Northern Ireland Cancer Registry Celebrates 30 Years

On Tuesday 4th June 2024 a celebration was held in the Great Hall, Queen's University Belfast, to mark the 30th anniversary of the Northern Ireland Cancer Registry (NICR) and 30 years of Cancer Registration in Northern Ireland.

The day commenced with opening remarks from Minister of Health Mr Mike Nesbit, Chief Medical Officer Prof Sir Michael McBride, Director of Public Health Dr Joanne McClean, QUB CPH Director Prof Jayne Woodside and Assoc. Pro-Vice-Chancellor Prof Mark Lawler.

There were 2 discussion panels, the first on the NICR's history and the second on current work & collaboration. Panel members included current and former NICR staff, researchers, patient representatives and clinical colleagues.

Dr David Donnelly's Routes to Diagnosis report was presented and launched. Presentations on current NICR projects were also made, including Breast Cancer COVID-19 Impact, Breast Cancer and Inequalities Audit and Secondary Breast Cancer Research Audit.

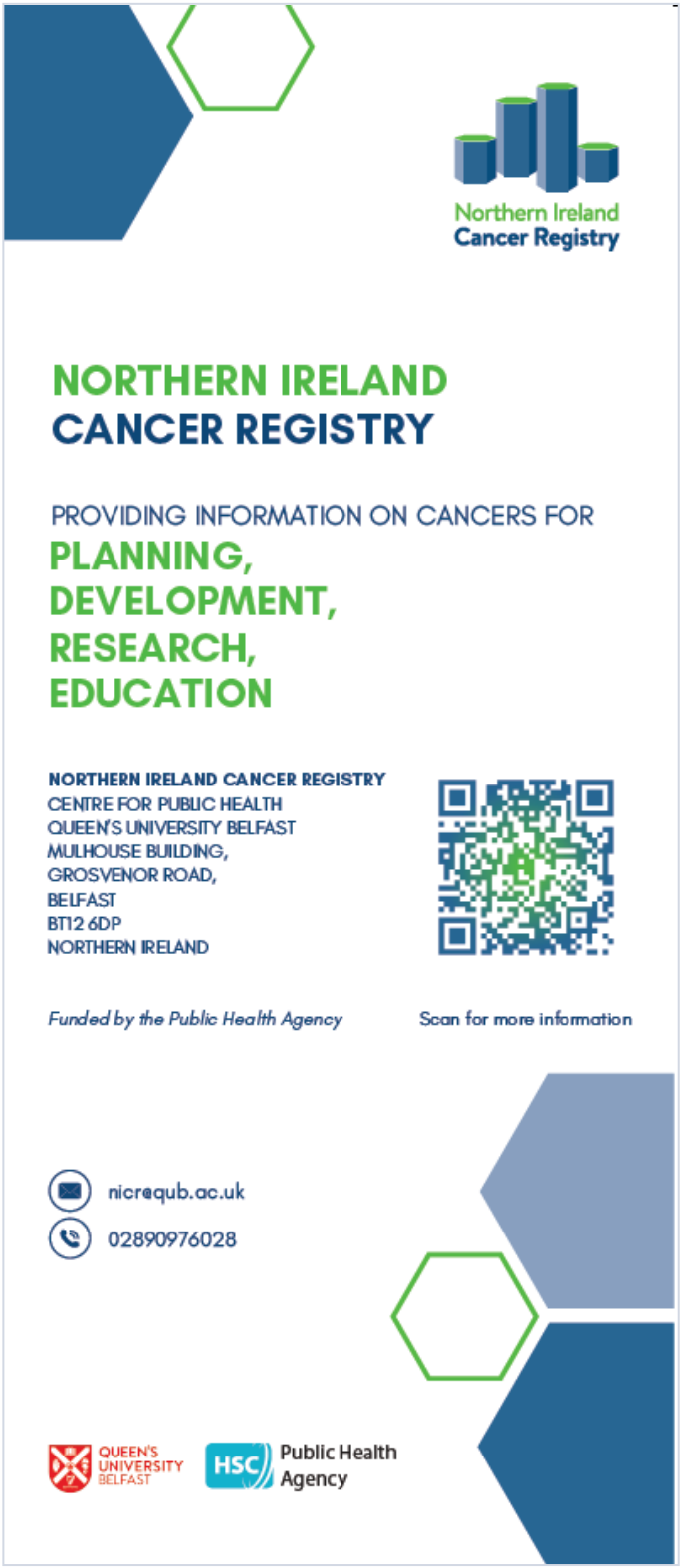
A wonderful day was had by all in attendance, reflecting the NICR's achievements and progress over the last 3 decades, while reuniting with old colleagues, researchers and friends.

NICR Rebranding

On the occasion of the NICR's 30th anniversary we presented the NICR's updated branding. Working with the QUB Marketing Team and an external graphic designer, the new NICR logo was created. The new logo portrays the well-known image of the Giant's Causeway while also demonstrating a core functions of the NICR in a histogram.

Northern Ireland
Cancer Registry

NICR



Routes to Diagnosis

The routes to diagnosis project aims to identify the key event in each cancer patient's pathway that most directly led to their cancer diagnosis. Based upon cancers (excluding non-melanoma skin cancer) diagnosed in 2018-2020 patients were classified as follows:

5.5% Referred from the national screening programmes.

33.2% GP referral with a red-flag to indicate suspected cancer.

23.2% Emergency inpatient to hospital.

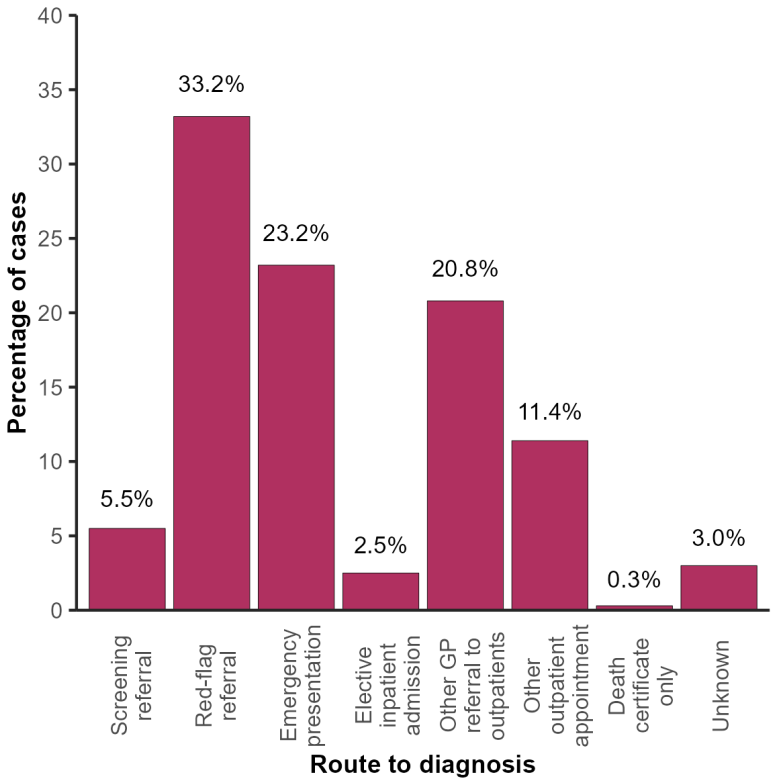
2.5% Elective inpatient appointment but no earlier admission.

20.8% GP referral to outpatients that was not a red flag referral.

11.4% Outpatient appointment which was not a direct result of a GP referral.

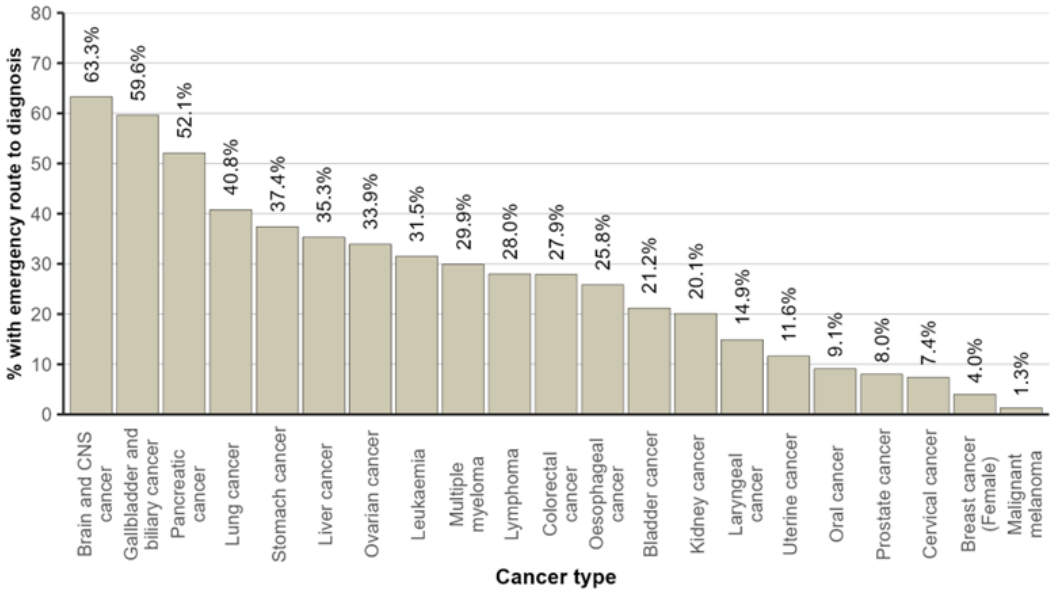
0.3% No data, except for reference to cancer on a death certificate.

