and our research has played a role in more than half of the world's essential cancer drugs. Our vision is a world where everybody lives longer, better lives, free from the fear of cancer.

Our values

Our values help guide our behaviour and culture in an ever-changing world, building on the best of what we do today and what we aspire to be in the future. They unite and inspire us to achieve our ambitious plans and our mission of beating cancer, together.

Our values are:

Bold

Act with ambition, courage and determination

Credible

Act with rigour and professionalism

Human

Act to have a positive impact on people

Together

Act inclusively and collaboratively

List of acronyms

1. SD: Standard Deviation
2. SAIL: Secure Anonymised Information Linkage (SAIL) Databank
3. WLGP: Welsh Longitudinal General Practice data
4. ICD-10: International Classification of Diseases 10th Revision
5. CNIS: Cancer Network Information System
6. PEDW: Patient Episode Database for Wales
7. OPCS: OPCS (Office of Population Censuses and Surveys) Classification of Interventions and Procedures version 4
8. SCP: Single Cancer Pathway

Executive summary

The COVID-19 pandemic significantly impacted healthcare services in Wales, resulting in rapid reorganisation of resources to be deployed to deal with the influx of COVID-19 patients. This analysis aims to understand the effect of this disruption on Welsh cancer patients across the cancer pathway for bowel and lung cancer. Focussing specifically on symptom reporting, waiting times, diagnostic tests, hospital access and treatment, this analysis hopes to help improve the understanding of which parts of the cancer pathway were most affected and how they could be better protected in any future healthcare crises.

Methods

Data were collected from the StatsWales online repository and the Secure Anonymised Information Linkage (SAIL) Databank, allowing access to anonymised patient-level data for more accurate analyses. Data were accessed for the period of January 2019 to March 2022, and presented as monthly count adjusted to 21 working days.

Results

- General reduction of bowel cancer-related symptoms reported to GPs. This drop was more prominent for lung cancer symptoms, with a long-lasting drop in the number of symptom reports by people subsequently diagnosed with lung cancer.
- Recovery in the number of people starting treatment from around the start of 2021, though with a decreasing proportion of people starting treatment within 62 days for both lung and lower GI cancer patients.
- Drop in the number of people waiting for an x-ray and bronchoscopy throughout most of 2020, with a significant increase in the proportion waiting more than 8 weeks. The waiting list for colonoscopies started to steadily increase from around May 2020, especially for those waiting more than 8 weeks, with no improvement in sight.
- Reduced capacity to admit lung and bowel cancer patients to hospital throughout 2020, though to lesser extent for emergency admittances, and with a relatively quick recovery.
- Drop in the number of surgeries for bowel cancer in the first half of 2020 with relatively fast recovery, however with a continual decrease in laparoscopic surgeries. Longer-lasting reduction in surgeries for lung cancer, with relative stabilisation towards the end of 2021.
- Radiotherapy for bowel cancer was not much affected, though increasing

from 2021. Significant drop for lung cancer patients for most of 2020 with a return to pre-pandemic levels from around June 2021.
- Chemotherapy for bowel and lung cancer dropped with the onset of the pandemic, with only a short return back to pre-pandemic levels at the end of 2020.

Discussion

This analysis highlighted a long-lasting effect of reduced reporting of lung cancer symptoms to their GPs, as well as a reduction in the percentage of people starting treatment within 62 days of referral. We observed an ever-increasing load of people waiting for a colonoscopy for bowel cancer investigations. There was a markedly reduced access to hospitals for both lung and bowel cancer patients throughout 2020 and a drop in the number of surgeries and chemotherapies, especially for lung cancer. This analysis highlights the importance of timely presentation of symptoms especially those that might be associated with lung cancer, increasing of diagnostic capacity and assuring of continual care for people living with cancer in times of healthcare crises.

Introduction

It is widely acknowledged that the COVID-19 pandemic and the associated national lockdowns have had a significant impact on health services, resulting in their rapid reorganisation to enable more resources to be deployed to deal with the influx of COVID-19 patients. In Wales, this led to reductions in diagnostics, elective surgery, and other non-emergency services[1,2]. There were particular concerns around certain procedures such as endoscopies and aerosol-generating procedures and these were advised to be stopped unless absolutely critical[3]. Changes were made in primary care, with access and referral pathways being altered, and screening programmes officially paused in Wales[4] as well as elsewhere in the UK[5]. There were also wide-reaching effects among the public, with fewer people seeking help in primary care, and around 1,700 fewer patients starting treatment for cancer between April 2020 and March 2021 in Wales (compared with the same time in 2019)[6]. Whilst these changes protected health services in the short term, enabling detection and treatment of COVID-19 patients by freeing up capacity and enacting infection-control measures, it is not clear what impact they have had on the management and outcome of other health conditions[1].

Previous work has been undertaken considering the effects of the COVID-19 pandemic on bowel cancer in England[7], but this cannot be assumed to be representative of the situation in the devolved nations. In Wales, there are around 19,500 new cancer cases diagnosed each year[8], and around 9,100 cancer deaths[9]. The number of people diagnosed in 2020 and 2021 may well be affected by the excess mortality from COVID-19, resulting in fewer people being diagnosed with cancer overall, as well as the impact on pathways that can lead to earlier diagnosis, which could result in people being diagnosed at a later date and potentially a later stage. Incidence data on lung, breast and bowel cancer suggest that fewer patients were diagnosed in 2020 than would have been expected[10]. There may also be significant changes to the treatment that patients received for their cancer during the COVID-19 pandemic, with surgery in particular known to have been significantly reduced[2].

This study allowed us to quantify changes in primary care, waiting times, diagnostic procedures, hospital attendances and treatment associated with bowel and lung cancer, the two most common causes of cancer death in the UK[11], helping us understand how widespread these changes were. Understanding changes to treatment pathways will also allow us to assess whether there are any benefits to some of these changes, which could be adopted longer-term. Finally, although we are no longer in the midst of the COVID-19 pandemic, quantifying changes in the

patterns and outcomes of two of the most common cancers across Wales will have the potential to inform operational policy and support efforts to ensure optimal cancer care during potential future epidemics and emergencies.

Methods

Data

Data were collated from the StatsWales online data repository and the Secure Anonymised Information Linkage (SAIL) Databank, a population databank containing anonymised routinely-collected population-scale linked individual-level data.

For all data analyses within the SAIL Databank, the following ICD-10 codes were used: C18, C19 and C20 for bowel cancer, and C33 and C34 for lung cancer.

In all analyses, data are presented as the monthly number of events reported, adjusted to 21 working days. Percentage changes in monthly figures were compared to the same month in 2019 (e.g. June 2020 compared to June 2019). Annual monthly averages are for financial years (April to March) and were compared to the 2019/2020 monthly average.

Analyses were done using R 4.0.2.

Primary Care Consultations for Cancer Symptoms

The Welsh Longitudinal General Practice (WLGP) data within the SAIL Databank, which covers 83% of the population of Wales (80% GP practices) at the time of analysis (November 2022), was used to get data on lung and bowel cancer-specific symptoms in Wales.

Symptoms were included based on 5-character Read codes (version 2) as specified in Appendix 1 and Appendix 2, reported between 1st January 2019 and 31st March 2022, inclusive. Bowel cancer symptoms were grouped into seven categories: change in bowel habits, weight loss, constipation, diarrhoea, iron-deficiency anaemia, abdominal pain, and rectal bleeding. Lung cancer symptoms were grouped into five categories: weight loss, fatigue, shortness of breath, cough and haemoptysis.

Patients were included if they were aged 18 or over at the time of the symptom being reported, with no upper age limit applied. Patients were excluded if their SAIL linkage score was lower than 90% or if they had multiple dates of birth recorded (which indicates a potential data linkage issue).

A sub-analysis was carried out including only people subsequently diagnosed with cancer. To identify people with a cancer diagnosis, records in the Cancer Network Information System (CNIS) diagnosis dataset with a record of 'Malignant Neoplasm

Episode' and a specific ICD-10 code (see the 'Data' section) were linked to the main symptoms dataset, and only included if the diagnosis was made after the date the symptoms were reported.

We only allowed for one symptom group per person per day to avoid over-counting of Read codes that might be related to each other and entered on the same day (e.g. 'shortness of breath symptom' and 'MRC Breathlessness Scale: grade 1' would count as one 'shortness of breath' symptom).

Due to small numbers in the symptoms reported by people subsequently diagnosed with cancer, we joined the 'weight loss' with 'iron-deficiency anaemia' for bowel cancer, and 'haemoptysis' with 'shortness of breath' and 'fatigue' with 'weight loss' for lung cancer in order to adhere to the anonymisation process.

Cancer Waiting Times

Data were downloaded from StatsWales via the statswalesr package for R on 22nd November 2022 for the period of 1st January 2019 to 31st March 2022 for lower GI and lung cancer from three datasets: suspected cancer pathway (*hlth0055*), patients newly diagnosed not via the urgent suspected cancer route (*hlth0049*), and patients newly diagnosed via the urgent suspected cancer route (*hlth0050*).

Data for the urgent and non-urgent pathways were only available up to November 2020 due to the joining of the two pathways into the Suspected Cancer Pathway (SCP) since this date. Data for the urgent and non-urgent pathways prior to December 2020 were summed and used as a historic comparison to the SCP data.

The urgent pathway aimed for people to start treatment within 62 days from the point of referral, while the non-urgent pathway aimed for people to start treatment within 31 days since the point of decision to treat.

Diagnostic Tests and Waiting Times

Data for the number of people waiting for a colonoscopy, bronchoscopy and non-cardiac nuclear medicine diagnostic test were extracted from StatsWales - 'Waiting times by month' (hlth0019) dataset on 24th October 2022 for the period April 2019 – March 2022. These tests were selected due to their usage in the diagnosis of bowel and lung cancers. However, data for computerised tomography, a test widely used to diagnose lung cancer, was not available.

Hospital attendances

Data were extracted from the Patient Episode Dataset for Wales (PEDW) on 'hospital spell' and 'episode' data for attendances in the period from 1st January

2019 to 31st March 2022 for specific ICD-10 codes (see the 'Data' section). Only the first episode within a spell was selected so that the data represents individual patients. The data was split into emergency and elective admissions according to the admission code. For emergency admissions, data were filtered on admission method as specified in Appendix 3 as per the NHS Data Dictionary[12].

Surgical resection

Data were extracted and joined from the Cancer Network Information System (CNIS) and PEDW databases within the SAIL platform on 9th November 2022 for the period of 1st January 2019 to 31st March 2022 for specific ICD-10 codes (see the 'Data' section) and OPCS codes (see Appendix 4 and Appendix 5). Only patients with a Lower-layer Super Output Area (LSOA) code within Wales were included in the dataset. For PEDW data, any records with an inadequately matched patient ID were removed.

The two datasets were joined on the unique patient ID and the surgery date. Any PEDW records with a date of surgery within the CNIS episode start and end date were removed as a duplicate. The number of surgeries performed each month was recorded.

For breakdown by surgical access for bowel cancer, data was split into either laparoscopic or open surgery, with missing values excluded. For breakdown by stoma-formation, data was split into colostomy (colostomy permanent, colostomy temporary), ileostomy (ileostomy permanent, ileostomy temporary), 'No colostomy' and unknown status. Data on proportions of laparoscopic and stoma-forming resections were calculated from the total number of resections and so the denominator includes data with an unknown status.

Radiotherapy treatment

Data were extracted using the same method as for Surgical resection (see above), with OPCS codes whose description included the words 'radiotherapy', 'radiation therapy', 'brachytherapy' and 'barium'; this included two OPCS codes: X654 ('Delivery of a fraction of external beam radiotherapy NEC') and X659 ('Unspecified radiotherapy delivery'). Only patients with a LSOA code within Wales were included in the dataset. The final PEDW dataset was joined with data from the CNIS Radiotherapy data table. Once all patient-level data were extracted, only the first radiotherapy instance for each patient was included in the analysis, to reflect the number of patients starting radiotherapy treatment each month.

Chemotherapy treatment

Data were extracted and joined from the CNIS drug therapy and patient tables and the PEDW spell, operation and episode tables within the SAIL platform on 21st November 2022 for the period of 1st January 2019 to 31st March 2022. Only data for specific ICD-10 codes (see the Data section), and with a treatment type of 'Chemotherapy' in CNIS and a specified OPCS code for chemotherapy in PEDW (see Appendix 6) were selected. 'Operation' codes were picked based on OPCS codes whose description included the word 'chemotherapy' excluding procurement codes and photochemotherapy and electrochemotherapy. Only patients with a Lower LSOA code within Wales were included in the dataset.

The number of people receiving their first chemotherapy treatment in a month was recorded, with only one episode recorded per person.

Incidence

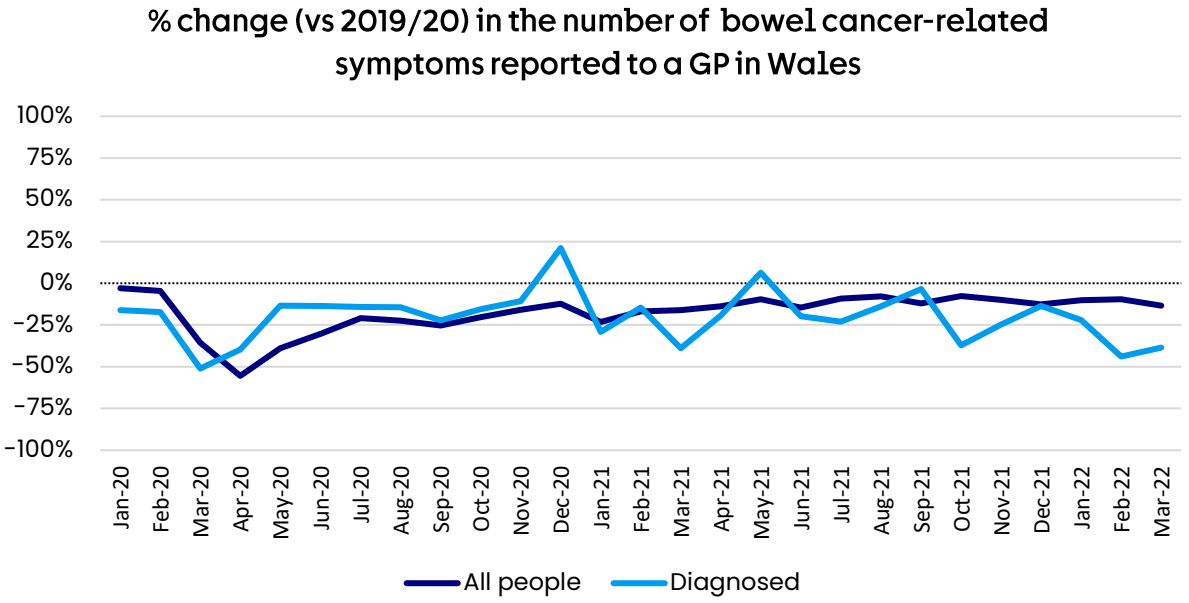
Data for incidence were pulled from the unpublished Rapid Cancer Diagnosis Dataset (RCDD) compiled by the DATA-CAN group within the SAIL Databank.

