Scottish Government
Riaghaltas na h-Alba

Scottish Referral Guidelines for Suspected Cancer

Full Clinical Review

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CANCER RESEARCH UK

SCOTTISH PRIMARY CARE CANCER GROUP

Healthcare Improvement Scotland

Centre for Sustainable Delivery

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Introduction

Cancer is a common condition with 36,036 new cases diagnosed in 2022 in Scotland (excluding non-melanoma skin cancers)[1]. Cancer remains a national clinical priority for the Scottish Government and National Health Service (NHS) Scotland.

The **Scottish Government's Cancer Strategy (2023 to 2033)** launched in June 2023. This Strategy aims to strengthen core elements of the cancer pathway while focusing on cross-cutting issues that will enable success. The Strategy focuses on improving the prevention, detection and treatment of cancer, reducing both late-stage diagnosis and the health inequality gap, particularly for those from areas of deprivation.

Cancer survival is dependent on disease biology, stage at diagnosis and patient access to timely treatment. Earlier diagnosis can reduce premature deaths from some cancers and have a positive effect on overall life expectancy. A new earlier cancer diagnosis vision was developed as part of the Scottish Government's Cancer Strategy for Scotland. The vision is to reduce later stage (3 or 4) disease by 18 percentage points by 2033.

A key objective is to work with healthcare professionals and wider primary care teams to promote referral or investigation at the earliest reasonable opportunity for people with clinical features suspicious of cancer, while making the most efficient and equitable use of NHS resources, avoiding adverse impact on access to services.

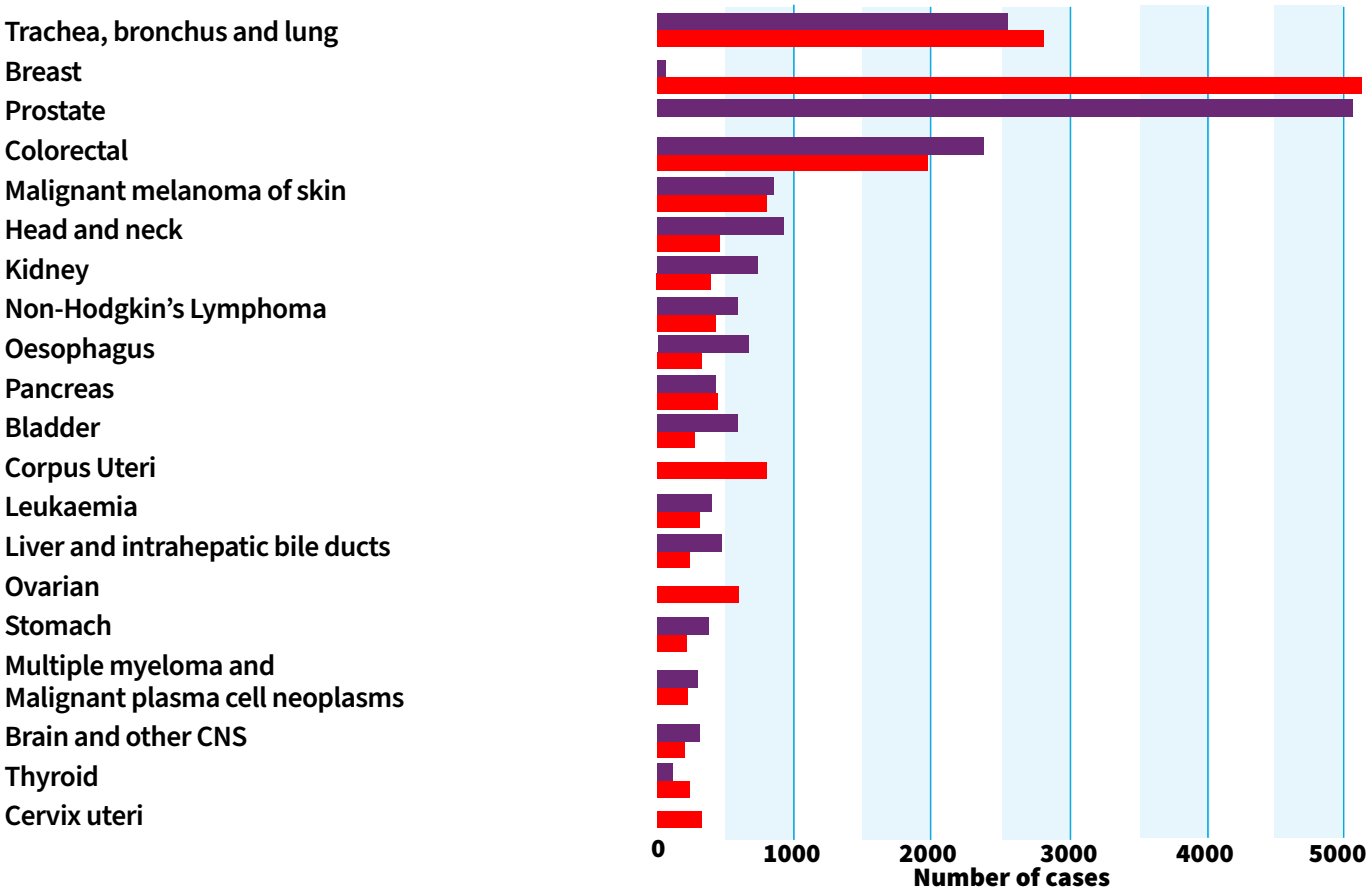
Cancer incidence in Scotland

Table 1: Number of cases of the 10 most common cancers in Scotland in 2022[1] (excluding non-melanoma skin cancers)

Cancer type	ICD-10 code	Total new cases in 2022 (Scotland)[1]	No. cases per average GP practice per year in Scotland
Trachea, bronchus and lung	C33-C34	5,391	6.08
Breast	C50	5,183	5.84
Prostate	C61	5,064	5.71
Colorectal	C18-C20	4,337	4.89
Malignant melanoma of skin	C43	1,656	1.87
Head and neck	C00-C14, C30-C32	1,389	1.57
Kidney	C64-C65	1,115	1.26
Non-Hodgkin's Lymphoma	C82-C86	1,021	1.15
Oesophagus	C15	992	1.12
Pancreas	C25	866	0.98

Column four shows the expected number of new cases per year in an average (mean) General Practitioner (GP) practice (based on a GP practice count of 887[2] and 2021 census population figures[3], giving 6,129 individuals per practice). It should be noted that the variability in GP practice populations (e.g. list size, age distribution, urban versus rural and socioeconomic factors) affects the applicability of this data to an individual practice.

Figure 1: Twenty most common cancers in Scotland in 2022 (excluding non-melanoma skin cancers), by sex[1] **Male** **Female**



Demographic factors

Socio-economic deprivation affects the incidence of, and mortality associated with, cancers. Cancer risk has been shown to increase from those living in the least deprived to those in the most deprived areas of Scotland. For the period 2015 to 2019, age-standardised incidence rates were 35% higher in the most deprived areas compared with the least deprived[1]. In 2021, the difference was 30%[4]. Staging data from 2022[5] shows that patients from more deprived areas tend to be diagnosed at a later stage.

The Inverse Care Law[6] describes how access to healthcare is poorest for those who need it the most, driven by a variety of factors. It is essential that any consultation, or other opportunity where a person from a deprived area presents with symptoms suggestive of cancer, is used to full advantage.

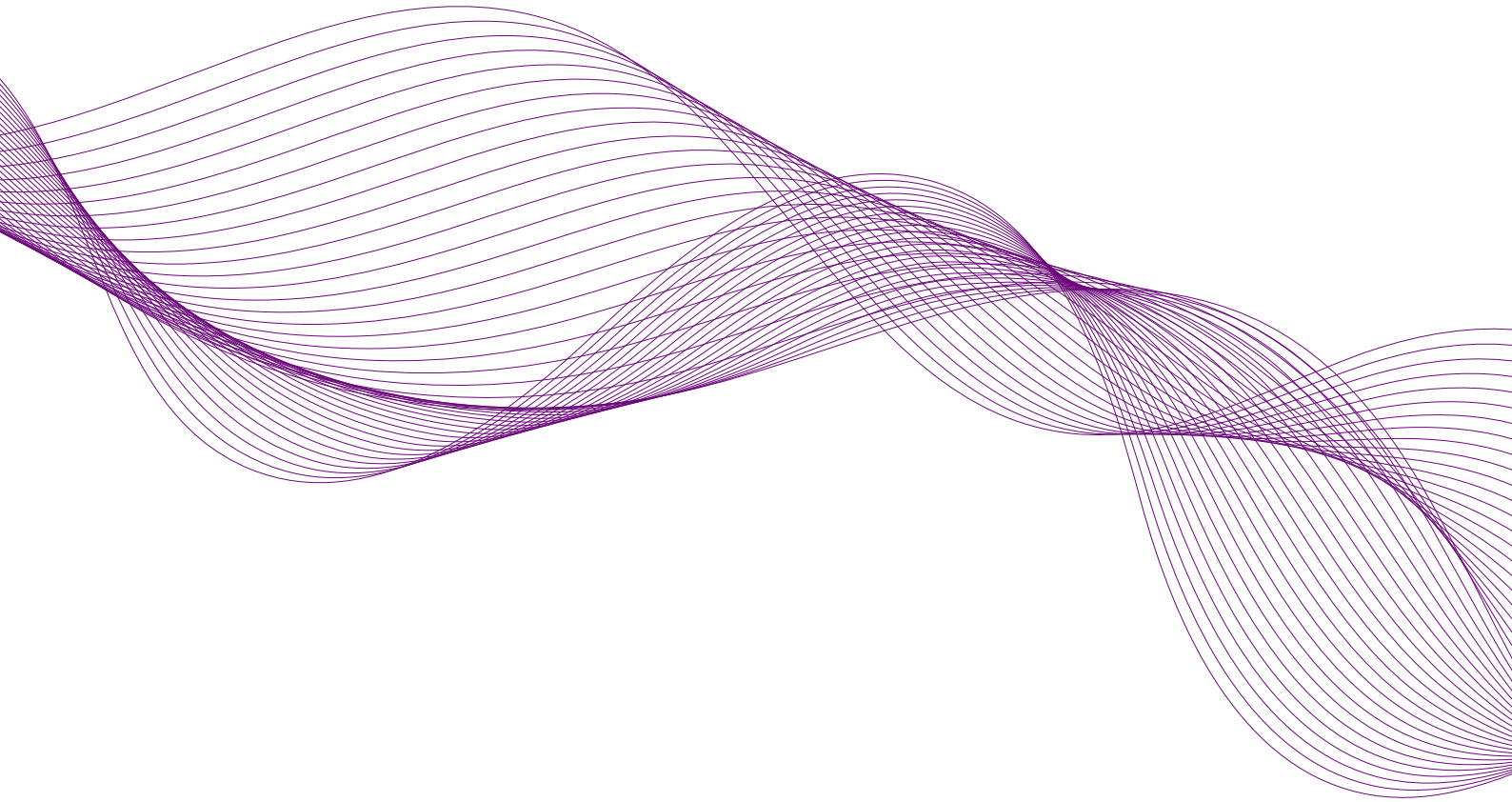
Some cancers occur more frequently in certain communities e.g. the lifetime risk of prostate cancer in black men is twice that of white men[7]. Risk factors such as these have been highlighted in each referral guide to aid primary care in assessing the risk of cancer and making onward referrals.

A practical guide has been developed by the Scottish Primary Care Cancer Group (SPCCG) that can be used to help address inequalities in cancer care - **Cancer Inequalities in Scotland: A Practical Guide for GP Practices**.

Comorbidity

The ageing population and the increasing number of people with long-term conditions and co-morbidity pose major clinical challenges. This affects both the incidence of and mortality from cancer. Chronic disease management programmes may afford an opportunity to identify symptoms suggestive of cancer.

In this context, a healthcare professional must differentiate between people whose symptoms may be due to cancer and the much larger number of people with similar symptoms arising from other causes. For certain symptoms, it may be entirely appropriate for a clinician to wait to see if they resolve. Persistence or worsening of symptoms, or recurrent presentations, may alert the healthcare professional to the possibility of cancer. These Guidelines have been developed to support healthcare professionals with this task.



Purpose and development of the Guidelines

Purpose and development of the Guidelines

Purpose of the Guidelines

These Guidelines support delivery of the **Cancer Strategy for Scotland's** earlier diagnosis vision. Reducing the number of later stage (3 or 4) diagnoses will improve cancer survival and patient outcomes.

These Guidelines have been developed to support healthcare professionals to identify and refer people with symptoms suspicious of cancer. The Guidelines will also aid secondary care clinicians in vetting referrals to ensure people with symptoms suspicious of cancer are prioritised for further assessment. In addition, they describe the impact that socio-economic and health inequalities can have on cancer referrals. The Guidelines will also help healthcare professionals to identify those who are unlikely to have cancer and may be managed or referred through other pathways.

Development of the Guidelines

The Scottish Referral Guidelines (SRGs) for Suspected Cancer were first published in 2002 and subsequently revised in 2007, 2014, and 2019. In 2023, the Scottish Government commissioned the Centre for Sustainable Delivery (CfSD) to conduct a full clinical review and update of the SRGs according to current evidence and clinical consensus.

CfSD commissioned Healthcare Improvement Scotland (HIS) and Cancer Research UK (CRUK) to undertake a review of current international cancer referral guidelines and emerging evidence for each tumour group. Relevant demographic data was also obtained from Scottish Government and Public Health Scotland (PHS). A Project Team and Steering Group were established to oversee the clinical review process (see Appendices 1 & 2).

In the context of urgent suspicion of cancer (USC) referrals, a positive predictive value (PPV) describes the chance of a person having cancer when they present with defined clinical features. The prior SRGs used a threshold of equal to or above 3% (≥3%). This meant that a person should be referred for urgent assessment if there was a 3% (or greater) chance of their clinical features being due to cancer. It was accepted that PPV data was not available for all cancer types.

HIS and CRUK were commissioned to review the suitability of reducing the PPV below 3% for this Guideline review. Published data showed that decreasing this threshold would increase referrals (e.g. change from 3% to 2% would increase referrals by 8%) but could detect a small proportion (<5%) of cancers in the year preceding development of more significant clinical features (i.e. those exceeding the 3% threshold)[8,9]. The effect was not the same for all cancer types[8,9]. Considering this modest effect on cancer detection and the current pressures on diagnostic services, the Steering Group decided to keep the current Guideline's PPV threshold at equal to or greater than 3%. This threshold is in line with other cancer referral guidelines including National Institute for Clinical Excellence (NICE).

Peer review sessions (PRSs) were held for each of the tumour groups. A session was also held to create a new guideline on assessing and referring people with non-specific symptoms of cancer. As national guidelines on **Malignant Spinal Cord Compression (MSCC)** had been produced recently, the Steering Group decided not to hold a PRS specifically for MSCC and it has not been included in the Guidelines.

Scotland's three Regional Cancer Networks were approached to nominate at least 3 representatives for each session, who were responsible for liaising with their respective tumour groups both ahead of the sessions and on the draft produced. The SPCCG was approached to identify Health Board GP Cancer Leads for each session, with a minimum of two in attendance at each PRS. HIS also identified a public partner to attend each PRS who was responsible for representing the public/patient perspective. There were also attendees who had participated in the previous SRG review - for a full list of attendees see Appendix 3. This process ensured geographic balance in representation.

Demographic data alongside the findings of the evidence reviews undertaken by HIS and CRUK were presented at each PRS. Decisions on the content of the new Guidelines were made based on evidence and clinical consensus. Where national guidelines were in place or being revised, effort was made to ensure consistency between these and the refreshed SRGs. CfSD has published several directly relevant pathways and guidelines to date - references and links to these have been included throughout the refreshed SRGs.

Decision logs for each PRS were produced to keep a record of all changes made. Attendees identified, reviewed, and systematically considered differences in recommendations based on their expert clinical knowledge and practical experience, while considering the Scottish context.

Following the 14 PRSs, a Task and Finish Sub-group of the Steering Group was established to take the SRGs from updated drafts to a finalised version, ready for publication (see Appendix 4). This group aimed to ensure that the language and formatting was clear and consistent throughout.

A 6-week wider stakeholder engagement phase then commenced, beyond those who had participated in a PRS. This helped ensure that the draft Guidelines were well populated across NHS Scotland and had the consensus needed to be effectively implemented at the point of publication.

Terminology used throughout the Guidelines

Throughout the SRGs 'woman/women' refers to the biological sex of a person born female and the term 'man/male' refers to the biological sex of a person born male, as defined by the Equality Act 2010.

It may be necessary to widen the definition for certain cancer types to account for anatomical considerations that would be applicable to a transgender woman or transgender man.

The reason for this is that the risk of a particular cancer type relates to biological sex and the effects of gender reassignment treatment. For example, transgender individuals are reported to have a higher risk of breast cancer compared to men, but a lower risk compared to women[10].

Where anatomical considerations or gender reassignment are relevant, this has been highlighted in the individual clinical guidelines.

Under the **Children and Young People (Scotland) Act 2014**, the term 'child' refers to anyone under the age of 18. However, for the purpose of the Children and Young People Cancer Guideline, a 'child' refers to someone between the ages of 0 and 14, and a 'young person' between the ages of 15 and 24.

Throughout the Guidelines 'people of colour' are referred to where clinically relevant, such as in the Skin Cancers Guideline. This term refers to diverse skin colours and includes people of African, Asian, Latino, Mediterranean, Middle Eastern, and Native American descent.

Equality Impact Assessment (EQIA)

The Scottish Government and NHS Scotland are committed to embedding the principles of equality, diversity and inclusion, and protecting the human rights of everybody in Scotland with respect to the nine protected characteristics: age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, sex and sexual orientation. Throughout the SRG review process, consideration was also given to how the updated Guidelines would impact those with carer status and those from a lower socio-economic background.

An equality impact assessment (EQIA) was used throughout the development process. At the end of each PRS the nine protected characteristics were reviewed and attendees were asked to consider any impact on changes made to the Guidelines. The purpose of this was to ensure that there were no unintended consequences for any of the protected groups.

Dissemination of the Guidelines

The Guidelines will be made available to all healthcare professionals to whom someone may first present with symptoms of a possible cancer. This includes GPs, Advanced Nurse Practitioners (ANPs) and other nursing staff, Allied Health Professionals (AHPs), pharmacists, dentists, optometrists, NHS24, paramedics and Accident and Emergency (A&E) departments. The Guidelines will also be brought to the attention of secondary care clinicians of all grades to encourage equal access to investigation and to facilitate interdepartmental referrals.

The Guidelines will be actively disseminated through a number of key stakeholders including Regional Cancer Network, SPCCG, NHS Cancer Managers, Royal Colleges, Scottish Government Primary Care Directorate, Directors of Pharmacy, Chief Operating Officer for NHS Scotland and through CfSD Board Champions. The delivery of a robust communications plan will support broad dissemination across all relevant groups, networks and stakeholders across NHS Scotland.

Future refreshes

The SRGs will be reviewed every three years although they may be subject to update before this period should new clinical evidence emerge. Timings will be considered with the SPCCG and CfSD's Primary and Secondary Care Interface Group (PCSCI).

Monitoring effectiveness

USC referrals, and associated conversion and detection data, collected by Public Health Scotland (PHS), will be reviewed. In addition, it is recommended that NHS Boards conduct audits on the use of the Guidelines and any regrading or Active Clinical Referral Triage (ACRT) trends, at least every year, to ensure effectiveness.

Referral Process

Referral Process

These Guidelines are designed to be used in any primary care setting, by any member of the clinical team. Local arrangements should be in place in each NHS Board for ANPs and other nursing staff, AHPs, pharmacists, dentists, optometrists, NHS24, paramedics and others to ensure rapid referral is arranged.

Referral processes will differ by clinical group and may include direct referral (with simultaneous notification of the GP when applicable) or by planning for the person to see their GP urgently, clearly notifying the concern about suspected cancer.

The Guidelines will also be relevant to secondary care clinical teams to promote equal access to investigation and to facilitate active clinical referral triage (ACRT) and interdepartmental referrals.

Purpose of an urgent suspicion of cancer (USC) referral

NHS Boards have well-established USC referral pathways to facilitate prompt diagnosis. The USC referral pathway is designed to allow the rapid assessment and investigation of a person with clinical features suggestive of a cancer diagnosis to determine the cause of their symptoms. For people whose presenting symptoms persist, it is not acceptable to simply exclude cancer without providing an assessment of the underlying cause. This may involve individual hospital specialties making internal referrals to their colleagues to help determine the nature and cause of the presenting symptoms. These internal referrals should be carried out as quickly as possible and with effective communication to both the patient and referring clinician to optimise the patient's journey. Where diagnostic tests are undertaken, the clinician (primary care or secondary care) requesting the test has a responsibility for acting on the result and ensuring that the patient receives this information.

Patients' and carers' needs

All healthcare professionals should be sensitive to the needs of patients, carers and relatives when cancer is suspected. Realistic Medicine is the Scottish Government's initiative to put the person at the centre of decision-making and encourages a personalised approach to their care. Effective communication is key, and the **Benefit, Risk, Alternative, Nothing** (BRAN) questions should be considered by all involved to help lead to shared decision-making.

People should be encouraged to ask questions, for example:

B – What are the Benefits of this test or procedure?
R – What are the Risks of this test or procedure?
A – Are there any Alternatives?
N – What if I do Nothing?

Meanwhile, clinicians should also ask themselves:

B – Will this patient really Benefit from this test/procedure /hospitalisation?
R – Am I exposing this patient to Risks?
A – What Alternative options have we discussed?
N – If I were this patient, would I consider doing Nothing at this stage?

