

Routes to diagnosis for cancer patients diagnosed in NI in 2018-2021 – New figures

The Queen's University Northern Ireland Cancer Registry (NICR) today (Tuesday 15 April 2025) released data on routes to diagnosis for cancer patients diagnosed in 2018-2021.

This data release, supported by the Department of Health and the Public Health Agency, is in response to a Cancer Strategy recommendation, and provides an indication of the key event in each cancer patient's pathway that most directly led to their cancer diagnosis.

Key facts and figures from the report are presented below:

Based upon cancers (excluding non-melanoma skin cancer) diagnosed in 2018-2021, patients were classified with the following routes to diagnosis:

- **33.5%** where the patient had a GP red-flag referral (suspected cancer referral)
- **23.3%** where the patient presented as an emergency inpatient to hospital
- **19.7%** where the patient had a GP referral to outpatients that was not a red-flag referral
- **11.8%** where the patient had an outpatient appointment which was not a direct result of a GP referral
- **5.8%** where the patient was referred from a cancer screening programme
- **2.2%** where the patient had an elective inpatient appointment with no earlier admission recorded
- **0.4%** where no data was available on the patient, except for reference to cancer on a death certificate
- **3.4%** where no data was available on the patient

Screening

- The screening route to diagnosis only applies to certain cancers and age groups. For these groups:
 - 52.5% of female breast cancer patients aged 50 to 70;
 - 43.6% of cervical cancer patients aged 25 to 64 and
 - 22.4% of colorectal cancer patients aged 60 to 74 were diagnosed via the screening route

Red-flag referrals

- Diagnosis following a red-flag (suspected cancer) referral ranged from 60.7% for uterine cancer patients and 58.3% for malignant melanoma patients to 7.5% for gallbladder and biliary cancer patients and 1.7% for brain and central nervous system cancer patients.
- For the four most common cancer types:
 - 46.9% of female breast cancer patients;
 - 48.7% of prostate cancer patients;
 - 33.5% of colorectal cancer patients and
 - 20.9% of lung cancer patients were diagnosed via the red-flag referral route

Emergency admissions

- Diagnosis following an emergency admission ranged from 61.7% for brain and central nervous system cancer patients and 60.6% for gallbladder and biliary cancer patients to 3.7% for female breast cancer patients and 1.5% for malignant melanoma patients.
- For the four most common cancer types:
 - 41.5% of lung cancer patients;
 - 28.0% of colorectal cancer patients;
 - 8.2% of prostate cancer patients and
 - 3.7% of female breast cancer patients were diagnosed via the emergency presentation route

Age at diagnosis

- Route to diagnosis was associated with patients age at diagnosis with the proportion of cancer cases (excluding non-melanoma skin cancer) diagnosed via a red-flag referral 36.2% among patients aged 0 to 64 compared to 30.2% among patients aged 75 and over.

- The proportions diagnosed via an emergency presentation were 17.3% and 31.6% for patients aged 0 to 64 and 75 and over respectively, while a screening referral was the route taken by 9.2% of patients aged 0 to 64 and 0.6% of patients aged 75 and over.

Stage at diagnosis

- There was a strong relationship between route to diagnosis and stage at diagnosis with the proportion of cancer (ex NMSC) cases diagnosed via a red-flag referral being 36.7% among stage I cancers compared to 27.1% among stage IV cancers.
- The proportions diagnosed via a screening referral were 12.4% and 0.5% for stage I and stage IV cancers respectively, while an emergency presentation was the route taken in 6.6% of cases diagnosed at stage I and 43.3% of cases diagnosed at stage IV.
- The large variation in route to diagnosis by stage was apparent for most cancer types.
 - 31.4% of stage IV female breast cancers were diagnosed via an emergency admission route compared to 1.6% of stage I cancers
 - 56.7% of stage IV lung cancers were diagnosed via an emergency admission route compared to 19.9% of stage I cancers
 - 48.9% of stage IV colorectal cancers were diagnosed via an emergency admission route compared to 5.5% of stage I cancers