Results

Bowel cancer

Primary Care Consultations for Cancer Symptoms

The number of bowel cancer-specific symptoms reported to GPs in Wales dropped significantly in April 2020 compared to April 2019 for all symptoms (by 55%) followed by a gradual improvement though still below pre-pandemic levels, and at different speeds for each symptom. In 2020/21 there was an overall decrease in the number of symptoms reported by 22.1%, compared to 2019/20, which then slightly improved in 2021/22, where the number of symptoms reported compared to 2019/20 was down by 7.5%.



'Iron-deficiency anaemia' was the most affected symptom group, with 2020/21 seeing a drop by 30.7%, which then improved in 2021/22 to a decrease by 7.6%, compared to 2019/20. The 'diarrhoea' symptom group was the second most affected in 2020/21 with a 29.1% drop compared to 2019/20 and although improving, it was still the worst-affected symptom group in 2021/22, with a drop of 12.2%.

The least affected symptom groups were 'constipation' and 'weight loss', which decreased by 6% and 7%, respectively, in 2020/21 compared to 2019/20, with 'constipation' slightly improving in 2021/22 to 3.8% below 2019/2020 levels, and 'weight loss' increasing to 14.9% above 2019/20 levels in 2021/22.

For people who were later diagnosed with bowel cancer, there was a 51% decrease in the number of symptoms reported in March 2020 compared to March 2019, which then improved in 2020/21, with 11.6% fewer bowel cancer-related symptoms reported compared to 2019/20, and subsequently dropped again to 15.0% fewer in 2021/22. This was mainly driven by 'constipation', 'abdominal pain' and 'diarrhoea' which in 2021/22 were reported at 30.3%, 23.5% and 22.7% fewer symptoms compared to 2019/20, respectively. However, as the numbers of each symptom group reported was quite small, we should be cautious interpreting these results.

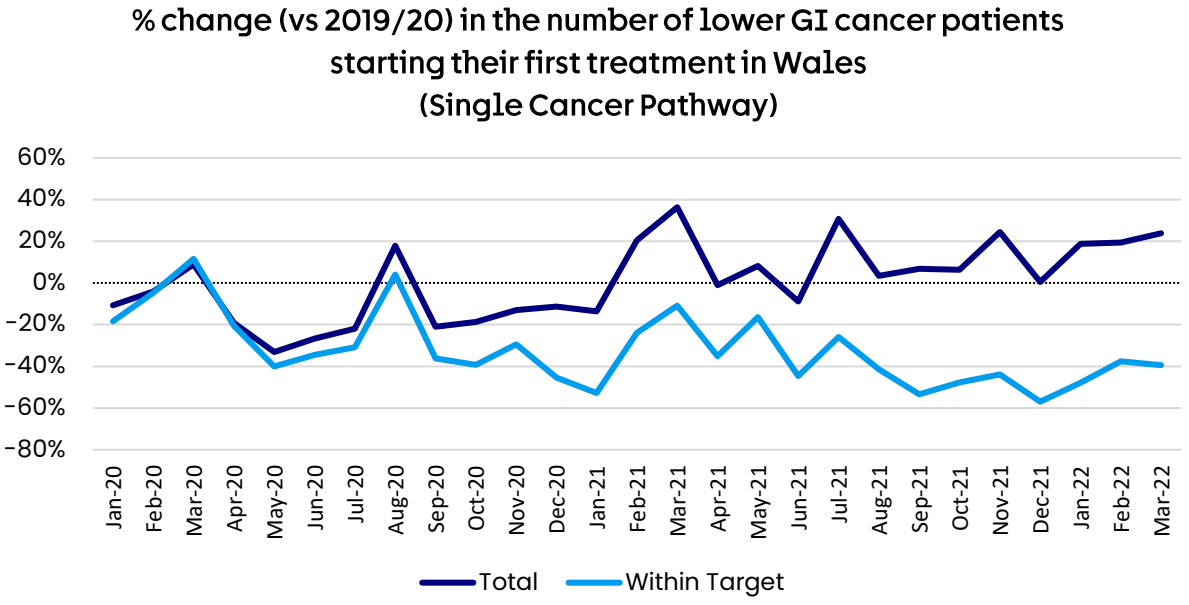
See Appendix 7 for summary results table and Appendix 19 and 20 for full data.

Cancer Waiting Times

In 2020/21, 9.0% fewer patients started treatment following a Single Cancer Pathway (SCP) referral, compared to 2019/20, which then improved to 11.4% more patients starting treatment in 2021/22. The proportion of people starting treatment within 62 days, following an SCP referral, dropped from 85.1% in 2019/20 to 65.3% in 2020/21 and to 45.5% in 2021/22.

Although the data breakdown into urgent or non-urgent pathways is incomplete for 2020/21 due to merging of these into SCP, data for April 2020 – November 2020 shows there was a greater drop in the number of people referred via the 31-day 'non-urgent' pathway (22.9% fewer compared to April-November 2019) than in the 62-day 'urgent' pathway (10.1% fewer). However, the percentage of patients seen within target dropped significantly more for the urgent pathway year-on-year.

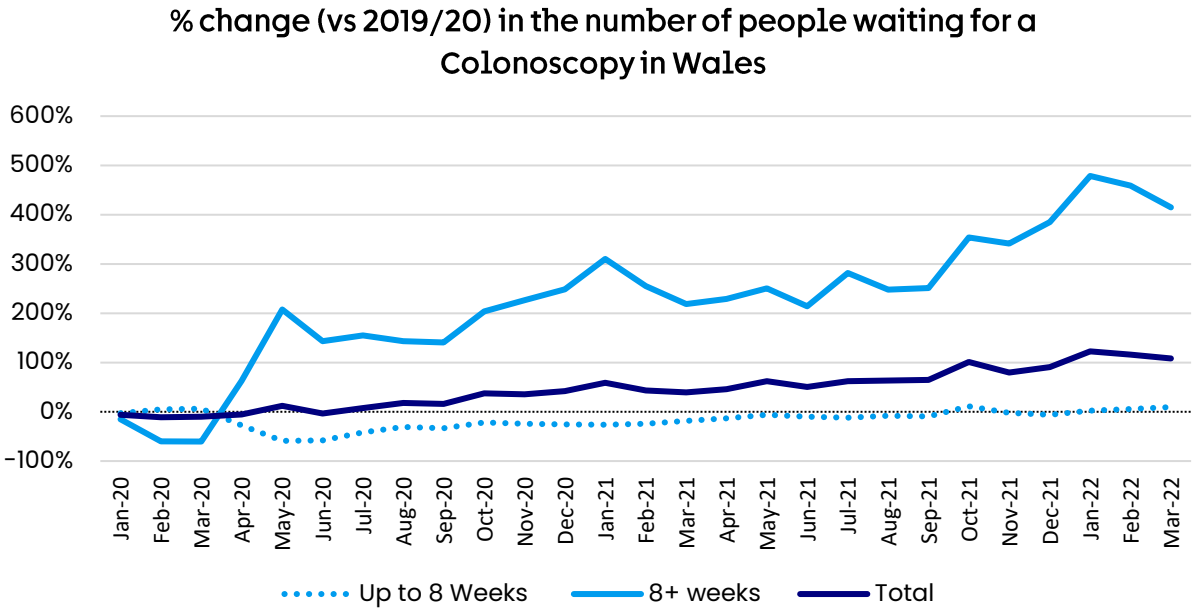
See Appendix 9 for a summary table and Appendix 23 for full data.



Diagnostic Waiting Times: Colonoscopy

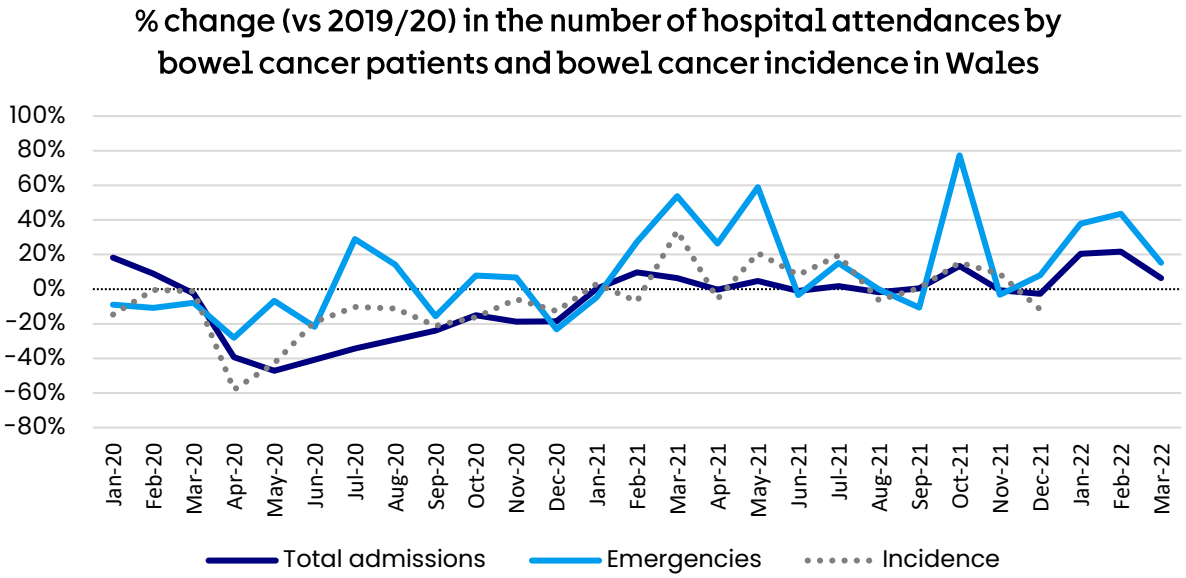
The number of people waiting for a colonoscopy appointment had been steadily increasing since the beginning of the COVID-19 pandemic, with 27.7% more people waiting for a colonoscopy appointment in 2020/21 compared to 2019/20 and 84.0% more in 2021/22. Of those waiting, an average of 23.6% of people had been waiting for an appointment for more than 8 weeks in 2019/20, which rose to around 60% in 2020/21 and 2021/22.

See Appendix 10 for a summary table and Appendix 25 for full diagnostic data.



Hospital admissions for bowel cancer

The total number of people admitted to a hospital with bowel cancer in 2020/21 dropped by 23.3% compared to 2019/20 but then slightly increased by 2.9% in 2021/22. Of those, the number of people admitted as an emergency increased by 3.8% in 2020/21 and by 22.3% in 2021/22 compared to 2019/20. This is reflected in the increase in the proportion of people admitted as an emergency – from 6.0% in 2019/20 to 8.1% in 2020/12 and 7.1% in 2021/22.
See Appendix 11 for a summary table and Appendix 26 for full data.



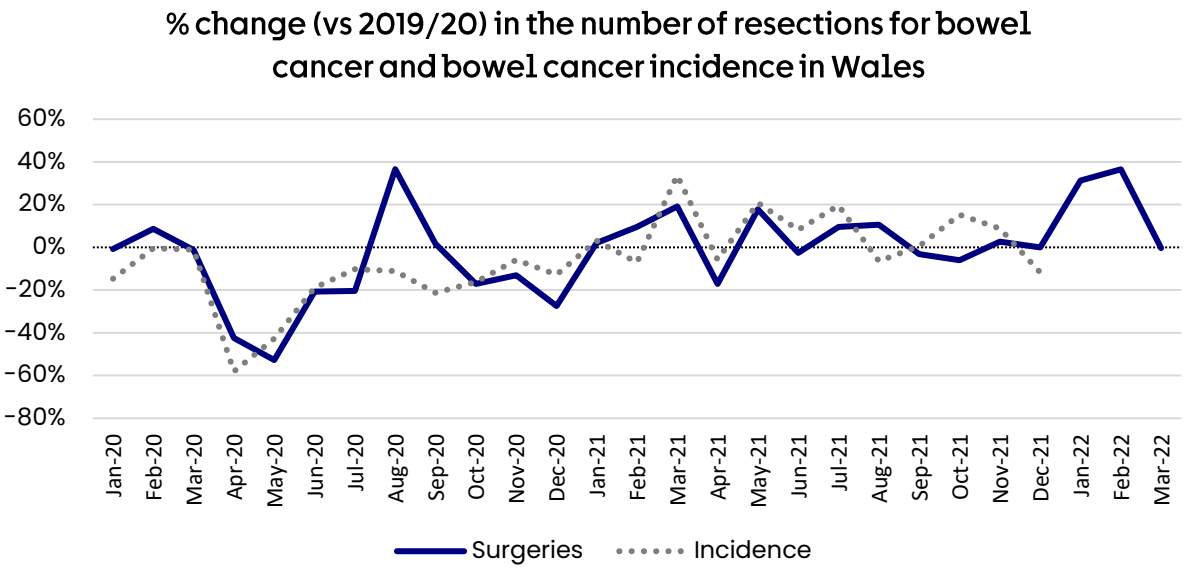
Resections for bowel cancer

The data completeness of surgical access method across the three years was between 75.5% and 83.1%. For stoma-forming status, the completeness was between 63.8%% and 71.8%.

Resections for bowel cancer saw a general drop by 12.6% in 2020/21 compared to 2019/20, followed by a slight increase by 5.0% in 2021/22. This was even more pronounced for laparoscopic surgeries which first dropped by 13.6% in 2020/21 followed by a 22.5% increase in 2021/22 compared to 2019/20. Relatively smaller changes happened for stoma-forming surgeries, which dropped by 3.9% in 2022/21 and increased by 6.7% in 2021/22 compared to 2019/20.

The proportion of stoma-forming surgeries stayed very similar to pre-pandemic levels (from 28.1% to 30.9% and 28.6%) while the proportion of laparoscopic surgeries increased from 44.1% in 2019/20 and 43.7% in 2020/21 to 51.5% in 2021/22.