3.0% No data available on patient.



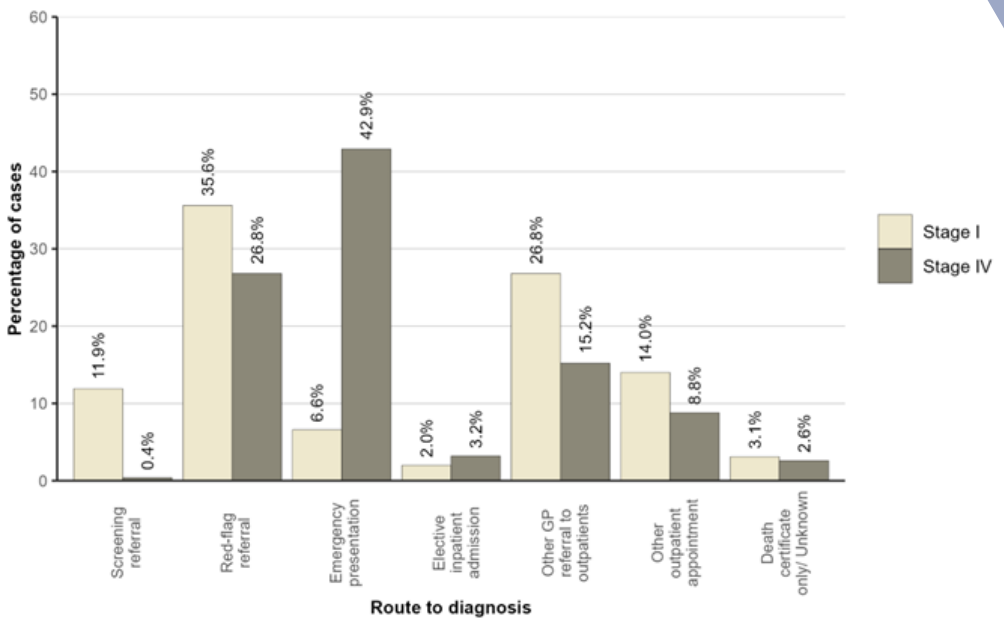
Variation by cancer type

Diagnosis following an emergency admission ranged from 63.3% for brain cancer patients to 1.3% for malignant melanoma patients.



The reverse pattern existed for red flag referrals which ranged from 59.2% for uterine cancer to 1.3% for brain cancer patients.

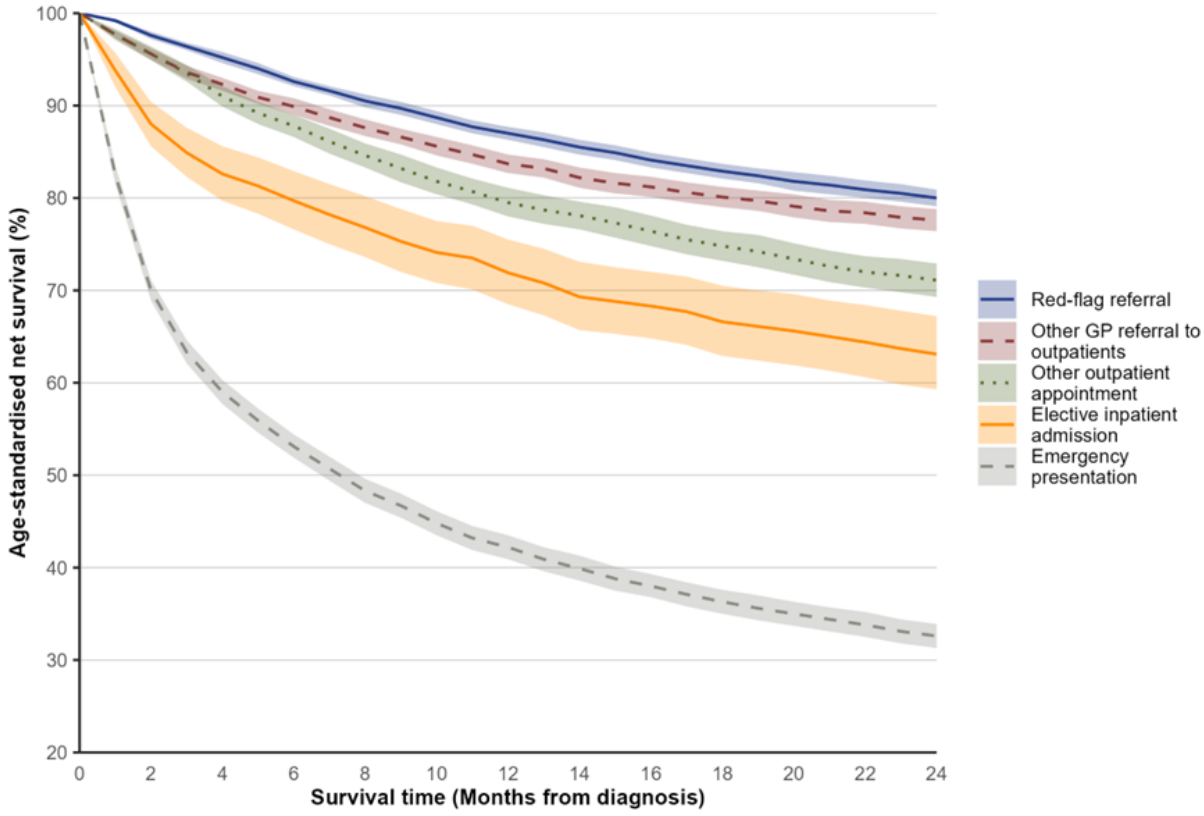
Stage at diagnosis



There was a strong relationship between route to diagnosis and stage at diagnosis. For example, the emergency presentation route was taken in 6.6% of cases diagnosed at stage I compared to 42.9% of cases diagnosed at stage IV.

Survival

During 2018-2020 one-year age-standardised net survival from cancer (ex NMSC) ranged from 42.2% for those diagnosed via an emergency presentation route to 87.0% for those diagnosed via a red-flag referral route.



The full report is on the NICR website . The next update, for patients diagnosed in 2018-2021, is due in the first half of 2025.

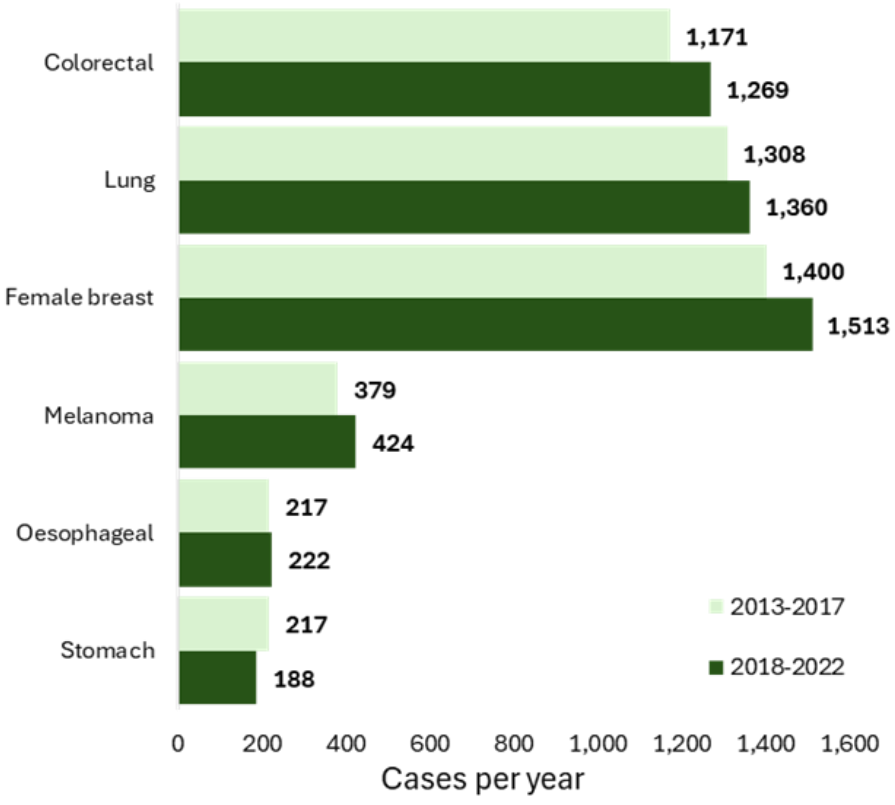
Official Statistics

Lung, colorectal, breast, melanoma and upper GI cancer incidence and survival statistics.

The official statistics on lung, colorectal, breast, melanoma and upper GI cancer diagnosed during 1993-2022 were released on 20th November 2024. This release provides details of the number of cancer cases diagnosed each year along with incidence rates over time and estimates of patient survival. Key facts and figures from this release are as follows.