It is also important to consider the individual's particular circumstances, for example, age, family, work and culture.

It is good practice to assess general fitness, frailty and/or performance status in the referral (e.g. Eastern Co-operative Oncology Group/World Health Organisation **ECOG/WHO performance status** and **Clinical Frailty Scale**) to facilitate discussion about the most appropriate investigations needed.

It is also important to encourage action that supports optimisation, particularly when modifiable factors are identified, and a patient is keen to proceed with referral, investigation and treatment. Early optimisation or pre-habilitation can enable treatment and improve outcomes. Further information and resources for patients and healthcare professionals is available via **Prehabilitation for Scotland**.

It should also be recognised that there are occasions when intrusive intervention is not in a person's best interests. There should be full discussion about alternative approaches, including with relevant others if a person lacks capacity, complying with the **Adults with Incapacity (Scotland) Act 2000**.

Further good practice includes:

- Being sensitive to the person's wishes to be involved in decisions about their care.
- Carefully considering the need for emotional and physical support while awaiting an appointment with a specialist and, where appropriate, providing a key contact.
- Providing understandable information at a level appropriate to the person's wishes to be informed.
- Being aware of, and offering to provide access to, sources of information in various formats, including different languages and exploring options for interpreter support.
- Using the word "cancer" as a reason for investigation or referral unless there is serious concern about causing unwarranted distress.
- Providing information about any referral to other services in the format(s) most suitable for the person, including how long they might have to wait, who they are likely to see, and what is likely to happen to them.
- Considering any social or practical support that the person may need to help facilitate their attendance at any appointments and reduce risk of non-attendance. Further information is available at '**applying a missingness lens to healthcare'**.
- Considering any carers' needs for support and information, taking issues of confidentiality into consideration.
- Maintaining a high standard of communication skills including, for example, in the process of breaking bad news.

For further information, the **National Realistic Medicine Toolkit** for professionals is available.

Opportunity for health promotion

People presenting with potentially concerning symptoms, whether warranting a USC referral or not, is an opportunity to consider health promotion such as smoking cessation, reducing alcohol intake, diet, obesity, exercise and engaging with national screening and immunisation programmes. It may be helpful to inform people that 4 in 10 cancers are preventable[11], and that addressing risk factors can help reduce their overall cancer risk. The resource - **Initiating A Brief Intervention** - is a guide for health professionals on discussing cancer risk reduction with patients.

Structured documentation for referral

To achieve consistency, a standard referral form can be helpful for use in all clinical settings. Scottish Care Information (SCI) Gateway provides the means for electronic referrals and the ability to create such a form. Use of these may vary across NHS Scotland.

Further considerations for assessment and referral

GP gut feeling

GP 'gut feeling' is an uneasy feeling experienced by a GP that something is wrong with a patient even though there may not be any specific indications to suggest this. It may also be described as 'intuition', 'suspicion' or 'instinct'. It is derived from a rapid summing up of multiple verbal and non-verbal patient cues and is related to continuity of care and clinical experience. GP 'gut feeling' is a useful diagnostic aid that has been shown to be predictive of cancer and can be used with symptom combinations included in clinical guidelines[12,13].

Non-specific symptoms

USC referral pathways function particularly well in cases where symptoms and signs are suspicious of a specific tumour type. However, cancer can present with non-specific symptoms (such as malaise, abdominal pain, or significant unexplained weight loss) that do not help identify the most appropriate referral pathway.

Weight loss is a non-specific symptom that poses a diagnostic challenge in primary care. It can be associated with several conditions including cancer. Published data shows that the likelihood of a cancer diagnosis is increased in the 3-6 months after the first record of unexpected weight loss in primary care [14]. The strongest association was in men aged 50 and over and women aged 70 and over. The most frequent cancer types were pancreas, gastro-oesophageal, lymphoma, hepatobiliary, lung, bowel and renal-tract. Data has shown that the amount of weight loss and the duration are important in assessing a person's risk of cancer[15].

Throughout SRGs, where weight loss is referred to, it is unintentional (e.g. not due to weight loss therapy or lifestyle changes) and greater than 5% or more of body weight. It should be noted that it is not always possible for primary care to verify a patient's weight loss through recorded weights. This is particularly relevant for those without access to scales at home. Therefore, it is acceptable to include a strong clinical suspicion of weight loss, such as dropping dress sizes or needing a tighter hole on a belt.

Abdominal pain is common in general practice but can be the presenting feature of several cancers including pancreas, colorectal, ovarian, stomach or oesophageal[16].

It is recommended that when a person presents with non-specific symptoms, clinical features of a specific cancer are sought to guide referral. For those people where this is not apparent, some Health Boards have access to a **Rapid Cancer Diagnostic Service** (RCDS), whilst others have **direct access to imaging for primary care practitioners.** Direct access to imaging can enable the differential diagnosis to be narrowed and referral to the appropriate secondary care specialty to be made, thereby reducing delays. The availability of these pathways varies across NHS Boards.

Thrombocytosis

Reactive thrombocytosis is the most common reason for a raised platelet count. Raised platelets are also seen in a variety of haematological conditions including essential thrombocythaemia, polycythaemia vera, primary myelofibrosis, chronic myeloid leukaemia, myelodysplastic syndromes, and unclassified myeloproliferative disorders.

Evidence has identified thrombocytosis as a risk marker for malignancy, in particular lung, endometrial, gastric, oesophageal and colorectal cancer (acronym "LEGO-C"). An English cohort study published in 2017[17] showed that the incidence of all cancers in patients aged 40 or over with new thrombocytosis – platelet count >400 x 10^9/L – was 11.6% in men and 6.2% in women. This compared with a cancer incidence in the control group of 4.1% in men and 2.2% in women. In addition, data has shown that when thrombocytosis occurs in combination with elevated alkaline phosphatase (ALP), there is a higher PPV for cancer than thrombocytosis alone[18].

When considering the possible cause of thrombocytosis, it is important to note that significant reactive thrombocytosis can take 4-8 weeks to return to baseline. Thrombocytosis can also be associated with chronic inflammatory conditions and may not resolve.

If unexplained thrombocytosis is identified, it is advisable to assess for any signs or symptoms of cancer and then refer to a tumour-specific USC pathway if appropriate. If unexplained thrombocytosis is found without any tumour specific symptoms, then it is recommended that a chest x-ray is arranged. If there is unexplained thrombocytosis combined with non-specific symptoms such as significant weight loss or if there is associated GP 'gut feeling', it may also be appropriate to refer for further investigation through either a RCDS or GP direct access to imaging pathway.

Metastatic cancer

Metastatic disease is commonly the first presentation of a new cancer. The possibility of an underlying primary cancer should be considered especially with symptoms and signs suggesting lung, liver, bone or brain cancer. For example, bone metastases are commonly due to prostate, breast or lung cancer. Metastatic disease should be considered when anybody with a previous history of cancer presents with new symptoms or with non-specific symptoms such as weight loss or fatigue.

Tumour markers

The tumour markers described in this Guideline have a role in recognising who to refer as a USC. These include Prostate-Specific Antigen (PSA) for prostate cancer in men, Cancer Antigen 125 (CA125) for ovarian cancer in women, and serum and urine paraproteins for myeloma. The utility of the full range of tumour markers used in cancer pathways is not explored in this document.

Regrading of referrals

After ACRT, the receiving hospital specialty may regrade a USC referral to urgent or routine. There may also be occasions where an urgent or routine referral is regraded to USC. The referring GP practice should be notified promptly of any regrading with clear communication about decisions to reduce patient anxiety and facilitate continuity of care. The healthcare professional should have the opportunity to explain why a USC referral was requested, including any 'gut feeling'. Vital information may have been omitted from the referral or may have become available since the referral was made. It is essential that the patient is kept informed about any change in referral priority.

The referring clinician should also receive timely feedback on the outcomes for people referred as USC. Where negative results are found, and concerns still exist, the specialist should consider direct onward referral to another specialty.

For further information, please see the **Urgent Suspicion of Cancer National Regrading Guidance.**

Safety netting and follow-up

It is not always appropriate for a clinician to refer someone immediately with new symptoms or signs which could be cancer (for example, one week of diarrhoea or a sore throat for 10 days), as an initial 'watch and wait' strategy may be appropriate. It is also important for clinicians to provide a 'safety net' and ensure people know what symptoms to monitor and when to return if their condition does not improve or change. This is particularly pertinent if the persistence of a clinical feature would prompt consideration of a USC referral. The advice given should be clearly documented. In some cases, however, people may be unwilling to watch and wait due to elevated levels of anxiety. In such cases, the referring clinician should ensure that this is detailed in the referral form.

Vague or non-specific symptoms in children may require a lower threshold for referral due to their higher risk of delayed diagnosis. Referral to secondary care should be considered for children with repeat presentations (three or more times) of any symptoms which do not appear to be resolving or following an expected pattern, taking into account parent/carer and child concerns.

It is good practice for the referrer to consider ways of supporting the person to attend investigations, consultations, or reviews and addressing any concerns they may have about their referral. Systems should be in place to ensure people are not lost to follow-up.

There are safety netting tools available which may be helpful, for example:

- **Safety netting | Cancer Research UK**
- **Safety netting in primary care consultations | Macmillan Cancer Support**

Cancer Referral Guidelines

Cancer Referral Guidelines

Brain and Central Nervous System (CNS) Cancers

There are around 1,000 incidences of brain and central nervous system (CNS) tumours in Scotland a year[1]. Approximately 50% of these are malignant brain cancers. Currently around one in three people (34% of adults aged 15-99) diagnosed with brain and CNS cancers in Scotland survive their disease for one year or more (data covering years of diagnosis 2015-2019)[19]. Brain cancer patients in Scotland are more likely than other groups of cancer patients to be diagnosed via an emergency route, with greater than 70% of brain and other CNS cancer patients being diagnosed through emergency routes[1].

Timely diagnosis of brain and CNS cancers is challenging. Most patients with neurological symptoms are diagnosed with benign disease, meaning primary healthcare professionals encounter brain and CNS cancers infrequently[20]. Multiple consultations prior to referral can occur commonly among adults subsequently diagnosed with primary brain cancers. Evaluation of the National Cancer Patient Experience Surveys (CPES) (England) showed that 39% of brain and CNS cancer patients had three or more pre-referral consultations with a GP compared with an average of 25% for all cancers[21].

Assessment for Suspected Brain & CNS Cancers

The anatomical location of brain and CNS cancers influences presenting features that include physical, cognitive and psychological components. **Better safe than tumour** contains more information on possible symptoms of brain cancer.

If there is concern that a person may have a brain/CNS cancer the following should be assessed for:

- Headache suggestive of raised intracranial pressure (ache generalised over the cranium, worst on awakening, may awaken the person from sleep, aggravated by bending or stooping, severity gradually progresses, associated nausea/vomiting)
- Papilloedema (optic nerve head swelling due to raised intracranial pressure) - if there is uncertainty, the person should be referred urgently to an optometrist for assessment
- Focal neurological deficit
- New seizures (will often require a witness account) including those without collapse (e.g. vacant episodes, transient self-limiting motor, or sensory change)
- Changes in cognition or personality (symptomatic or noted by others)
- Changes in speech such as difficulty finding words or using the wrong words
- History of Human Immunodeficiency Virus (HIV) or cancer originating in other parts of the body (especially lung, breast, melanoma or renal)

Single clinical features alone are poorly predictive of brain cancers e.g. headache without other clinical features has a PPV of 0.1%[22]. However, by the time of diagnosis, headache and cognitive symptoms co-occur with a PPV of 7.2%, supporting the importance of searching for “headache plus” other symptoms[22]. At the early stages of disease, cognitive changes may be subtle or go unnoticed by patients and may only be apparent retrospectively.

Emergency (same day) Referral

Refer a person with two or more of the following as an emergency (same day):

- New headache
- New seizure
- Papilloedema
- New focal neurological deficit

Urgent Suspicion of Cancer (USC) Referral

Refer a person with a headache where there is concern about a brain/CNS cancer plus one or more of the following features:

- Cognitive change – symptomatic or noted by others
- Personality change
- History of cancer (especially lung, breast, melanoma or renal)
- History of HIV

Good Practice Points

Referral guidance:

Boards' local pathways for referral of a headache which raises suspicion for brain cancer should be followed. If this includes direct access to imaging it must be delivered urgently to avoid a delay in diagnosis. Imaging should not be used in place of an emergency referral if that is more appropriate.

When referring to secondary care, a note should be made of any recent brain imaging as this may alter the urgency and the need for further radiology assessment.

Refer a person urgently to an optometrist for assessment if there is uncertainty about the presence of papilloedema or visual field loss. If papilloedema is confirmed, consideration should be given to same day referral to secondary care. A clear plan should be made as to who will be responsible for the follow-up of the results of an optometry assessment.

Headache management:

Many people presenting with headache will not fit into the referral guideline above. CfSD has published the **National Headache Pathway** to guide referral in other scenarios.

Assessing changes in cognition:

Changes in cognition may not be volunteered by a person presenting with signs and symptoms of a brain tumour and direct enquiry may have to be made. The Semantic Verbal Fluency Test (SVFT) is a quick test which can be done easily in practice and may indicate cognitive deficit if the score is reduced (i.e. less than 17 different animals named in one minute). A headache concerning for a brain tumour along with a reduced SVFT score has been shown to have a PPV higher than 5%[23]. Please note that a SVFT score may be reduced in other conditions such as dementia, previous serious head injury, stroke, learning disabilities or for those whose first language is not English.

Breast Cancer

Breast cancer is the most common (non-skin) cancer in women in Scotland, with around 5,140 new cases each year[1]. Breast cancer is much less likely in men, with approximately 40 cases per year in Scotland. Incidence rises from age 30 in women (more than 99.5% of new cases are aged 30 years or over) and from age 45 in men (more than 90% of new cases are aged 45 or over)[1].

Most breast cancers are diagnosed at an early stage (1 or 2). In 2022, 38.0% of cases were diagnosed at stage 1, 46.5% at stage 2, 8.4% at stage 3, 4.8% at stage 4, and 2.2% were diagnosed at an unknown stage in Scotland[5]. Women diagnosed at an earlier stage may have an improved chance of survival[24]. Stage distribution differs by deprivation, with women living in more deprived areas being more likely to experience an advanced stage breast cancer diagnosis[4].

There are several risk factors for breast cancer, including[25]:

- Significant family history of breast cancer (see good practice section) or an inherited genetic alteration
- A previous diagnosis of breast cancer
- Early menarche (before age 11)
- Oral contraceptive use or hormone replacement therapy
- Older age at first giving birth (35 years or over)
- Nulliparity
- Not breastfeeding
- Older age at menopause (50 years or over)

The risk of breast cancer is also two to four times higher in women with previous false-positive breast screening results[26].

Published data has shown that transgender women have a higher risk of breast cancer compared to men, and transgender men have a lower risk of breast cancer compared to women. In transgender women the risk of breast cancer is associated with hormone treatment[27]. In cases of gender reassignment, it is important to provide sensitive and clinically appropriate care depending on individual circumstances and considering any hormone therapy involved.

Help-seeking behaviours and awareness of symptoms varies by demographic. There is evidence suggesting that first-generation Black African and Black Caribbean women in the UK who were diagnosed with symptomatic breast cancer had lower symptom awareness and faced barriers which resulted in delayed help-seeking[28].

Assessment for Suspected Breast Cancer

Breast cancer is characterised by a narrow symptom signature, meaning that most people present with only a few specific symptoms such as a breast lump and typically have short diagnostic intervals.

Assessment of a person presenting with breast symptoms or signs should include examination to determine if any lump (discrete, palpable abnormality) or lesion (any abnormal tissue change) is within the breast tissue, or related to the skin and if there are any associated axillary lumps. If there is an axillary lump without other breast findings, examination for other lymphadenopathy should be performed.

It is helpful to document if any nipple discharge is spontaneous or expressed, is from a single duct, multiple ducts or bilateral and if there is any blood staining. It is also helpful to note if any nipple inversion is fixed or reversible.

Any pain should be assessed to determine if it is coming from the breast or the chest wall.

Ask about any family history of breast cancer or other cancers related to inherited genetic alterations (e.g. ovarian cancer). Also ask about past medical history including menopausal status, previous chest radiotherapy, and mammography or breast screening results, as patients with false-positive results have a higher risk of developing breast cancer.

Urgent Suspicion of Cancer (USC) Referral

Refer a person with any of the following to the Breast Service as a USC:

Lump:

- New breast lump in a person aged 30 years or over
- New breast lump in a person aged under 30 who also has other suspicious features such as an axillary lump, nipple or skin changes (as below) or a significant family history of breast cancer (**see Appendix 5**)
- New, unexplained axillary lump (2 cm or more in size, persisting for six weeks or more, or increasing in size)

Nipple changes:

- Nipple discharge that is serosanguinous (clear yellow liquid with or without red blood staining)
- New, unilateral and non-reversible nipple retraction
- Unilateral nipple eczema that is unresponsive to a two-week treatment with moderately potent topical steroids

Skin changes:

- Skin tethering
- Peau d'orange
- Unexplained, new breast ulceration

Inflammation:

- Mastitis or breast inflammation that does not settle or recurs after one course of antibiotics

Good Practice Points

Access **CfSD breast pathways** for support in managing a range of breast symptoms, including breast pain.

Breast lump:

Consider a non-USC referral for a person with:

- New asymmetrical breast nodularity (generalised unevenness or thickened areas rather than a discrete lump) that persists for three weeks or more
- A new breast lump under 30 years of age but with no other suspicious features (described above under USC referral)

Infection:

An acute breast abscess requires immediate discussion with the breast team or on-call surgical team for management.

Male breast cancer:

Breast cancer is much less common in men than women. Most men are diagnosed over the age of 60. It can be confused with gynaecomastia. Gynaecomastia is a benign enlargement of the male breast with firm tissue extending concentrically beyond the nipple. It may present as unilateral, bilateral, painful or asymptomatic. If a man presents with a new breast lump (not generalised breast tissue swelling or a skin lesion close to the breast) or other suspicious features as described above, they should be referred as a USC.

Breast pain:

Breast pain alone (no associated suspicious features described above under USC referral), is not associated with breast cancer – see **CfSD pathway**.

Skin and nipple changes:

Skin and nipple changes are common breast symptoms. Suspicious changes described above should be referred as a USC. Available guidelines on **Right Decision Service (RDS)** should be followed for other skin or nipple changes.

Axillary lumps:

Breast cancer rarely presents with axillary nodes alone. Consider other malignant or non-cancer causes of lymphadenopathy such as, connective tissue disease, eczema and HIV infection. Consider other causes of axillary lumps, for example, skin lesions or accessory breast tissue.

If axillary lymph node(s) are persisting with no obvious cause, the patient should be referred to secondary care. Further guidance on assessment of lymphadenopathy can be found in the **Haematological Cancers Referral Guideline**.

Breast implants:

In the context of breast implants, it is important to determine if the issue being described relates to the implant or the overlying breast tissue. If there is an implant issue rather than a breast issue, then please refer to the service that first inserted the implant (usually plastic surgery) or follow your local pathway.

Family history:

A family history of breast cancer increases the risk of developing breast cancer, however most women diagnosed will not have a family history. **See Appendix 5** for advice on referral.

Recurrence of primary breast cancer:

Recurrence is when a breast cancer has come back, it is not a new breast cancer. If a patient has been discharged from follow-up they may present in primary care. For recurrence symptoms see the **Breast Clinical Management Pathway**.

Metastatic breast cancer:

Metastatic or secondary breast cancer is when breast cancer spreads to other parts of the body, such as the bones, liver, lungs or brain. For metastatic breast cancer symptoms please see the **Breast Clinical Management Pathway** and refer to the **Non-Specific Cancer Referral Guideline**.

Gynaecological Cancers

Gynaecological cancer is an umbrella term for ovarian, endometrial, cervical, vaginal and vulval cancers. These cancers tend to present with different symptoms and have different stage distributions and outcomes.

In 2021, 19.8% of corpus uteri cancers, 32.3% of cervix uteri cancers, and 39.8% of ovarian cancers were diagnosed at stage 3 or 4[29].

Evidence has shown inequalities in cervical screening uptake, with those from areas of deprivation demonstrating lower uptake[30]. Further research is required to understand the risk of reproductive cancers in transgender people and any barriers to timely recognition and referral in a symptomatic context.

Ovarian cancer:

Approximately 585 new cases of ovarian cancer are diagnosed in Scotland every year[1], more than 90% of which are in women aged 40 years or over[1]. Family history (both maternal and paternal) of breast or ovarian cancer can be used to identify women who have a higher risk of developing ovarian cancer. **See Appendix 5**.

Endometrial cancer:

Approximately 800 new cases of endometrial cancer are diagnosed in Scotland each year[31]. Fewer than 5% of cancers of the corpus uteri (which includes endometrial cancer) occur in women below the age of 45[1].

Risk factors for endometrial cancer include:

- Obesity
- Age over 45 years
- Nulliparity
- Exposure to unopposed oestrogens
- Tamoxifen usage
- Family history of endometrial or colon cancer

Thrombocytosis is a risk marker for underlying malignancy including endometrial cancer[17]. There should be a higher index of suspicion for women with associated risk factors.

Cervical cancer:

Cervical cancer affects all adult age groups, with above 50% of cases occurring between the ages of 30 and 50 years[1]. 40% of new cervical cancer cases in women of screening age (25-64 years) were screen detected in Scotland in 2022[1].