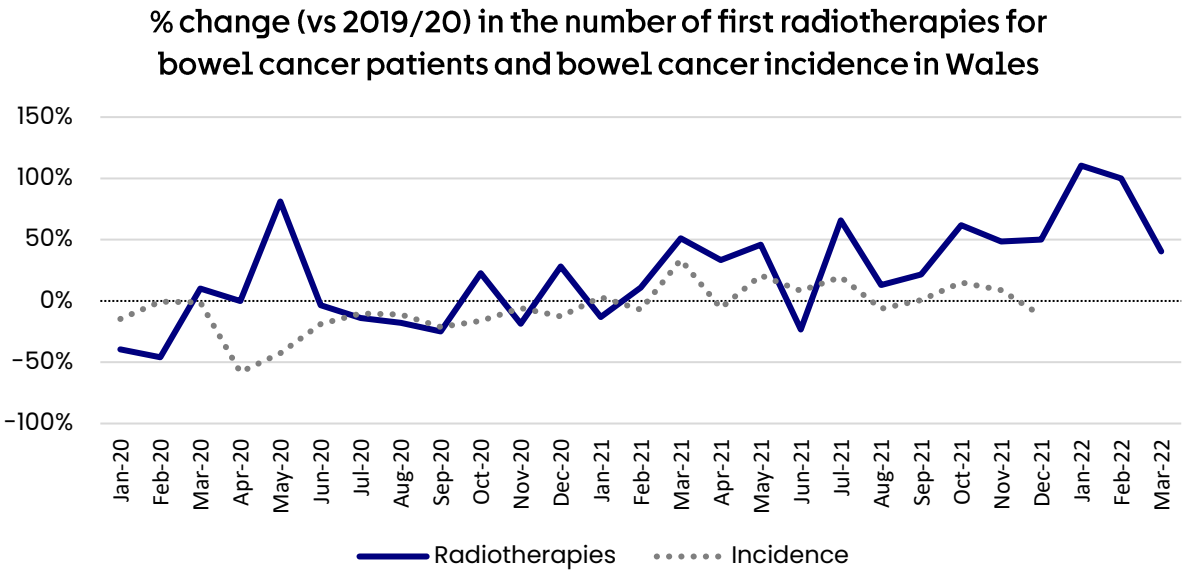
See Appendix 12 for a summary table and Appendix 27 for full data.



Radiotherapy for bowel cancer

In 2020/21, there was a 16.6% increase in the number of people undergoing their first radiotherapy episode from a mean of 27 (SD 4) people a month in 2019/20 to 31 (SD 9). From February 2021, there was a steady increase to above pre-pandemic levels, with the exception of a few months which fell below 2019 levels. The mean number of first radiotherapy episodes in 2021/22 had increased by 43.3% to 38 (SD 7) a month.

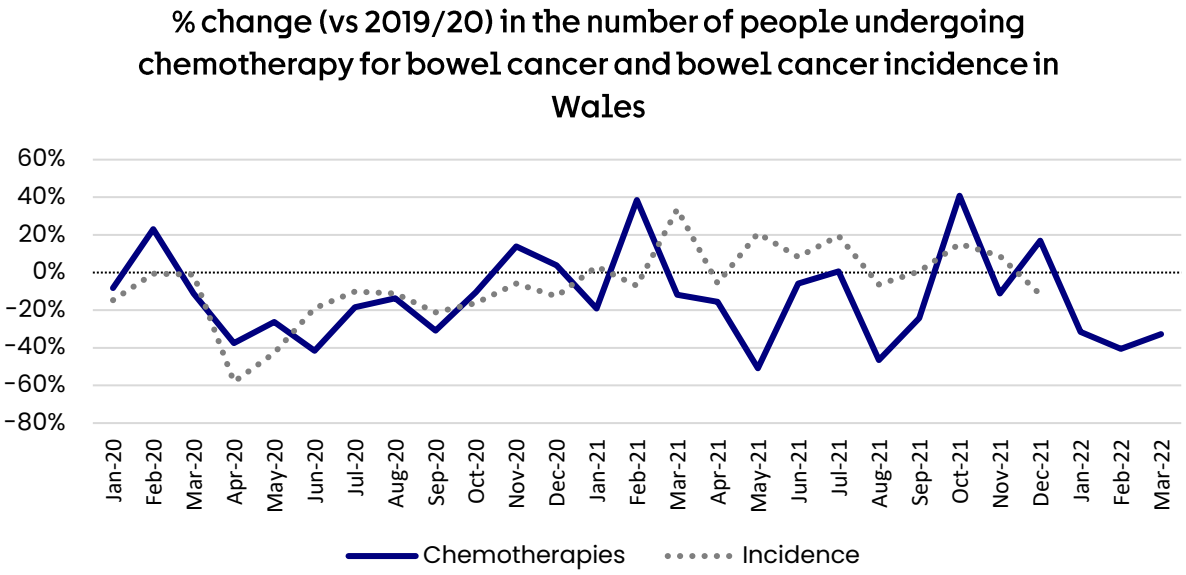
See Appendix 28 for full data.



Chemotherapy for bowel cancer

The number of people undergoing their first chemotherapy treatment decreased by 14.1% from a mean of 30 (SD 6) in 2019/20 to 25 (SD 7) in 2020/21. This then dropped by 20.4% in 2021/22 to a mean of 23 (SD 5) people.

See Appendix 29 for full data.



Lung cancer

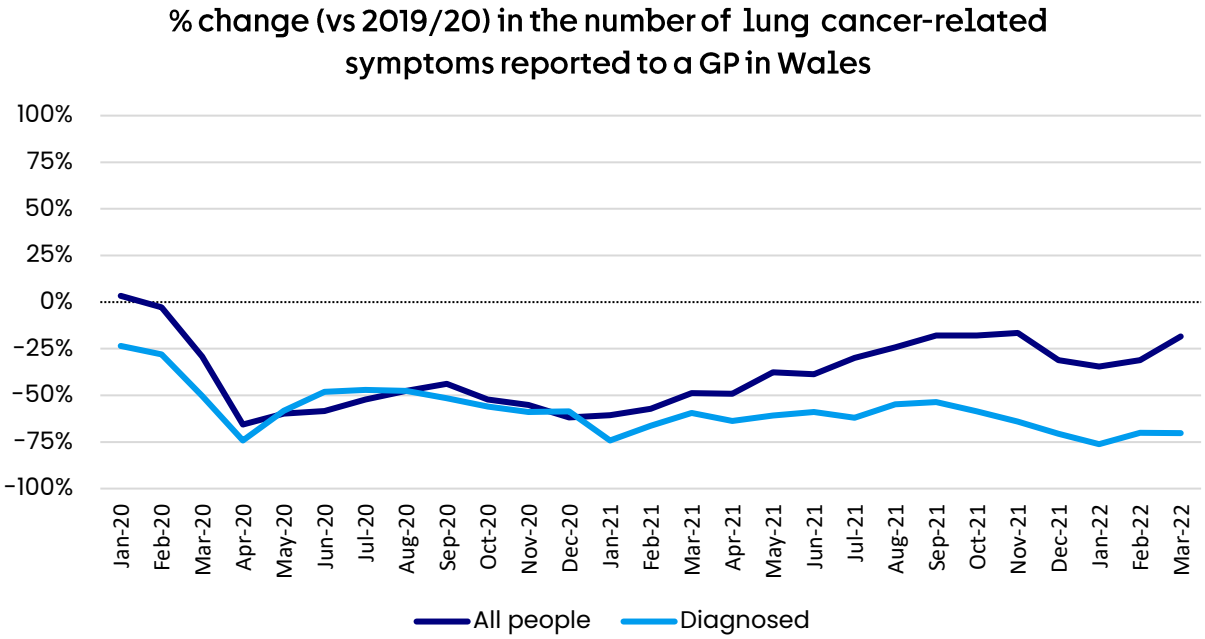
Primary Care Consultations for Cancer Symptoms

Compared to 2019/2020, there was a 54.8% decrease in the number of lung cancer-related symptoms reported to a GP in Wales in 2020/2021, and a 27.6% drop in 2021/22. The opposite pattern was true for people who were later diagnosed with lung cancer, with 54.9% fewer symptoms reported in 2021/22 and even a greater drop of 60.6% in 2021/22.

Cough was the most affected symptom group, with 70.1% fewer people reporting cough as a symptom to their GP in 2020/21 and 38.4% fewer in 2021/22 compared with 2019/20. This was followed by fatigue (46.8% and 22.9% fewer, respectively) and haemoptysis (34.1% and 14.7% fewer, respectively). Weight loss was the least affected group with only 6.7% fewer people reporting this symptom in 2020/21 and 14.9% more people reporting it in 2021/22 compared to 2019/20.

For people later diagnosed with lung cancer, the reduction in the number of symptoms reported generally increased from 2020/21 to 2021/22. The cough symptom group saw the greatest drop in reports, with 66.7% fewer reported in 2020/21 and 68.6% fewer in 2021/22, compared with 2019/20. This was followed by shortness of breath and haemoptysis symptom group, which had a 46.7% fewer reports in 2020/21 and 55.8% fewer in 2021/22. Fatigue and weight loss were the least affected, though still having a marked drop of 28.8% reports in 2021/22 and 38.7% in 2021/22.

See Appendix 13 for summary results table and Appendix 21 and 22 for full data.

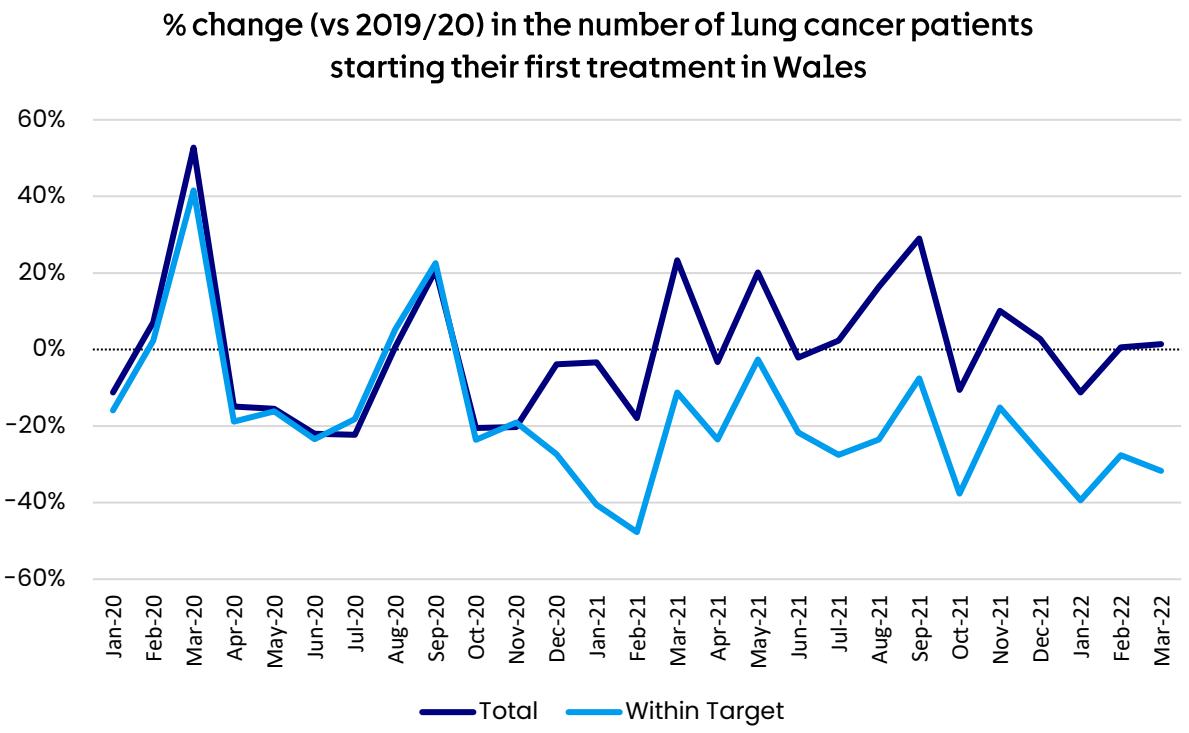


Cancer Waiting Times

In 2020/21, 12.0% fewer patients started treatment for lung cancer following a Single Cancer Pathway (SCP) referral, compared to 2019/20, which then returned to pre-pandemic levels at 0.6% more patients starting treatment in 2021/22. The proportion of people starting treatment within 62 days, following an SCP referral, dropped from 91.9% in 2019/20 to 82.7% in 2020/21 and to 67.9% in 2021/22.

Although the data breakdown into urgent or non-urgent pathways is incomplete for 2020/21 due to merging of these into SCP, data for April 2020 – November 2020 shows there was a smaller drop in the number of people referred via the 31-day 'non-urgent' pathway (4.8% fewer compared to April-November 2019) than in the 62-day 'urgent' pathway (27.7% fewer). A similar pattern was seen in performance where the proportion of patients seen within target on the urgent pathway dropped by 3.4 percentage points in 2020/21 compared to 2019/20 on average and increased on the non-urgent pathway by 0.4 percentage points.

See Appendix 14 for full results and Appendix 24 for full data.