	Cases per year (2018-2022)	Deaths per year	Prevalence (2022)
Colorectal	**1,269**	**459**	**9,547**
Lung	**1,360**	**1,032**	**2,855**
Female breast	**1,513**	**310**	**18,207**
Melanoma	**424**	**59**	**5,245**
Oesophageal	**222**	**199**	**723**
Stomach	**188**	**116**	**611**

Trends in cases diagnosed

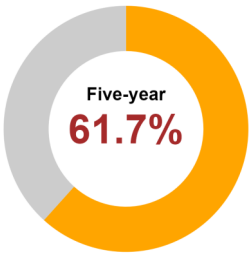


Between 2013-2017 and 2018-2022 the number of cases of colorectal cancer increased by 8.4%, while lung and female breast cancer increased by 4.0% and 8.1% respectively. Melanoma cases increased by 11.9%, with the number of cases diagnosed in 2022 exceeding 500 for the first time. Stomach cancer cases decreased by 13.4% between the two periods.

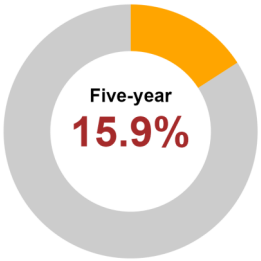
Five year survival

Five-year survival for patients diagnosed in 2013-2017 was as follows:

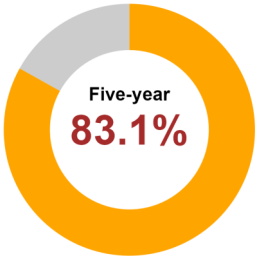
Colorectal cancer



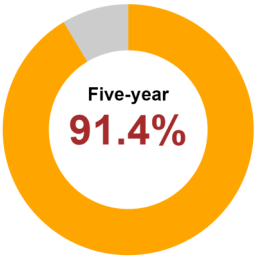
Lung cancer



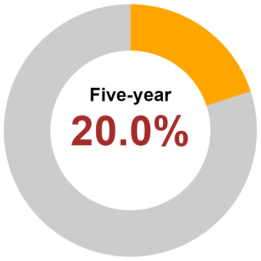
Female breast cancer



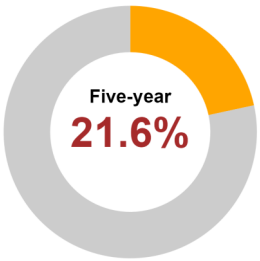
Melanoma



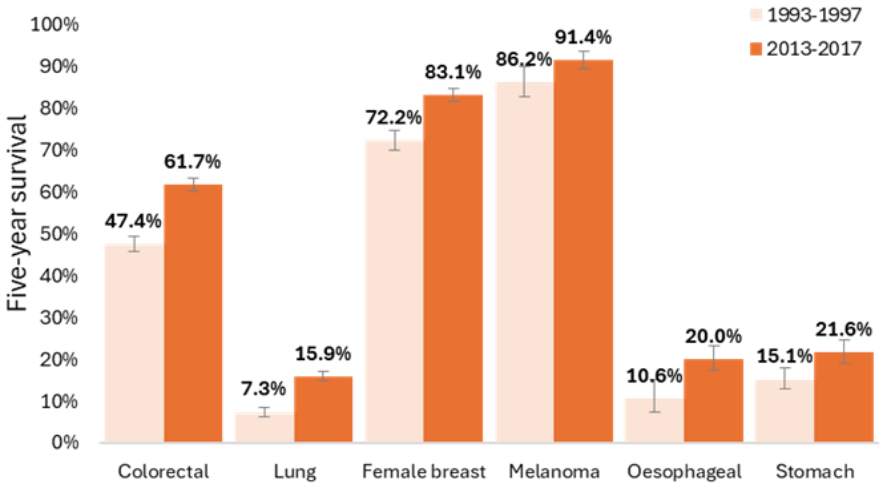
Oesophageal cancer



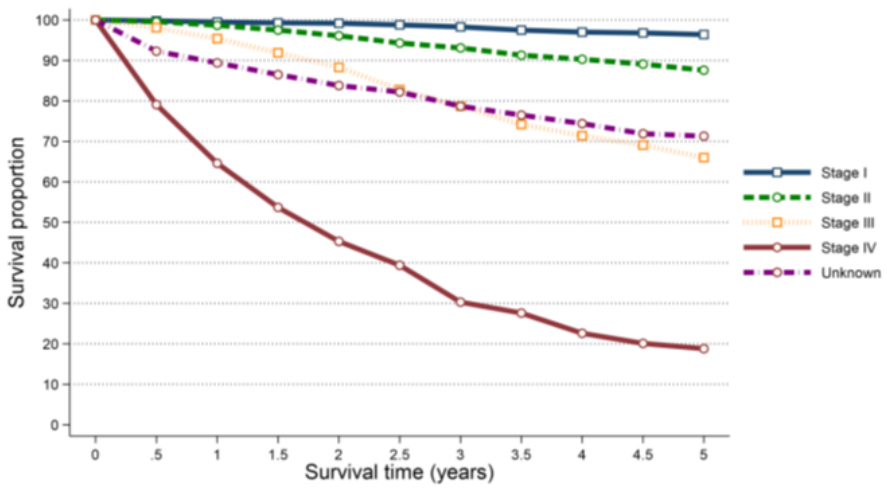
Stomach cancer



Five-year survival improved significantly over the last two decades for all cancer types, except for melanoma which already had a high survival rate.



Survival was strongly related to stage. For example five-year female breast cancer survival ranged from 96.4% among patients diagnosed at Stage I to 18.8% among those diagnosed at Stage IV.



Recent Trends

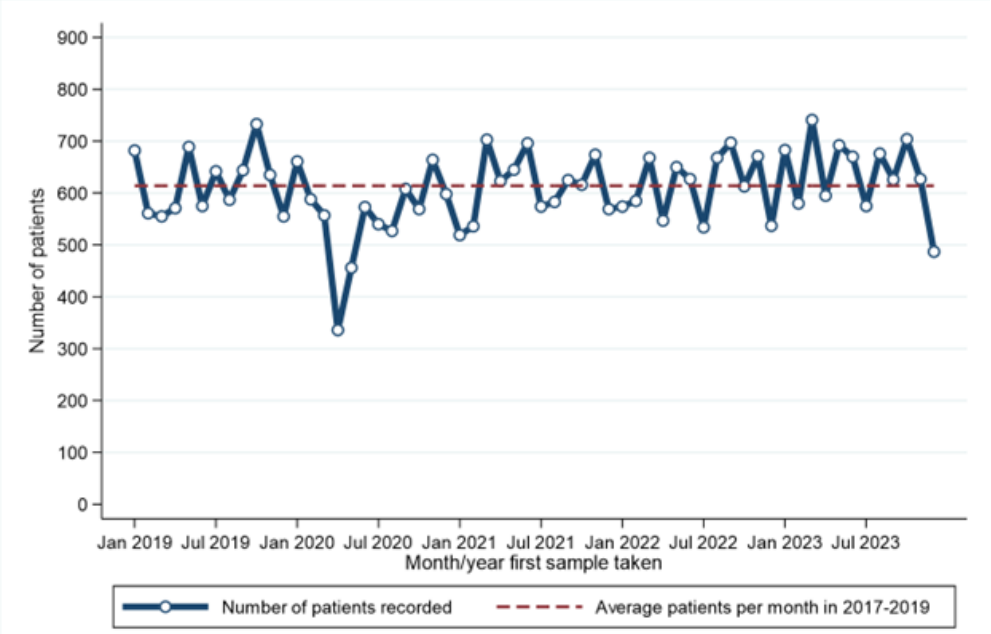
In order to provide an indication of the potential impact of COVID-19 restrictions on diagnostic cancer services, the number of patients with a pathological sample indicating cancer from March 2020 to December 2023 was contrasted with the expected number based upon the average number diagnosed each month during 2017-2019.

Key points from this comparison include:

A 1.6% reduction in the number of pathologically diagnosed cancers (ex. NMSC).

Decreases of 1.5% among males and 1.6% among females.

A decrease of 2.6% among 0-69 year olds, compared to 0.1% among those aged 70 and older.



Increases for bowel, female breast, haematological, prostate cancer and melanoma.

Decreases of more than 10% for lung, gynaecological, urinary and non-melanoma skin cancer.

These reports were released quarterly between 2020 and the end of 2023.

NICR Audits

Breast Cancer Now

COVID-19 Impact Study

In 2022 NICR received a grant from Breast Cancer Now to undertake a study on the impact of COVID-19 on breast cancer patients.

The quantitative audit component, led by Helen Mitchell and Sinead Hawkins, covers approximately 2200 patients diagnosed in March - December 2018 and 2020. Analysis is planned for completion in March 2025. A methodology paper has been submitted to PLOS One detailing the novel methodological approach of this study.

The mixed methods component of this project is led by Dr Charlene McShane and Dr Lynne Lohfeld at the Centre for Public Health. A scoping review of current literature was published in the British Journal of Cancer in May 2024 . The online patient survey had over 2,000 responses. We were supported by two MSc students Nicole Lowans and Beth Moss who completed analysis on data collected for their dissertations in 2024. Patient interviews are currently being conducted by Dr Lynne Lohfeld, due to be completed by Spring 2025.

Abstracts for this project have been submitted to Cancer in Primary Care Research International (Ca-PRI) Conference 2025 and Association of Breast Cancer Surgery (ABS) Conference 2025.

Metastatic Breast Cancer Research Audit

Cancer Focus supported the NICR to develop the first ever metastatic breast cancer research audit Northern Ireland. This has been challenging as in Northern Ireland information on progressive cancer events is not routinely recorded. This means that for patients initially diagnosed with locoregional breast cancer (i.e. stages I-III) there is no specific health service data received on to collect information on the numbers of patients with develop progressive or recurrent metastatic breast cancer (MBC). The NICR has undertaken a three-phase process to deliver on an MBC audit.