Taking a cervical sample in symptomatic individuals is not necessary before referral. Cervical sampling is intended to be used as a screening tool to detect pre-cancerous changes in asymptomatic people, not for diagnosing symptomatic cancers. A previous negative screening result is not a reason to delay referral.

Vaginal cancer:

Vaginal cancer is rare and comprises of less than 1% of gynaecological cancers. It is most frequently diagnosed in women aged 60 years or over and is rare in women aged under 40[1]. Approximately 30 new cases of vaginal cancer are diagnosed in Scotland every year[1].

Vulval cancer:

There are about 155 new cases of vulval cancer diagnosed every year in Scotland[1], approximately 60% of which are in women aged 65 years or over[1]. Lichen sclerosis increases the risk of developing invasive squamous vulval cancer, but the overall risk remains low[32].

Assessment for Suspected Gynaecological Cancers

Recognising gynaecological cancers in primary care can be challenging, as many symptoms (e.g. bloating, pelvic pain) are non-specific and are often caused by benign disease[33]. There are different investigations required depending on the cancer suspected.

Ovarian cancer:

Presenting features often include non-specific abdominal symptoms that are persistent and frequent - there may be a palpable pelvic mass[34].

An abdominal palpation should be undertaken, CA125 blood serum level measured, and a USC pelvic ultrasound scan (USS) arranged in:

- Women (especially those aged 50 or over) with one or more of the following unexplained symptoms occurring most days over the last four weeks:
  - abdominal distension or persistent bloating
  - feeling full quickly, difficulty eating or loss of appetite
  - pelvic or abdominal pain
  - increased urinary urgency and/or frequency
  - change in bowel habit
- Women aged 50 or over who have experienced new symptoms within the last 12 months that suggest irritable bowel syndrome

CA125 is not raised in all cases of ovarian cancer and therefore this test should always be done in conjunction with a pelvic USS in those with symptoms or signs that are suspicious of ovarian cancer.

Endometrial, cervical and vaginal cancer:

Most women with endometrial cancer present with postmenopausal bleeding[35]. For the purpose of this guideline we define postmenopausal bleeding as vaginal bleeding occurring 12 months or more after periods have stopped.

Typical symptoms of cervical cancer include vaginal discharge and abnormal vaginal bleeding.

A full pelvic examination, including speculum examination of the cervix, should be considered in women presenting with:

- Abnormal vaginal bleeding (including postmenopausal bleeding, post-coital bleeding and persistent intermenstrual bleeding)
- Unexplained vaginal discharge
- Pelvic pain

A woman presenting with a palpable abdominal or pelvic mass on examination that is not obviously uterine fibroids, gastrointestinal or urological in origin should be referred for a USC priority ultrasound scan.

Vulval cancer:

Women with vulval cancer usually present with bleeding, discomfort, an itch or a burning sensation[36]. The majority of patients have a visible 'tumour' on clinical examination[36]. Failure of treatment for 'benign conditions' should prompt consideration of further assessment or referral.

A vulval examination should be carried out for any woman with vulval symptoms.

Urgent Suspicion of Cancer (USC) Referral

Refer a woman with any of the following to the Gynaecology Service as a USC:

Ovarian cancer:

- An ultrasound scan (USS) suggesting ovarian cancer or abdominal/pelvic mass (not obviously uterine fibroids, gastrointestinal or urological in origin)
- A raised CA125 (a level of 35 International Units per millilitre (IU/ml) or greater)
- Unexplained ascites

Endometrial cancer:

- Postmenopausal bleeding in a person with an intact uterus who is:
  - not taking hormone replacement therapy
  - taking hormone replacement therapy and has risk factors for endometrial cancer – see **British Menopause Society Guidance**
- Abnormal vaginal bleeding in a person who currently takes or has a previously taken Tamoxifen
- A USS suggesting endometrial cancer

Cervical cancer:

- An abnormal cervical examination and symptoms suggestive of cervical cancer:
  - vaginal discharge
  - postmenopausal, postcoital or persistent intermenstrual bleeding
  - pelvic pain

Vaginal cancer:

- A suspicious abnormality of the vagina

Vulval cancer:

- Unexplained vulval lump, bleeding or ulceration

Good Practice Points

Referral guidance:

If there is significant concern, awaiting the results of any investigation should not delay referral.

It is important to remember that transmen may still have female reproductive organs and, therefore, are still at risk of gynaecological cancers.

Ultrasound for assessing the pelvis:

Transvaginal USS is more sensitive for assessment of the female pelvis than transabdominal USS. It is important to request the correct test based on the information required. Local pathways should be followed when requesting a USS.

Abnormal vaginal bleeding:

Abnormal vaginal bleeding is a common presentation to primary care. Endometrial cancer is uncommon in pre-menopausal women. An urgent gynaecology referral or pelvic USS request should be considered for women with premenopausal abnormal vaginal bleeding that persists after medical management. A woman with abnormal vaginal bleeding on HRT should be assessed for endometrial cancer risk according to **British Menopause Society Guidance**.

CA125:

CA125 may be elevated in many physiological and pathological conditions (**Raised CA125 – what we actually know)**, which may be gynaecological or non-gynaecological. The physiological causes include menstruation, so it is advisable to avoid sample taking during this time if possible. CA125 can be elevated in other cancers (e.g. pancreas, breast, lung and colon). If the person has a normal USS, then referral guidelines for other cancers or non-specific symptoms should also be considered.

Overlap with other pathways:

Patients with intra-abdominal cancer can present with symptoms that overlap. A Quantitative Faecal Immunochemical Test (qFIT) should be considered if there is a change in bowel habit – please see **Upper** and **Lower Gastrointestinal Cancers** and **Kidney Cancers** Guidelines.

Haematological Cancers

This Guideline is for adult cancer referrals. Please see the **Cancer in Children and Young People Guideline** for a person within that age range in whom there is concern about a possible haematological cancer.

Haematological cancer is an overarching term for three main groups of cancers: leukaemia, lymphoma and multiple myeloma. These are further divided into sub-types.

Route to diagnosis data for emergency presentations versus GP referrals for haematological cancers is not yet publicly available for Scotland. However, in England (2019 data) the highest proportion (40.0%) of haematological cancers are diagnosed following a GP referral, with emergency presentations accounting for 26.6% of all referrals[19]. Survival for those diagnosed with a haematological cancer via an emergency route is significantly worse compared to other routes[37]. There are differences in haematological cancer incidence based on ethnicity. For example, there is a higher incidence of myeloma in people of black ethnicity[38].

Leukaemia (acute and chronic):

Approximately 670 people are diagnosed with leukaemia in Scotland each year[1]. Although all ages can be affected, around 70% of new cases occur in people aged 60 years or over[1]. The most common form of leukaemia in adults is Chronic Lymphocytic Leukaemia (CLL), which is often an indolent disease and an incidental finding.

Non-Hodgkin's Lymphoma:

Approximately 1,050 new cases of Non-Hodgkin's Lymphoma are diagnosed in Scotland each year[1]. Although all ages can be affected, around 75% of cases occur in people aged 60 or over[1].

Hodgkin's Lymphoma:

Approximately 180 new cases of Hodgkin's Lymphoma are diagnosed in Scotland each year, with around 45% of new cases occurring in people under the age of 40[1].

Myeloma:

Approximately 510 new cases of multiple myeloma and malignant cell neoplasms are diagnosed in Scotland each year, with around 85% occurring in people aged 60 years or over[1].

The presence of an isolated paraprotein or Monoclonal Gammopathy of Unknown Significance (MGUS) is not a cancer and is a common incidental finding in the elderly (8.9% of people over 85 years of age)[39]. MGUS can progress to myeloma or related lymphoplasmacytic malignancies at a rate of 1% per year[39]. Monitoring of patients with MGUS should be considered after shared decision-making taking into account the risk, benefits, and limitations of further surveillance.

Assessment for Suspected Haematological Cancers

Leukaemia (acute and chronic):

Acute leukaemia often presents rapidly with clinical features of bone marrow failure such as fatigue, pallor, bruising, bleeding and infections which can be particularly severe. Due to extramedullary leukaemic infiltration there can be lymphadenopathy and/or hepatosplenomegaly.

Chronic myeloid leukaemia (CML) usually develops gradually and in the early chronic phase people are often asymptomatic. CML can progress to a more accelerated phase with symptoms arising from the accumulation of abnormal cells in the bone marrow and blood. Clinical features include, anaemia, low

platelets, repeated infections, splenomegaly, drenching sweats and weight loss.

Chronic lymphocytic leukaemia (CLL) is an indolent haematological cancer that can be an incidental finding on a blood test or present with lymphadenopathy, splenomegaly, symptoms of associated cytopenia (breathlessness, fatigue, petechiae, infections) or B symptoms (weight loss, fever or drenching night sweats).

Consider urgent clinical assessment, including full blood count (FBC), of an adult patient with any of the following unexplained features:

- Pallor
- Bleeding, bruising or petechial haemorrhage
- Fatigue
- Breathlessness
- Recurrent infections
- Fever
- Drenching night sweats
- Lymphadenopathy (lymph node 2 cm or more in size, persisting for six weeks or more, or increasing in size, or generalised lymphadenopathy)
- Hepatomegaly and/or splenomegaly

Lymphoma:

Common presenting features include fatigue, weight loss, night sweats, lymphadenopathy and hepatomegaly and/or splenomegaly. 95% of people with Hodgkin's Lymphoma present with lymph node involvement.

Consider full blood count, renal function, liver function, calcium, lactate dehydrogenase (LDH), serum protein electrophoresis and HIV serology, for an adult patient with any of the following unexplained features:

- Lymphadenopathy (lymph node 2 cm or more in size, persisting for six weeks or more, or increasing in size, or generalised lymphadenopathy)
- Fatigue
- Drenching night sweats
- Fever
- Splenomegaly and/or hepatomegaly
- Breathlessness
- Pruritus

- Weight loss

Myeloma:

Clinical features at presentation include bone pain, symptoms of anaemia, renal impairment (e.g. fatigue, pruritus without rash) and symptoms of hypercalcaemia (e.g. constipation, confusion, polyuria, or polydipsia).

Consider FBC, plasma viscosity or Erythrocyte Sedimentation Rate (ESR), renal function and calcium blood tests for a person, particularly if aged 60 years or over, with any of the following unexplained features:

- Bone pain, particularly bony back pain
- Fractures (pathological or fragility), or bone x-rays reported as being suggestive of myeloma
- Fatigue
- Polyuria, polydipsia
- Peripheral neuropathy
- Recurrent infection (e.g. blood stream infection, pneumonia)

CRAB features of myeloma:

- Raised **C**alcium
- **R**enal impairment
- **A**naemia
- **B**one pain

Further testing should be done if there are suspicious abnormalities in these initial blood tests or ongoing clinical concern of a myeloma diagnosis. This should include serum immunoglobulins, serum protein electrophoresis, serum Free Light Chains (sFLC) or urinary Bence Jones Proteins if sFLC testing is not available.

Emergency (same day) Referral

Refer a person with any of the following as an emergency (same day):

- Blood count/film reported as suggestive of Acute Leukaemia or Chronic Myeloid Leukaemia (CML)
- Blood tests or imaging suggestive of myeloma with symptoms/signs of **Malignant Spinal Cord Compression** or acute kidney injury

Urgent Suspicion of Cancer (USC) Referral

Refer a person with any of the following to the Haematology Service as a USC:

- Lymphocyte count >5 x 10^9/l and any of the following features:
  - weight loss, fever, or drenching night sweats
  - lymphadenopathy and/or splenomegaly
  - cytopenia (haemoglobin less than 100 g/l, neutrophils less than 1.0 x 10^9/l, platelets less than

100 x 10^9/l)

- Test results reported as suggestive of a diagnosis of myeloma (raised paraprotein concentrations, paraprotein bands, or abnormal sFLC or urinary Bence Jones proteins) with one or more CRAB criteria (Raised **C**alcium, **R**enal impairment, **A**naemia, or **B**one pain)
- Generalised lymphadenopathy particularly with systemic upset (e.g. drenching night sweats or unintentional weight loss) and/or hepatomegaly and/or splenomegaly

Refer the following for consideration of assessment and / or biopsy via local pathways as a USC:

- Unexplained isolated lymphadenopathy (2 cm or more in size, persisting for six weeks or more, or increasing in size)

Good Practice Points

Lymphocytosis or raised paraproteins:

Blood test results showing lymphocytosis or raised paraprotein levels without the additional features outlined in the referral criteria above, should not be referred as USC. Local guidelines should be followed for non-USC referral or primary care management.

Myeloma is a difficult cancer to identify, especially in its early stages as it often presents with vague symptoms which could also have many other alternative causes. If blood tests are normal, myeloma is unlikely and other causes of the symptoms should be considered, investigated or referred via non-specific pathways as appropriate[40].

Detailed clinical information submitted at the time of request for a blood test helps to improve advice and onward referral for patients.

Safety netting:

Baseline tests and investigations should be repeated if a person's condition remains concerning and unexplained following investigation for other causes. This should be combined with safety netting advice for the patient. For people presenting with non-specific symptoms, the clinician should always consider checking HIV status along with other routine investigations.

Splenomegaly:

Splenomegaly can be identified on imaging (e.g. USS or Computed Tomography (CT) abdomen). When assessing splenomegaly, the **spleen size calculator** could be a useful resource.

Rarer blood cancers:

Further information on blood cancers including rarer cancers such as myeloproliferative neoplasms and myelodysplastic syndromes can be found via **Blood Cancer UK** or **Cancer Research UK** resources.

Children and young people:

The SRG for haematological cancers in children and young people has different criteria than the adult guideline. **Please check the relevant section when considering children and young people**.

Head and Neck and Thyroid Cancers

Head and neck cancer:

This is an umbrella term encompassing multiple types of cancer including pharynx (oropharynx, hypopharynx, nasopharynx), larynx, oral cavity, nasal, paranasal, and salivary gland.

Approximately 1,400 head and neck cancers are diagnosed each year in Scotland[1]. Incidence for head and neck cancer rises from the age of 35 (more than 99% of new cases are aged 35 years or over) and there are over twice as many cases in males compared with females[1].

Groups with worse outcomes and higher rates of emergency presentation include people from more deprived areas, those from ethnic minority groups, older people and those with multiple comorbidities[41-44].

Risk factors for head and neck cancers include:

- Socio-economic deprivation
- Smoking and tobacco chewing habits (including betel, gutkha, snus and pan)
- Human Papilloma Virus (HPV) (increasing incidence of oropharyngeal cancer in a younger population)
- Excessive alcohol use
- Recreational drug use (especially opioids and cannabis)
- Poor diet
- Older age

HPV may be the only risk factor in younger groups (30-40 years), who may not present with typical risk factors (e.g. have never smoked or used drugs recreationally).

Thyroid cancer:

People with suspected thyroid cancer are referred to the Head and Neck Service. There are around 320 new cases of thyroid cancer a year in Scotland[1]. Thyroid cancers can occur at any age and are more common in females and those with a history of neck irradiation[1,45].

Assessment for Suspected Head and Neck Cancers

Assessment of a person presenting with head and neck symptoms should include examination of the neck to ascertain the position, mobility and consistency of any neck lump. Lymph nodes felt behind the sternomastoid muscle are more likely to be reactive and less concerning than those found in front of it or below the angle of the jaw. Intradermal lumps, which are often sebaceous cysts and lipomas, are superficial and can be differentiated from deeper lumps by palpation. They are often found on the scalp and do not require referral on a head and neck pathway.

It is helpful to ask about drug use as well as smoking and alcohol intake as laryngeal cancer is seen in younger patients who use recreational drugs. It is also helpful to document any pain on swallowing which radiates to the ear (in the absence of any infection) as this can be a sign of malignancy.

Emergency (same day) Referral

Head and neck or thyroid cancer:

Refer any person presenting with upper airway compromise (e.g. stridor) as an emergency (same day).

Urgent Suspicion of Cancer (USC) Referral

Head and neck cancer:

Refer a person with any of the following unexplained clinical features lasting three weeks or more to the Head and Neck Service as a USC:

- Constant hoarseness (voice is never normal) in those aged 35 years or over
- Constant unilateral throat pain (not simply a feeling of something stuck in the throat - FOSSIT)
- Pain on swallowing (odynophagia)
- Red or mixed red and white patches of the oral mucosa (not oral thrush)
- Ulceration or swelling/induration of the oral mucosa
- Neck or parotid lump

Thyroid cancer:

Refer a person with a thyroid nodule, and one or more of the following features to the Head and Neck Service as a USC:

- Nodule rapidly increasing in size
- Associated unexplained hoarseness
- Associated cervical lymphadenopathy
- Previous neck irradiation
- Family history of endocrine tumours
- Person aged 16 years or under

Good Practice Points

Changing pattern of disease:

For head and neck cancers (not thyroid) there is a changing pattern of disease (in particular HPV associated cancers). Younger age and absence of smoking or alcohol history should not be barriers to referral if there are concerning features as described above.

Neck lumps:

It is crucial that a good description of any neck lump is given in the referral to secondary care. Key features to cover are the position, size, shape, consistency, mobility and overlying skin changes. Sebaceous cysts and lipomas do not require referral to head and neck services. Small, mobile and rubbery lumps are likely to be reactive lymph nodes and in the absence of the above concerning features can be followed up clinically or assessed by a neck USS in the first instance, where available.

Thyroid nodules that do not have the features described in the USC referral section above can be referred as non-USC for further assessment.

Symptom combinations:

The PPV for single symptoms in head and neck cancer are lower than the 3% threshold set as a baseline in this guide. Hoarseness is the only symptom that nears the threshold at 2.7% for laryngeal cancer.

Symptom clusters can be useful in identifying those at higher risk of head and cancer e.g. combination of hoarseness, dysphagia and pain on swallowing, especially if radiating to the ear is very suspicious of cancer in the upper airway.

A feeling of something stuck in the throat (FOSSIT) or globus sensation, is unlikely to be head and neck cancer. In the absence of any other concerning features this symptom can be managed in primary care or via non-USC referral.

Risk calculator:

A **head and neck risk calculator**[46] can be used to triage in secondary care but has not been validated for use in primary care.

Overlap with other pathways:

There is overlap between lung cancer and head and neck cancer symptoms, particularly in those with hoarseness (caused by recurrent laryngeal nerve palsy in lung cancer). Please see the **Lung and Pleural Cancers Referral Guideline** for when to arrange a chest X-ray.

Dysphagia should be referred in line with the **Upper Gastrointestinal Cancers Guideline** in the absence of any of the symptoms above.

Dental practitioners:

Dentists play a key role in the identification of head and neck cancers. There should be systems in place for USC referral pathways for dentists. If there is any uncertainty about the significance of an abnormality in the mouth it may be appropriate to seek a General Dental Practitioner (GDP) opinion in the first instance. This should be done as quickly as possible, with a direct referral made for any significant concern.

Rare head and neck cancers:

Sinonasal and ear cancers are rare. The associated clinical features include progressive or new unilateral nasal obstruction in association with one or more of proptosis, epistaxis, dental pain or loosening dentures, cranial nerve palsy or nasal (not facial) pain. However, sinus and nasal symptoms are common presenting features in primary care and are frequently benign (e.g. rhinosinusitis or benign nasal polyps). If there is concern that there is a nasal or paranasal cancer a USC referral should be made to the Head and Neck Service.

Lower Gastrointestinal Cancers

Lower Gastrointestinal (GI) cancer includes cancers of the colon, rectum and anus.

Colorectal cancer is the fourth most common cancer in Scotland, accounting for 12% of all new cancer cases across 2021 and 2022, (when excluding non-melanoma skin cancer)[1]. Later stage at diagnosis is associated with limited treatment options and therefore worse survival.

The main pathway to diagnosis for colorectal cancer is following a symptomatic presentation in primary care. In addition, **bowel screening** is offered every two years to people aged 50 to 74. A negative bowel screening test should not prevent a USC referral for a person with symptoms outlined below.

There are inequalities in the diagnosis of colorectal cancer. Men, those aged 65 years or under, those from areas of greater deprivation and those from Asian, Black or mixed ethnic groups are less likely to complete or return a qFIT[47]. Being diagnosed via the emergency route is associated with later stage at diagnosis and worse outcomes. Evidence has also found that those who are older[48], or from areas of greater deprivation are more likely to present as an emergency[49].

Assessment for Suspected Lower GI Cancers

Clinical features of colorectal cancer include:

- Rectal bleeding
- Change in bowel habit
- Weight loss
- Abdominal pain
- Rectal or abdominal mass
- Iron deficiency anaemia

Many of these are common presentations in primary care. The published data on positive predictive value (PPV) for symptoms of suspected colorectal cancer are included in the reference section.[15,16,50,51]

If lower GI cancer is suspected:

- Perform an abdominal and rectal examination
- Arrange blood tests for renal function, liver function and full blood count plus ferritin/iron studies if anaemic[9]

Quantitative faecal immunochemical test (qFIT)

The qFIT detects human haemoglobin breakdown products in the stool. It should be used in people with clinical features of suspected colorectal cancer to identify those who are more likely to have cancer and therefore need investigation as a USC.

A qFIT should be arranged for a person with any of the following, using the local pathway:

- Repeated anorectal bleeding without an obvious anal cause
- Blood mixed through the stool
- Change in bowel habit for four weeks or more, particularly looser or more frequent stool

- Iron deficiency anaemia (haemoglobin below reference range and ferritin < 30 micrograms/l or confirmed on iron studies)
- Persistent abdominal pain (four weeks or more) and weight loss (5% or more of body weight or strong clinical suspicion)

A qFIT is not indicated for a rectal or abdominal mass or unexplained anal ulceration.