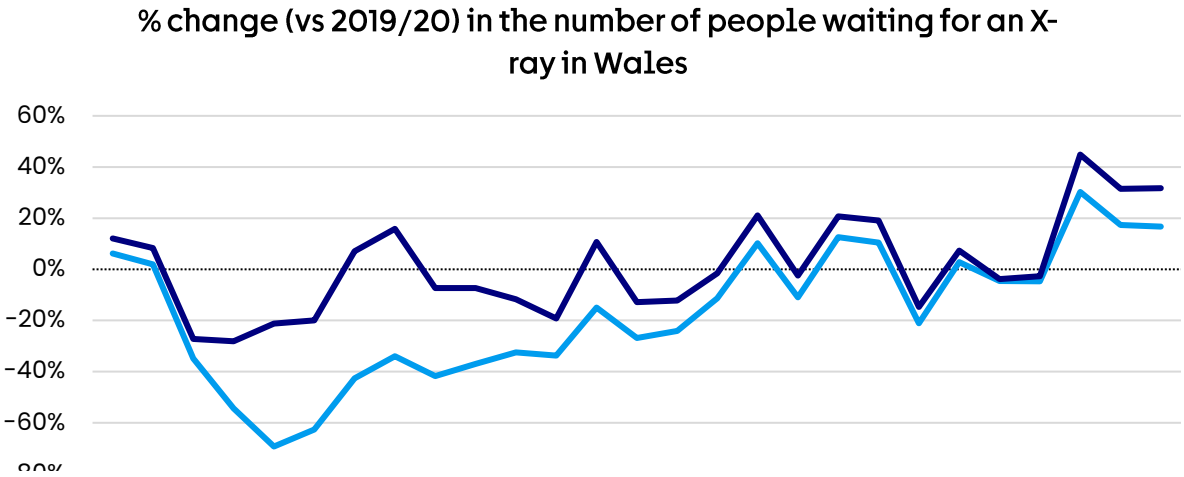


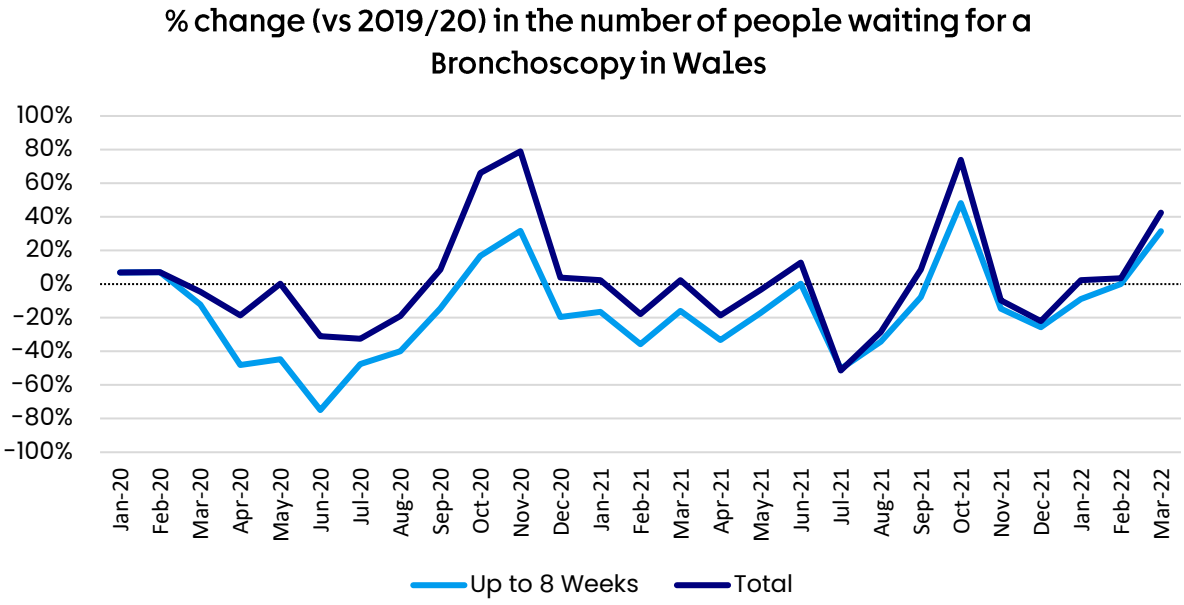
Diagnostic Waiting Times: Bronchoscopy and non-cardiac X-ray

There were 3.4% fewer people waiting for a bronchoscopy in 2020/21 and 5.3% fewer in 2021/22 compared to 2019/20, with an increase in the proportion of people waiting for a bronchoscopy appointment for 8 or more weeks from 1.6% in 2019/20 to 29.2% in 2020/21 and 10.3% in 2021/22.

The number of people waiting for a non-cardiac x-ray appointment dropped by 9.3% in 2020/21 compared to 2019/20 but increased by 12.1% in 2021/22. The proportion of people waiting for a non-cardiac x-ray appointment for 8 weeks or more saw a similar pattern to bronchoscopy, changing from 3.9% in 2019/20 to 34.9% in 2020/21 and to 9.5% in 2021/22.

See Appendix 16 and 17 for summary tables and Appendix 25 for full diagnostic data.

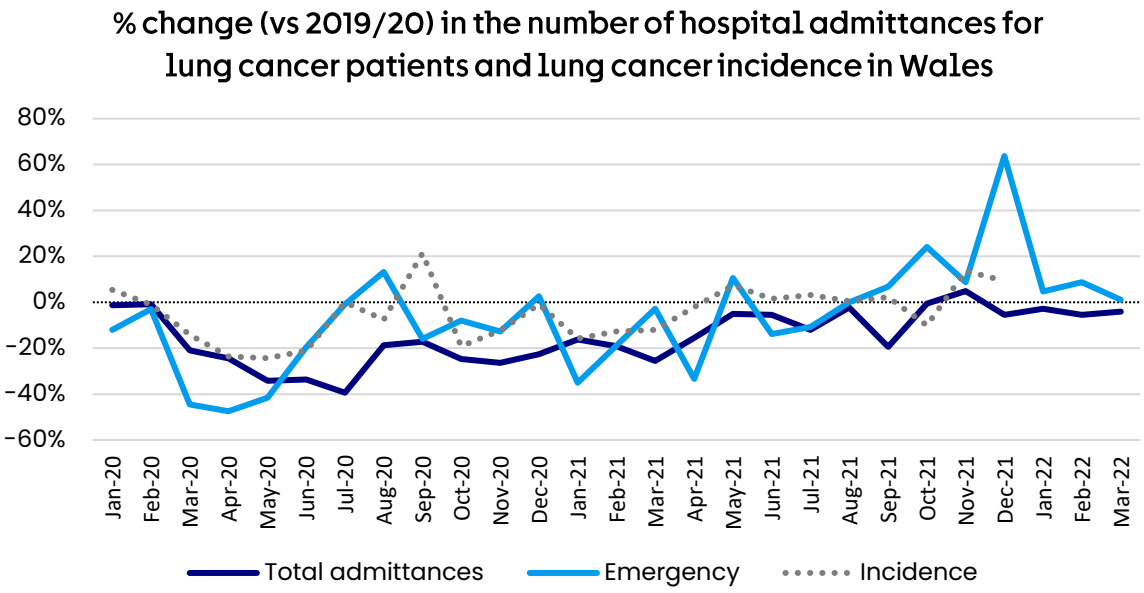




Hospital admissions for lung cancer

The total number of people admitted to a hospital with lung cancer in 2020/21 dropped by 23.8% compared to 2019/20 but improved to a smaller reduction of 4.4% in 2021/22. This pattern is similar in those admitted as an emergency, where there was a 12.0% decrease in 2020/21 but this was followed by a 9.0% increase in 2021/22 compared to 2019/20. The proportion of people admitted as an emergency had increased from 8.6% in 2019/20 to 9.9% in 2020/21 and 9.8% in 2021/22.

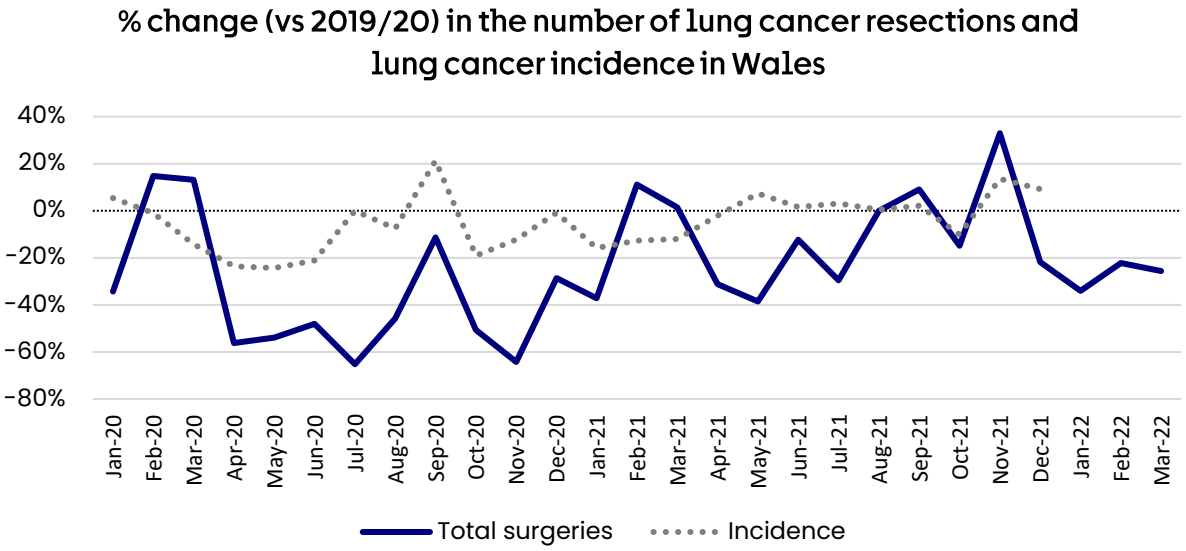
See Appendix 18 for a summary table and Appendix 26 for full data.



Resections for lung cancer

There was a mean of 31 (SD 5) total resections for lung cancer in 2019/20 in Wales per month, which dropped by 38.7% to 19 (SD 6) in 2020/21 and by 16.3% to 26 (SD 5) in 2021/22.

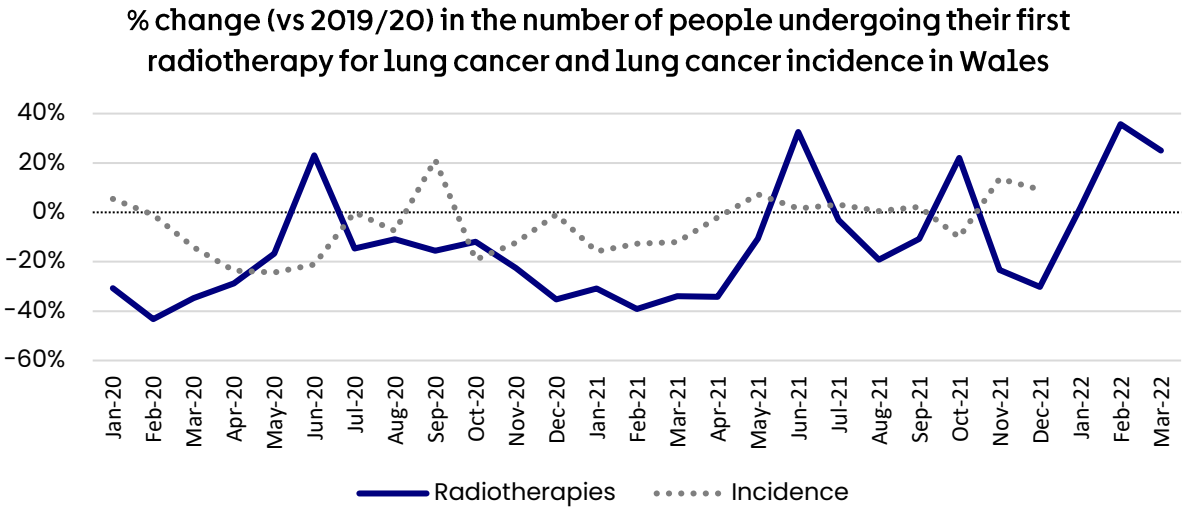
See Appendix 27 for full data.



Radiotherapy for lung cancer

In Wales, the number of people undergoing their first radiotherapy episode for lung cancer dropped by 12.8% from a mean of 63 (SD 12) a month in 2019/20 to a mean of 55 (SD 5) people in 2020/21, and by 4.9% to a mean of 60 (SD 8) in 2021/22, compared to 2019/20, although some months showed improvement to above 2019 levels.

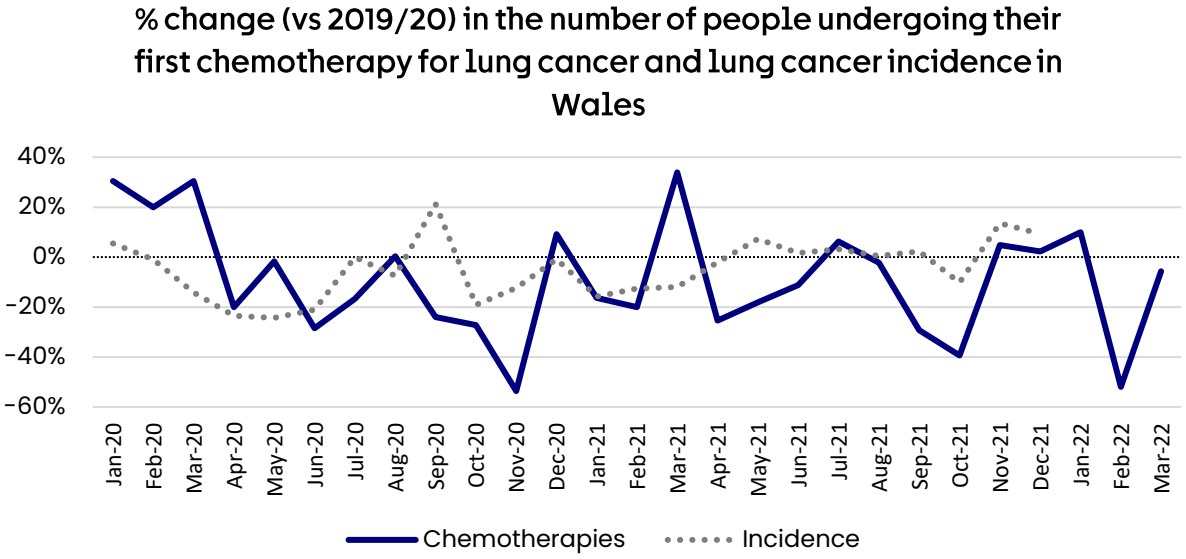
See Appendix 28 for full data.



Chemotherapy for lung cancer

The number of people undergoing their first chemotherapy treatment for lung cancer dropped by 19.8% from a mean of 50 (SD 8) in 2019/20 to a mean of 40 (SD 9) and stayed similar in 2021/22 at a mean of 41 (SD 9), although with a few exceptions where more people started chemotherapy compared to 2019 for some months in 2021.

See Appendix 29 for full data.



Discussion

This is the first study to bring together data from across the entire cancer pathway in Wales, in order to assess the impact the COVID-19 pandemic had on the admission and management of bowel and lung cancer. It demonstrates marked and prolonged effects across the whole cancer pathway, from first presentation of symptoms in primary care through to treatment.

The onset of the COVID-19 pandemic and the national lockdown introduced in March 2020 brought about delay to most cancer services for both bowel and lung cancer pathways. This was with the exception of the number of people starting treatment, especially radiotherapy and chemotherapy, which saw a rapid increase peaking around March 2020, thought to have been propelled by healthcare professionals' anticipation of disruption to healthcare services.