Phase 1

Develop an algorithm to estimate the incidence and prevalence of MBC in NI. This is to be done using electronic sources of data available to the NICR to include: The NI Cancer Register, Hospital administrative data (PAS), and death information from the General Records Office. One estimates of MBC are validated, aim to publish results in a peer reviewed journal.

Phase 2

Use treatment data and a further enhanced PAS dataset **to further enhance the algorithm to improve** accuracy of MBC diagnosis in patients with progressive/recurrent disease.

Phase 3

Develop an accurate dataset of patients with MBC diagnosed, **produce an audit report of their care.**

Phase 1 is now complete with a research letter published in early 2025 and Phase 2 nearing completion. For Phase 3 a focused steering group has been established and the first meeting was held in January 2025.

Breast Cancer Now

Inequalities Study

Professor Chris Cardwell and Dr Charlene McShane, along with Dr Damien Bennett and NICR and CPH staff, are investigating if some women in Northern Ireland experience inequalities in breast cancer care and outcomes, thanks to new funding from Breast Cancer Now. The multidisciplinary implementation group, with input from patient representatives Ann McBrien and David McCallion, are using quantitative methods to understand how a range of inequalities can impact breast cancer diagnosis and chances of treatment success, as well as mixed-method approaches to better understand lived experiences of inequality for breast cancer patients across the United Kingdom.

NICR staff have collated key new data sets and have successfully developed novel linkages with BSO and NISRA datasets to allow investigation of the impact of, for example, mental health problems, remote living, and socio-economic status on stage at diagnosis and survival outcomes. An online survey and qualitative interviews will also be conducted of a sample of breast cancer patients to understand how inequalities impact on their experiences of living with a breast cancer diagnosis.

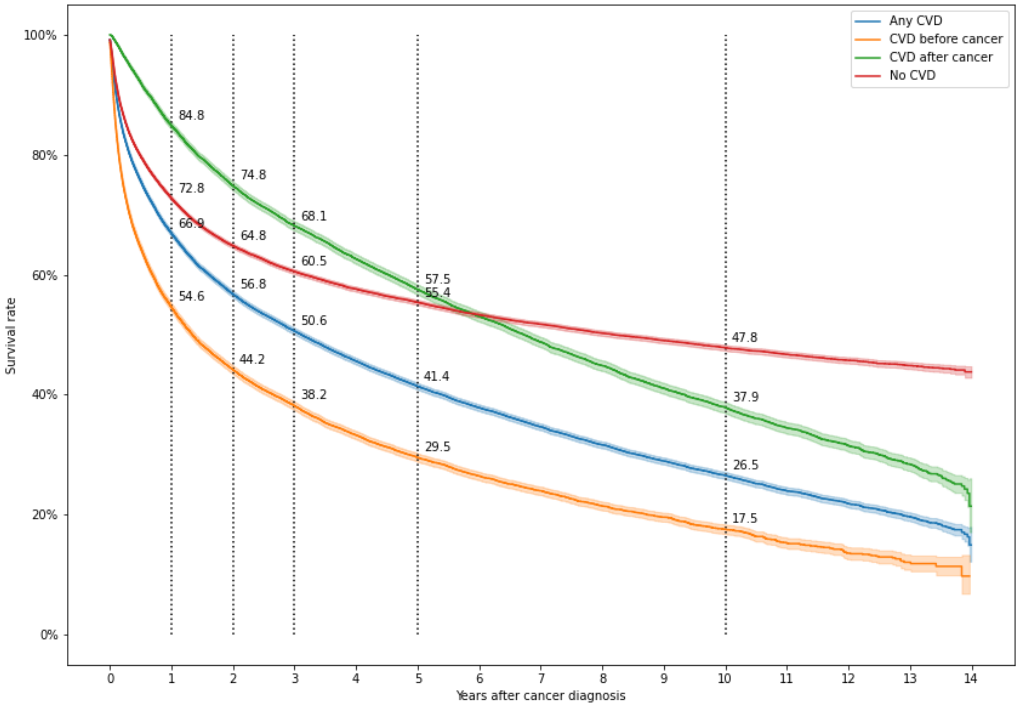
Dr Sarah Baxter, Research Fellow at QUB CPH, alongside Dr Meenakshi Sharma have submitted a paper "Stage at diagnosis and survival from breast cancer in women treated with antidepressants, anxiolytics and antipsychotics: A population-based cohort study from Northern Ireland" to Breast Cancer Research and Treatment. A further paper is being developed examining the impact of breast cancer patient's house value on how advanced the disease is at diagnosis (stage) and their survival. A presentation on mental health prescribing in NI breast cancer patients will be made at the upcoming IACR Conference in Belfast, and Breast Cancer Now symposium in London in March 2025.

Cardio-vascular Disease - HRUK

To better understand cardio-oncology relationships the Northern Ireland Cancer Registry working with colleagues from CPH recently completed a study funded by Heart Research UK. Study aim included:

1. To ascertain the prevalence of cardio-vascular diseases (CVDs) among cancer patients in Northern Ireland and its impacts on survival and treatment uptake;
2. To identify the incidence of CVDs complications after cancer treatment among those without a previous recorded history and;
3. To establish the impact of CVDs on the number of bed days used by cancer patients.

The study found that among 107,131 cancer patients diagnosed over 14 years (2006 – 2019) (excluding non-melanoma skin cancer) about 35.6% (n=38,156) had CVD. CVD was particularly common among older patients with half of those aged over 70 reporting CVD-related hospital admissions.



The presence of CVDs was associated with poorer cancer survival, especially for those with CVD before cancer diagnosis (see Figure).

Having prior CVD were also found to be associated with cancer treatments received. The likelihood of receiving treatment in patients with pre-existing CVDs was 32% lower than patients without pre-existing CVDs after adjusting for demographic profile and other comorbidities.

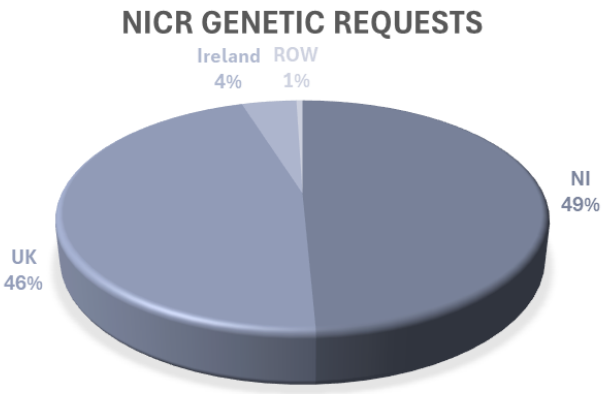
Among patients with no prior recorded history of CVD, 21% were recorded with CVD after initiation of cancer treatment. This was more common among males, older patients, those with more advanced stage cancer and those who had other comorbidities. Patients with pre-existing CVD were also found to have longer hospital stay (about 11 bed-days) compared to those without CVD.

Collectively the work highlights the importance of managing CVD both before and after cancer diagnosis and treatment. It also highlights the importance of public health initiatives to support positive life-style choices that reduce the risk of CVD, especially where these are shared with cancer risks. Several papers have been developed from the work.

The research has created opportunities for further research on the sequence and timing of cancer and CVD diagnoses.

NICR Ongoing Work

Genetic requests



The NICR provides support to Clinical Genetics Departments locally, nationally and internationally by providing cancer diagnosis information. This information is used to enhance the family history profile and support a risk assessment of patients and their families who may have a higher possibility of developing cancer.

The policy of the United Kingdom and Ireland Association of Cancer Registries (UKIACR) concerning the release of data for the purposes of genetic counselling requires that a named registered medical practitioner shall be responsible for the confidentiality, use and security of data. A Data Release form, accepting responsibility of this data, must be signed and returned to NICR prior to the release of any patient information.

NICR will not release information regarding living cancer patients without their signed consent. Information regarding patients known to have died can be released to a registered medical practitioner for counselling purposes.

When a genetic request is received by NICR, a highly skilled Cancer Intelligence Officer will process the request within 10 working days. The information provided by the Genetics Department will be checked against Praxis, the NICR electronic database, and also the Card Registry legacy system that was in place prior to the inception of the Registry in 1994. If a match is found, the requested information is returned to the requester in accordance with the NICR Policy Regarding Security, Confidentiality and Issue of Data.

Northern Ireland (NI) referrals, which make up almost 50% of Genetic Requests made to NICR, are dealt by a visiting member of staff from the Clinical Genetics Service in the Belfast Trust. In the past 18 months we said goodbye to Genetics Nurse Brenda Scullion, with whom we had a working relationship that spanned many years, and we welcomed her replacement Saralynne Boyle, Family History Co-Ordinator.

In 2024, NICR provided information for 207 Genetic Requests, comprising 102 for NI, 95 for United Kingdom, 9 for Ireland and 1 for the Rest of World and all of these were completed within the 10 working day timeframe. It is expected that this number will continue to rise due to ongoing developments in genomic medicine.