In the context of other symptoms, a qFIT should only be arranged in line with national guidelines: **Quantitative Faecal Immunohistochemical Testing (qFIT) 2024**.

Urgent Suspicion of Cancer (USC) Referral

Refer a person with any of the following to the Colorectal Service as a USC:

- qFIT test result of 20 or more micrograms of haemoglobin per gram of faeces (≥20µgHb/g faeces) in the presence of colorectal symptoms or iron deficiency anaemia
- Symptoms that qualify for a qFIT test and either:
  - the local pathway is secondary care qFIT testing or assessment
  - the person is unable or unwilling to complete a test
- Unexplained abdominal mass
- Palpable anorectal mass
- Unexplained anal ulceration

Good Practice Points

qFIT testing:

Quantitative Faecal Immunohistochemical Testing (qFIT) 2024 provides advice on qFIT testing for new colorectal symptoms, iron deficiency anaemia, thresholds for referral and when repeat testing is recommended. It also defines the clinical scenarios in which a qFIT is not indicated.

Where possible, the referrer should provide the numerical value of the qFIT when referring to secondary care to allow effective triage.

If a qFIT cannot be arranged but the patient is being referred as a USC to secondary care, the reason for the absence of a qFIT result should be included in the referral. It should be made clear on referral if the person is unable or unwilling to comply. There should be safety netting processes for those who do not return their qFIT as there is a similar colorectal cancer prevalence in this group compared with those who return their qFIT[52].

A person with iron deficiency anaemia and a normal qFIT may still require investigation. Refer according to local pathways.

Hereditary colon cancer:

See Appendix 5 for people with hereditary colorectal cancer, Lynch Syndrome or polyposis.

Overlap with other pathways:

People with intra-abdominal cancer can present with symptoms that overlap. Please see **Upper Gastrointestinal Cancers Guideline** (including hepatopancreatobiliary cancer), **Ovarian Cancers Guideline** and **Kidney Cancers Guideline**. This is particularly important if a person presents with abdominal pain, bloating and/or weight loss but has a negative qFIT. In this case, consider alternative pathways (e.g. upper GI, ovarian or kidney cancer) or arrange imaging studies.

Thrombocytosis is a risk factor for cancer. If present, there should be clinical assessment for causes[17]. See the section on **thrombocytosis**.

Anaemia that is not iron deficient should prompt assessment for alternative diagnoses and monitoring if required.

Calprotectin is a biomarker for inflammation and is used to differentiate between inflammatory bowel disease (IBD) and functional gastrointestinal disorders (e.g. irritable bowel syndrome). A calprotectin test should be considered for people with persistent loose stools. Please see the national guidelines: **Inflammatory Bowel Disease (IBD) Pathway** for further investigations and/or referral to secondary care.

Lung and Pleural Cancers

Lung cancer is the most common cause of cancer death in the UK[53]. On average, in 2021-2022, 46% of lung cancer cases in Scotland were diagnosed at stage 4[5]. Data from England demonstrates that emergency presentation is a common route to diagnosis, making up 32.5% of routes in 2019[19]. Inequalities exist in those most likely to present as an emergency, including women, older age groups, those from areas of higher deprivation, and those with non-respiratory symptoms[54,55].

The most significant risk factor for lung cancer is smoking, although family and occupational history are relevant. In people with a history of asbestos exposure, mesothelioma, as well as lung cancer, should be considered. Across the UK, 95% of mesothelioma cases in men and 85% of cases in women are caused by asbestos exposure[56].

Assessment for Suspected Lung or Pleural Cancers

USC chest x-ray should be requested if a person has:

- Unexplained haemoptysis
- Unexplained symptoms lasting three weeks or longer (one or more symptoms in an ever-smoker or a person exposed to asbestos, two or more symptoms for all other people):
  - new cough or a change in a cough
  - breathlessness
  - chest or shoulder pain
  - weight loss
  - loss of appetite
  - fatigue
  - hoarseness – constant with voice never normal
- Examination findings:
  - focal chest signs (e.g. rhonchi, reduced breath sounds or dullness to percussion)
  - new or not previously documented finger clubbing
  - supraclavicular lymphadenopathy
- A chest infection or exacerbation of airways disease that does not resolve after two courses of antibiotics
- Thrombocytosis where clinical features do not suggest another cause

Urgent Suspicion of Cancer (USC) Referral

Refer a person with any of the following to the Respiratory Service as a USC referral:

- Chest x-ray (or CT scan) that is concerning for lung or pleural cancer (including unilateral pleural effusion, pleural mass and slowly resolving consolidation)
- Unexplained haemoptysis (arrange a USC chest x-ray but no need to wait for the result)

If the chest X-ray is **not** suspicious for lung or pleural cancer a USC referral should still be considered particularly if there are concerning symptom combinations[57].

In smokers:

- Breathlessness with weight loss or appetite loss
- Chest pain with weight loss, appetite loss or thrombocytosis
- Weight loss and appetite loss together*

In all people:

- Weight loss and thrombocytosis together*

*referral to a Rapid Cancer Diagnostic Service (RCDS) or GP direct access to CT is an appropriate alternative for this combination

Good Practice Points

Haemoptysis:

Haemoptysis is bleeding arising from below the glottis. In addition to lung cancer, there are a range of benign causes including infection, bronchiectasis, pulmonary embolism and vasculitis.

Referral guidance:

Please arrange bloods including a full blood count (FBC) and renal function if not done in the preceding three months to expedite any further imaging required.

If the chest x-ray shows consolidation, repeat imaging should be arranged six weeks later to confirm resolution. A USC referral to respiratory should be made if it remains abnormal.

Overlap with other pathways:

Head and neck cancer and lung cancer symptoms overlap (e.g. hoarseness and neck lumps). If the chest x-ray is normal, consider referring according to the **Head and Neck and Thyroid Cancers Guideline**.

Thrombocytosis:

Thrombocytosis is associated with a range of cancers including lung[17]. If the chest x-ray is not concerning for cancer and there are no other features suggestive of lung cancer (see above), then consider a USC referral to an alternative cancer pathway if appropriate. **Please see the section on cancer and thrombocytosis.**

Sarcoma and Bone Cancers

This is a guideline for adult cancer referral. Please see the **Cancer in Children and Young People Guideline** for a younger person in whom there is concern about sarcoma or bone cancer.

Sarcomas and primary bone cancers are classed as rare cancers[58], with bone and connective tissue cancers accounting for less than 1% of all new cancer cases in Scotland across 2021 and 2022[1].

Connective tissue sarcomas (soft tissue sarcomas):

These can occur at any age, but most often in middle aged and older adults. Around 80% of new cases are diagnosed in people aged 40 years or older[1].

Bone cancers:

Osteosarcoma is the most common type of primary bone cancer in adolescents but it can occur at any age. They typically present with persistent localised bone pain in the absence of another explanation (e.g. injury, infection or metabolic conditions). They can grow anywhere on the skeleton, although the most common sites are the thigh, upper shin and upper arm bones[59].

Ewing's Sarcoma is most common in children and adolescents and has predominant symptoms of persistent pain and swelling of the affected area. Ewing's Sarcoma can occur in any bone but most commonly starts in the pelvis, ribs, thigh or shoulder bones. It is also possible to occur in the soft tissues of the body[59].

Chondrosarcoma is found most often in adults aged 30 to 60 years. Clinical presentation is usually a bony mass with pain often as a late feature. Chondrosarcoma is a cancer of cartilage cells within the bone and most commonly occurs at the hips, ribs, upper thigh or shoulder bones[59].

There is some evidence of inequalities in diagnosis for younger adult patients[60] and those from more deprived backgrounds[61]. Younger et al. (2018)[60] found that young adult sarcoma patients may be more likely to experience delays to diagnosis through misattribution of symptoms and multiple consultations with their GP, whereas elderly patients were more likely to be referred for further investigation. Bacon et al. (2023)[61] noted that young adults, elderly people and people from more deprived areas were more likely to present via emergency routes.

Assessment for Suspected Sarcoma and Bone Cancers

Connective tissue sarcoma:

The most common presenting feature is a lump or mass.

Assess for the following:

- Characteristics of the lump – size, change in size (including how quickly), consistency, fixation to other structures, associated skin changes/ulceration and position on the body
- Determine if the lump has arisen in the site of a previously excised lump (even if the prior pathology was benign) or area of the body previously exposed to radiotherapy. Both factors increase the risk of the lump being malignant
- Any genetic conditions predisposing to sarcoma – **See Appendix 5** for advice on referral with such conditions

In some Health Boards, the next step in investigating a soft tissue lump of concern is a USS – please follow local pathways.

Bone cancer:

Request a USC X-ray of the appropriate body part for any person with unexplained bone pain or tenderness, which is:

- Persistent or worsening (over six weeks or more)
- Nocturnal or at rest
- Interfering with activities of daily living

Blood investigations may be helpful if bone cancer is suspected but should not delay X-ray investigation. Consider the following blood tests: full blood count, renal function, bone profile and myeloma screen. Thyroid, lung, breast, renal and prostate cancers all commonly metastasise to bone and are more common than primary bone cancer, so it may be helpful to consider these in any assessment and investigation of bone pain.

Sarcoma and bone cancers can be missed. It is important to consider further investigation of a person who presents two or more times with a concern about a lump or bone pain with a negative X-ray.

Urgent Suspicion of Cancer (USC) Referral

Refer a person with any of the following to the appropriate local secondary care team as a USC:

- A soft tissue mass with one or more of the following characteristics:
  - rapidly increasing in size (over weeks to months)
  - 5 cm or more in size (unless long standing – see good practice regarding lipoma)
  - deep, tethered, fixed or immobile
  - hard or craggy
  - fungating
  - occurring in the site of a previous lump excision or within a previous radiotherapy field
- USS suspicious for a soft tissue sarcoma
- X-ray suspicious for a primary bone tumour/sarcoma

If the X-ray suggests metastases, myeloma or lymphoma refer as USC to the appropriate local specialty dependent on the most likely primary cancer site. Urgent orthopaedic referral should be considered if there is impending or acute pathological fracture.

Good Practice Points

Clinical features of soft tissue lesions:

The majority of soft tissue lesions referred are **benign on ultrasound scan (USS)**. Masses present for more than 1 year that are asymptomatic and not growing or changing do not require further investigation. Longstanding masses with new growth, pain or other symptoms/changes should be investigated.

Lumps occurring after an episode of definite or recalled trauma are usually self-resolving. Clinical review four to six weeks following the traumatic episode is reasonable, and patients can be discharged with safety netting if the lump is significantly improved or resolved. Persistent or non-resolving masses can be referred for assessment.

Lipoma:

A lipoma is a benign lump, which can affect up to 1% of the population and is most frequent in people aged 40 to 60 years[62]. It has the following features:

- Dome-shaped or egg-shaped lump usually 2-10 cm in diameter
- May grow slowly over several years
- Feels soft and smooth and is easily moved under the skin with the fingers
- May have a rubbery or doughy consistency

A lipoma should not be referred based on size alone. A clinical review in four weeks is reasonable for larger lesions. A referral should be made as a USC if there is rapid change in size or development of the other concerning features for a soft tissue lump noted above.

Bone cancers:

Bone cancers of the long bones are usually excluded by normal X-ray, but further investigation may be required for spine, pelvis, ribs or scapula.

Consideration should be given to referral if bone symptoms persist, but the X-ray is normal.

Other considerations:

Treatment for childhood cancer has been shown to increase the risk of subsequent cancers[63,64]. Specific regimes that increase the risk of sarcoma include those in which there is exposure to alkylating agents (e.g. Cyclophosphamide). Prior treatment should be noted where applicable.

Skin Cancers

The main types of skin cancer are basal cell carcinoma (BCC), cutaneous squamous cell carcinoma (SCC) and melanoma. There are also several much rarer skin cancer types.

BCC is the most common type of skin cancer (around 75% of all skin cancers diagnosed)[65]. It develops from basal cells, found in the deepest part of the outer layer of the skin (the epidermis). It is rare for basal cell skin cancer to metastasise.

SCC begin in cells called keratinocytes which are found in the epidermis. SCC is faster growing than basal cell cancers. It is unlikely to metastasise (research suggests metastases are found in 1.2-5% of cases)[66]. Around 23% of skin cancers are SCCs[65].

Melanoma accounts for around 1% of diagnosed skin cancers[65]. Melanoma skin cancer typically starts in skin cells called melanocytes[1].

In England there are more USC referrals for skin cancer than for any other site, with referral rates increasing more than threefold between 2009/2010 and 2022/2023, while conversion rates have fallen[67,68]. PHS plans to publish data on USC referrals once data quality issues have been resolved.

Risk factors for all skin cancer types include:

- Excessive sunlight exposure and sun bed use and is highest in people with fair skin colour and a susceptibility to sunburn

Risk factors for melanoma include:

- Large number of benign melanocytic naevi (**greater than 100 naevi has been shown to increase the relative risk of developing melanoma approximately sevenfold compared with 15 or less naevi**)[69]
- A family history of melanoma

Risk factors for SCC include:

- Multiple small actinic keratoses
- High levels of previous UV-A photochemotherapy
- Being immunocompromised

Skin cancers are very infrequent in those aged under 15 years of age.

Skin cancer can affect people of all skin colours, including those with brown and black skin. Skin cancer on darker skin often occurs on areas that get little sun exposure, like the palms of hands, soles of feet, and under/around the nails. People of colour have a higher risk of a late diagnosis and poorer prognosis as skin cancer may be less noticeable or less expected in their skin.

Assessment for Suspected Skin Cancers

The lesion should be examined and, if available, assessed using a dermatoscope. The dermatoscope is a useful tool for distinguishing benign pigmented lesions (e.g. seborrheic keratosis) from melanoma, potentially reducing unnecessary referrals. **The Right Decision Service** contains useful CfSD resources to aid in the assessment of skin lesions.

If the lesion is suspicious of cancer, a full medical history should be documented and the entire skin surface should be examined. History should include drugs, conditions that cause immuno-compromise, prior personal and family history of skin cancer.

Melanoma:

Suspect this if there is:

- A mole* with any of the following features (ABCDE criteria):
  - **A**symmetry
  - **B**order (irregular, scalloped or poorly defined)
  - **C**olour (irregularity or darkening)
  - **D**iameter more than 6 millimetres (they can be smaller)
  - **E**volution in shape, size, or colour (especially if quickly)
- A mole which stands out from those around it (the 'ugly duckling' sign)
- A new mole developing in a person aged 40 or over

*See good practice section below for the assessment of pigmented lesions

Subungual melanoma:

Suspect this if there is:

- Nail pigmentation which evolves but remains in contact with and/or involves the nail fold (fold of skin that borders the bottom and sides of the nail)

Squamous cell carcinoma (SCC):

Suspect this if a person with a skin lesion has one or more of the following features:

- Hyperkeratotic (scaly) nodule or indurated (thickened) lesion
- Ulcerated nodule that may bleed easily
- Lesion is painful or tender on palpation
- Lesion grows over weeks to a few months
- There is background of actinic keratosis

Squamous cell carcinoma (SCC) of the nail apparatus:

Suspect this if there is:

- A lesion growing underneath the nail that may be associated with local tissue destruction
- A change such as a nodule growing in an established periungual wart

Basal cell carcinoma (BCC):

Suspect this if a skin lesion has one or more of the following characteristics:

- Ulcer with a raised rolled edge, a nodule on the skin (waxy or pearly), a reddish plaque, scar-like with tethering or contraction
- Prominent fine blood vessels within the lesion
- History of spontaneous bleeding
- May contain pigmented areas
- Rarely painful

Other skin lesions that are concerning for malignancy:

The following skin changes should raise concern for a malignant lesion (including Merkel's tumour, sarcoma, or amelanotic melanoma):

- Nodule grows quickly (over weeks)
- A new change (growth, pigmentation, or pain) in a long-standing ulcer, scar, traumatic or inflamed area of skin
- Non-healing and/or destructive atypical ulcer
- Progressive unexplained scar-like area
- An unexplained skin lesion with loco-regional lymphadenopathy

Urgent Suspicion of Cancer (USC) Referral

Refer a person with any of the following according to the local skin cancer pathway as a USC:

- Skin or nail lesion suspicious for melanoma
- Skin or nail lesion suspicious for SCC
- Skin lesion suspicious for a BCC invading a potentially dangerous area e.g. peri-ocular, auditory meatus, nerve, or major blood vessel
- Skin lesion whose features raise concern for malignancy (see – other skin lesions that are concerning for malignancy)
- Unexplained or concerning skin lesion in an immunocompromised person
- A biopsy proven melanoma, SCC, or high-risk BCC (infiltrative, micronodular, or basosquamous)

Good Practice Points

Pigmented lesions:

Not all pigmented skin lesions are melanomas. Seborrheic keratoses are common, benign, pigmented lesions that can change in colour, size, and shape. They have a classical 'stuck on' appearance and can easily be distinguished with a dermatoscope. It is important to recognise these benign lesions as application of the ABCDE criteria may result in over-referral for suspected melanomas. Lesions which are suspicious for melanoma should not be removed in primary care.

Subungual melanoma:

This is rare compared with other causes of nail discolouration and change including fungal infection and haematoma. A subungual haematoma will grow out distally resulting in normal nail proximally between the nail pigmentation and the nail fold.

Other considerations:

- Any skin lesion removed should be sent for pathological examination
- Referrals should be accompanied by an accurate description of the lesion – including size (with measurements), pain and tenderness
- A photograph of the lesion should be sent with the referral to secondary care wherever possible. This allows for accurate and timely triage increasing the efficiency of care for patients with skin cancer. Please follow local pathways

- Please visit the **Right Decision Service** for CfSD primary care management of skin lesions not referred as a USC
- GPs with a special interest in dermatology can often safely manage SCCs and BCCs in primary care, including excision
- Dentists play a key role in the identification of cancers on the skin, in particular of the face and neck. There should be systems in place for USC referral pathways for dentists

Upper Gastrointestinal Cancers

Upper gastrointestinal (GI) cancer is an umbrella term for multiple different cancer types, including oesophageal, stomach, pancreatic, gallbladder and liver.

Upper GI cancers (excluding gallbladder due to data availability) accounted for around 9% of new cancer cases in Scotland in 2021 and 2022 (excluding non-melanoma skin cancer)[1]. Late stage diagnosis is common for upper GI cancers, with 25.0% of liver, 40.6% of stomach, 35.3% of oesophageal and 53.1% of pancreatic cancers being diagnosed at stage 4 in Scotland in 2021[29]. Upper GI cancers (where incidence data is available in Scotland) have a higher incidence in those from more deprived areas[4].

Oesophago-gastric (OG) cancer:

UK data (2017-2019) indicates the following risk factors[70-72]:

- Increasing age (it is less likely under the age of 40)
- Two times greater risk in men than women
- Family history of OG cancer
- Lower socioeconomic status
- Smoking
- Excessive alcohol use
- Chronic gastro-oesophageal reflux
- Barrett's oesophagus
- Obesity (e.g. greater than two-fold higher risk of oesophageal cancer if BMI greater than 30 compared with Body Mass Index (BMI) less than 25)[73]
- Prior history of aero-digestive cancers

Hepato-pancreato-biliary (HPB) cancer:

Pancreatic cancer is less likely below the age of 40 with incidence rates rising steeply from age 60[1]. Risk factors include:

- Smoking
- Excessive alcohol use
- Chronic pancreatitis
- Family history

Liver cancer is less common than pancreatic cancer[1]. Risk factors include[74]:

- Smoking
- Obesity
- Excessive alcohol use
- Chronic liver disease
- Viral hepatitis
- Haemachromatosis
- Family history of liver cancer

Assessment for Suspected Upper GI Cancers

Upper GI cancers often present with vague symptoms that are common complaints in primary care and, that on their own, have a low PPV for cancer[75]. The exceptions are dysphagia for oesophago-gastric cancer and jaundice for pancreatic cancer.

The clinical features of upper GI cancers overlap[76].

Clinical Feature	OG cancer	HPB cancer
Dysphagia	✓	
Dyspepsia/reflux	✓	
Nausea/vomiting	✓	✓
Upper abdominal pain	✓	✓
Early satiety (feeling full up after a small amount of food)	✓	✓
Abdominal mass	✓	✓
Unintentional weight loss	✓	✓
Jaundice		✓
Change in bowel habit		✓
New onset diabetes at older age - see USC referral		✓

The PPV for upper GI cancers can exceed 3% if there are combinations of symptoms:

- Oesophago-gastric cancer[16,77]:
  - weight loss with abdominal pain, reflux or nausea/vomiting
- Pancreatic cancer[16]:
  - abdominal pain, with nausea/vomiting, constipation or weight loss

The PPVs are affected by age and this has been reflected in the referral criteria below.

If upper GI cancer is suspected:

- Perform an abdominal examination
- Arrange blood tests (full blood count to assess for anaemia and thrombocytosis, renal function, liver function tests and haemoglobin A1c)

Urgent Suspicion of Cancer (USC) Referral

Oesophago-gastric cancer:

Refer a person with any of the following to secondary care (follow local pathway) as a USC:

- Persistent or progressive dysphagia (**not** 'feeling of something stuck in the throat' - FOSSIT)
- Weight loss (5% or more of body weight or strong clinical suspicion) in a person aged 55 years or over with any of the following:
  - upper abdominal pain
  - early satiety
  - reflux
  - dyspepsia
  - nausea and/or vomiting

Hepato-pancreato-biliary cancer:

Refer a person with any of the following to secondary care (follow local pathway) as a USC:

- Painless obstructive jaundice in a person aged 40 years or over
- Weight loss (5% or more of body weight or strong clinical suspicion) in a person aged 55 years or over with any of the following:
  - change in bowel habit
  - back and/or abdominal pain
  - nausea and/or vomiting
  - new onset diabetes
- Abdominal pain in a person aged 55 years or over with any of the following:
  - nausea and/or vomiting
  - weight loss (5% or more of body weight or strong clinical suspicion)
  - constipation
- Palpable upper abdominal or epigastric mass
- Any abnormality in the hepatobiliary tract/pancreas found on imaging that is suspicious for HPB cancer

Good Practice Points

Referral guidance:

Referral to secondary care for USC assessment will vary by Health Board – please follow the local pathway.