The pandemic also introduced a seemingly long-lasting impact on symptom reporting to GPs. Reduced reporting of lung and bowel cancer-specific symptoms to GPs at the start of the pandemic, and throughout 2020, is potentially reflective of the shift from physical to mainly phone or virtual appointments, which might affect specific groups of people more than others, especially if they are not comfortable with this mode of communication with a healthcare professional. However, further investigation of the impact of mode of communication on changes in symptom-reporting is needed to confirm this hypothesis. And while there was a gradual increase in the number of reported symptoms for both bowel and lung cancer over 2020 and 2021, these numbers have not returned to pre-pandemic levels by March 2022, which leads to concern over the impact on cancer diagnoses.

Our analysis suggests that reporting of bowel and lung cancer symptoms prior to a cancer diagnosis decreased and remained lower for both cancers compared to pre-pandemic levels. Although this was true for all people, this decline was more pronounced for those subsequently diagnosed with lung cancer. This can be explained in part by a large number of people exhibiting lung cancer symptoms, which overlap with those of COVID-19, sadly passing away and therefore not presenting to GPs.

Looking specifically at the 'cough' symptom, we see a general improvement in the number of people reporting this symptom to their GP, but this is substantially lower for those subsequently diagnosed with lung cancer throughout 2021 and up to March 2022. This strongly suggests that those people who would benefit from reporting their symptoms to a GP the most are not presenting as much as before, with mistaking their symptoms for those of COVID-19 as one possibility for this shift.

Once on the pathway, people with bowel and lung cancer saw a slight drop in the

number starting treatment after a sharp incline in March 2020, but this recovered within a few months and throughout 2021, and matched (for bowel cancer) or exceeded (for lung cancer) pre-pandemic levels by the start of 2022. However, the proportion of people starting treatment within the 62-day target sharply dropped from the end of 2020, and in March 2022, only 43% of bowel cancer and 66% of lung cancer patients started treatment within 62 days since first suspecting cancer, compared to 88% and 97% in March 2019, respectively.

When looking at the two separate pathways up to November 2020, both the 31-day non-urgent pathway (measured from the point of deciding to start treatment) and the 62-day urgent pathway (starting from the point of GP referral) saw fewer patients starting treatment from April to November 2020 compared to the same period in 2019 for both bowel and lung cancer. However, people with bowel cancer experienced a greater decrease on the non-urgent pathway, while people with lung cancer saw a bigger decrease in the urgent pathway. Additionally, performance, measured by the number of people starting treatment within 31 or 62 days, tended to drop more for the urgent pathway in both cancers. This drop was more evident for lung cancer patients, suggesting that this might be affected by delays prior to agreeing treatment, namely diagnostic tests.

A deeper dive into colonoscopy waiting times corroborates this picture, whereby the number of people waiting for a colonoscopy had been increasing since around April 2020, with the proportion seen within 8 weeks dropping substantially and staying fairly low. This could have introduced some delays to the treatment pathway. This pattern is not as clear for the lung cancer pathway as the proportion of people waiting less than 8 weeks for a non-cardiac x-ray and bronchoscopy dropped after March 2020 but returned to near-pre-pandemic levels within about a year, despite the delay in the number of people starting treatment beginning to be more visible from around December 2020. Here we however must appreciate the breadth of conditions non-cardiac x-rays are aiming to capture, of which lung cancer might not be the primary target. We were also unable to capture computerised tomography (CT) scans, one of the most common scans used to diagnosed lung cancer, due to the lack of data in 2019.

Our analysis also highlighted reduced access to hospitals following the onset of the pandemic, with the number of people being admitted to hospital returning back to pre-pandemic levels in January 2021 for bowel cancer patients but taking until mid-2021 for lung cancer patients. While this is in line with the accommodation of hospital admittances for COVID-19 patients, it raises the question of whether those who would have been admitted to hospital could have started their treatment earlier. An overlap of COVID-19 and lung cancer patients also could explain the longer return to pre-pandemic levels for lung cancer patients.

Treatment for bowel cancer seems to be one part of the pathway that has not

been affected as much as the others, with fewer tumour resections and chemotherapy procedures in the first few months of the pandemic, followed by a general stabilisation to pre-pandemic numbers. Radiotherapy episodes seemed to somewhat compensate for the lack of resections and chemotherapies at the start of the pandemic and increasingly more throughout 2021 and early 2022. Treatment for lung cancer had however stayed below pre-pandemic levels since early 2020, with resections being most affected, especially at the start of the pandemic. This once again highlights the overlap of lung cancer and COVID-19 patients that is difficult to untangle.

Strengths and limitations

This analysis provides an overview of the impact of the COVID-19 pandemic and accompanying national lockdowns across the cancer pathway of two major cancer sites in Wales for the first time. Such a complete picture across the respective pathways give insight into the management of bowel and lung cancer patients during the pandemic, and the effect an influx of COVID-19 patients had on the healthcare services.

A strength of this analysis was access to patient-level data, which provided us with more detailed insight into the symptoms people with lung and bowel cancer were experiencing prior to their diagnosis. This unveiled a potentially troubling pattern of people diagnosed with lung cancer (and to a lesser extent bowel cancer) not coming through with their symptoms to their GP as much as before the pandemic. While we do not know who the 'missing' patients are, there is a worry that their diagnosis might be delayed due to not acting on their exhibited symptoms, potentially leading to a later cancer diagnosis with worse treatment outcomes.

A notable limitation of our study is the intersection of COVID-19 and cancer effects on the healthcare system. For example, increased mortality from COVID-19 in cancer patients compared to those without cancer[xiii]might in part explain general reduction in patients starting treatment and being admitted to a hospital.

The overlap of some of the most common symptoms between lung cancer and COVID-19, namely cough and shortness of breath[xiv], also affects our symptom analysis to some extent, although it also highlights a dangerous remnant of the pandemic, where people (including those later diagnosed with lung cancer) might be reluctant to report cough to their GP, either in anticipation of a COVID-19 diagnosis or not deeming it as important a symptom as it was prior the pandemic.

Some datasets (such as symptoms reported by people diagnosed with cancer or bronchoscopy) had very low numbers which would make a small change in numbers a potentially very large percentage change, and so interpretation of any such analyses using these datasets needs to be done with this in mind.

A small limitation comes from the slightly different composition of cancer sites in

the Cancer Waiting Times compared to other analyses, whereby the data for Cancer Waiting Times is only available for lower gastrointestinal cancers, which generally includes anal cancer (C21) as well as bowel cancer (C18-C20).

Lastly, some limitations of this analysis come from the lack of publicly available data due to the change in reporting, namely the stopping of the urgent and non-urgent cancer pathways target reporting after November 2020, which could help us pinpoint the likely cause of delay within the cancer pathway. Similarly, the lack of Computerised Tomography data after November 2019 did not enable us to explore a more common treatment option for lung cancer patients.

Further research into the symptom-reporting behaviour and its decline over time would be useful to untangle what the reasons behind this might be and whether the increase in digital/phone appointments might be driving this trend. A more detailed analysis into whether there was an overall drop in GP consultations over the course of the pandemic might give us an insight into how much of the drop in symptom reporting is due to a systemic change. A deeper dive into cancer waiting times might also uncover more about the drop in the proportion of people starting treatment within 62 days. Anecdotal evidence suggests that longer waiting times might be due to a person being investigated for a different cancer to that originally suspected, which would increase the time it takes to confirm diagnosis for that cancer.

Conclusion

This study investigated changes in the cancer pathway in Wales for lung and bowel cancer during the COVID-19 pandemic.

The symptom analysis highlighted a long-lasting effect of reduced reporting of lung cancer symptoms to their GPs, with a significant drop compared to pre-pandemic. And although the number of people starting treatment stabilised soon after the pandemic onset, the proportion of people starting treatment within 62 days dropped substantially for both lung and bowel cancer patients.

There was a delay in diagnostic testing, where the number of patients waiting for over 8 weeks for a colonoscopy has been generally growing since the onset of the pandemic.

Reduced hospital attendance by bowel and lung cancer patients, which lasted for most of 2020, could mean there were treatment delays or schedule changes as well as reduced support for those patients. For patients starting a treatment however, although a small drop was observed at the beginning of the pandemic in terms of the number of surgeries and chemotherapies for bowel cancer, this stabilised quickly. The number of radiotherapies increased, potentially somewhat compensating for the reduced number of surgeries and chemotherapy treatments. Lung cancer treatment however stayed below pre-pandemic levels, with surgeries being most affected.

Although it is not possible to fully prepare for similar pandemics that might come in the future, this analysis highlighted where and how continuance of care for cancer patients could be tackled. This includes prompts to continue to report symptoms, focusing on increasing diagnostic testing capacity and assuring auxiliary access to hospitals and continual treatment care for patients living with cancer.

Appendix – Methods

Appendix 1. Read codes used to search for bowel cancer-specific symptoms, grouped into wider symptom groups

Rectal bleeding

Read code	Description
4762	Faeces: fresh blood present
4762.11	Blood in faeces
4793	Faecal occult blood: trace
196B.00	Painful rectal bleeding
196C.00	Painless rectal bleeding
19E6.00	Blood in faeces
19E6.11	Blood in faeces symptom
19ED.00	Blood on toilet paper
19EG.00	Blood on pants
J573.00	Haemorrhage of rectum and anus
J573.11	Bleeding PR
J573000	Rectal haemorrhage
J573011	Rectal bleeding

J573012	PRB - Rectal bleeding
J573100	Anal haemorrhage
J573z00	Haemorrhage of rectum and anus NOS
J681.11	Blood in stool

Change in bowel habits

19EA.00	Change in bowel habit
19EA.11	Altered bowel habit
R078.00	[D]Change in bowel habit

Constipation

4745	Faeces consistency: hard
8138	Removal of impacted faeces
7728100	Manual removal of impacted faeces from rectum
19C..00	Constipation
19C..11	Constipation symptom
19C2.00	Constipated
19CZ.00	Constipation NOS
25Q6.00	O/E - PR-rectum full of faeces

J503100	Faecal impaction
J520000	Acute constipation
J520100	Chronic constipation with overflow
J520300	Drug induced constipation
J520400	Chronic constipation
J520z00	Constipation NOS

Diarrhoea

19F..11	Diarrhoea
19F..12	Loose stools
19F2.00	Diarrhoea
19FZ.11	Diarrhoea & vomiting, symptom
19G..00	Diarrhoea and vomiting
A0740	Diarrhoea due to staphylococcal toxin
A076.11	Viral diarrhoea
A082.00	Infectious diarrhoea
A082z00	Infectious diarrhoea NOS
A083.11	Diarrhoea & vomiting -? infect
J43z.11	Chronic diarrhoea

J521000	Irritable bowel syndrome with diarrhoea
R077100	[D] Stools loose

Iron-deficiency anaemia

42R4100	Ferritin level low
D0...11	Asiderotic anaemia
D00..00	Iron deficiency anaemias
D00..11	Hypochromic - microcytic anaemia
D00..12	Microcytic - hypochromic anaemia
D000.00	Iron deficiency anaemia due to chronic blood loss
D000.12	Iron deficiency anaemia due to blood loss
D001.00	Iron deficiency anaemia due to dietary causes
D00y.00	Other specified iron deficiency anaemia
D00y100	Microcytic hypochromic anaemia
D00yz00	Other specified iron deficiency anaemia NOS
D00z.00	Unspecified iron deficiency anaemia
D00z200	Idiopathic hypochromic anaemia
D00zz00	Iron deficiency anaemia NOS
D211.00	Acute posthaemorrhagic anaemia

Dyu0000	[X]Other iron deficiency anaemias

Abdominal pain

1829	Retrosternal pain
1962	Colicky abdominal pain
1969	Abdominal pain
1972	Epigastric pain
1975	Left flank pain
1976	Right flank pain
1977	Right iliac fossa pain
1978	Left iliac fossa pain
1979	Suprapubic pain
197..11	Flank pain
197..12	Iliac fossa pain
197..13	Site of abdominal pain
197A.00	Generalised abdominal pain
197B.00	Upper abdominal pain
197C.00	Lower abdominal pain
197D.00	Right upper quadrant pain

1A53.12	C/O - lumbar pain
25C..11	O/E - epigastric pain on palp.
25C..12	O/E - iliac pain on palpation
25C..13	O/E - lumbar pain on palpation
25C..14	O/E - umbilical pain on palp.
25C..15	O/E - abdomen tender
25C2.00	O/E - abd.pain-R.hypochondrium
25C3.00	O/E - abd. pain - epigastrium
25C4.00	O/E - abd.pain-L.hypochondrium
25C5.00	O/E - abd. pain - R.lumbar
25C6.00	O/E - abd. pain - umbilical
25C8.00	O/E - abd. pain - R.iliac
25C9.00	O/E - abd. pain - hypogastrium
25CA.00	O/E - abd. pain - L.iliac
25CZ.00	O/E -abd.pain on palpation NOS
25D..00	O/E - guarding on palpation
25D..11	O/E - guarding of abdomen
25D2.00	O/E - guarding-R.hypochondrium
25D3.00	O/E - guarding - epigastrium

25D4.00	O/E - guarding-L.hypochondrium
25D6.00	O/E - guarding - umbilical
25D8.00	O/E - guarding - R.iliac
25D9.00	O/E - guarding - hypogastrium
25DA.00	O/E - guarding - L.iliac
25DZ.00	O/E -guarding on palpation NOS
25E..00	O/E - rebound tenderness
25EZ.00	O/E - rebound tenderness NOS
25F..00	O/E - abdominal rigidity
2I18100	Tenderness of epigastrium
R090.00	[D]Abdominal pain
R090000	[D]Abdominal tenderness
R090400	[D]Abdominal cramps
R090500	[D]Epigastric pain
R090800	[D]Suprapubic pain
R090900	[D]Pain in right iliac fossa
R090A00	[D]Pain in left iliac fossa
R090C00	[D]Loin pain
R090F00	[D]Acute abdomen

R090H00	[D]Upper abdominal pain
R090J00	[D]Right upper quadrant pain
R090K00	[D]Left upper quadrant pain
R090L00	[D]Left lower quadrant pain
R090M00	[D]Right lower quadrant pain
R090N00	[D]Nonspecific abdominal pain
R090P00	[D]Functional abdominal pain syndrome
R090z00	[D]Abdominal pain NOS
R096.00	[D]Acute abdomen

Weight loss

1623	Weight decreasing
1625	Abnormal weight loss
1625.11	Abnormal weight loss - symptom
1627	Unintentional weight loss
2224	O/E - cachexic
2287	Abnormally thin
1D1A.00	Complaining of weight loss
22A8.00	Weight loss from baseline weight

R032.00	[D]Abnormal loss of weight
R2y4.00	[D]Cachexia
R2y4z00	[D]Cachexia NOS

Appendix 2. Read codes used to search for lung cancer-specific symptoms, grouped into wider symptom groups