Dashboard Development

DATA

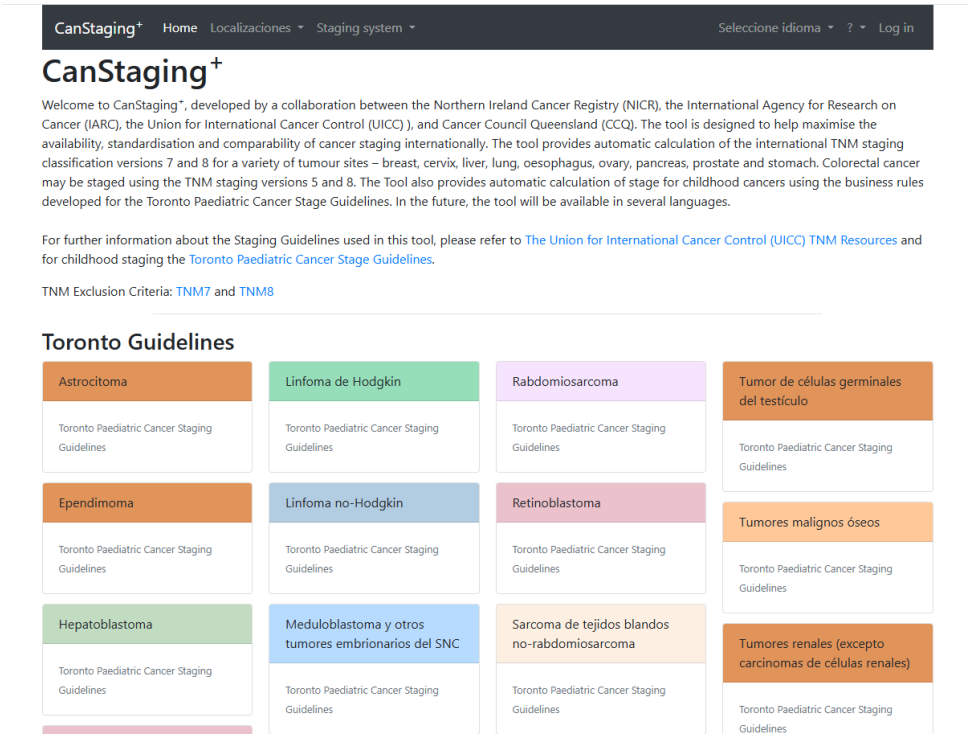
The NICR is exploring Power BI dashboards to enhance how its cancer statistics are presented and analysed. Dashboards provide interactive ways to explore and present cancer data. For years Official Statistics (OS) have provided clear, reliable, and easily accessible information, helping users monitor cancer statistics across various cancer types.

OS reports provide trusted, straightforward and consistent presentation of cancer statistics and have been instrumental in providing essential data for public health reports and research. However, with the growing use of dynamic and flexible reporting, NICR is exploring interactive Power BI dashboards to further improve accessibility, analytical capabilities, and planning.

Dashboards will enable users to filter data by age group, geographic location, and other demographic factors. This will make it easier to explore trends in cancer incidence, prevalence, survival, and mortality rates across different cancer types.
It is important to note that while these dashboards are still in the initial stages of development and under process, they represent a significant advance in how NICR will present cancer statistics. The addition of dynamic, interactive tools will improve accessibility, flexibility, and analytical power, making cancer data more engaging and impactful for users.

Cancer Staging Tool

The CanStaging team report that the Toronto Paediatric Cancer Stage Guidelines is now available in Spanish. The team continues to work on translating the tool to other languages to increase use of the tool. The CanStaging tool has been presented at the GRELL conference and at an ENCR workshop. In the coming year, the CanStaging team will continue to increase translations, incorporate feedback suggested by users, and disseminate the tool.



Maeve McAlister (Supervisor Prof Gerry McKenna)

Assessing the impact of the COVID-19 pandemic on head and neck cancer patient outcomes in Northern Ireland.

Dentists have a role, through routine surveillance during patient visits, in detecting early-stage head and neck cancer (HNC) and thus potentially improving patients' outcomes through more timely treatment. The decline in access to family dental services in Northern Ireland (NI), particularly in socio-economically deprived areas, has increased concern that head and neck cancer patients may now present with more advanced disease. In addition, there is concern that closure of dental surgeries for a number of months during the COVID-19 pandemic may have likewise affected patient outcomes adversely. Prof Gerry McKenna, Dr Maeve McAllister, Dr Finian Bannon and Dr Damien Bennett are researching the impact of the pandemic on referrals, stage distribution, treatment rates, and survival outcomes comparing four diagnosis periods; pre-pandemic (2016 to March 2020), initial pandemic (April 2020-March 2021), initial recovery (April 2021-March 2022), and pandemic recovery (April 2022 to May 2023). MDT data comes from the NI Regional Head and Neck Service's Multidisciplinary Team Meeting MDM, where patients' treatment is discussed by a team of experts. The research team will examine any shifts in the patterns of referrals, distribution of stage at diagnosis, treatment patterns and patient survival alongside primary dental care activity in NI from General Dental Statistics in the same periods. The project is part of the Head and Neck Cancer Research Group which brings together expertise across a number of research centres within Queen's University Belfast to collaborate in HNC research.

Naomh Gallagher

This study examines whether a recent diagnosis of mental illness in the months prior to an individual's cancer diagnosis is associated with worse cancer stage at diagnosis or survival. We used the Northern Ireland Cancer Registry (NICR) database to link cancer diagnoses between 2020-2022 with community prescription data for hypnotics and anxiolytic (BNF 4.1), anti-psychotic (BNF 4.2), and anti-depressant (BNF 4.3) medication.

Aoife Sweeney (Supervisor Dr Joseph Kane)

Estimating the prevalence of dementia and Lewy body disease in Northern Ireland cancer patients

Dr Joseph Kane and Dr Aoife Sweeney, Centre for Public Health, Queen's University Belfast

The aim of our work is to estimate the prevalence of dementia and Lewy body disease (LBD) in individuals who were diagnosed with cancer in Northern Ireland during the period 1993-2021. LBD encompasses Parkinson's disease, Parkinson's disease dementia and dementia with Lewy bodies. These disorders share a common neuropathological mechanism which is the aggregation of alpha-synuclein in the brain (Baba et al., 1998). Recent estimates suggest that Northern Ireland has the highest incidence of Parkinson's disease from 2006-2016 (Okunoye et al., 2022). As we are all living longer, cases of dementia and LBD are increasing (Prince et al., 2016). We will aim to assess how the prevalence of dementia and LBD changes with age, gender, cancer types, geography and socioeconomic factors.

Nicole Lowans

Impact of COVID-19 on Breast Cancer Treatment

Nicole Lowans, Global Public Health MSc student, investigated changes in treatment during the initial stages of the COVID-19 pandemic. This data was collected as part of the Breast Cancer Now Funded Breast cancer project. The main aims of this sub-study into treatment changes are to examine the primary treatments for breast cancer patients diagnosed March – Dec 2018 & 2020 and compare treatments given to patients during these two time periods.

Emma McBride

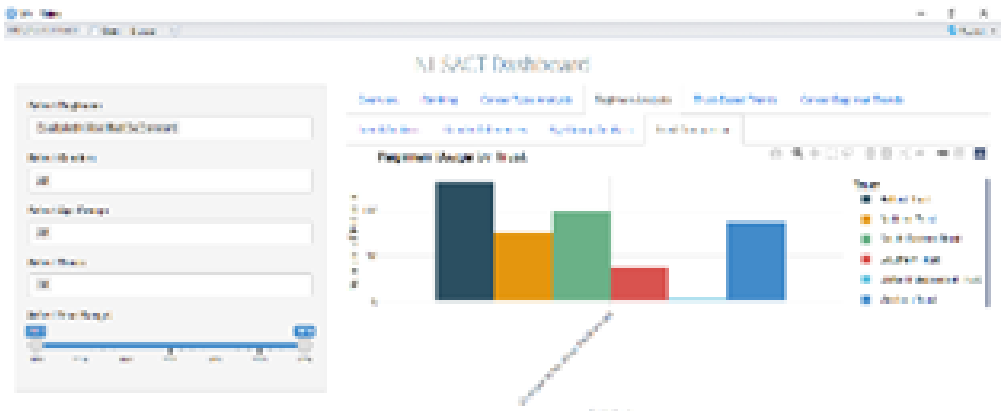
NICR Studentship - Analysis of number, type, frequency and timing of hospital appointments prior to cancer diagnosis using the Routes to Diagnosis (RTD) dataset

Emma McBride, a 3rd year medical student, participated in the CPH summer studentship, supervised by Dr Damien Bennett and Helen Mitchell. The aim of the studentship was to use the Routes to Diagnosis data published by the NICR in June 2024 to examine whether the type of cancer a patient was diagnosed with had an effect on the number, type and timing of hospital outpatient appointments a patient had before their diagnosis and whether a patient's demographics were associated with these results.

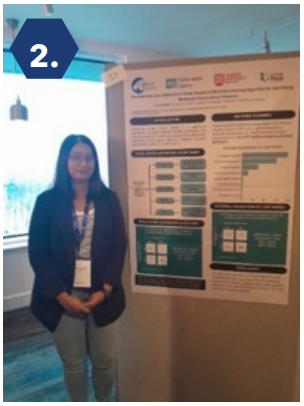
Deepika Sankari Gnanabharathi

Development of a data visualisation tools

This project aimed to create a data visualization tool for data in Northern Ireland using data from the Registry on cancer types, patient demographics, and treatment regimens. The tool allowed researchers to filter by cancer type, regimen, demographics, trusts, and time periods. It helped identify key trends, regional variations, and demographic differences, providing valuable insights into cancer patients in the region.