Referrals will be triaged by secondary care clinicians. It is therefore important that when a person is referred, they are advised that they are being referred for assessment, not for a specific investigation (e.g. an endoscopy).

When making a referral for a person with dysphagia it is essential that the correct information is included in the referral form to allow the secondary care team to triage the referral. Please see CfSD's **Dysphagia Pathway** for guidance.

Overlap with other pathways:

Patients with intra-abdominal cancer can present with symptoms that overlap. Please see **Lower GI Cancers Guideline**, **Ovarian Cancers Guideline** and **Kidney Cancers Guideline**.

A normal Oesophago-Gastro-Duodenoscopy (OGD) or CT alone may be insufficient to exclude an upper GI cancer. Consideration should be given to using both modalities where clinically indicated, depending on symptoms, age, sex and risk factors.

There may also be a role for referral to a local pathway for non-specific symptoms in which cancer is suspected such as GP direct access to CT or to a RCDS. See also the **Non-Specific Symptoms of Cancer Guideline**.

Iron deficiency anaemia (IDA) falls below the 3% threshold for upper GI cancer and is therefore not included in the above USC referral criteria. See **Lower Gastrointestinal Cancers Guideline** for initial investigation.

Thrombocytosis:

Evidence has identified thrombocytosis as a risk marker for malignancy[17]. In cases of unexplained thrombocytosis, it is advisable to assess for any signs or symptoms of cancer and if appropriate refer to a tumour specific USC pathway. **Please see the thrombocytosis section for more details.**

Urological Cancers

Urological cancer is an umbrella term for multiple different cancer types, including prostate, bladder, kidney, testicular and penile.

Prostate cancer:

This is the most common cancer among men in Scotland, accounting for around 4,700 diagnoses each year[1]. Risk factors include:

- Father or brother with prostate cancer
- Black or mixed black ethnicity (the lifetime risk of prostate cancer in black men is double that of white men)[78]
- Carrying a BRCA gene variant

Bladder and kidney cancer:

There are around 860 new bladder and 1,150 new kidney cancers in Scotland each year. 98% of kidney cancer cases are aged 40 years or over and 99% of bladder cancer cases are aged 45 years or over at the time of diagnosis[1]. Risk factors include:

- Male sex (crude rates of kidney cancer are 2 times higher and bladder 2.3 times higher in males[1])
- Smoking history
- Family history

Testicular cancer:

This cancer is relatively rare, with around 185 new cases per year, of which approximately 70% are in males aged 15 to 45 years[1].

Penile cancer:

This cancer is rare, with around 90 new cases each year in Scotland but its incidence is rising[1].

Assessment for Suspected Urological Cancers

Prostate cancer:

Early prostate cancer is often asymptomatic. Prostate cancer can present with lower urinary tract symptoms. Symptoms suggestive of advanced or metastatic prostate cancer include back pain, bone pain, fatigue, or weight loss (see **Malignant Spinal Cord Compression (MSCC)**).

For men aged 50 years and over, or aged 45 years and over with one or more risk factor(s)*, a Prostate Specific Antigen (PSA) test and a Digital Rectal Examination (DRE) should be considered if there are any of the following symptoms:

- Lower urinary tract symptoms (urgency, hesitancy, frequency, nocturia, retention)
- Unexplained visible haematuria
- Haematospermia
- Erectile dysfunction

*Risk factors: a first degree relative (brother or father) who has or had prostate cancer, are black or mixed black ethnicity or carry a BRCA gene variant

Do not perform a PSA test until at least six weeks after treatment for men with symptoms or signs of a Urinary Tract Infection (UTI), or who have been prescribed antibiotics for a confirmed or suspected UTI.

In men aged 80 years or over, prostate cancer is commonly found but may not be clinically significant. It is recommended that PSA testing should be reserved for men aged 80 years or over in the following scenarios:

- Clinical features suggestive of metastatic prostate cancer (e.g. new significant bone pain, unexplained weight loss or unexplained anaemia)
- The man wants a PSA test after shared decision-making. The potential benefits of diagnosing and treating prostate cancer are greater in those with a good functional status (Performance Status e.g. **ECOG/WHO performance status** and **Clinical Frailty Scale**) and a longer life expectancy (10 plus years).

Bladder and kidney cancer:

The presenting features of bladder and kidney cancer include:

- Visible haematuria – the most common
- Loin pain
- Renal masses
- Persistent non-visible haematuria
- Anaemia
- Weight loss
- Pyrexia

Testicular cancer:

Clinical features include:

- Swelling or lump in the testis or scrotum
- Dull ache in the abdomen or groin

Solid swellings affecting the body of the testis have a more than 50% chance of being cancer. Testicular cancers have the potential to progress rapidly.

Consider testicular examination for any male presenting with abdominal or groin pain, testicular pain or swelling.

Consider a testicular USS for men with unexplained or persistent symptoms despite a normal examination.

Penile cancer:

Sexually transmitted infection should be excluded and treated before considering referral.

Presenting features include:

- Swelling or irritation in the head of the penis
- Thickening of the skin of the foreskin or penis
- Changing skin colour of the foreskin or penis
- Lumps or sores on the penis which may bleed
- Discharge or bleeding from underneath the foreskin

Urgent Suspicion of Cancer (USC) Referral

Prostate cancer:

Refer a person with any of the following to the Urology Service as a USC:

- Raised PSA in the following age categories:
  - under 70: ≥3 ng/ml
  - 70-79: ≥5 ng/ml
  - 80 and above: ≥20 ng/ml - see good practice
- A DRE suspicious of prostate cancer (hard and/or irregular) – request an urgent PSA test in parallel to a referral.

Do not refer as a USC if the PSA is raised in men with symptoms or signs of a Urinary Tract Infection (UTI), or who have been treated for a UTI. Instead, repeat the PSA after six weeks of completing treatment for the UTI. If the PSA is still raised (see above thresholds) refer as USC.

A UTI does not need to be excluded prior to referral if there are no clinical features of infection.

A repeat PSA test may be carried out by secondary care to allow triage but is not needed for referral from primary care if there is not a confirmed or suspected UTI.

Bladder and kidney cancer:

Refer a person with any of the following to the Urology Service as a USC:

- Unexplained Visible Haematuria:

  Aged under 45 years:
  - more than one episode without UTI (not limited to a time duration)
  - recurs/persists after treatment of UTI

  Aged 45 years and over:
  - single episode without UTI
  - recurs/persists after treatment of UTI
- Unexplained Non-Visible Haematuria

  Aged 60 years and over:
  - persistent blood on repeat urine dipstick (between two to six weeks apart) and has a negative urine culture
  - abdominal mass identified on imaging that is thought to arise from the urinary tract

Testicular cancer:

Refer a person with any of the following to the Urology Service as a USC:

- Non-painful enlargement or change in shape or texture of the body of the testis
- Epididymo-orchitis not improving after two weeks of antibiotics
- USS suggestive of testicular cancer

Referral pathways can vary locally, and, in some areas, the first step may be USC ultrasound scan referral. Local referral pathways should be followed to avoid any delay in triage.

Penile cancer:

Refer a person with any of the following to the Urology Service as a USC:

- Unexplained bleeding or persistent discharge from underneath the foreskin
- Penile mass or ulcerated lesion, when a sexually transmitted infection has been excluded as a cause
- Persistent penile lesion after treatment for a sexually transmitted infection has been completed

Good Practice Points

Prostate cancer:

There is no agreed screening programme for prostate cancer in the United Kingdom. There is an informed choice programme called the **Prostate Cancer Risk Management Programme (PCRMP)**. This supports clinicians to give balanced information to men without symptoms of prostate disease who ask about a PSA test. The PCRMP was updated in December 2024 to clarify that PSA testing for asymptomatic men is not exclusively available to those aged 50 and over. The documents contain reference to NICE NG12. This is not applicable for NHS Scotland and instead the Scottish Referral Guidelines for Suspected Cancer should be followed for the referral of suspected prostate cancer.

If a PSA is performed in this context the following apply:

- PSA thresholds described in the 'Urgent Suspicion of Cancer Referral' section above should be used to guide referral
- If the PSA is below these thresholds, the test should not be repeated within a 12-month period, if the person remains asymptomatic

Men between the ages of 80 and 85 who have a high PSA ≥10, but <20, can be referred as urgent for further assessment if they are fit and do not have multiple co-morbidities, in line with the principles of Realistic Medicine.

Urinary catheterisation or other invasive procedures such as prostate biopsy raise PSA, with 5- alpha reductase inhibitors such as finasteride potentially reducing PSA.

The following people have a prostate gland:

- Men
- Transgender women
- Non-binary people with male as their biological sex
- Some intersex people

If the prostate is felt to be abnormal (hard and/or irregular) on DRE, a PSA test should be requested. The result of the PSA test is used to support triage in secondary care. The PSA result should not alter the category of referral to secondary care – an abnormal DRE in the presence of a normal PSA should still be referred as a USC.

The prostate is not removed as part of genital reconstructive surgery. Transgender women and non-binary people whose biological sex is male can get prostate cancer. Taking feminising hormones, testosterone blockers or having the testicles removed reduces the risk of prostate cancer by lowering testosterone levels.

Lower urinary tract symptoms in Transgender women or non-binary people whose biological sex is male, especially if aged 50 years or over, should be assessed carefully and the possibility of prostate cancer considered. If vagino/vulvoplasty has been carried out the prostate can be examined via the anterior wall of the vagina.

Bladder and kidney:

A urine culture should be obtained if a person presents with haematuria (visible or non-visible).

Consider seeking urology advice if there are recurrent issues with haematuria in patients who have had recent (within six months) negative investigations for haematuria. This does not need to be a USC referral.

There is an **online risk calculator for bladder cancer** available.

A single episode of visible haematuria in those aged under 45, in the absence of a UTI, does not meet the criteria for a USC referral. Consideration should be given to imaging or referral to urology through an alternative pathway, based on local guidelines.

Evidence suggests that certain groups may be at an increased risk of diagnostic delays and missed diagnostic opportunities – this includes older women with UTIs[79], those with recurrent UTIs[80], and people presenting with non-haematuria symptoms[81].

Overlap with other pathways:

Patients with intra-abdominal cancer can present with symptoms that overlap. Please see **Upper** and **Lower GI Cancers Guidelines** and **Ovarian Cancers Guideline**. Data shows a PPV of 5% for kidney cancer in men aged 60 or over with abdominal pain and microcytosis (low mean corpuscular volume without the additional need for anaemia)[16].

Patients with abdominal pain would normally be assessed and referred using the **Upper** or **Lower GI Cancers Guidelines**. A USS of the abdomen including the kidneys, or a USC referral to urology, should be considered if no cause is found and the kidneys have not been imaged.

Non-Specific Symptoms of Cancer

'Red flag' or 'alarm symptoms' of cancer are usually associated with a higher predictive value for specific cancer types e.g. a breast lump (breast cancer) or haemoptysis (lung cancer). These symptoms are included in the SRGs under the relevant cancer type.

However, people can often present with non-specific symptoms of cancer including:

- Unexplained weight loss
- Fatigue
- Abdominal symptoms (pain, bloating)
- Nausea/vomiting
- Loss of appetite
- Non-specific pain

Unexpected blood results such as anaemia or thrombocytosis can also occur prior to a cancer diagnosis. Additionally, a GP may have an intuition about an underlying diagnosis of cancer despite a lack of specific clinical features – commonly referred to as GP 'gut feeling'[12,13].

In these circumstances, a person may not meet the threshold for referral to a specific cancer pathway which has the potential to prolong diagnostic intervals and increase the risk of emergency presentation with possible worse outcomes[82]. In addition, people with non-specific symptoms are more likely to have multiple GP attendances and tests in primary care[82].

This Guideline is a new addition to the SRGs with the purpose of collating the current knowledge on non-specific clinical features concerning for cancer, to aid primary care referral. There are currently two clinical pathways for non-specific symptoms – RCDSs and GP direct access to CT[83].

Rapid Cancer Diagnostic Services:

In Spring 2021, CfSD facilitated the implementation of early adopter RCDSs, with the aim of providing primary care clinicians with a new route to refer people with non-specific clinical features concerning for cancer. An independent evaluation report from the University of Strathclyde was published in December 2023[84]. Over the two-year evaluation period 3,616 people were referred (58.5% female, median overall age of 70 years). Unexplained weight loss was the most described clinical feature.

11.9% of the people assessed were diagnosed with cancer. Older age, GP 'gut feeling' and unexpected blood results were the features most strongly associated with a cancer diagnosis.

CT scanning was the most frequently used diagnostic test. The most frequently diagnosed cancers were lung, upper gastro-intestinal and colorectal.

GP direct access to CT:

At the time of publishing these Guidelines, not all Health Boards in Scotland have a RCDS. An alternative pathway is GP direct access to CT scanning. This has been shown to perform as well as secondary care triage and testing in terms of cancer detection and diagnostic interval[85].

Assessment for Suspected Cancer in a Person with Non-specific Clinical Features

Non-specific symptoms often lead to repeated GP visits and extended diagnostic intervals. Thorough initial assessments and adherence to referral pathways are critical to minimising delays and improving outcomes.

The selection of initial investigations should be guided by the clinical context and local pathways, avoiding unnecessary testing where symptoms strongly suggest an alternative diagnosis.

The following tests may be helpful in a person with non-specific symptoms where there is a concern about an underlying cancer diagnosis:

- Urinalysis (for haematuria see **Urological Cancers Guideline**)
- Full blood count
- ESR and/or C-Reactive Protein (CRP)
- Renal function (especially if considering a contrast enhanced CT)
- Liver function tests
- Thyroid function tests
- Glycosylated haemoglobin (HBA1c)
- Bone profile
- Blood borne virus screen
- CA125 (see **Gynaecological cancer guidelines** for who to test and thresholds for referral)
- PSA (see Urological cancer guidelines for who to test and thresholds for referral)
- Vitamin B12 levels, ferritin, and folate
- Chest x-ray (see **Lung and Pleural Cancers Guideline**)

The results of the tests may guide the need for referral to a non-specific pathway described above or may help to identify a concern about a site-specific cancer diagnosis (e.g. raised PSA and prostate cancer or raised CA125 and ovarian cancer).

Some pathways have tests that are required before referral – please see local guidelines. The above list is not intended as a minimum set of tests required for referral.

See Appendix 5 for advice on referral for genetic conditions that predispose to cancer.

Urgent Suspicion of Cancer (USC) Referral

Refer a person with any of the following to a non-specific symptom pathway (RCDS or GP direct access to CT) as a USC, especially if accompanied by GP 'gut feeling' of a cancer diagnosis:

- New unexplained weight loss (either documented 5% or more of body weight in three months or with strong clinical suspicion)
- New unexplained loss of appetite, fatigue, nausea, malaise, or bloating of four weeks or more (less if strong clinical suspicion)
- New unexplained, unexpected, or progressive pain, including bone pain, of four weeks or more

A person referred to a non-specific symptom pathway should not meet criteria for a site-specific pathway in this latest version of SRGs. However, if a person presents with symptom combinations which could indicate several different cancer types, referral to a RCDS or GP direct access to CT may be appropriate dependent on local referral pathways.

Good Practice Points

Referring for assessment:

If a person is being referred for investigation for a suspected cancer, it is critical this is made clear to them and documented in the referral. It is also especially important that the wishes of the person and their functional status (e.g. **ECOG/WHO performance status** and **Clinical Frailty Scale**) are considered. This may need to include a collateral history from a carer or relative. Frailty or poorer performance status should not prevent a referral to a RCDS or GP direct access to CT. However, the decision should be made with the person to ensure it aligns with their overall goals of care and that the benefits and risks of further diagnostic assessment are understood.

The most common modality used to assess those with non-specific symptoms which are a concern for cancer, is a CT scan. Therefore, this should be discussed with the relevant service and provision made for non-radiation exposing diagnostic tests (e.g. ultrasound) if referring a person who is pregnant.

Metastatic cancer can present with non-specific symptoms, so it is important to check for a previous cancer diagnosis and refer to the relevant tumour specific service, if appropriate.

Bone pain:

Any cancer can spread to the bones, but it is more common in prostate cancer, breast cancer, lung cancer, kidney cancer, thyroid cancer and myeloma. If vertebral bones are involved there is a risk of spinal cord compression. If malignant spinal cord compression is suspected, then **guidelines on assessment and investigation** should be accessed.

Rapid Cancer Diagnostic Services and GP direct access to CT:

Please follow local guidelines when referring to these services and note the tests that are required before referral. Please also reference available **national guidelines for primary care** on which service to use if both are available in your Health Board[83]. For GP direct access, the referrer is responsible for the action taken regarding the findings of the CT, including a USC referral to another cancer pathway and assessing, treating, and referring any additional or incidental findings as appropriate.

Unprovoked deep venous thrombosis (DVT):

Data indicates that 3.9% of people had a new diagnosis of cancer in the year following a diagnosis of unprovoked DVT[86]. It has therefore been suggested that investigation for cancer in this group would be beneficial. However, a randomised trial has shown that the addition of a CT abdomen and pelvis to standard assessment (history, examination, blood tests and routine screening for cancer) did not detect significantly more cancers or alter diagnostic intervals or cancer-related mortality[6]. On this basis it is recommended that unprovoked DVT alone should not prompt referral for a CT through either pathway – RCDS or direct access.

Unexplained thrombocytosis:

In cases of unexplained thrombocytosis, it is advisable to assess for any signs or symptoms of cancer and then to refer on a tumour specific USC pathway if appropriate[17].

If isolated unexplained thrombocytosis is found, it is recommended that a chest x-ray is considered. If there is unexplained thrombocytosis combined with non-specific symptoms such as significant weight loss, or if there is associated GP 'gut feeling', it may also be appropriate to refer for further investigation through either a RCDS or GP direct access to imaging pathway.

Cancer in Children and Young People

Cancer in Children and Young People (CYP) encompasses multiple distinct types of cancers diagnosed in those aged 0-24 years. Typically, childhood cancers are defined as cancers in those aged 0-14 years and young people's cancers in those aged 15-24 years. However, be aware that age ranges for local referral pathways may vary.

Around 130 children (aged 0-14 years) and 180 young people (aged 15-24 years) are diagnosed with cancer in Scotland each year (average over 2018, 2019, 2021)[87].

In Scotland, 31% of children aged 0-14 years with cancer were diagnosed with leukaemia, and 26% were diagnosed with brain/CNS tumours (2012 – 2021)[87]. Survival for children with cancer is high, with 85% of children expected to live for five years or more after their diagnosis (over years of diagnosis 2011-2016)[87].

23% of 15-19 year olds with cancer were diagnosed with lymphoma, 17% with carcinomas and a further 17% with CNS tumours (2012-2021)[87].

25% of 20-24 year olds with cancer were diagnosed with carcinomas, 18% with lymphoma, and 16% with melanoma (2012-2021). Cancer survival among young people is high, with 90% expected to live for five years or more after their diagnosis (years of diagnosis 2011-2015)[87].

Large variation is seen in diagnostic intervals by cancer type and it is common for patients to see a health professional three or more times before referral[88]. Longer intervals may result from non-timely help seeking for symptoms and a lack of awareness of cancers in CYP[89,90].

As cancer in CYP is uncommon, health professionals may not always initially suspect cancer and investigate other benign causes first, potentially leading to pathway delays or emergency presentation. It is estimated that a UK General Practice with an average list size will diagnose cancer in a child or young person every 1.8 years[91].

Types of Cancer in Children and Young People

Childhood cancers:

There are 76 distinct types of childhood cancer. They are broadly grouped into cancers affecting the blood and those that cause solid tumours. There are clear differences between most childhood and adult tumours, reflecting different biology. Many childhood tumours are of 'embryonal' origin or other 'high grade' malignancies, whilst carcinomas are uncommon. Childhood malignancies can progress very rapidly and a delay of even a few days may be associated with substantial clinical deterioration. Conversely, some childhood tumours can present in a more indolent way, including Hodgkin Lymphoma, and some low-grade intracranial tumours - malignancy cannot therefore be excluded solely based on a long history.

The main types of childhood cancer are leukaemia, brain and spinal tumours, lymphoma, soft tissue sarcomas, neuroblastoma, renal tumours, bone tumours, germ cell tumours, retinoblastomas, other carcinomas and melanomas, and liver tumours.

Leukaemia:

This is the most common type of childhood cancer, accounting for approximately one third of all cancers in children[87]. It is a cancer of the white blood cells – white blood cell production and maturation gets out of control and the cells continue to divide.

Brain and central nervous system tumours:

These are the most common solid tumours in childhood. In Scotland, they account for 26% of all cancers and 51% of deaths in children aged 0 to 14[87]. They are often identified later than other childhood cancers due to their varied and often initially subtle symptoms.

Lymphoma:

This is the third most common type of childhood cancer. It accounts for around 9% of childhood cancer diagnoses in Scotland (2012-2021)[87] and is split into two main groups: Hodgkin's Lymphoma and Non-Hodgkin's Lymphoma.