Cough

Read code	Description
1712	Dry cough
1713	Productive cough -clear sputum
1714	Productive cough -green sputum
1715	Productive cough-yellow sputum
1716	Productive cough NOS
1716.11	Coughing up phlegm
1717	Night cough present
1719	Chesty cough
1719.11	Bronchial cough
171..00	Cough
171..11	C/O - cough
171A.00	Chronic cough
171B.00	Persistent cough
171C.00	Morning cough
171D.00	Evening cough
171E.00	Unexplained cough

171F.00	Cough with fever
171J.00	Reflux cough
171K.00	Barking cough
171L.00	Cough on exercise
171Z.00	Cough symptom NOS
173B.00	Nocturnal cough / wheeze
E261100	Psychogenic cough
Eu45316	[X]Psychogenic cough
H310100	Smokers' cough
R062.00	[D]Cough
R063000	[D]Cough with haemorrhage

Fatigue

1682	Fatigue
1683	Tired all the time
1683.11	C/O - 'tired all the time'
1684	Malaise/lethargy
1688	Exhaustion
2832.12	O/E - weakness

168..12	Lethargy - symptom
168..00	Tiredness symptom
168..11	Fatigue - symptom
168Z.00	Tiredness symptom NOS
E205.12	Tired all the time
F286.00	Chronic fatigue syndrome
R007.00	[D]Malaise and fatigue
R007000	[D]Malaise
R007100	[D]Fatigue
R007300	[D]Lethargy
R007500	[D]Tiredness
R007z00	[D]Malaise and fatigue NOS

Haemoptysis

172..12	Haemoptysis - symptom
172..00	Blood in sputum - haemoptysis
172..11	Blood in sputum - symptom
R063.00	[D]Haemoptysis
R063z00	[D]Haemoptysis NOS

Shortness of breath

1732	Breathless - moderate exertion
1733	Breathless - mild exertion
1734	Breathless - at rest
1735	Breathless - lying flat
1735.11	Orthopnoea symptom
1736	Paroxysmal nocturnal dyspnoea
1738	Difficulty breathing
1739	Shortness of breath
2322	O/E - dyspnoea
2323	O/E - orthopnoea
173..00	Breathlessness
173..11	Breathlessness symptom
173..13	Shortness of breath symptom
173..12	Dyspnoea - symptom
173a.00	Borg Breathlessness Score: 10 maximal
173C.00	Short of breath on exertion
173C.12	SOBOE
173C.11	Dyspnoea on exertion

173D.00	Nocturnal dyspnoea
173F.00	Short of breath dressing/undressing
173G.00	Breathless - strenuous exertion
173H.00	MRC Breathlessness Scale: grade 1
173I.00	MRC Breathlessness Scale: grade 2
173J.00	MRC Breathlessness Scale: grade 3
173K.00	MRC Breathlessness Scale: grade 4
173L.00	MRC Breathlessness Scale: grade 5
173N.00	Borg Breathlessness Score: 0.5 very, very slight
173P.00	Borg Breathlessness Score: 1 very slight
173Q.00	Borg Breathlessness Score: 2 slight
173R.00	Borg Breathlessness Score: 3 moderate
173S.00	Borg Breathlessness Score: 4 somewhat severe
173T.00	Borg Breathlessness Score: 5 severe
173V.00	Borg Breathlessness Score: 6 severe (+)
173W.00	Borg Breathlessness Score: 7 very severe
173X.00	Borg Breathlessness Score: 8 very severe (+)
173Y.00	Borg Breathlessness Score: 9 very, very sev (almost maximal)
173Z.00	Breathlessness NOS

388H.00	CLASP shortness of breath score
R060200	[D]Orthopnoea
R060800	[D]Shortness of breath
R060A00	[D]Dyspnoea
R060D00	[D]Breathlessness
ZR3Q.00	CLASP shortness of breath score

Weight loss

1623	Weight decreasing
1625	Abnormal weight loss
1625.11	Abnormal weight loss - symptom
1627	Unintentional weight loss
2224	O/E - cachexic
2287	Abnormally thin
1D1A.00	Complaining of weight loss
22A8.00	Weight loss from baseline weight
R032.00	[D]Abnormal loss of weight
R2y4.00	[D]Cachexia
R2y4z00	[D]Cachexia NOS

Appendix 3. Emergency presentation codes and associated description

Code	Admission method
21	A & E or dental casualty department of the health care provider
22	GP: after a request for immediate admission has been made direct to a hospital provider (i.e. not through a Bed Bureau) by a General Practitioner or deputy
23	Bed bureau
24	Consultant clinic of this or another health care provider
25	Domiciliary visit by Consultant
27	Via NHS Direct Services
28	Other means, including admitted from the A & E department of another provider where they had not been admitted

Appendix 4. OPCS-4 codes used for bowel cancer resection episodes search

OPCS code	Description
G74.1	Creation of continent ileostomy
G74.2	Creation of temporary ileostomy
G74.3	Creation of defunctioning ileostomy
G74.8	Other specified creation of artificial opening into ileum
G74.9	Unspecified creation of artificial opening into ileum
H04.1	Panproctocolectomy and ileostomy
H04.2	Panproctocolectomy and anastomosis of ileum to anus and creation of pouch HFQ
H04.3	Panproctocolectomy and anastomosis of ileum to anus NEC
H04.8	Other specified total excision of colon and rectum
H04.9	Unspecified total excision of colon and rectum
H05.1	Total colectomy and anastomosis of ileum to rectum
H05.2	Total colectomy and ileostomy and creation of rectal fistula HFQ
H05.3	Total colectomy and ileostomy NEC
H05.8	Other specified total excision of colon
H05.9	Unspecified total excision of colon
H06.1	Extended right hemicolectomy and end to end anastomosis
H06.2	Extended right hemicolectomy and anastomosis of ileum to colon

H06.3	Extended right hemicolectomy and anastomosis NEC
H06.4	Extended right hemicolectomy and ileostomy HFQ
H06.5	Extended right hemicolectomy and end to side anastomosis
H06.8	Other specified extended excision of right hemicolon
H06.9	Unspecified extended excision of right hemicolon
H07.1	Right hemicolectomy and end to end anastomosis of ileum to colon
H07.2	Right hemicolectomy and side to side anastomosis of ileum to transverse colon
H07.3	Right hemicolectomy and anastomosis NEC
H07.4	Right hemicolectomy and ileostomy HFQ
H07.5	Right hemicolectomy and end to side anastomosis
H07.8	Other specified other excision of right hemicolon
H07.9	Unspecified other excision of right hemicolon
H08.1	Transverse colectomy and end to end anastomosis
H08.2	Transverse colectomy and anastomosis of ileum to colon
H08.3	Transverse colectomy and anastomosis NEC
H08.4	Transverse colectomy and ileostomy HFQ
H08.5	Transverse colectomy and exteriorisation of bowel NEC
H08.6	Transverse colectomy and end to side anastomosis
H08.8	Other specified excision of transverse colon

H08.9	Unspecified excision of transverse colon
H09.1	Left hemicolectomy and end to end anastomosis of colon to rectum
H09.2	Left hemicolectomy and end to end anastomosis of colon to colon
H09.3	Left hemicolectomy and anastomosis NEC
H09.4	Left hemicolectomy and ileostomy HFQ
H09.5	Left hemicolectomy and exteriorisation of bowel NEC
H09.6	Left hemicolectomy and end to side anastomosis
H098	Other specified excision of left hemicolon
H09.9	Unspecified excision of left hemicolon
H10.1	Sigmoid colectomy and end to end anastomosis of ileum to rectum
H10.2	Sigmoid colectomy and anastomosis of colon to rectum
H10.3	Sigmoid colectomy and anastomosis NEC
H10.4	Sigmoid colectomy and ileostomy HFQ
H10.5	Sigmoid colectomy and exteriorisation of bowel NEC
H10.6	Sigmoid colectomy and end to side anastomosis
H10.8	Other specified excision of sigmoid colon
H10.9	Unspecified excision of sigmoid colon
H11.1	Colectomy and end to end anastomosis of colon to colon NEC
H11.2	Colectomy and side to side anastomosis of ileum to colon NEC

H11.3	Colectomy and anastomosis NEC
H11.4	Colectomy and ileostomy NEC
H11.5	Colectomy and exteriorisation of bowel NEC
H11.6	Colectomy and end to side anastomosis NEC
H11.8	Other specified other excision of colon
H119	Unspecified other excision of colon
H14.1	Tube caecostomy
H14.4	Appendicocaecostomy
H14.8	Other specified exteriorisation of caecum
H14.9	Unspecified exteriorisation of caecum
H15.1	Loop colostomy
H15.2	End colostomy
H15.7	Percutaneous endoscopic sigmoid colostomy
H15.8	Other specified other exteriorisation of colon
H15.9	Unspecified other exteriorisation of colon
H29.1	Subtotal excision of colon and rectum and creation of colonic pouch and anastomosis of colon to anus
H29.2	Subtotal excision of colon and rectum and creation of colonic pouch NEC
H29.3	Subtotal excision of colon and creation of colonic pouch and anastomosis of colon to rectum
H29.4	Subtotal excision of colon and creation of colonic pouch NEC

H29.8	Other specified subtotal excision of colon
H29.9	Unspecified subtotal excision of colon
H30.8	Other specified other operations on colon
H30.9	Unspecified other operations on colon
H32.8	Other specified exteriorisation of colon
H32.9	Unspecified exteriorisation of colon
H33.1	Abdominoperineal excision of rectum and end colostomy
H33.2	Proctectomy and anastomosis of colon to anus
H33.3	Anterior resection of rectum and anastomosis of colon to rectum using staples
H33.4	Anterior resection of rectum and anastomosis NEC
H33.5	Rectosigmoidectomy and closure of rectal stump and exteriorisation of bowel
H336	Anterior resection of rectum and exteriorisation of bowel
H33.7	Perineal resection of rectum HFQ
H33.8	Other specified excision of rectum
H33.9	Unspecified excision of rectum
H40.4	Trans-sphincteric anastomosis of colon to anus
H41.1	Rectosigmoidectomy and peranal anastomosis
H41.4	Peranal mucosal proctectomy and endoanal anastomosis
H41.5	Peranal resection of rectum using staples

H41.8	Other specified other operations on rectum through anus
H41.9	Unspecified other operations on rectum through anus
X14.1	Total exenteration of pelvis
X14.2	Anterior exenteration of pelvis
X14.3	Posterior exenteration of pelvis
X14.8	Other specified clearance of pelvis
X14.9	Unspecified clearance of pelvis
Y50.2	Laparotomy approach NEC
Y50.8	Other specified approach through abdominal cavity
Y50.9	Unspecified approach through abdominal cavity
Y71.4	Failed minimal access approach converted to open
Y75.1	Laparoscopically assisted approach to abdominal cavity
Y75.2	Laparoscopic approach to abdominal cavity NEC
Y75.3	Robotic minimal access approach to abdominal cavity
Y75.4	Hand assisted minimal access approach to abdominal cavity
Y75.5	Laparoscopic ultrasonic approach to abdominal cavity
Y75.8	Other specified minimal access to abdominal cavity
Y75.9	Unspecified minimal access to abdominal cavity

Appendix 5. OPCS-4 codes used for lung cancer resection episode search

OPCS code	Description
E54.1	Total pneumonectomy
E54.2	Bilobectomy of lung
E54.3	Lobectomy of lung
E54.4	Excision of segment of lung
E54.5	Partial lobectomy of lung NEC
E54.6	Reduction of lung volume
E54.8	Other specified excision of lung
E54.9	Unspecified excision of lung
E55.4	Open destruction of lesion of lung NEC
E44.1	Excision of carina
E57.4	Other open operations on lung - Incision of lung NEC
E57.8	Other open operations on lung – Other specified

Appendix 6. OPCS-4 codes for chemotherapy in PEDW

Code	OPCS-4 PEDW code
X35	Intravenous chemotherapy
X37	Intramuscular chemotherapy
X38	Subcutaneous chemotherapy
X72	Delivery of chemotherapy for neoplasm
X73	Delivery of oral chemotherapy for neoplasm
X74	Other chemotherapy drugs

Appendix – Summary Tables

Appendix 7. Annual average (SD) and % change (vs 2019/2020) over time of the number of bowel cancer-related symptoms reported to a GP in Wales by all people and people subsequently diagnosed with cancer. Data adjusted to 21 days.

	All people			People subsequently diagnosed with bowel cancer		
	2019/2020	**2020/2021**	**2021/2022**	**2019/2020**	**2020/2021**	**2021/2022**
Rectal bleeding	1,544 (151)	1,291 (227) *-16.3%*	1,501 (120) *-2.8%*	30 (6)	26 (8) *-12.4%*	28(4) *-6.4%*
Change in bowel habits	772 (95)	575 (155) *-25.6%*	816 (72) *5.7%*	19 (6)	16 (8) *-17.1%*	19 (4) *-1.5%*
Constipation	2,233 (217)	2,088 (211) *-6.5%*	2,149 (119) *-3.8%*	20 (6)	18 (5) *-12.3%*	14 (6) *-30.3%*
Diarrhoea	3,067 (387)	2,175 (242) *-29.1%*	2,694 (255) *-12.2%*	22 (9)	21 (3) *-4.8%*	17 (4) *-22.7%*
Iron-deficiency anaemia	1,176 (111)	815 (202) *-30.7%*	1,086 (104) *-7.6%*	29 (7)	29 (7)*0.0%*	30 (7) *1.5%*
Weight loss	802 (147)	748 (173) *-6.7%*	921(110) *14.9%*			
Abdominal pain	9,828 (1,159)	7,436 (1,271) *-24.3%*	8,804 (534) *-10.4%*	59 (13)	49 (6) *-17.5%*	45(9) *23.5%*
TOTAL	19,422 (2,069)	15,128 (2,323) *-22.1%*	17,970 (834) *-7.5%*	180 (28)	159 (13) *-11.6%*	153 (26) *-15.0%*

Annual average (SD) and % change (vs 2019/2020) of the number of people starting treatment, following a referral to a bowel cancer pathway in Wales. Data adjusted to 21 days.

	Single Cancer Pathway	Urgent Suspected Cancer Referrals*	Non-urgent 31-day pathway*	Urgent 62-day pathway*
2019/20	174 (13)	1,572 (89)	105 (13)	69 (8)
2020/21	158 (31) *-9.0%*	1,254 (365) *-20.2%*	81 (11) -22.9%	62 (7) *-10.1%*
2021/22	194 (21) *11.4%*			

**Data only available up to November 2020 (months used are April 2019 – November 2019 vs April 2020 – November 2020)*

Annual average (SD) and % change (vs 2019/2020) of the number of people starting treatment within target, following a referral to a bowel cancer pathway in Wales. Data adjusted to 21 days.