Events & Conferences



1. Policy Forum NI, 9th February 2024.

2. CRUK Data Driven Cancer Research, 9th February 2024.
Damien Bennett and Amishha Ashok attended, Amisha Ashok presented a poster

3. Clinical Nurse Specialist Day, 15th March 2024
Damien Bennett presented at Dunsilly Hotel

4. Public Health Data in Northern Ireland: Challenges & Opportunities, 20th March 2024
Damien Bennett presented at Riddle Hall

5. ESMO Breast Berlin, 15th to 17th May 2024
Damien Bennett and Helen Mitchell attended, Helen Mitchell presented a poster

6. Euro-American Cancer Forum, 26th April 2024

7. The All-Ireland Cancer Network (AllCaN) Oesophageal Symposium 2024, 23rd October 2024

NICR External Research

Northern Ireland Barrett's Register (NIBR)

The Northern Ireland Barrett's register has been updated to include over 28,000 patients diagnosed between 1993 and 2021. Analysis of incidence trends and risk of progression is currently ongoing.

Mr Mike Nesbitt (Minster for Health for Northern Ireland Executive) and Professor Helen Coleman (CRUK Career Establishment Award Recipient)

Professor Helen Coleman, Dr Richard Turkington and Dr Victoria Child were invited as CRUK-funded researchers to showcase their oesophageal cancer research with the Health Minister for Health for Northern Ireland Mike Nesbitt and Cancer Research UK Chief Executive Officer Michelle Mitchell during a recent visit to the University in October 2024.

Anna Blair (3rd year Biomedical Sciences student) commenced work on an UG dissertation project 'Understanding the malignant potential of gastric metaplasia of the oesophagus: a population-based study' in October 2024. This project will investigate further subtypes of Barrett's oesophagus according to the presence of intestinal and/or gastric metaplasia. Anna is supervised by Professor Helen Coleman, Dr Damian McManus and Dr Victoria Child.

Conference Presentations

British Society of Gastroenterology Live '24

17-20 June at ICC Birmingham

Prof Helen Coleman was an invited speaker on 'How has the era of endoscopic interventions influenced Oesophageal Cancer epidemiology'.

Dr Lucy Loughrey presented a poster 'Oesophageal Columnar Metaplasia in Childhood: A Population-Based Case Series Analysis (1993-2018)' based on research undertaken during her time as an Academic Clinical Fellow with the NI Barrett's register team.

Dr Victoria Child was invited to present 'Understanding Barrett's oesophagus: Insights from a population based Barrett's oesophagus register' at the early career showcase at the 26th International Charles Heidelberger Symposium on Cancer Research 2-4th October 2024 at Queen's University Belfast.

Professor Helen Coleman was also invited to present and contribute to a debate at the Upper GI Endoscopy Barrett's Endotherapy Course in Nottingham in June 2024 on: "Cancer risk stratification in non-dysplastic Barrett's oesophagus: Biomarkers and conventional risk factors - Can we tailor surveillance to individual risk?".

Dr Victoria Child and Dr Ying Yang (visiting scholar)

AllCaN All-Island Oesophageal Cancer Network

Following work on the update of the NI Barrett's register over the last five years, Dr Victoria Child commenced work on the AllCaN oesophageal cancer network (funded by Breakthrough Cancer Research) in August 2024. Victoria will co-ordinate the linkage of two unique large-scale Barrett's registry data sources (NI Barrett's register and National Barrett's registry of Ireland) to: 1. Explore trends in the number and characteristics of people being diagnosed with Barrett's oesophagus and dysplasia across the island of Ireland and 2. Compare endoscopic treatment access and outcomes between the different healthcare structures in Northern Ireland and the Republic of Ireland.

The first symposium for the All-Ireland Oesophageal Cancer Network (AllCaN) was held at Trinity Translational Medicine Institute, St.James' hospital Dublin on 23rd October 2024 with many colleagues, students and patient and public involvement representatives from Cancer Epidemiology group, CPH, Northern Ireland Cancer Registry (NICR) and the Patrick Johnston Centre for (PGJCCR) attending, including three PhD students (Abigail Jeyaraj, Kelly Tang and Richard Murray) who commenced their PhD studentships within AllCaN at the start of October.

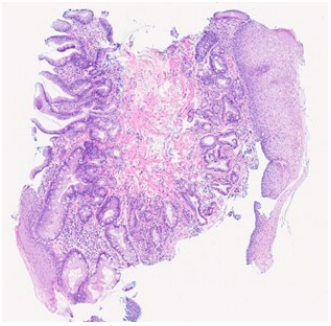
The AllCaN symposium comprised of presentations and panel discussions within the main themes: Prevention and Intervention and Targeted Diagnostics and Novel Therapeutics.

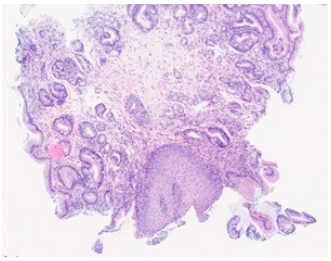
Panel discussion 1: Prevention and Intervention

Panel discussion 2: Targeted diagnostics and Novel therapeutics

Anna Blair

Anna's BSc dissertation focused on Barrett's oesophagus, a premalignant condition leading to oesophageal adenocarcinoma, a cancer often diagnosed late with poor survival rates. Patients with Barrett's oesophagus enter a surveillance program, undergoing endoscopies every 3–5 years to detect early changes like dysplasia or cancer. Anna's project involves text-mining pathology reports from the Northern Ireland Barrett's register to differentiate gastric from intestinal metaplasia cases. Anna will then perform statistical analysis to assess the risk of progression to high-grade dysplasia or oesophageal adenocarcinoma based on these subtypes, aiming to improve understanding and outcomes in Barrett's oesophagus management.

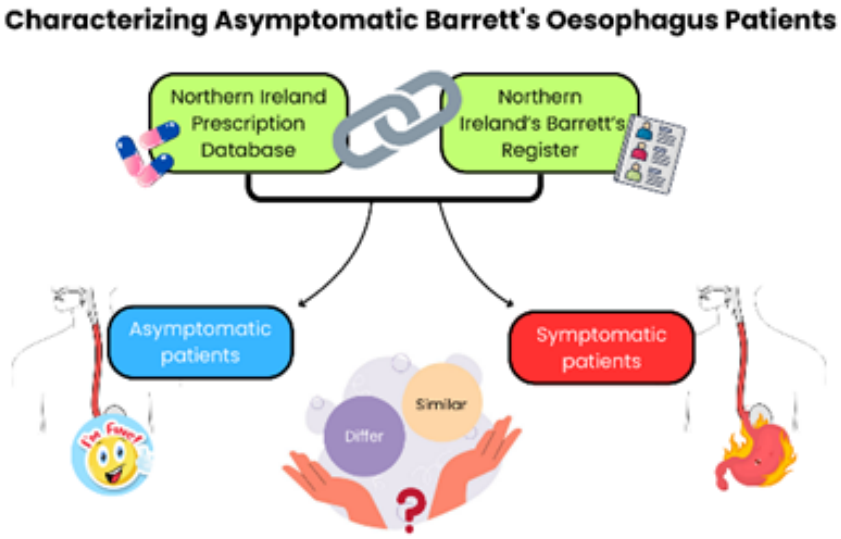




Erin McGrattan

Characterizing Asymptomatic Barrett's oesophagus patients - NI Prescription Data Linkage Study

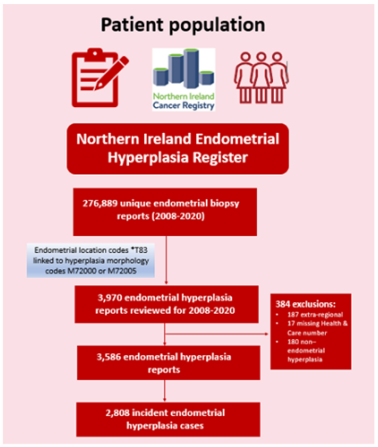
This study will determine the proportion of individuals prescribed anti-reflux medications before their Barrett's oesophagus diagnosis in Northern Ireland, by using the population-based NI Barrett's Register and NI Prescription Database. Individuals will be classified as asymptomatic or symptomatic, indicated by anti-reflux medication prescription. Therefore, demographic and clinical factors linked to Barrett's oesophagus incidence in patients with and without reflux symptoms will be assessed, alongside investigating the association between reflux and disease progression.

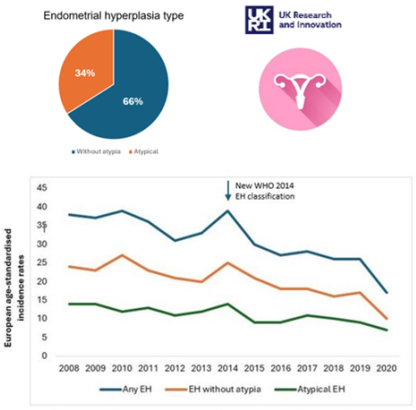


Una McMenamin

Northern Ireland Endometrial Hyperplasia Register

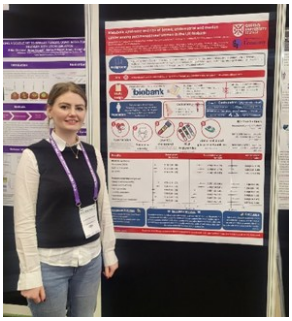
As part of a UKRI Future Leaders Fellowship, Dr Úna McMenamin from the Centre for Public Health has investigated Northern Ireland trends in the diagnosis of endometrial hyperplasia, a recognised precursor to endometrial cancer. A reduction in incidence was observed from 2008-2019, with further reductions in 2020, due to the COVID-19 pandemic (see figure). The reduction in incidence could not be fully explained by reductions in endometrial sampling and may reflect greater pathological subspecialisation over time. The findings will help inform gynaecology service provision needs in Northern Ireland. This study was recently presented at the Irish Society of Gynaecological Cancer session within the International Gynecologic Cancer Society Conference in Dublin, October 2024.