Soft tissue sarcoma:

The most common soft tissue sarcoma is rhabdomyosarcoma. Other types include fibrosarcomas, schwannomas and primitive neuroectodermal tumours.

Neuroblastoma:

This is a solid cancer that develops from cells called neuroblasts. They can occur anywhere in the body but usually start in the adrenal glands or in nerve tissue that runs alongside the spinal cord. In some cases, neuroblastoma can spread to other places in the body such as the bone marrow, lymph nodes, bone, liver and skin.

Renal tumours:

These arise from the kidney and are more common in younger children. Wilm's tumours may be associated with underlying genetic conditions.

Bone tumours:

The most common types are Osteosarcoma and Ewing's Sarcoma. Osteosarcoma can present at any age but has a peak incidence in the second and third decade of life[94]. Most common sites are the femur, tibia and humerus. Ewing's Sarcoma has a peak incidence between the ages of 10 and 15 years and rarely occurs under the age of five. Most common sites are the pelvis, femur, tibia, fibula, rib and humerus.

Germ cell tumours:

Germ cell tumours are growths that form from reproductive cells. They can develop at any age and usually originate in the ovaries or testes (gonadal germ cell tumours), but they can sometimes occur in other parts of the body as well (extragonadal germ cell tumours). Sites where extragonadal germ cell tumours most commonly occur are at the bottom of the spine (sacrococcygeal), the brain, chest and abdomen. There are several types of germ cell tumours including germinomas, yolk-sac tumours, embryonal carcinomas and teratomas.

Retinoblastoma:

This is a rare cancer of the retina. It is most common in very young children and infants, with the average age of diagnosis being around four months old. It can occur in just one eye or both. Approximately 40% of cases are inherited.

Liver tumours:

There are two main types of liver tumours - hepatoblastoma and hepatocellular carcinoma. Hepatoblastoma most commonly affects children under the age of five. Hepatocellular carcinoma is less common and affects older children.

Other:

Histiocytoses and Rhabdoid tumours are rare cancers of childhood.

Young people's cancer:

Cancer is more commonly seen in young people than children, with a mixture of late presenting childhood cancers and early presenting adult cancers.

The main types of cancer in young people are:

- Lymphoma
- Carcinomas (cervical, melanoma, thyroid cancer)
- Germ cell tumours (testicular or ovarian)
- Brain tumours
- Bone cancers
- Soft tissue sarcoma
- Leukaemia

Assessment for Suspected Cancer in Children and Young People

Children:

Studies show that children with cancer may attend multiple consultations before diagnosis. However, it is important to recognise that frequent attendance is common in this age group and usually reflects benign or self-limiting conditions rather than serious pathology.

An unwell child may be unwilling to comply with examination or may disguise their impairment. Developmental regression is a significant finding and lack of evidence of normality may need to be escalated for investigation.

It is essential for clinicians to balance vigilance with the broader context of frequent attendance. A child should be examined if there is concern about cancer even if they look well, and clinicians should ask how many times they have been seen by a healthcare professional or have sought advice for the problem.

The following features raise suspicion for a childhood cancer:

- Attendance across any pathway (e.g. A&E, NHS 111, GP) **three or more** times
- Change in attendance rates e.g. a family that usually attend infrequently suddenly attending frequently
- Unusual or persistent symptoms (see good practice), that do not respond to simple interventions e.g. antibiotics, laxatives, or a short course of steroids
- Parents or carers have persistent concerns, even if symptoms are more likely to have a benign cause

Young people:

Young people most commonly attend their GP for infection, psychological support or contraceptive advice. A presentation with symptoms which are unexpected within this age group should lead to focused clinical examination, even if they appear otherwise well.

Symptoms due to cancer in young people can be misattributed, for example:

- Pain following sport, gym or muscle strain
- Fatigue due to social life, academic pressures, studying for exams, jobs while at university, anxiety, or mental health problems

Certain conditions, such as Neuro-Developmental Difference (NDD), can affect a young person's ability to manage medical consultations, including describing symptoms, being compliant with a physical examination or the stress of the environment.

As with children, repeat presentation, including to other professionals (e.g. A&E, AHPs) should be considered a warning sign of a possible cancer.

It may be appropriate to organise urgent tests in primary care if a young person is well and there are single clinical features of concern. Examples include:

- A full blood count (FBC) if there is pallor, bruising, petechiae, infection, lymphadenopathy or generalised bone pain.
- USS for a soft tissue mass
- X-ray for unexplained localised bone pain

A referral to secondary care must not be delayed by waiting for test results if investigations are being arranged for a young person in which there is significant concern about cancer. Repeated attempts at tests (e.g. bloods) should also not delay a referral for assessment.

Urgent Suspicion of Cancer (USC) Referral

Children:

In most cases the first contact for children with suspected cancer is general paediatrics. This may take the form of a phone call for emergency and very urgent concerns. Local guidelines should be followed as referral pathways differ across Scotland.

Young people:

The referral pathway may be more complex for young people with suspected cancer. The person may need clear guidance to understand different appointments, to avoid missed scans/failed attendances. For some young people, consideration should be given to sharing information with parents/guardians. Adult guidelines should be followed, where appropriate, bearing in mind that the more common cancer types seen in this age group are different to those in older adults.

Clinical features that can be associated with cancer in children and young people:

While many CYP cancers present with non-specific symptoms, the majority of CYP presenting with these symptoms will not have cancer. The guidance aims to support clinicians in identifying those at higher risk while avoiding unnecessary investigations.

The following table is not an exhaustive list of clinical features – it is important to remember that children and young people can present atypically.[91-93]

Cancer type	Associated symptoms	
Leukaemia	■ fever ■ recurrent or persistent infection ■ pallor ■ fatigue ■ generalised bone pain and/or limp	■ hepatosplenomegaly ■ lymphadenopathy ■ bleeding ■ petechiae ■ any of the features found in NHL (see below)

Cancer type	Associated symptoms
Lymphoma: Hodgkin's	■ lymphadenopathy typically progressing over weeks-months ■ fever ■ sweats (drenching and at night) ■ pruritus ■ weight loss ■ breathlessness
Lymphoma: Non-Hodgkin's (NHL)	■ lymphadenopathy (particularly cervical) ■ splenomegaly ■ abdominal distension ■ sweats ■ fever ■ pruritus ■ weight loss ■ breathlessness
Lymphoma (either type)	Lymphoma can present with a mediastinal mass (see good practice) causing: ■ airway compromise – wheeze, stridor, orthopnoea ■ superior vena cava obstruction – breathing difficulty with facial swelling
Brain tumour	See – **Better Safe Than Tumour** – for age specific symptoms ■ persistent/recurrent headache ■ persistent/recurrent vomiting ■ behaviour change, confusion, or lethargy ■ developmental regression or reduced school performance ■ seizures ■ loss of balance ■ papilloedema ■ head tilt, wry neck, or stiff neck ■ focal neurological deficit ■ abnormal eye movements ■ new squint ■ blurred or loss of vision ■ co-ordination or walking issues ■ increasing head circumference crossing the centiles ■ delayed or arrested puberty
Neuroblastoma	■ abdominal mass, ■ unexplained neurological symptoms ■ hypertension ■ periorbital bruising ■ Horner's syndrome ■ skin lesions in infants ('blueberry muffin' appearance) ■ systemic symptoms (bone pain, pallor, bruising, fever, fatigue, irritability, lymphadenopathy)

Cancer type	Associated symptoms	
Renal tumours (nephroblastoma)	■ palpable abdominal mass (can be painful), ■ haematuria (can be visible or persistent non-visible)	■ hypertension ■ associated fever
Soft tissue sarcoma	■ soft tissue mass anywhere on the body (firm/hard, tethered, non-tender, enlarging) ■ proptosis ■ nasal or ear obstruction or discharge (persistent or recurrent, bloody/purulent) ■ urinary retention	■ scrotal swelling, vaginal discharge (blood stained) ■ back pain, lower limb pain or weakness (see good practice for malignant spinal cord compression) ■ can be associated with enlarged draining lymph nodes and weight loss
Bone tumours	■ persistent localised bone pain (pain can be at rest) ■ bony mass or swelling ■ spontaneous or minor trauma fracture	■ back pain including a painful scoliosis ■ unexplained limp ■ can cause malaise and fever
Liver tumours	■ hepatomegaly ■ abdominal pain	■ systemic upset (fever, fatigue, loss of appetite) ■ rarely jaundice
Retinoblastoma	■ white or absent pupillary red reflex	■ new onset squint
Germ cell tumours	■ scrotal swelling (testis) ■ abdominal mass (ovary) ■ neurological symptoms (CNS involvement)	■ can be associated with gynaecomastia, virilisation, and/or precocious puberty
Germ cell tumours (continued)	Germ cell tumours can present with a mediastinal mass (see good practice) causing: ■ airway compromise – wheeze, stridor, orthopnoea; ■ superior vena cava obstruction – breathing difficulty with facial swelling	
Langerhans cell histiocytosis	■ Bone (pain, swelling, multiple lesions on X-ray and can be lytic) ■ posterior pituitary features (polydipsia/polyuria)	■ skin (rash, which is unusual, fluctuant, persistent, can look like eczema unresponsive to treatment, severe cradle cap, persistent/recurrent otitis externa, anal excoriation)
Haemophagocytic lymphohistiocystosis	■ systemic upset ■ fever ■ splenomegaly	■ pallor ■ fatigue ■ bruising and/or bleeding

Good Practice Points

Persistent symptoms:

For this guideline, 'persistent' indicates the continuation of specified symptoms and/or signs beyond a period that would normally be associated with self-limiting problems. This should take into account what the parent/carer/young person considers unusually persistent for them and the child's baseline and overall clinical picture. The precise period will vary depending on the severity or combination of symptoms/associated features, as assessed by the health professional.

Lymphadenopathy:

Lymph nodes in the neck that are under 2 cm in longest dimension may be reactive and can commonly be felt in slim young people. Other reassuring features could include a recent infection, masses which are reducing in size and those which are very tender. Neck nodes which are 2 cm or larger, nodes palpable in supraclavicular fossae, axillae and large nodes in the groin merit further assessment and consideration of cancer. If there is associated splenomegaly, night sweats, weight loss, bone pain, unexplained respiratory symptoms, or limp then this is concerning regardless of the size of nodes and should prompt a USC referral. It is important to note that rapidly enlarging malignant nodes can be tender and/or uncomfortable and so do not fit the classic "painless lymphadenopathy" scenario.

Emergency referral:

The following clinical scenarios are emergencies and must be referred immediately to secondary care:

- **Malignant Spinal Cord Compression** is a severe, often irreversible complication of para- or intra-spinal pathology. It is rare in paediatrics but not in children with cancer
- Mediastinal involvement with cancer (most frequently lymphoma or germ cell tumours) causing airway compromise (wheezing, orthopnoea, stridor) or superior vena cava compression (breathing difficulties, distended neck veins, facial swelling)

Thyroid cancer:

For the assessment of suspected thyroid cancer in children and young people, please see the **Head and Neck and Thyroid Cancers Guideline**.

Appendices

Appendices

Appendix 1 – Membership of the SRG Project Team

Name	Title
Philip Hodkinson	Co-Clinical Lead, Cancer Improvement & Earlier Diagnosis, CfSD; Respiratory Consultant, NHS Ayrshire & Arran
Lorna Porteous	GP Lead for Cancer and Palliative Care, NHS Lothian; Co-Clinical Lead of the Scottish Primary Care Cancer Group
Jenny Johnston	Programme Manager, Cancer Improvement & Earlier Diagnosis, CfSD
Sarah Wink	Project Manager, SRG Review 2024, Cancer Improvement & Earlier Diagnosis, CfSD
Diane Primrose	Head of Programmes, Cancer Improvement & Earlier Diagnosis, CfSD
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Nicola Barnstaple	National Associate Director, Cancer Improvement & Earlier Diagnosis, CfSD

Appendix 2 – Membership of the SRG Steering Group

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Linda Sparks	National Improvement Advisor, CfSD
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Gillian Watson	Project Manager, NHS Tayside; Cancer Managers Forum representative
Babu Mukhopadhyay	Realistic Medicine Lead, NHS Lanarkshire

Name	Title
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Appendix 3 – Membership of Peer Review Sessions 2024

Brain and Central Nervous System Cancers

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Breast Cancer

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Gynaecological Cancers

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Haematological Cancers

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Head and Neck and Thyroid Cancers

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Lower Gastrointestinal Cancers

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Lung and Pleural Cancers

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Sarcomas and Bone Cancers

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Skin Cancers

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Upper Gastrointestinal Cancers

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Urological Cancers – Bladder and Kidney

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Hazel Jackson	Nurse, Kidney Cancer UK
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Alex Laird	Consultant Urologist, NHS Lothian
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Name	Title
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Sarah Reid	Consultant Urological Surgeon, NHS Lanarkshire
Ghulam Nandwani	Consultant Urologist, NHS Tayside
Param Mariappan	Consultant Urological Surgeon, NHS Lothian
Tarik Amer	Consultant Urologist, NHS Lanarkshire

Urological Cancers – Prostate, Testicular and Penile

Name	Title
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Sarah Reid	Consultant Urological Surgeon, NHS Lanarkshire

Name	Title
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Non-Specific Symptoms of Cancer

Name	Title
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Cancer in Children and Young People

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Emer Campbell	Consultant Neurosurgeon, NHS Greater Glasgow & Clyde
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Appendix 4 – Task & Finish Sub-group Membership

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Hugh Brown	Vice Chair of the 2018 SRG Review; General Practitioner, NHS Ayrshire & Arran
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Name	Title
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Christine McGuinness	Head of Marketing, Communications and Stakeholder Relations, NHS Golden Jubilee
Thomas Brayford	Policy and Public Affairs Officer, Brain Tumour Research
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Sarah Galley	Senior Policy Officer, Myeloma UK
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Appendix 5 - Regional Genetics Centres

Advice about referral pathways to clinical genetics is available from each of the Regional Genetics Centres:

- West of Scotland Cancer Network: **https://www.woscan.scot.nhs.uk/wp-content/uploads/2013/08/Final-Genetics-Primary-Care-Guidance-v2.0-071212.pdf**
- North of Scotland Genetic Service: **https://www.nhsgrampian.org/service-hub/north-of-scotland-medical-genetics/**
- Southeast Scotland Genetic Service: **https://services.nhslothian.scot/geneticservice/**
- NHS Tayside: **https://www.nhstayside.scot.nhs.uk/OurServicesA-Z/Genetics/PROD_295540/index.htm**

Appendix 6 – Glossary of Terms

Acronym/Term	Definition
5-alpha reductase inhibitors	Medications that treat enlarged prostate glands (like finasteride and dutasteride)
ABCDE	Asymmetry, Border, Colour, Diameter, Evolving
ACRT	Active Clinical Referral Triage
Actinic keratoses	Dry, scaly patches of skin that have been damaged by the sun
Aero-digestive cancers	Collectively, cancers of various human body sites, such as the oral cavity, pharynx, oesophagus and larynx
AHP	Allied Health Professional
Alkylating agents	A class of antineoplastic drug that damage DNA, preventing cell replication - used in cancer treatment
ALP	Alkaline Phosphatase - an enzyme found in the body, particularly in the liver and bones

Acronym/Term	Definition
Amelanotic melanoma	A rare subtype of melanoma that lacks the typical dark pigment (melanin), appearing as pink, red, or skin-coloured
Anal excoriation	The abrasion of the skin around the anus
ANP	Advanced Nurse Practitioner
Ascites	The accumulation of fluid in the peritoneal cavity (the peritoneum is a membrane that lines the inside of the abdomen and pelvis)
Auditory meatus	The ear canal, specifically both the external (leading to the eardrum) and internal (connecting the inner ear to the brain) passages
Axillary lump	A swelling or bump in the axillary area (underarm)
B symptoms	In the context of lymphoma refers to a set of systemic symptoms – fever, night sweats, and unexplained weight loss
Barrett's oesophagus	A condition where the lower section of the gullet is damaged by acid from the stomach causing the cells to change
Basal cell	A small, round cell found in the lower part (or base) of the epidermis – the outer layer of the skin
Basosquamous carcinoma	A rare, aggressive non-melanoma skin cancer
BCC	Basal Cell Carcinoma
Benign melanocytic naevi	Commonly known as moles, these are harmless, pigmented skin lesions caused by clusters of melanocytes
Blood borne virus screen	A blood test that checks for the presence of certain viruses transmitted through blood, such as HIV, Hepatitis B, and Hepatitis C
Blueberry muffin appearance	Skin appearance in newborns characterised by multiple, raised, blue or purple lesions
BMI	Body Mass Index
BRAN	Benefit, Risk, Alternative, Nothing
BRCA	BReast CAncer genes
Brief intervention	A short, structured conversation designed to motivate patients
Bronchiectasis	A long-term condition where the airways of the lungs become widened
CA125	Cancer Antigen 125 – a protein found on the surface of ovarian cancer cells and in some normal tissues and some other cancers
Calprotectin	A protein biomarker, specifically a calcium-binding protein, released during inflammation in the gastrointestinal tract
Carcinomas	A cancer arising in the epithelial tissue of the skin or of the lining of internal organs
CfSD	Centre for Sustainable Delivery
Chest x-ray shows consolidation	Indicates that the air-filled spaces in the lungs are replaced with fluid, cells, or other materials, appearing as a white, dense area
Chondrosarcoma	A type of bone cancer that develops in cartilage cells

Acronym/Term	Definition
Clinical Frailty Scale	A way to summarise the overall level of fitness or frailty of an older adult
CLL	Chronic Lymphocytic Leukaemia
CML	Chronic Myeloid Leukaemia
CNS	Central Nervous System
Cognitive change	Alterations in mental processes and abilities
Connective tissue cancers	A group of cancers that originate in the body's supportive and connective tissues, including bone, cartilage, fat, muscle, blood vessels, and nerves
Corpus uteri	The main body of the uterus (womb)
CPES	National Cancer Patient Experience Survey
CRAB	Raised Calcium, Renal Impairment, Anaemia, Bone pain
Cranial nerve palsy	A condition where one or more of the 12 cranial nerves are damaged or dysfunctional, leading to weakness or paralysis of the muscles they control
CRP	C - Reactive Protein
CRUK	Cancer Research United Kingdom
CT	Computed Tomography
CYP	Children and Young People
Cytopenia	A condition where there's a lower-than-normal number of blood cells
Dermatoscope	A hand-held magnifying device used to examine skin lesions
DRE	Digital Rectal Examination
DVT	Deep Venous Thrombosis
Dysphagia	Problems swallowing
Early menarche	Starting menstruation before age 12
ECOG	Eastern Co-operative Oncology Group
ECOG/WHO performance status	Describes a patient's level of functioning in terms of their ability to care for themselves
Embryonal carcinomas	A rare, aggressive type of germ cell tumour that occurs in the ovaries and testes
Endocrine tumours	Growths that develop in the endocrine system - the network of glands that produce hormones
Endometrium	The inner lining of the uterus (womb)
ENT	Ear Nose and Throat
Epidermis	The surface epithelium of the skin, overlying the dermis (the inner layer of the two main layers of the skin)
Epididymo-orchitis	Inflammation of both the epididymis (the tube that stores and transports sperm) and the testicle (testis), often caused by infection
Epigastric mass	A swelling or lump in the upper central part of the abdomen, just below the ribcage

Acronym/Term	Definition
Epistaxis	Bleeding from the nose, caused by damage to the blood vessels of the nasal mucosa (soft tissue that lines the body's canals and organs)
EQIA	Equality Impact Assessment
ESR	Erythrocyte Sedimentation Rate
Essential thrombocythaemia	A rare blood cancer characterised by the over-production of platelets, which can lead to blood clots and, in some cases, bleeding problems
Ewings Sarcoma	A type of cancer that begins as a growth of cells in the bones and the soft tissue around the bones
Extragonadal germ cell tumours	Germ cell tumours that develop outside the gonads (testicles or ovaries)
Extramedullary leukaemic disease	A rare manifestation of acute myeloid leukaemia (AML) where leukaemic cells form a solid tumour outside of the bone marrow
FBC	Full blood count
Fibrosarcoma	A rare, cancerous tumour that develops from the uncontrolled overgrowth of cells called fibroblasts (a type of cell that plays a crucial role in forming and maintaining connective tissue)
Finger clubbing	Changes in the shape of the ends of the fingers and fingernails
Focal chest signs	Decreased chest expansion, dullness on percussion, decreased entry of air, bronchial breathing, and crackles (none, some, or all of these may be present)
Focal neurological deficit	A localised impairment of nerve, spinal cord, or brain function affecting a specific area of the body or a specific function
FOSSIT	Feeling of Something Stuck In the Throat
Fungating	A tumour that breaks through the skin creating a wound or growing into a fungus-like shape that can also become ulcerated and infected
Gender reassignment	Proposing to undergo, undergoing or having undergone a process to reassign your sex
Germinomas	A type of germ cell tumour, most commonly found in the brain
GI	Gastrointestinal
Globus sensation	The persistent but painless feeling of a lump or foreign body in the throat, even when there's nothing physically there
Glottis	Part of the larynx (voice box) that contains the vocal cords.
Glycosylated haemoglobin (HBA1c)	A blood test that measures your average blood sugar levels over the past two to three months
GP	General Practitioner
GP gut feeling	An intuitive, often uneasy feeling that a General Practitioner (GP) experiences, suggesting a patient may be seriously ill, even without clear symptoms
Gynaecomastia	An increase in the amount of breast gland tissue in boys or men