Deprivation and urban/rural status

- The emergency admission route to diagnosis was more common in the most deprived areas (26.2%) than the least deprived areas (21.1%) of NI and was more common in urban (24.7%) than rural areas (21.1%).
- There was variation in patients' route to diagnosis by area-based deprivation for:
 - female breast cancer, prostate cancer and melanoma with the red-flag referral route more common in deprived areas, and
 - upper gastrointestinal cancer (stomach and oesophagus) with the emergency admission route more common in deprived areas
- There was variation in patients' route to diagnosis by urban/rural status for:
 - gynaecological and upper gastrointestinal cancer with the red-flag referral route more common in rural areas, and
 - melanoma with the red-flag referral route more common in urban areas

Trends over time

- The proportion of cases diagnosed via a screening referral route increased from 4.8% in 2020 to 6.7% in 2021, while presentation via a red-flag referral route increased from 33.3% to 34.8%. The proportion of cases diagnosed via an emergency presentation route decreased from 25.1% in 2020 to 23.9% in 2021.
- The distribution of cases diagnosed by route to diagnosis varied over time for specific cancer types. Those demonstrating significant changes between 2020 and 2021 were female breast cancer, colorectal cancer, lung cancer, prostate cancer and malignant melanoma.
- For those demonstrating significant changes between 2020 and 2021 the proportion with an emergency presentation route:
 - decreased for female breast cancer from 4.1% in 2020 to 3.2% in 2021
 - decreased for colorectal cancer from 31.2% in 2020 to 28.5% in 2021
 - increased for lung cancer from 42.6% in 2020 to 44.4% in 2021
 - increased for prostate cancer from 8.2% in 2020 to 9.0% in 2021

Survival

- For patients diagnosed in 2018-2021 one-year survival from cancer (excluding non-melanoma skin cancer) ranged from 42.1% for those diagnosed via an emergency presentation route to 87.3% for those diagnosed via a red-flag referral route.
- Two years from diagnosis survival ranged from 32.7% for those diagnosed via an emergency presentation route to 80.6% for those diagnosed via a red-flag referral route.

NOTES TO EDITORS:

1. Media inquiries to Sian Devlin at s.devlin@qub.ac.uk
2. In March 2022 the Department of Health launched a new Cancer Strategy for Northern Ireland which set the direction for cancer services for the 10 years between 2022 and 2032. Action 5 of this strategy aims to:

Establish routes to diagnosis reporting and analysis on a regular basis to monitor changes to help improve diagnostic pathways and outcomes for patients

In 2023 the Northern Ireland Cancer Registry was funded by the Department of Health to develop the routes to diagnosis project with the aim of providing an indication of the key event in each cancer patient's pathway that most directly led to their cancer diagnosis. Initially piloted in NI in 2020 using data from 2012-2016, which was in turn based upon a project running in England since 2012, this exercise classifies every case of cancer registered in NI as having one of eight Routes to Diagnosis.

3. About the data:
 - a. This report includes information on the routes to a diagnosis of cancer (excluding non-melanoma skin cancer) during 2018-2021.
 - b. The routes to diagnosis classification identifies the key event in the pathway that leads to a patient's diagnosis of cancer.
 - c. Cancer incidence data is sourced from the Northern Ireland Cancer Registry (NICR), with linkage to multiple health datasets extracted from administrative data sources allowing the derivation of the classification.
 - d. Screening data for the project was provided courtesy of the bowel, breast and cervical screening programmes managed by the Public Health Agency (PHA).
 - e. Outpatient data was provided by the Business Services Organisation (BSO).
 - f. Access to data from the Cancer Patient Pathway System (CaPPS) providing information on primary care referrals and the Patient Administration System (PAS) which holds information on inpatient admissions was supplied by the five Health and Social Care Trusts (HSCTs).
 - g. Cancer mortality data, used in the calculation of cancer survival, was provided courtesy of the General Register Office (NI) via the Department of Health.
4. The data in this release was produced by:
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Web site: <https://www.qub.ac.uk/research-centres/nicr/>
5. The Northern Ireland Cancer Registry (NICR) uses data provided by patients and collected by the health service as part of their care and support. NICR is funded by the Public Health Agency and is based in Queen's University, Belfast.