European age-standardised incidence of endometrial hyperplasia (EH) in NI, 2008-2020.

Lauren McVicker



Dr Lauren McVicker has joined the Centre for Public Health as a Research Fellow and will be investigating clinical outcomes associated with hormone therapy use in patients diagnosed with endometrial cancer and endometrial hyperplasia using routine health records, including from within NICR. The findings from Lauren's work will help inform patient-clinician decisions with regard to treatments, particularly among younger women who may not wish to undergo hysterectomy immediately to preserve fertility. Lauren previously completed her PhD in breast and gynaecological cancer epidemiology at the Centre for Public Health.

Rachel Daffy

Quality assessment of the NI Endometrial Hyperplasia Register

Rachel Daffy is a 3rd year QUB Biomedical Science student supervised by Dr Úna McMenamin and Dr Lauren McVicker in the Centre for Public Health. Rachel's research project focuses on a quality assessment of the Endometrial Hyperplasia Register within NICR. She is currently reviewing a 10% sample of pathology reports from the Register (2008-2022) and extracting key clinical information. She will then preform statistical tests to compare agreement of the subset data with that which was previously collected in the Register. This project will generate important evidence around the quality of the data collected within the NI Endometrial Hyperplasia Register.

Finian Bannon

Estimating under-treatment in lung cancer patients in population-based datasets.

Dr Finian Bannon, a lecturer in medical statistics in the Centre for Public Health Queen's University Belfast, is using cancer registry data on lung cancer patients linked to Multidisciplinary Team Meeting (MDT) data to develop an statistical estimator of under-treatment in elderly lung cancer patients. Under-treatment is defined relatively, namely, what proportion of the survival difference between younger and older patients can be attributed to older patients experiencing lower clinically-specific treatment rates than younger patients. By 'clinically-specific treatment rate' is meant the treatment rate in a group of patients defined by the same clinical conditions, irrespective of being young or older. The linked dataset has clinical information on stage of disease, performance status (ECOG), lung function, and comorbidities. The estimator for the definition of under-treatment above adopts a causal mediation approach which applies g-formula methods to compare survival in the older lung cancer patient population against the counterfactual situation that they received the clinically-specific treatment rates of younger patients. Recent developments in the work include improved imputation methods to handle missing data, and incorporating treatment waiting times using competing-risks methodology. This research continues the PhD thesis completed by Dr Abdul Qadr Akinoso-Imran, and supervised by Dr Bannon, entitled: "Quantifying under-treatment in older adult breast, lung and colorectal cancer patients". A poster of the work was presented at the European Causal Inference Meeting in April 2024 in Copenhagen, Denmark (see post title below).

A causal inference approach to estimating under-treatment in elderly lung cancer patients in population-based observational cancer registry data

Abdul Qadr Akinoso-Imran[1], Frank Kee[2], Gerry Hanna[3], Niall McGonigle[4], Colin Fox[5], Anna Gavin[6], Finian J Bannon[2]

[1] Faculty of Science and Technology, Middlesex University, The Burroughs, Hendon, London, United Kingdom (UK)
[2] Centre for Public Health, Queens University Belfast, Institute of Clinical Sciences, Block B, Grosvenor Road, Belfast, BT12 6BA, Northern Ireland, UK
[3] Northern Ireland Cancer Centre, Belfast City Hospital, Lisburn Road, Belfast BT9 7AB, Northern Ireland, UK
[4] Royal Victoria Hospital, 274 Grosvenor Road, Belfast BT12 6BA, Northern Ireland, UK
[5] Business Services Organisation, 31 Clarendon Road, Clarendon Dock, Belfast, BT1 3BG, Northern Ireland, UK
[6] Northern Ireland Cancer Registry, Queen's University Belfast, Mulhouse Building, Grosvenor Road, Belfast BT12 6DP, Northern Ireland, UK

Didar Dyussetayev

Investigating the impact of a colorectal cancer screening programme on colorectal cancer staging and survival in Northern Ireland, UK

Introduction: Colorectal cancer (CRC) remains a significant public health problem worldwide, with early diagnosis being critical to improving survival. CRC screening programmes play a key role in the early detection of the disease, potentially leading to improved clinical outcomes.

Aims: The primary objective is to describe shifts in CRC stage distribution and survival trends resulting from the implementation of screening programmes. The secondary objective is to use mediation analysis to estimate the proportion of survival improvement attributable to the shift to earlier stage detection following the implementation of screening.

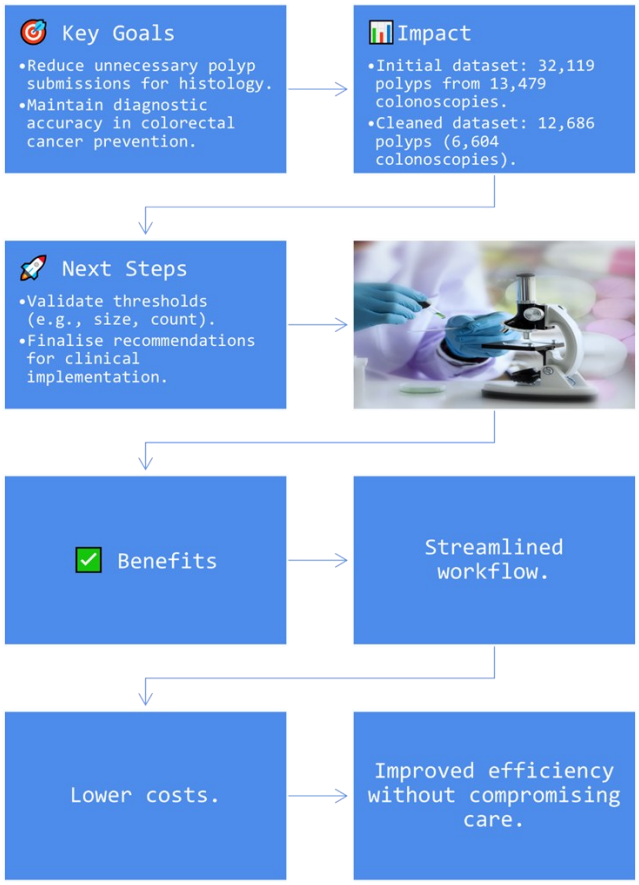
Methods: A retrospective cohort of CRC patients diagnosed in Northern Ireland from 2000 to 2021 and registered with the Northern Ireland Cancer Registry (NICR) will be individually linked to screening information. The analysis plan will be informed by a scoping review of methods used to evaluate screening effectiveness on patient outcomes in population-based studies internationally.

Expected Outcomes and Significance: The findings will contribute to the ongoing review and optimisation of the screening programme in Northern Ireland. Additionally, the study will develop a methodology to quantify the impact of screening on survival mediated through stage shift, using a single statistical estimate.

Ethna McFerran

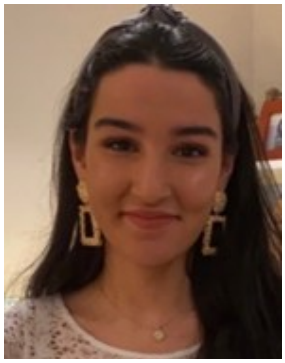
Polyp Resect and Discard Analysis Update

Our recent analysis of the Bowel Cancer Screening Programme highlights innovative strategies to examine if it is possible to reduce unnecessary histological analysis of polyps while maintaining diagnostic accuracy. By refining eligibility criteria, we are examining if reductions in polyp submissions could streamline workflows and reduce costs without compromising patient care. Further validation and scenario testing are underway to finalize these findings, supporting a potential shift toward more efficient clinical practice in colorectal cancer prevention.



Olivia Adair (Supervisor Dr Ethna McFerran)

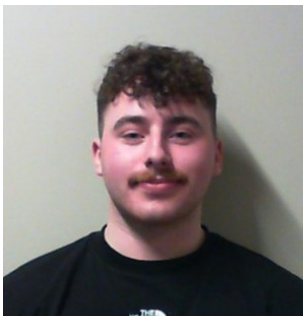
Evaluating the cost-effectiveness of the Northern Ireland Bowel Cancer Screening Programme.



Olivia Adair is a final-year PhD student in Mathematics who has developed a cost-effectiveness model to evaluate the Northern Ireland (NI) Bowel Cancer Screening Programme. The model simulates the natural history of Colorectal Cancer (CRC) within the NI population and assesses various screening strategies to identify the most optimal one to adopt. Data from the NICR Colorectal Polyp Register informs key aspects of the natural history, including adenoma risk, the age of adenoma development, and the number of adenomas an individual may develop over their lifetime.