Acronym/Term	Definition
Haemachromatosis	An inherited condition where iron levels in the body slowly build up over many years
Haematoma	A localised collection of blood outside of blood vessels, often caused by injury or trauma, where blood leaks into surrounding tissues
Haematospermia	Blood in the semen
Haematuria	Blood in the urine
Haemophagocytic lymphohistiocystosis	A rare, potentially fatal disease characterised by an overactive immune system, leading to inflammation and organ damage, often affecting children but also adults
Haemoptysis	Coughing up blood from the lungs or airways
Help seeking behaviours	Any actions an individual takes to obtain assistance or support
Hepatoblastoma	A rare cancer that forms in the tissues of the liver
Hepatomegaly	Abnormal enlargement of the liver
Hepatosplenomegaly	Simultaneous enlargement of both the liver and spleen
High grade malignancies	Tumours with cells that appear very abnormal under a microscope, indicating a higher likelihood of aggressive growth and spread, often requiring more aggressive treatment
HIS	Health Care Improvement Scotland
Histiocytoses	A group of rare disorders characterised by the accumulation of histiocytes (a type of white blood cell) in various tissues and organs, potentially causing tissue damage or tumour formation
HIV	Human Immunodeficiency Virus
HIV serology	The use of blood tests to detect HIV antibodies and/or antigens
Horner's syndrome	A rare neurological syndrome that affects your eye and the surrounding area on one side of your face
HPB	Hepato-Pancreato-Biliary
HPV	Human Papilloma Virus
HRT	Hormone Replacement Therapy
Hypercalcaemia	A condition in which the calcium level in the blood becomes too high
Hyperkeratotic	Abnormal thickening of the outer layer of the skin due to an overproduction of keratin
Hypopharynx	The lowest part of the throat (pharynx), located behind the voice box (larynx) and above the oesophagus
IBD	Inflammatory Bowel Disease
ICD	International Classification of Disease
IDA	Iron Deficiency Anaemia

Acronym/Term	Definition
Immunocompro-mised	A condition where your immune system isn't working as well as it should
Indolent	A slowly progressing cancer that may not require immediate treatment
Induration	An area of tissue that has become abnormally hard or thickened
Inherited genetic alteration	A change in a gene that is passed down from a parent to their child, present in almost every cell of the body from birth
Intersex	Individuals born with reproductive or sexual anatomy that doesn't fit typical binary definitions of male or female, encompassing variations in chromosomes, genitals, hormones, or internal reproductive organs
Intra-abdominal	Something situated within, occurring within, or administered by entering the abdomen
Inverse Care Law	The availability of good medical care tends to vary inversely with the need for it in the population served
Irradiation	The use of high-energy radiation from x-rays, gamma rays, neutrons, protons, and other sources to kill cancer cells and shrink tumours
Langerhans' cell histiocytosis	A rare disorder characterised by the abnormal accumulation of Langerhans cells - a type of immune cell, which can form tumours or damage tissues and organs
LDH	Lactate Dehydrogenase (an enzyme found in almost all body tissues that plays a crucial role in energy production)
LEGO-C	Lung, Endometrial, Gastric, Oesophageal and Colorectal cancer
Lichen sclerosis	A chronic inflammatory skin condition causing thin, white and wrinkled patches, most commonly affecting the genitals and anal areas
Lymphadenopathy	Swelling of lymph nodes
Lymphocyte count	The number of lymphocytes (a type of white blood cell crucial for the immune system) in a blood sample
Lymphocytosis	Having more lymphocytes, a type of white blood cell, in your blood than normal
Lymphoplasmacytic malignancies	A type of lymphoma characterised by the accumulation of abnormal B cells, often in the bone marrow
Lynch syndrome	An inherited condition that increases the risk of developing certain cancers
Lytic	The disintegration of a cell by disruption of its plasma membrane
Malaise	A general feeling of discomfort, illness or unease whose exact cause is difficult to identify
Malignant spinal cord compression	A cancerous tumour that damages or presses on the nerves in the spinal cord, potentially leading to weakness, paralysis, and other neurological issues
Mastitis	Inflammation of the mammary gland in the breast, typically due to bacterial infection
Melanocytic naevi	Commonly known as moles

Acronym/Term	Definition
Merkel's tumour	A rare, aggressive type of skin cancer that arises from Merkel cells, which are located in the outer layer of the skin near nerve endings
Mesothelioma	A cancer that starts as a growth of cells in the mesothelium – a thin layer of tissue that covers many internal organs
Metastatic cancer	Also known as advanced or secondary cancer, occurs when cancer cells from the primary tumour spread to other parts of the body, forming new tumours
MCN	Managed Clinical Network
Monoclonal gammopathy of unknown significance (MGUS)	Monoclonal Gammopathy of Unknown Significance - a condition where the body produces an abnormal protein (paraprotein) and in some cases can progress to cancer.
Microcytosis	Red blood cells that are smaller than normal
Micronodular	Presence of extremely small nodules, typically less than 3 millimetres in diameter
Missingness lens	A focused approach that identifies and addresses the repeated tendency of individuals to miss or not take up healthcare opportunities
Modifable factors	Behaviours or exposures that can be changed to reduce the risk of developing certain conditions
Myelodysplastic syndromes (MDS)	A group of blood cancers where the bone marrow produces abnormal blood cells that don't mature properly, leading to low levels of healthy blood cells
Myeloproliferative neoplasms	A group of rare blood cancers characterised by the bone marrow producing too many blood cells, including red blood cells, white blood cells and/or platelets
Nasopharynx	The top part of the throat (pharynx) that connects the nose to the respiratory system
NDD	Neuro-Developmental Difference
Neoplasms	A new and abnormal growth of tissue in a part of the body, especially as a characteristic of cancer
Neuroblastoma	A cancer that starts in cells called neuroblasts
Neuroblasts	Immature nerve cells
NHL	Non-Hodgkin's Lymphoma
NHS	National Health Service
NHS Scotland	National Health Service Scotland
NICE	National Institute for Clinical Excellence
Nocturia	Waking up more than once each night to urinate
Non binary	People who do not identify as exclusively male or female
Nulliparity	A woman who has never given birth to a live child, even if she has been pregnant or experienced a miscarriage or abortion

Acronym/Term	Definition
Odynophagia	Painful swallowing
OG	Oesophago-Gastric
OGD	Oesophago-Gastro-Duodenoscopy – a medical procedure used to examine the lining of the oesophagus, stomach, and the first part of the small intestine using a thin, flexible tube with a camera
OMFS	Oral Maxillofacial Surgery
Oropharynx	The middle part of the throat
Orthopnoea	Shortness of breath (dyspnoea) that occurs when lying flat
Otitis externa	An inflammation or infection of the skin in the ear canal; also known as "swimmers' ear"
Papilloedema	Optic nerve head swelling which can be due to raised intracranial pressure
Palpable	Something that can be felt or touched
Paranasal	Structures or conditions located near the nose – often used to describe the sinuses
Paraproteins	A monoclonal immunoglobulin or light chain present in the blood or urine
PCSCI	Primary Care Secondary Care Interface Group
Peau d'orange	Describes a characteristic skin appearance, often appearing as dimpled or pitted, resembling the texture of an orange peel
Peri-ocular	Condition or treatment that involves the structures around the eye
Periorbital bruising	Bruising around the eyes that can indicate a serious underlying condition, such as a skull fracture or can be caused by trauma or other medical conditions
Peripheral neuropathy	Damage to the peripheral nerves, which are located outside the brain and spinal cord, often causing weakness, numbness, and pain, particularly in the hands and feet
Periungual wart	Warts that develop around the fingernails or toenails, often appearing as rough, cauliflower-like bumps, and are caused by the human papillomavirus (HPV)
Persistent intermenstrual bleeding	Bleeding between periods
Petechiae	Tiny spots of bleeding under the skin or in the mucous membranes (mouth or eyelids)
Pharynx	Throat
PHS	Public Health Scotland
Plasma viscosity	A measure of blood thickness

Acronym/Term	Definition
Pleural effusion	A build-up of fluid between the layers of tissue that line the lungs and chest cavity
Polycythaemia Rubra Vera	A rare blood cancer – causes the bone marrow to produce too many red blood cells
Polydipsia	Excessive thirst
Polyposis	The development of numerous polyps (growths that protrude from a mucous membrane)
Polyuria	Production of abnormally large volumes of dilute urine
Post-coital bleeding	Bleeding after sex
Postmenopausal bleeding	Any vaginal bleeding occurring after a year or more of no periods
PPV	Positive Predictive Value
Precocious puberty	The development of secondary sexual characteristics before eight years of age in girls and nine years in boys
Prehabilitation	The process of preparing a person's body and mind for a medical or surgical intervention, like cancer treatment, to improve outcomes and reduce complications
Primary myelofibrosis	A rare blood cancer where the bone marrow is replaced by scar tissue
Primitive neuroectodermal tumours (PNETs)	A group of rare, malignant tumours that arise from primitive nerve cells
Proptosis	When one or both eyes bulge from their natural position
Pruritus	Itching
PSA	Prostate Specific Antigen
qFIT	Quantitative Faecal Immunochemical Test
RCDS	Rapid Cancer Diagnostic Service
RCGP	Royal College of General Practitioners
RDS	Right Decision Service
Realistic medicine	An approach to healthcare that aims to put the patient at the centre of decisions made about their care
Recurrent laryngeal nerve palsy	Also known as vocal cord paralysis – occurs due to damage to the recurrent laryngeal nerve, leading to vocal cord immobility and symptoms like hoarseness, difficulty breathing, and swallowing problems
Red flag' or 'alarm symptoms'	Warning signs that indicate a potentially serious underlying medical condition requiring prompt evaluation and often, a referral to a specialist or emergency department
Retinoblastomas	A kind of eye cancer that starts as a growth of cells in the retina
Rhabdoid tumours	A rare fast growing childhood cancer

Acronym/Term	Definition
Rhabdomyosarcoma	Soft tissue sarcoma in children
Rhinosinusitis	Commonly known as sinusitis, is inflammation of the sinuses and nasal passages
Sacrococcygeal	The region encompassing the sacrum and coccyx (tailbone)
Serosanguinous	Discharge that contains both blood and a clear, watery fluid known as serum, often appearing as a light pink or red colour
SCC	Squamous Cell Carcinoma
Schwannomas	Benign, slow-growing nerve tumour of the nerve sheath
SCI	Scottish Care Information
Sebaceous cysts	Round lumps often filled with fluid or pus
Seborrheic keratosis	A common non-cancerous (benign) skin growth
Serum immunoglobulins	Proteins produced by plasma cells that play a crucial role in the immune system
Serum protein electrophoresis	A laboratory test that separates and measures different types of proteins in the blood serum
sFLC	Serum Free Light Chains
Skin tethering	A visible dimpling or puckering of the skin
Solid tumours	Abnormal masses of tissue, often cancerous, that typically don't contain cysts or liquid areas
SPCCG	Scottish Primary Care Cancer Group
Splenomegaly	Abnormal enlargement of the spleen
Squamous	Flat cell that looks like a fish scale under a microscope
SRG	Scottish Referral Guidelines [for Suspected Cancer]
Sternomastoid muscle	A powerful neck muscle that allows a person to bend their neck and turn or tilt their head
Stridor	A high-pitched, harsh, noisy breathing sound, often heard during inhalation, indicating a partial obstruction or narrowing in the upper airway
Subungual	Something situated or occurring under a fingernail or toenail
Superior vena cava obstruction	A condition where blood flow to the heart from the upper body is blocked or restricted
Supraclavicular lymphadenopathy	Swollen lymph nodes above the collarbone
SVFT	Semantic Verbal Fluency Test
Tamoxifen	A hormone therapy drug to treat breast cancer in women and men
Teratomas	A rare type of germ cell tumour that may contain immature or fully formed tissue, including teeth, hair, bone and muscle
Testosterone blockers	Medications that prevent androgens like testosterone from exerting their effects in the body

Acronym/Term	Definition
Thrombocytosis	A condition characterised by having a higher-than-normal platelet count in the blood
Transabdominal USS	A non-invasive procedure used to assess the organs and structures within the abdomen
Transgender	A person whose gender identity does not correspond with the sex registered for them at birth
Transvaginal USS	A common imaging procedure used to diagnose conditions affecting reproductive organs
Tumour markers	Any substance in the body that provides information about a cancer
Unclassified myeloproliferative disorders	A rare blood cancer type, often presenting with features that overlap or are not fully developed
Urinary Bence Jones Proteins	Abnormal proteins (specifically, monoclonal light chains) found in the urine of some patients with myeloma or other lymphoid malignancies
Urine culture	A laboratory test that checks for bacteria or other germs in a urine sample to diagnose a urinary tract infection (UTI) and identify the specific bacteria causing the infection, guiding treatment decisions
Urine dipstick	A thin, plastic stick with strips of chemicals on it – the strips change colour if certain substances are present in the urine, or if levels are above typical levels
Uterine fibroids	Non-cancerous growths that develop in or on the uterus, often causing heavy or painful periods, pelvic pain, or pressure in the lower abdomen
USC	Urgent Suspicion of Cancer
USS	Ultrasound Scan
UTI	Urinary Tract Infection
UV	Ultraviolet
UV-A photochemotherapy	Combines psoralen medication with UVA light exposure to treat various skin conditions, including psoriasis, eczema etc.
Vagino/vulvoplasty	Gender reaffirming surgery that creates the external female genitalia (vulvoplasty) and vaginal canal (vaginoplasty)
Vasculitis	A group of rare conditions, that damage blood vessels by causing inflammation
Virilisation	The development of male physical characteristics
Visual field loss	Loss of part of the usual field of vision
White or absent pupillary red reflex	An abnormal finding that can indicate serious eye conditions

Acronym/Term	Definition
WHO	World Health Organisation
Wilms tumours	The most common type of kidney cancer in children, typically affecting children under five years of age
WoS	West of Scotland
Wry neck	The muscles supporting the neck on one side become painful and stiff, often causing the head to tilt to one side
Yolk-sac tumours	A rare, malignant germ cell tumour that often occurs in the gonads (ovaries or testicles) but can also occur in other areas of the body

Appendix 7 – References

1. Public Health Scotland (2024). Cancer Incidence in Scotland to December 2022, **https://publichealthscotland.scot/publications/cancer-incidence-in-scotland/cancer-incidence-in-scotland-to-december-2022/**
2. Public Health Scotland (2025), General practice list size and demographics information – January 2025, **https://publichealthscotland.scot/publications/general-practice-list-size-and-demographics-information/**
3. **Scotland's Census 2022 - Rounded population estimates | Scotland's Census**
4. Public Health Scotland (2023). Cancer Incidence in Scotland to December 2021, **https://publichealthscotland.scot/publications/cancer-incidence-in-scotland/cancer-incidence-in-scotland-to-december-2021/**
5. Public Health Scotland (2023). Cancer Staging Data, **https://publichealthscotland.scot/publications/cancer-staging-data/2022-cancer-staging-data-28-november-2023/**
6. University of Glasgow and University of Edinburgh (2023) Tackling the Inverse Care Law in Scottish General Practice. **https://www.health.org.uk/reports-and-analysis/reports/tackling-the-inverse-care-law-in-scottish-general-practice**
7. Lloyd, T., Hounsome, L., Mehay, A., Mee, S., Verne, J., & Cooper, A. (2015). Lifetime risk of being diagnosed with, or dying from, prostate cancer by major ethnic group in England 2008-2010. *BMC medicine*, *13*, 171. **https://doi.org/10.1186/s12916-015-0405-5**
8. Moore SF, Price SJ, Chowienczyk S, Bostock J, Hamilton W. (2021) The impact of changing risk thresholds on the number of people in England eligible for urgent investigation for possible cancer: an observational cross-sectional study. Br J Cancer.125(11):1593-7. **https://doi.org/10.1038/s41416-021-01541-4**
9. Moore, S.F., Price, S.J., Bostock, J., Neal, R.D. and Hamilton, W. (2023). Incidence of 'Low-Risk but Not No-Risk' Features of Cancer Prior to High-Risk Feature Occurrence: An Observational Cohort Study in Primary Care. Cancers 15(15), p.3936. **https://doi.org/10.3390/cancers15153936**
10. Corso, G., Gandini, S., D'Ecclesiis, O., Mazza, M., Magnoni, F., Veronesi, P., Galimberti, V. and La Vecchia, C. (2023). Risk and incidence of breast cancer in transgender individuals: a systematic review and meta-analysis. *European Journal of Cancer Prevention*, 32(3), 207-214. **https://doi.org/10.1097/CEJ.0000000000000784**
11. Brown, K. F., Rumgay, H., Dunlop, C., Ryan, M., Quartly, F., Cox, A., Deas, A., Elliss-Brookes, L., Gavin, A., Hounsome, L., Huws, D., Ormiston-Smith, N., Shelton, J., White, C., & Parkin, D. M. (2018). The fraction of cancer attributable to modifiable risk factors in England, Wales, Scotland, Northern

Ireland, and the United Kingdom in 2015. *British journal of cancer*, *118*(8), 1130–1141. **https://doi.org/10.1038/s41416-018-0029-6**

12. Smith, C. F., Drew, S., Ziebland, S., & Nicholson, B. D. (2020). Understanding the role of GPs' gut feelings in diagnosing cancer in primary care: a systematic review and meta-analysis of existing evidence. *The British journal of general practice: the journal of the Royal College of General Practitioners*, *70*(698), e612–e621. **https://doi.org/10.3399/bjgp20X712301**

13. Donker, G. A., Wiersma, E., van der Hoek, L., & Heins, M. (2016). Determinants of general practitioner's cancer-related gut feelings-a prospective cohort study. *BMJ open*, *6*(9), e012511. **https://doi.org/10.1136/bmjopen-2016-012511**

14. Nicholson B. D., Hamilton W., Koshiaris C., Oke J. L., Hobbs F. D. R. , Aveyard P. The association between unexpected weight loss and cancer diagnosis in primary care: a matched cohort analysis of 65,000 presentations. Br J Cancer. 2020 Jun;122(12):1848-1856. **https://doi.org/10.1038/s41416-020-0829-3.**

15. Nicholson, B. D., Thompson, M. J., Hobbs, F. D., Nguyen, M., McLellan, J., Green, B., Chubak, J., and Oke, J. L. (2022) Measured weight loss as a precursor to cancer diagnosis: retrospective cohort analysis of 43,302 primary care patients, *Journal of Cachexia, Sarcopenia and Muscle*, 13, 2492–2503, **https://doi.org/10.1002/jcsm.13051**

16. Price, S. J., Gibson, N., Hamilton, W. T., King, A., & Shephard, E. A. (2022). Intra-abdominal cancer risk with abdominal pain: a prospective cohort primary care study. *The British journal of general practice: the journal of the Royal College of General Practitioners*, *72*(718), e361–e368. **https://doi.org/10.3399/BJGP.2021.0552**

17. Bailey, S. E., Ukoumunne, O. C., Shephard, E. A., & Hamilton, W. (2017). Clinical relevance of thrombocytosis in primary care: a prospective cohort study of cancer incidence using English electronic medical records and cancer registry data. *The British journal of general practice: the journal of the Royal College of General Practitioners*, *67*(659), e405–e413. **https://doi.org/10.3399/bjgp17X691109**

18. Gold, L.C., Macpherson, I., Nobes, J.H., Dow, E., Furrie, E., Jamieson, S., Dillon, F. (2022) Thrombocytosis and abnormal liver enzymes: A trigger for investigation of underlying malignancy. PLoS ONE 17(4): e0267124. **https://doi.org/10.1371/journal.pone.0267124**

19. Cancer Research UK. Cancer Statistics Data Hub. Accessed November 2024 **https://crukcancerintelligence.shinyapps.io/CancerStatsDataHub/, https://crukcancerintelligence.shinyapps.io/EarlyDiagnosis/**.