	Single Cancer Pathway	Urgent Suspected Cancer Referrals*	Non-urgent 31-day pathway*	Urgent 62-day pathway*
2019/20	148 (13): 85.1%		101 (12): 96.0%	46 (5): 66.1%
2020/21	103 (16): 65.3% *-30.1%*		73 (11): 90.0% *-27.7%*	31 (5): 49.8% *-32.3%*
2021/22	88 (16): 45.5% *-40.5%*			

**Data only available up to November 2020 (months used are April 2019 – November 2019 vs April 2020 – November 2020)*

Annual average (SD) and % change (vs 2019/2020) of the number of people waiting for a colonoscopy appointment in Wales. Data adjusted to 21 days.

	Up to 8 weeks	8+ weeks	Total	% waiting 8+ weeks
2019/20	2,836 (166)	876 (262)	3,711 (319)	23.6%
2020/21	1,902 (402) *-32.9%*	2,836 (590) *223.9%*	4,738 (767) 27.7%	59.9%
2021/22	2,724 (212) *-3.9%*	4,105 (726) *368.9%*	6,829 (897) *84.0%*	60.1%

Annual average (SD) and % change (vs 2019/2020) of the number of people admitted to a hospital with bowel cancer in Wales. Data adjusted to 21 days.

	Total	Emergency admission	% emergency admissions
2019/20	1,093 (58)	65 (10)	6.0%
2020/21	838 (149) *-23.3%*	68 (13) *3.8%*	8.1%
2021/22	1,124 (52) *2.9%*	80 (12) *22.3%*	7.1%

Annual average (SD) and % change (vs 2019/2020) of the number of resections for bowel cancer in Wales. Data adjusted to 21 days.

	Total	Laparoscopic	Stoma-forming	% laparoscopic	% stoma-forming
2019/20	136 (15)	60 (11)	38 (7)	44.1%	28.1%
2020/21	119 (27)	52 (24)	37 (9)	43.7%	30.9%
	-12.6%	*-13.6%*	*-3.9%*		
2021/22	143 (15)	74 (8)	41 (7)	51.5%	28.6%
	5.0%	*22.5%*	*6.7%*		

Annual average (SD) and % change (vs 2019/2020) over time of the number of lung cancer-related symptoms reported to a GP in Wales by all people and people subsequently diagnosed with cancer. Data adjusted to 21 days.

	All people			People subsequently diagnosed with bowel cancer*		
	2019/2020	**2020/2021**	**2021/2022**	**2019/2020**	**2020/2021**	**2021/2022**
Cough	20,482 (6,071)	6,133 (1,158) *-70.1%*	12,627 (4,507) *-38.4%*	168 (35)	56 (10) *-66.7%*	53 (7) *-68.6%*
Haemoptysis	278 (52)	183(24) *-34.1%*	237 (34) *-14.7%*	151 (24)	81 (17) *-46.7%*	67 (12) *-55.8%*
Shortness of breath	8,670 (852)	6,230 (928) *-28.1%*	7,895 (1,069) *-8.9%*			
Fatigue	4,727 (1,011)	2,513 (652) *-46.8%*	3,645 (462) *-22.9%*	28 (7)	20 (8) *-28.8%*	17 (5) *-38.7%*
Weight loss	802 (147)	748 (173) *-6.7%*	921 (110) *14.9%*			
TOTAL	34,959 (6,322)	15,808 (1,947) *-54.8%*	25,325 (4,628) *-27.6%*	347 (54)	156 (23) *-54.9%*	137 (11) *-60.6%*

** Due to small numbers in this group, 'haemoptysis' was joined with 'shortness of breath' and 'fatigue' with 'weight loss'.*

Annual average (SD) and % change (vs 2019/2020) of the number of people starting treatment, following a referral to a lung cancer pathway in Wales. Data adjusted to 21 days.

	Single Cancer Pathway	Urgent Suspected Cancer referrals*	Non-urgent 31-day pathway*	Urgent 62-day pathway*
2019/20	179 (20)	311 (29)	113 (13)	61 (5)
2020/21	157 (16) *-12.0%*	180 (43) *-42.3%*	107 (12) -4.8%	44 (4) *-27.7%*
2021/22	180 (16) *0.6%*			

**Data only available up to November 2020 (months used are April 2019 – November 2019 vs April 2020 – November 2020)*

Annual average (SD) and % change (vs 2019/2020) of the number of people starting treatment within target, following a referral to a lung cancer pathway in Wales. Data adjusted to 21 days.

	Single Cancer Pathway	Urgent Suspected Cancer referrals*	Non-urgent 31-day pathway*	Urgent 62-day pathway*
2019/20	164 (18): 91.9%		110 (13): 98.0%	49 (6): 81.4%
2020/21	130 (20): 82.7% *-20.9%*		106 (12): 98.4% *-4.4%*	34 (5): 78.0% *-30.7%*
2021/22	122 (15): 67.9% *-25.6%*			

**Data only available up to November 2020 (months used are April 2019 – November 2019 vs April 2020 – November 2020)*

Annual average (SD) and % change (vs 2019/2020) of the number of people waiting for a bronchoscopy appointment in Wales. Data adjusted to 21 days. Note that due to small numbers, the % change is very high.

	Up to 8 weeks	8+ weeks	Total	% waiting 8+ weeks
2019/20	29 (6)	0 (1)	29 (7)	1.6%
2020/21	20 (5) *-30.5%*	8 (3) *1622.8%*	28 (5) *-3.4%*	29.2%
2021/22	25 (5) *-13.7%*	3 (1) *497.7%*	27 (6) *-5.3%*	10.3%

Annual average (SD) and % change (vs 2019/2020) of the number of people waiting for an x-ray appointment in Wales. Data adjusted to 21 days.

	Up to 8 weeks	8+ weeks	Total	% waiting 8+ weeks
2019/20	817 (115)	33 (30)	851 (118)	3.9%
2020/21	502 (128) *-38.5%*	269 (105) *706.0%*	772 (79) *-9.3%*	34.9%
2021/22	862 (100) *5.5%*	91 (23) *172.3%*	953 (120) *12.1%*	9.5%

Annual average (SD) and % change (vs 2019/2020) of the number of people admitted to a hospital with lung cancer in Wales. Data adjusted to 21 days.

	Total	Emergency admission	% emergency admissions
2019/20	965 (69)	83 (17)	8.6%
2020/21	735 (72) *-23.8%*	73 (17) *-12.0%*	9.9%
2021/22	923 (58) *-4.4%*	90 (12) *9.0%*	9.8%

Appendix – Data

Number of bowel cancer-related symptoms reported to a GP by people in Wales, by symptom group. Data is adjusted to 21 working days.

Date	Rectal bleeding	Change in Bowel Habits	Constipation	Diarrhoea	Iron-deficiency anaemia	Abdominal pain	Weight loss	Total
Jan-19	1,829	829	2,389	3,059	1,043	11,054	908	21,111
Feb-19	1,596	765	2,375	2,933	1,125	10,759	806	20,360
Mar-19	1,563	732	2,426	2,870	1,257	10,989	788	20,625
Apr-19	1,635	820	2,452	3,045	1,227	10,483	737	20,399
May-19	1,567	786	2,198	3,319	1,273	10,391	850	20,384
Jun-19	1,484	777	2,220	3,275	1,327	10,392	856	20,330
Jul-19	1,397	753	2,153	3,456	1,259	9,269	967	19,254
Aug-19	1,449	798	2,356	3,508	1,241	9,950	933	20,235
Sep-19	1,584	894	2,355	3,381	1,173	10,478	968	20,833
Oct-19	1,630	841	2,313	3,040	1,130	10,204	801	19,958
Nov-19	1,725	752	2,303	3,075	1,154	10,546	798	20,353
Dec-19	1,529	651	2,146	2,848	1,025	9,241	672	18,111
Jan-20	1,647	830	2,400	3,035	1,115	10,582	877	20,485
Feb-20	1,696	827	2,287	2,717	1,242	9,948	720	19,438
Mar-20	1,182	537	1,613	2,108	940	6,456	445	13,281
Apr-20	751	191	1,569	1,568	376	4,311	321	9,087
May-20	1,088	382	1,894	1,930	503	5,987	671	12,455

Jun-20	1,101	497	2,097	2,170	708	6,776	821	14,170
Jul-20	1,205	599	2,063	2,276	826	7,368	882	15,220
Aug-20	1,243	611	2,033	2,497	884	7,436	995	15,700
Sep-20	1,370	696	2,021	2,329	866	7,352	929	15,562
Oct-20	1,428	587	2,121	2,104	879	7,960	808	15,887
Nov-20	1,518	715	2,274	2,399	912	8,564	749	17,131
Dec-20	1,346	613	2,099	2,297	885	7,920	722	15,882
Jan-21	1,485	603	2,252	2,237	827	8,186	632	16,221
Feb-21	1,461	654	2,371	2,132	993	8,647	664	16,921
Mar-21	1,501	747	2,265	2,168	1,118	8,719	782	17,299
Apr-21	1,596	743	2,314	2,317	1,079	8,739	800	17,590
May-21	1,562	802	2,302	2,576	1,183	9,142	862	18,429
Jun-21	1,338	779	2,111	2,774	1,124	8,306	946	17,378
Jul-21	1,278	766	2,125	2,878	1,234	8,144	1,046	17,471
Aug-21	1,463	816	2,138	3,234	1,114	8,780	1,089	18,634
Sep-21	1,565	876	2,068	2,913	1,038	8,773	1,083	18,317
Oct-21	1,530	932	2,104	2,894	909	9,080	995	18,444
Nov-21	1,574	919	2,086	2,674	1,014	9,125	916	18,308
Dec-21	1,347	680	1,885	2,419	923	7,778	800	15,832
Jan-22	1,674	820	2,284	2,523	1,080	9,703	888	18,972
Feb-22	1,550	854	2,196	2,541	1,106	9,345	830	18,420
Mar-22	1,530	807	2,171	2,583	1,225	8,730	802	17,848

Number of bowel cancer-related symptoms reported to a GP in Wales by people subsequently diagnosed with bowel cancer, by symptom group. Data is adjusted to 21 working days.

Date	Rectal bleeding	Change in Bowel Habits	Constipation	Diarrhoea	Abdominal pain	Weight loss & iron-deficiency anaemia	Total
Jan-19	32	24	16	15	89	44	220
Feb-19	27	24	19	34	59	38	201
Mar-19	29	24	25	36	83	39	236
Apr-19	34	16	28	38	67	29	212
May-19	36	17	17	38	45	32	185
Jun-19	28	11	19	16	79	36	188
Jul-19	26	27	25	22	60	33	194
Aug-19	33	17	17	20	79	29	195
Sep-19	30	27	22	17	58	35	189
Oct-19	22	20	29	28	68	38	205
Nov-19	39	17	23	27	57	22	185
Dec-19	23	12	13	14	46	28	135
Jan-20	36	19	23	17	54	34	184
Feb-20	30	26	19	15	54	22	166
Mar-20	19	17	11	17	39	12	116
Apr-20	19	6	22	24	43	14	128
May-20	36	7	17	27	52	22	160
Jun-20	25	21	17	25	43	32	162
Jul-20	26	29	17	25	45	24	166
Aug-20	15	24	16	21	54	38	167

Sep-20	23	12	22	18	45	27	147
Oct-20	43	8	16	19	52	36	174
Nov-20	22	25	26	19	46	27	165
Dec-20	24	15	19	18	57	31	164
Jan-21	30	11	13	23	39	40	155
Feb-21	27	15	21	19	58	32	171
Mar-21	22	15	9	18	50	30	144
Apr-21	27	22	15	18	49	40	171
May-21	33	25	15	23	60	40	197
Jun-21	28	14	20	14	41	33	151
Jul-21	24	11	22	17	41	33	149
Aug-21	34	14	13	24	53	30	168
Sep-21	33	21	17	20	61	30	182
Oct-21	22	23	10	14	34	26	129
Nov-21	24	21	11	19	39	26	139
Dec-21	23	18	5	15	38	18	117
Jan-22	33	19	22	18	46	34	171
Feb-22	26	17	6	9	35	19	112
Mar-22	27	16	15	16	43	28	145

Number of lung cancer-related symptoms reported to a GP by people in Wales, by symptom group. Data is adjusted to 21 working days.

Date	Cough	Fatigue	Haemoptysis	Shortness of breath	Weight loss	Total
Jan-19	30,214	4,534	421	9,158	908	45,235
Feb-19	23,812	4,883	368	9,308	806	39,177
Mar-19	20,869	5,265	297	9,068	788	36,287
Apr-19	22,635	5,415	339	9,015	737	38,141
May-19	17,944	5,651	265	9,167	850	33,877
Jun-19	16,603	6,073	272	9,065	856	32,868
Jul-19	14,426	5,218	233	8,583	967	29,426
Aug-19	12,714	5,014	214	8,060	933	26,935
Sep-19	16,160	5,259	242	8,673	968	31,302
Oct-19	21,093	4,721	295	8,740	801	35,650
Nov-19	22,858	4,251	317	8,930	798	37,154
Dec-19	31,368	3,212	336	8,055	672	43,642
Jan-20	31,184	4,629	342	9,725	877	46,757
Feb-20	22,731	4,785	300	9,538	720	38,075
Mar-20	16,074	2,497	182	6,485	445	25,683
Apr-20	7,314	956	129	4,376	321	13,097
May-20	5,478	1,700	178	5,568	671	13,595
Jun-20	4,717	2,384	151	5,602	821	13,676
Jul-20	4,312	2,903	190	5,757	882	14,044
Aug-20	4,488	2,957	194	5,476	995	14,110
Sep-20	7,416	2,894	188	6,148	929	17,575

Oct-20	6,899	2,574	175	6,599	808	17,055
Nov-20	6,082	2,738	183	6,921	749	16,673
Dec-20	7,236	2,211	182	6,325	722	16,676
Jan-21	7,239	2,654	215	7,082	632	17,823
Feb-21	5,882	2,754	203	7,277	664	16,779
Mar-21	6,532	3,435	213	7,629	782	18,590
Apr-21	7,344	3,737	194	7,323	800	19,398
May-21	8,133	4,180	225	7,732	862	21,133
Jun-21	7,967	4,089	171	6,981	946	20,153
Jul-21	8,312	3,940	217	7,101	1,046	20,616
Aug-21	8,273	3,918	200	6,917	1,089	20,397
Sep-21	13,446	3,439	262	7,474	1,083	25,704
Oct-21	17,365	3,265	263	7,395	995	29,283
Nov-21	18,510	3,265	267	8,061	916	31,019
Dec-21	19,369	2,550	271	7,059	800	30,049
Jan-22	15,642	3,614	250	9,193	888	29,587
Feb-22	12,606	3,700	267	9,557	830	26,960
Mar-22	14,562	4,038	259	9,945	802	29,606

Number of lung cancer-related symptoms reported to a GP in Wales by people subsequently diagnosed with bowel cancer, by symptom group. Data is adjusted to 21 working days.

Date	Cough	Shortness of breath & Haemoptysis	Fatigue & Weight loss	Total
Jan-19	284	202	26	512
Feb-19	215	205	22	442
Mar-19	209	200	25	434
Apr-19	209	177	24	411
May-19	171	184	31	386
Jun-19	167	172	25	364
Jul-19	161	163	31	354
Aug-19	131	139	35	305
Sep-19	133	143	27	303
Oct-19	156	161	31	348
Nov-19	184	148	40	372
Dec-19	226	144	22	392
Jan-20	211	155	26	391
Feb-20	154	139	25	318
Mar-20	108	94	14	216
Apr-20	44	51	11	106
May-20	64	85	12	161
Jun-20	62	102	25	189
Jul-20	58	98	31	187
Aug-20	43	84	33	160

Sep-20	69	57	21	147
Oct-20	54	89	10	153
Nov-20	48	86	19	153
Dec-20	69	69	24	162
Jan-21	59	62	12	132
Feb-21	39	90	20	149
Mar-21	60	96	20	176
Apr-21	49	82	18	149
May-21	50	85	17	151
Jun-21	56	69	25	150
Jul-21	50	68	17	135
Aug-21	49	71	18	138
Sep-21	54	64	22	140
Oct-21	71	58	15	144
Nov-21	56	70	8	134
Dec-21	48	45	22	115
Jan-22	54	48	20	122
Feb-22	51	70	11	132
Mar-22	43	74	12	129

Number of bowel cancer referrals starting treatment for bowel cancer in total and within target. Data is adjusted to 21 working days.

	Single Cancer Pathway		Non-urgent 31-day pathway		Urgent 62-day pathway		USCR
Date	Total referrals	Within 62 days	Total referrals	Within 31 days	Total referrals	Within 62 days	Total referrals
Jan-19	176	163	125	125	51	38	1297
Feb-19	171	146	99	94	72	51	1425
Mar-19	168	147	103	101	65	46	1425
Apr-19	183	151	107	101	76	50	1647
May-19	184	152	107	104	77	48	1665
Jun-19	180	148	110	105	69	43	1548
Jul-19	169	143	89	89	79	54	1428
Aug-19	146	123	83	80	63	43	1477
Sep-19	191	163	121	118	70	45	1676
Oct-19	176	155	116	112	60	43	1569
Nov-19	168	139	110	100	58	39	1569
Dec-19	185	165	107	106	78	59	1483
Jan-20	157	133	97	93	59	40	1705
Feb-20	164	139	86	86	78	52	1699
Mar-20	183	164	112	109	72	55	1196
Apr-20	148	120	90	90	58	29	485
May-20	123	91	66	59	56	32	1000
Jun-20	132	97	76	68	55	30	1244
Jul-20	132	99	68	66	64	33	1324
Aug-20	172	128	96	88	77	40	1367

Sep-20	151	104	88	74	63	31	1623
Oct-20	143	94	80	69	63	25	1449
Nov-20	146	98	86	71	60	27	1543
Dec-20	164	90					
Jan-21	152	77					
Feb-21	206	111					
Mar-21	229	131					
Apr-21	181	98					
May-21	199	127					
Jun-21	164	82					
Jul-21	221	106					
Aug-21	151	72					
Sep-21	204	76					
Oct-21	187	81					
Nov-21	209	78					
Dec-21	186	71					
Jan-22	209	85					
Feb-22	204	91					
Mar-22	208	89					

Number of lung cancer referrals starting treatment for lung cancer in total and within target. Data is adjusted to 21 working days.

	Single Cancer Pathway		Non-urgent 31-day pathway		Urgent 62-day pathway		USCR
Date	Total referrals	Within 62 days	Total referrals	Within 31 days	Total referrals	Within 62 days	Total referrals
Jan-19	178	170	125	122	53	48	332
Feb-19	184	174	117	114	67	60	334
Mar-19	146	142	93	93	53	49	290
Apr-19	181	170	122	121	59	49	328
May-19	174	155	113	111	61	44	352
Jun-19	186	175	118	116	68	60	329
Jul-19	175	160	109	105	67	55	307
Aug-19	165	153	103	101	62	52	275
Sep-19	145	133	91	90	54	43	291
Oct-19	190	178	135	131	55	47	275
Nov-19	168	152	110	108	58	44	332
Dec-19	181	172	121	119	60	54	254
Jan-20	158	143	107	103	51	40	292
Feb-20	197	178	125	122	72	57	276
Mar-20	223	201	143	138	80	63	206
Apr-20	154	138	107	105	47	33	91
May-20	147	130	106	104	41	27	156
Jun-20	145	134	103	103	42	31	161
Jul-20	136	131	99	97	37	34	192
Aug-20	166	161	120	120	46	41	214

Sep-20	175	163	126	123	49	40	212
Oct-20	151	136	108	105	43	31	220
Nov-20	134	123	89	87	45	36	190
Dec-20	174	125					
Jan-21	172	101					
Feb-21	151	91					
Mar-21	180	126					
Apr-21	175	130					
May-21	209	151					
Jun-21	182	137					
Jul-21	179	116					
Aug-21	192	117					
Sep-21	187	123					
Oct-21	170	111					
Nov-21	185	129					
Dec-21	186	125					
Jan-22	158	103					
Feb-22	185	126					
Mar-22							

Number of people waiting for a diagnostic test appointment. Data is adjusted to 21 working days.

Date	Colonoscopy			Bronchoscopy			Non-cardiac nuclear medicine (X-ray)		
	Up to 8 weeks	8+ weeks	Total	Up to 8 weeks	8+ weeks	Total	Up to 8 weeks	8+ weeks	Total
Jan-19	2,737	924	3,661	28	0	28	746	10	756
Feb-19	2,850	917	3,766	29	0	29	891	6	898
Mar-19	2,576	831	3,407	25	0	25	800	0	800
Apr-19	3,011	970	3,982	28	0	28	859	0	859
May-19	2,800	1,015	3,815	32	0	32	863	1	864
Jun-19	2,784	1,031	3,815	30	0	30	901	2	903
Jul-19	2,672	899	3,572	37	3	39	692	8	700
Aug-19	2,844	1,104	3,948	35	0	35	757	8	765
Sep-19	2,783	1,110	3,893	29	0	29	876	22	898
Oct-19	2,600	925	3,525	16	0	16	826	36	862
Nov-19	3,043	954	3,997	19	0	19	894	69	963
Dec-19	3,112	1,021	4,133	34	1	35	915	76	990
Jan-20	2,657	782	3,438	30	0	30	792	55	848
Feb-20	2,982	366	3,348	32	0	32	909	63	972
Mar-20	2,738	329	3,067	22	2	24	521	61	582
Apr-20	2,188	1,577	3,765	15	8	23	392	226	617
May-20	1,149	3,121	4,271	18	14	32	265	416	681
Jun-20	1,170	2,511	3,682	8	13	21	337	386	723
Jul-20	1,558	2,294	3,852	19	7	26	397	352	750
Aug-20	1,962	2,687	4,649	21	7	28	500	386	886
Sep-20	1,853	2,672	4,525	25	7	32	511	322	832

Oct-20	2,039	2,810	4,849	18	8	26	521	278	799
Nov-20	2,305	3,114	5,419	25	9	34	604	246	850
Dec-20	2,317	3,556	5,873	27	9	36	606	194	800
Jan-21	2,022	3,788	5,811	23	5	28	635	202	837
Feb-21	2,149	3,256	5,405	19	5	24	652	130	782
Mar-21	2,108	2,648	4,756	21	5	26	607	95	702
Apr-21	2,621	3,189	5,810	19	4	23	761	84	845
May-21	2,634	3,559	6,193	27	4	31	951	96	1,047
Jun-21	2,510	3,240	5,750	31	4	34	802	79	881
Jul-21	2,349	3,430	5,779	18	1	19	779	67	846
Aug-21	2,615	3,840	6,455	23	2	25	836	75	911
Sep-21	2,514	3,897	6,412	27	5	32	691	74	766
Oct-21	2,889	4,199	7,088	23	4	27	850	75	925
Nov-21	2,980	4,211	7,191	16	1	17	853	73	926
Dec-21	2,927	4,949	7,876	25	2	27	872	92	964
Jan-22	2,805	5,346	8,150	25	3	28	972	123	1,095
Feb-22	3,016	5,123	8,139	29	1	30	1,046	134	1,180
Mar-22	2,822	4,280	7,103	33	3	36	934	120	1,054

Number of people admitted to hospital for bowel and lung cancer. Data is adjusted to 21 working days.

Date	BOWEL CANCER		LUNG CANCER	
	Total	Emergency	Total	Emergency
Jan-19	974	64	943	79
Feb-19	959	58	968	72
Mar-19	1,021	57	998	93
Apr-19	1,126	60	1,034	104
May-19	1,184	64	955	104
Jun-19	1,141	83	935	100
Jul-19	1,075	63	1,056	100
Aug-19	1,136	69	998	90
Sep-19	1,096	78	971	84
Oct-19	1,010	58	974	76
Nov-19	1,078	74	942	79
Dec-19	1,078	70	1,029	67
Jan-20	1,151	58	931	70
Feb-20	1,045	51	960	70
Mar-20	996	53	789	52
Apr-20	684	43	781	55
May-20	626	60	628	61
Jun-20	677	65	620	80
Jul-20	707	81	640	99
Aug-20	804	79	811	102
Sep-20	834	66	805	71
Oct-20	858	62	733	70

Nov-20	876	79	693	69
Dec-20	877	54	796	69
Jan-21	977	61	790	51
Feb-21	1,052	74	783	59
Mar-21	1,086	88	742	90
Apr-21	1,124	76	874	69
May-21	1,240	102	906	115
Jun-21	1,130	80	884	86
Jul-21	1,093	73	930	89
Aug-21	1,115	69	976	90
Sep-21	1,101	70	782	90
Oct-21	1,145	102	969	94
Nov-21	1,070	72	988	86
Dec-21	1,050	76	973	110
Jan-22	1,172	88	917	83
Feb-22	1,167	83	915	79
Mar-22	1,087	66	958	94

Number of resections for lung cancer and bowel cancer, with breakdown of laparoscopic and stoma-forming surgeries. Data is adjusted to 21 working days.

	BOWEL CANCER			LUNG CANCER
Date	**Total**	**Laparoscopic**	**Stoma-forming**	**Total**
Jan-19	118	48	30	33
Feb-19	121	54	33	28
Mar-19	141	62	41	27
Apr-19	153	68	43	34
May-19	138	66	30	36
Jun-19	131	62	30	29
Jul-19	134	51	45	42
Aug-19	103	37	29	29
Sep-19	139	62	43	28
Oct-19	154	81	46	33
Nov-19	145	61	38	28
Dec-19	150	64	49	29
Jan-20	117	57	32	22
Feb-20	131	50	33	33
Mar-20	139	62	42	31
Apr-20	88	13	35	15
May-20	65	18	17	17
Jun-20	104	29	33	15
Jul-20	107	43	40	15
Aug-20	141	59	47	16

Sep-20	141	70	33	25
Oct-20	128	67	37	16
Nov-20	126	58	40	10
Dec-20	109	56	31	21
Jan-21	121	50	36	21
Feb-21	132	65	41	32
Mar-21	168	98	52	27
Apr-21	127	72	44	23
May-21	162	80	53	22
Jun-21	128	78	40	26
Jul-21	147	63	51	30
Aug-21	114	58	36	29
Sep-21	135	77	32	31
Oct-21	145	72	39	28
Nov-21	149	73	40	37
Dec-21	150	77	43	23
Jan-22	155	84	48	22
Feb-22	165	85	34	22
Mar-22	141	66	32	20

Number of bowel and lung cancer patients undergoing their first radiotherapy procedure in Wales. Data is adjusted to 21 working days.

Date	BOWEL CANCER	LUNG CANCER
Jan-19	36	36
Feb-19	39	39
Mar-19	26	26
Apr-19	32	32
May-19	25	25
Jun-19	34	34
Jul-19	26	26
Aug-19	23	23
Sep-19	33	33
Oct-19	21	21
Nov-19	27	27
Dec-19	27	27
Jan-20	22	22
Feb-20	21	21
Mar-20	29	29
Apr-20	32	32
May-20	45	45
Jun-20	32	32
Jul-20	23	23
Aug-20	19	19
Sep-20	25	25
Oct-20	26	26

Nov-20	22	22
Dec-20	35	35
Jan-21	32	32
Feb-21	43	43
Mar-21	39	39
Apr-21	42	42
May-21	36	36
Jun-21	26	26
Jul-21	44	44
Aug-21	26	26
Sep-21	40	40
Oct-21	34	34
Nov-21	40	40
Dec-21	41	41
Jan-22	46	46
Feb-22	42	42
Mar-22	40	40

Number of bowel and lung cancer patients undergoing their first chemotherapy procedure in Wales. Data is adjusted to 21 working days.

Date	BOWEL CANCER	LUNG CANCER
Jan-19	36	44
Feb-19	39	53
Mar-19	26	30
Apr-19	32	58
May-19	25	54
Jun-19	34	44
Jul-19	26	55
Aug-19	23	45
Sep-19	33	54
Oct-19	21	51
Nov-19	27	41
Dec-19	27	43
Jan-20	22	57
Feb-20	21	63
Mar-20	29	39
Apr-20	32	46
May-20	45	53
Jun-20	32	32
Jul-20	23	46
Aug-20	19	45
Sep-20	25	41
Oct-20	26	37

Nov-20	22	19
Dec-20	35	47
Jan-21	32	37
Feb-21	43	42
Mar-21	39	40
Apr-21	42	43
May-21	36	44
Jun-21	26	39
Jul-21	44	58
Aug-21	26	44
Sep-21	40	38
Oct-21	34	31
Nov-21	40	43
Dec-21	41	44
Jan-22	46	48
Feb-22	42	25
Mar-22	40	28

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