20. Penfold, C., Joannides, A. J., Bell, J., & Walter, F. M. (2017). Diagnosing adult primary brain tumours: can we do better? *The British journal of general practice: the journal of the Royal College of General Practitioners*, *67*(659), 278–279. **https://doi.org/10.3399/bjgp17X691277**

21. Scott, S. E., Penfold, C., Saji, S., Curtis, S., Watts, C., Hamilton, W., Joannides, A. J., & Walter, F. M. (2019). 'It was nothing that you would think was anything': Qualitative analysis of appraisal and help seeking preceding brain cancer diagnosis. PloS one, 14(3), e0213599. **https://doi.org/10.1371/journal.pone.0213599**

22. Ozawa, M., Brennan, P. M., Zienius, K., Kurian, K. M., Hollingworth, W., Weller, D., Grant, R., Hamilton, W., & Ben-Shlomo, Y. (2019). The usefulness of symptoms alone or combined for general practitioners in considering the diagnosis of a brain tumour: a case-control study using the clinical practice research database (CPRD) (2000-2014). *BMJ open*, *9*(8), e029686. **https://doi.org/10.1136/bmjopen-2019-029686**

23. Zienius, K., Hewins, W., Summers, D., McKinlay, L., Brennan, P., Porteous, L., & Grant, R. (2022). Testing Semantic Verbal Fluency (SVFT) in patients with headache suspicious of cancer helps predict those with tumour on imaging. *Neuro-Oncology*, 24, Supplement_2, ii28–ii29. **https://doi.org/10.1093/neuonc/noac174.093**

24. Public Health Scotland, Detect Cancer Early Staging Data. Summarised by Cancer Research UK, Early Diagnosis Data Hub. Accessed November 2024. **https://crukcancerintelligence.shinyapps.io/EarlyDiagnosis/**

25. Cancer Research UK, Breast cancer risk. **https://www.cancerresearchuk.org/health-professional/cancer-statistics/statistics-by-cancer-type/breast-cancer/risk-factors**

26. Román, M., Hofvind, S., von Euler-Chelpin, M., & Castells, X. (2019). Long-term risk of screen-detected and interval breast cancer after false-positive results at mammography screening: joint analysis of three national cohorts. British journal of cancer, 120(2), 269–275. **https://doi.org/10.1038/s41416-018-0358-5**

27. de Blok, C. J. M., Wiepjes, C. M., Nota, N. M., van Engelen, K., Adank, M. A., Dreijerink, K. M. A. (2019) Breast cancer risk in transgender people receiving hormone treatment: nationwide cohort study in the Netherlands *BMJ*, 365 **https://doi.org/10.1136/bmj.l1652**

28. Jones, C. E., Maben, J., Lucas, G., Davies, E. A., Jack, R. H., & Ream, E. (2015). Barriers to early diagnosis of symptomatic breast cancer: a qualitative study of Black African, Black Caribbean, and White British women living in the UK. *BMJ open*, *5*(3), e006944. **https://doi.org/10.1136/bmjopen-2014-006944**

29. Scottish Cancer Registry (SMR06)- Staging by deprivation data: **https://publichealthscotland.scot/media/20137/staging_by_deprivation_2021.xlsx**

30. Massat NJ, Douglas E, Waller J, Wardle J, Duffy SW. Variation in cervical and breast cancer screening coverage in England: a cross-sectional analysis to characterise districts with atypical behaviour. BMJ Open. 2015; 5:(7) **https://doi.org/10.1136/bmjopen-2015-007735**

31. Public Health Scotland (2024). Endometrial cancer Quality Performance Indicators, **https://publichealthscotland.scot/publications/endometrial-cancer/endometrial-cancer-quality-performance-indicators-patients-diagnosed-from-october-2020-to-september-2023/**

32. Leis, M., Singh, A., Li, C., Ahluwalia, R., Fleming, P., & Lynde, C. W. (2022). Risk of Vulvar Squamous Cell Carcinoma in Lichen Sclerosus and Lichen Planus: A Systematic Review. *Journal of obstetrics and gynaecology Canada : JOGC = Journal d'obstetrique et gynecologie du Canada : JOGC*, *44*(2), 182–192. **https://doi.org/10.1016/j.jogc.2021.09.023**

33. Funston, G., O'Flynn, H., Ryan, N. A. J., Hamilton, W., & Crosbie, E. J. (2018). Recognizing Gynecological Cancer in Primary Care: Risk Factors, Red Flags, and Referrals. *Advances in therapy*, *35*(4), 577–589. **https://doi.org/10.1007/s12325-018-0683-3**

34. Arora T, Mullangi S, Vadakekut ES. Epithelial Ovarian Cancer. [Updated 2024 May 6]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan-. **https://www.ncbi.nlm.nih.gov/books/NBK567760/**

35. Jones, E. R., O'Flynn, H., Njoku, K., & Crosbie, E. J. Detecting endometrial cancer. The Obstetricain and Gynaecologist. 23(2), 103-122. April 2021 **https://doi.org/10.1111/tog.12722**

36. Morrison, J., Baldwin, P., Hanna, L., Andreou, A., Buckley, L., Durrant, L., Edey, K., Faruqi, A., Fotopoulou, C., Ganesan, R., Hillaby, K., Taylor, A. British Gynaecological Cancer Society (BGCS) vulval cancer guidelines: An update on recommendations for practice 2023, European Journal of Obstetrics & Gynecology and Reproductive Biology. Volume 292, 2024, Pages 210-238. **https://doi.**

org/10.1016/j.ejogrb.2023.11.013

37. Howell, D. A., Warburton, F., Ramirez, A. J., Roman, E., Smith, A. G., & Forbes, L. J. (2015). Risk factors and time to symptomatic presentation in leukaemia, lymphoma, and myeloma. *British journal of cancer*, *113*(7), 1114–1120. https://doi.org/10.1038/bjc.2015.311

38. Delon C, Brown KF, Payne NWS, Kotrotsios Y, Vernon S, Shelton J. Differences in cancer incidence by broad ethnic group in England, 2013-2017. Br J Cancer. 2022 Jun; 126(12):1765-1773. https://doi.org/10.1038/s41416-022-01718-5.

39. Stern, S., Chaudhuri, S., Drayson, M., Henshaw, S., Karunanithi, K., Willis, F., & Haemato-Oncology Task Force of the British Society for Haematology and the UK Myeloma Forum (2023). Investigation and management of the monoclonal gammopathy of undetermined significance: A British Society for Haematology Good Practice Paper. British journal of haematology, 202(4), 734–744. https://doi.org/10.1111/bjh.18866

40. Koshiaris, C., Van den Bruel, A., Oke, J. L., Nicholson, B. D., Shephard, E., Braddick, M., & Hamilton, W. (2018). Early detection of multiple myeloma in primary care using blood tests: a case-control study in primary care. *The British journal of general practice: the journal of the Royal College of General Practitioners*, *68*(674), e586–e593. https://doi.org/10.3399/bjgp18X698357

41. Ravaghi, V., Durkan, C., Jones, K., Girdler, R., Mair-Jenkins, J., Davies, G., Wilcox, D., Dermont, M., White, S., Dailey, Y., & Morris, A. J. (2020). Area-level deprivation and oral cancer in England 2012-2016. *Cancer epidemiology*, *69*, 101840. https://doi.org/10.1016/j.canep.2020.101840

42. Ingarfield , K., McMahon, A.D., Douglas, C.M., Savage, A., MacKenzie , K. and Conway, D.I. (2018). Inequality in the Survival of Patients with Head and Neck Cancer in Scotland. *Frontiers in Oncology*, 8, 673. https://doi.org/10.3389/fonc.2018.00673

43. Ingarfield, K., McMahon, A. D., Hurley, K., Toms, S., Pring, M., Thomas, S. J., Waylen, A., Pawlita, M., Waterboer, T., Ness, A. R., & Conway, D. I. (2021). Inequality in survival of people with head and neck cancer: Head and Neck 5000 cohort study. *Head & neck*, *43*(4), 1252–1270. https://doi.org/10.1002/hed.26589

44. NDRS, Cancer Routes to Diagnosis, https://nhsd-ndrs.shinyapps.io/routes_to_diagnosis/, accessed November 2024

45. Tucker, M. A., Jones, P. H., Boice, J. D., Jr, Robison, L. L., Stone, B. J., Stovall, M., Jenkin, R. D., Lubin, J. H., Baum, E. S., & Siegel, S. E. (1991). Therapeutic radiation at a young age is linked to secondary thyroid cancer. The Late Effects Study Group. *Cancer research*, *51*(11), 2885–2888. https://doi.org/10.1210/er.2010-0003

46. Tikka, T., Kavanagh, K., Lowit, A., Jiafeng, P., Burns, H., Nixon, I. J., Paleri, V., & MacKenzie, K. (2020). Head and neck cancer risk calculator (HaNC-RC)-V.2. Adjustments and addition of symptoms and social history factors. *Clinical otolaryngology: official journal of ENT-UK; official journal of Netherlands Society for Oto-Rhino-Laryngology & Cervico-Facial Surgery*, *45*(3), 380–388. https://doi.org/10.1111/coa.13511

47. Bailey, J. A., Morton, A. J., Jones, J., Chapman, C. J., Oliver, S., Morling, J. R., Patel, H., Banerjea, A., & Humes, D. J. (2023). Sociodemographic variations in the uptake of faecal immunochemical tests in primary care: a retrospective study. *The British journal of general practice: the journal of the Royal College of General Practitioners*, *73*(736), e843–e849. https://doi.org/10.3399/BJGP.2023.0033

48. Mitchell, E. D., Pickwell-Smith, B., & Macleod, U. (2015). Risk factors for emergency presentation with lung and colorectal cancers: a systematic review. *BMJ open*, *5*(4), e006965. https://doi.org/10.1136/

bmjopen-2014-006965

49. Franklyn, J., Lomax, J., Labib, P., Baker, A., Hosking, J., Moran, B., & Smolarek, S. (2022). Colorectal cancer outcomes determined by mode of presentation: analysis of population data in England between 2010 and 2014. *Techniques in coloproctology*, *26*(5), 363–372. **https://doi.org/10.1007/s10151-022-02574-4**

50. Herbert, A., Rafiq, M., Pham, T. M., Renzi, C., Abel, G. A., Price, S., Hamilton, W., Petersen, I., & Lyratzopoulos, G. (2021). Predictive values for different cancers and inflammatory bowel disease of 6 common abdominal symptoms among more than 1.9 million primary care patients in the UK: A cohort study. *PLoS medicine*, *18*(8), e1003708. **https://doi.org/10.1371/journal.pmed.1003708**

51. Astin, M., Griffin, T., Neal, R. D., Rose, P., & Hamilton, W. (2011). The diagnostic value of symptoms for colorectal cancer in primary care: a systematic review. *The British journal of general practice: the journal of the Royal College of General Practitioners*, *61*(586), e231–e243. **https://doi.org/10.3399/bjgp11X572427**

52. Hamer-Kiwacz, S., Berntsson, H., Galloway, G. (2024) Barriers and facilitators to faecal immunochemical testing in symptomatic populations: a rapid systematic scoping review and gap analysis. *J Eval Clin Pract*. 1-9. **https://doi:10.1111/jep.14120**

53. Cancer Research UK, **Lung cancer mortality statistics**, Accessed November 2024

54. Newsom-Davis T. (2017). The route to diagnosis: emergency presentation of lung cancer. *Lung cancer management*, *6*(2), 67–73. **https://doi.org/10.2217/lmt-2017-0004**

55. Mitchell, E. D., Pickwell-Smith, B., & Macleod, U. (2015). Risk factors for emergency presentation with lung and colorectal cancers: a systematic review. *BMJ open*, *5*(4), e006965. **https://doi.org/10.1136/bmjopen-2014-006965**

56. Cancer Research UK, Risks and causes of mesothelioma, Accessed November 2024, **https://www.cancerresearchuk.org/about-cancer/mesothelioma/risks-causes**

57. Hamilton, W., Peters, T.J., Round, A., & Sharp, D. (2005). What are the clinical features of lung cancer before the diagnosis is made? A population-based case-control study. *BMJ Thorax,* 60(12), 1059-1065 **https://doi.org/10.1136/thx.2005.045880**

58. ESMO (2024). **"Families" and List of Rare Cancers** [Internet]. ESMO

59. Cancer Research UK, Types of bone cancer, **https://www.cancerresearchuk.org/about-cancer/bone-cancer/types**, Accessed November 2024

60. Younger, E., Husson, O., Bennister, L., Whelan, J., Wilson, R., Roast, A., Jones, R. L., & van der Graaf, W. T. (2018). Age-related sarcoma patient experience: results from a national survey in England. *BMC cancer*, *18*(1), 991. **https://doi.org/10.1186/s12885-018-4866-8**

61. Bacon, A., Wong, K., Fernando, M. S., Rous, B., Hill, R. J. W., Collins, S. D., Broggio, J., & Strauss, S. J. (2023). Incidence and survival of soft tissue sarcoma in England between 2013 and 2017, an analysis from the National Cancer Registration and Analysis Service. *International journal of cancer*, *152*(9), 1789–1803. **https://doi.org/10.1002/ijc.34409**

62. Cancer Research UK, Lipoma, **https://www.cancerresearchuk.org/about-cancer/other-conditions/lipoma**, Accessed February 2025

63. Fidler, M. M., Reulen, R. C., Winter, D. L., Allodji, R. S., Bagnasco, F., Bárdi, E., Bautz, A., Bright, C. J., Byrne, J., Feijen, E. A. M., Garwicz, S., Grabow, D., Gudmundsdottir, T., Guha, J., Haddy, N., Jankovic, M., Kaatsch, P., Kaiser, M., Kuonen, R., Linge, H., … Hawkins, M. M. (2018). Risk of Subsequent Bone

Cancers Among 69460 Five-Year Survivors of Childhood and Adolescent Cancer in Europe. *Journal of the National Cancer Institute*, *110*(2), 10.1093/jnci/djx165. **https://doi.org/10.1093/jnci/djx165**

64. Teepen, J. C., van Leeuwen, F. E., Tissing, W. J., van Dulmen-den Broeder, E., van den Heuvel-Eibrink, M. M., van der Pal, H. J., Loonen, J. J., Bresters, D., Versluys, B., Neggers, S. J. C. M. M., Jaspers, M. W. M., Hauptmann, M., van der Heiden-van der Loo, M., Visser, O., Kremer, L. C. M., Ronckers, C. M., & DCOG LATER Study Group (2017). Long-Term Risk of Subsequent Malignant Neoplasms After Treatment of Childhood Cancer in the DCOG LATER Study Cohort: Role of Chemotherapy. *Journal of clinical oncology: official journal of the American Society of Clinical Oncology*, *35*(20), 2288–2298. **https://doi.org/10.1200/JCO.2016.71.6902**

65. Types | Skin cancer | Cancer Research UK [Internet]. Available from: **https://www.cancerresearchuk.org/about-cancer/skin-cancer/types**

66. Caudill, J, Thomas, J.E. and Burkhart, C.G. (2022) 'The risk of metastases from squamous cell carcinoma of the skin' in *International Journal of Dermatology* 62(4). **https://doi.org/10.1111/ijd.16164**

67. Ascott, A., van Bodegraven, B., Vernon, S., Orteu, C. H., & Venables, Z. C. (2023). The geographical variation of melanoma, basal and squamous cell carcinoma in England. *The British journal of dermatology*, *189*(1), 142–144. **https://doi.org/10.1093/bjd/ljad100**

68. NDRS, **Urgent suspected cancer referrals - NDRS (digital.nhs.uk)**, Accessed November 2024

69. Gandini, S., Sera, F., Cattaruzza, M. S., Pasquini, P., Abeni, D., Boyle, P., & Melchi, C. F. (2005). Meta-analysis of risk factors for cutaneous melanoma: I. Common and atypical naevi. *European journal of cancer (Oxford, England: 1990)*, *41*(1), 28–44. **https://doi.org/10.1016/j.ejca.2004.10.015**

70. Burton, A., Balachandrakumar, V. K., Driver, R. J., Tataru, D., Paley, L., Marshall, A., Alexander, G., Rowe, I. A., HCC-UK/BASL/NCRAS Partnership, Palmer, D. H., & Cross, T. J. S. (2022). Regional variations in hepatocellular carcinoma incidence, routes to diagnosis, treatment, and survival in England. *British journal of cancer*, *126*(5), 804–814. **https://doi.org/10.1038/s41416-021-01509-4**

71. Cancer Research UK. Oesophageal cancer incidence statistics. Available at: **https://www.cancerresearchuk.org/health-professional/cancer-statistics/statistics-by-cancer-type/oesophageal-cancer/incidence#heading-One**. Accessed November 2024

72. Cancer Research UK (2023). Risks and causes of oesophageal cancer. Available at: **https://www.cancerresearchuk.org/about-cancer/oesophageal-cancer/causes-risks**

73. Chen Q, Zhuang H, Liu Y. The association between obesity factor and esophageal cancer. J Gastrointest Oncol. 2012 Sep;3(3):226-31. **https://doi.org/10.3978/j.issn.2078-6891.2012.026**

74. Cancer Research UK (2015). Liver cancer risk. Available at: **https://www.cancerresearchuk.org/health-professional/cancer-statistics/statistics-by-cancer-type/liver-cancer/risk-factors#heading-Eleven**

75. Johnston, A. J., Sivakumar, S., Zhou, Y., Funston, G., & Bradley, S. H. (2023). Improving early diagnosis of pancreatic cancer in symptomatic patients. *The British journal of general practice: the journal of the Royal College of General Practitioners*, *73*(737), 534–535. **https://doi.org/10.3399/bjgp23X735585**

76. Zakkak, N., Barclay, M. E., Swann, R., McPhail, S., Rubin, G., Abel, G. A., & Lyratzopoulos, G. (2024). The presenting symptom signatures of incident cancer: evidence from the English 2018 National Cancer Diagnosis Audit. *British journal of cancer*, *130*(2), 297–307. **https://doi.org/10.1038/s41416-023-02507-4**

77. Stapley, S., Peters, T. J., Neal, R. D., Rose, P. W., Walter, F. M., & Hamilton, W. (2013). The risk of oesophago-gastric cancer in symptomatic patients in primary care: a large case-control study using

electronic records. *British journal of cancer*, *108*(1), 25–31. **https://doi.org/10.1038/bjc.2012.551**

78. Lloyd, T., Hounsome, L., Mehay, A., Mee, S., Verne, J., & Cooper, A. (2015). Lifetime risk of being diagnosed with, or dying from, prostate cancer by major ethnic group in England 2008-2010. *BMC medicine*, *13*, 171. **https://doi.org/10.1186/s12916-015-0405-5**

79. Zhou, Y., Singh, H., Hamilton, W., Archer, S., Tan, S., Brimicombe, J., Lyratzopoulos, G., Walter, FM. (2023). Improving the diagnostic process for patients with possible bladder and kidney cancer: a mixed-methods study to identify potential missed diagnostic opportunities. Br J Gen Pract. 73(733) 575-585. **https://doi.org/10.3399/BJGP.2022.0602**

80. Zhou, Y., Walter, F.M., Singh, H., Hamilton, W., Abel, G.A., Lyratzopoulos, G. (2021) Prolonged Diagnostic Intervals as Marker of Missed Diagnostic Opportunities in Bladder and Kidney Cancer Patients with Alarm Features: A Longitudinal Linked Data Study. Cancers (Basel). 13(1):156. **https://doi.org/10.3390/cancers13010156**

81. Zhou, Y., Lyratzopoulos, G., Rajan, P., Walter, FM., Wu, J. (2024). Understanding symptom contribution to sex inequality in bladder and renal cancer stage at diagnosis. *BJUI Compass*. 5(7) 805–812. **https://doi.org/10.1002/bco2.360**

82. Pearson, C., Poirier, V., Fitzgerald, K., Rubin, G., & Hamilton, W. (2020). Cross-sectional study using primary care and cancer registration data to investigate patients with cancer presenting with non-specific symptoms. *BMJ open*, *10*(1), e033008. **https://doi.org/10.1136/bmjopen-2019-033008**

83. Primary Care Direct Access to CT of Chest/Abdomen/Pelvis (CAP) for Patients with Unidentified Suspected Malignancy available **here**

84. Final Report of the Evaluation of Rapid Cancer Diagnostic Services – University of Strathclyde, December 2023 – available here: **RCDS report**

85. Smith, C. F., Tompson, A. C., Jones, N., Brewin, J., Spencer, E. A., Bankhead, C. R., Hobbs, F. R., & Nicholson, B. D. (2018). Direct access cancer testing in primary care: a systematic review of use and clinical outcomes. *The British journal of general practice: the journal of the Royal College of General Practitioners*, *68*(674), e594–e603. **https://doi.org/10.3399/bjgp18X698561**

86. Carrier, M., Lazo-Langner, A., Shivakumar, S., Tagalakis, V., Zarychanski, R., Solymoss, S., Routhier, N., Douketis, J., Danovitch, K., Lee, A. Y., Le Gal, G., Wells, P. S., Corsi, D. J., Ramsay, T., Coyle, D., Chagnon, I., Kassam, Z., Tao, H., Rodger, M. A., & SOME Investigators (2015). Screening for Occult Cancer in Unprovoked Venous Thromboembolism. *The New England journal of medicine*, *373*(8), 697–704. **https://doi.org/10.1056/NEJMoa1506623**

87. Children and young people with cancer in Scotland. Public Health Scotland. **Children and young people with cancer in Scotland 9 May 2023 - Children and young people with cancer in Scotland - Publications - Public Health Scotland**

88. Herbert, A., Lyratzopoulos, G., Whelan, J., Taylor, R. M., Barber, J., Gibson, F., & Fern, L. A. (2018). Diagnostic timeliness in adolescents and young adults with cancer: a cross-sectional analysis of the BRIGHTLIGHT cohort. The Lancet. Child & adolescent health, 2(3), 180–190. **https://doi.org/10.1016/S2352-4642(18)30004-X**

89. Liu, J. F., Shanmugavadivel, D., Ball-Gamble, A., Stewart, A., Walker, D., & Child Cancer Smart Awareness Campaign (2023). Public awareness of childhood, teenager and young adult cancer signs and symptoms in Great Britain: a cross-sectional survey. Archives of disease in childhood, 108(12), 987–993. **https://doi.org/10.1136/archdischild-2023-325841**

90. Hart, R. I., Cowie, F. J., Jesudason, A. B., & Lawton, J. (2021). Adolescents and young adults' (AYA) views on their cancer knowledge prior to diagnosis: Findings from a qualitative study involving AYA receiving cancer care. Health expectations: an international journal of public participation in health

care and health policy, 24(2), 307–316. **https://doi.org/10.1111/hex.13170**

91. Children's Cancer and Leukaemia Group. Childhood Cancer: Care and Treatment. Information for GPs. Access here: **Childhood_cancer_-_care_and_treatment_(GP)_2023.pdf (cclg.org.uk)**
92. Grace Kelly Trust - **Childhood Cancer | Signs & Symptoms for Medical Professionals**
93. Referral guidance for suspected cancer in children and young people. Available at: **Guidelines | CCLG - The Children & Young People's Cancer Association**
94. Osteosarcoma - Symptoms, diagnosis and treatment | BMJ Best Practice, Accessed February 2025 **https://bestpractice.bmj.com/topics/en-gb/780**

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