Jack Murphy (Supervisor Dr Ethna McFerran)

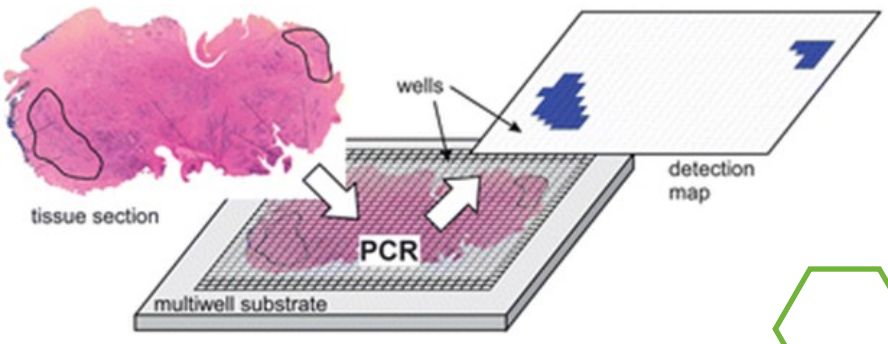
Stage and grade migration of prostate cancer in Northern Ireland over a 20-year consecutive period (1993-2021).



The aim of the project is to investigate tumour characteristics of incident cases year on year; visualising the trends in stage, grade and risk group categories. From this, we intend to use input from a clinical colleague to identify why staging/grading has changed during specific years in prostate cancer diagnosis.

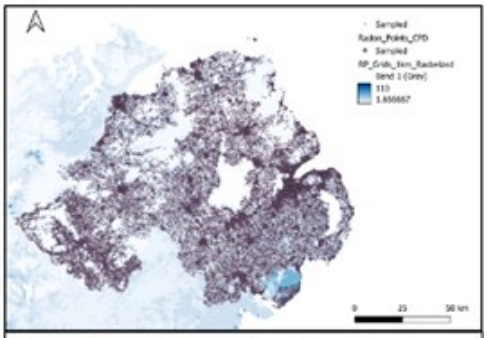
Kifah Mohammad Abdallah Hawamdeh (Supervisor Dr Stephanie Craig)

With the NICR, I will focus on validating and analyzing microbial species associated with cancer, as identified in the PRIME study. This involves developing RT-PCR methods to detect microbes in stored DNA, using RNAscope to confirm their presence in tumor tissue samples, and assessing their impact on cancer outcomes. This work will strengthen the link between oral microbiota and cancer progression, providing critical insights for my project on the role of oral inflammation and microbiomes on cancer risk.



Claire Delargy (Supervisor Dr Dan Middleton)

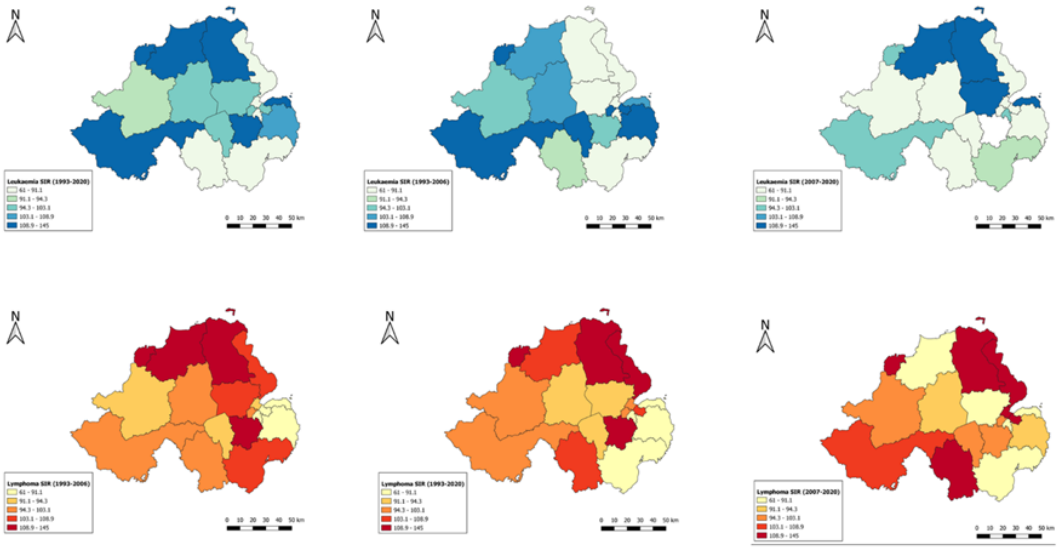
My PhD aims to estimate the fraction of lung cancer caused by radon in Northern Ireland. I'm currently working on data analysis of a case-control study design investigating the association between radon exposure and lung cancer using NICR and NICOLA data. Geospatial methods were used to integrate radon exposure maps with Cancer Registry data and statistical models used to calculate odds ratios. I'm also planning a biosample study which will use lung cancer tissue samples from the NI Biobank linked to Cancer Registry records and aims to measure if there is residual evidence of radon exposure in these samples.



Map showing sampled postcodes from the Central Postcode Directory linked to radon exposure levels per 1km²

Rachel McMenemy (Supervisor Dr Dan Middleton)

Rachel is a Master of Public Health Student, supervised by Dr Dan Middleton in the CPH. Last year, as part of Rachel's BSc dissertation research paper, spatial incidence maps of leukaemia and lymphoma in children and young adults in Northern Ireland were created. These maps provided insight to the geographic distribution of these cancers. Rachel will commence work in 2025 on her master's dissertation which will investigate and produce maps of the incidence of oesophageal cancer across the island of Ireland, as part of the AllCaN Oesophageal programme. Oesophageal cancer cases will then be linked and compared to underlying environmental maps such as drinking water quality and deprivation.



Rawan Hattab (Supervisor Dr Dan Middleton)

My project explores the association between lung cancer and exposure to particulate matter (PM2.5) air pollution in Northern Ireland. By analyzing detailed data on air quality, demographics, and lung cancer outcomes, it investigates how long-term exposure to fine particulate matter influences cancer risk. The study aims to clarify the role of PM2.5 in lung cancer development and highlight potential interactions with some potential confounders. Findings could inform public health policies to reduce air pollution exposure, mitigate disparities, and improve prevention strategies for lung cancer in vulnerable populations.

Sasha Palmer (Supervisor Dr Dan Middleton)

The project will investigate current diagnostic pathways and explores biomarker tools to address delays, improve accuracy, and enhance patient outcomes. This approach aims to overcome limitations in traditional methods, offering a faster, more efficient diagnostic process for bladder cancer in Northern Ireland.

Publications

Impact of COVID-19 on cancer incidence, presentation, diagnosis, treatment and survival in Northern Ireland
Bennett, D., Murray, I., Mitchell, H., Gavin, A., Donnelly, D. 24 Jan 2024. In: IJC.
https://doi.org/10.1002/ijc.34847

Impact of the COVID-19 pandemic on breast cancer patient pathways and outcomes in the United Kingdom and the Republic of Ireland – a scoping review
Lohfeld, L., Sharma, M., Bennett, D., Gavin, A., Hawkins, S. T., Irwin, G., Mitchell, H., O'Neill, S. & McShane, C. M., 04 May 2024, (Early online date) In: British Journal of Cancer. 8 p.
https://doi.org/10.1038/s41416-024-02703-w

Complete cancer prevalence in Europe in 2020 by disease duration and country (EUROCARE-6): a population-based study
DeAngelis, R., Demuru, E., Baili, P., Bennett, D.,…EUROCARE-6 Working Group, et al. 30 Jan 2024 In Lancet Oncology.
https://doi.org/10.1016/S1470-2045(23)00646-0

Survival and Health Care Burden of Children With Retinoblastoma in Europe
Gianni Virgili, Riccardo Capocaccia; Laura Botta; Damien Bennett, Theodora Hadjistilianou, Kaire Innos, Henrike Karim- Kos, Claudia E. Kuehni, Ursula Kuhnel, Cinzia Mazzini, Adela Canete Nieto, Keiu Paapsi, Mariacristina Parravano, Cécile M. Ronckers, Silvia Rossi, Charles Stiller, Giulio Vicini, Otto Visser, Gemma Gatta, for the EUROCARE-6 Working Group. JAMA Ophthalmol. Published online October 10, 2024.
https://doi:10.1001/jamaophthalmol.2024.4140

Collecting long-term outcomes in population-based cancer registry data: the case of breast cancer recurrence
Morgan, E ; O'Neill, C; Bardot, A; Walsh, P; Woods, RR; Gonsalves, L; Hawkins, S; Nygard, JF; Negoita, S; Ramirez-Pena, E; Gelmon, K; Siesling, S; Cardoso, F; Gralow, J ; Soerjomataram, I; Arnold, M. JCO Glob Oncol. Published online 31 October 2024;
https://doi.org/10.1200/GO-24-00249

Use of chemotherapy in patients with oesophageal, stomach, colon, rectal, liver, pancreatic, lung, and ovarian cancer: an International Cancer Benchmarking Partnership (ICBP) population-based study
McPhail S, Barclay M, Johnson SA, Swann R, Alvi R, Barisic A, Bucher O, Creighton N, Denny C A, Dewar R A, Donnelly D W, Dowden J J, Downie L, Finn N, Ga vin A T, Habbous S, Huws D W, May L, McClure C A, Møller B, Zalcberg J R. The Lancet Oncology, March 2024.
https://doi.org/10.1016/S1470-2045(24)00031-7

Use of radiotherapy in patients with oesophageal, stomach, colon, rectal, liver, pancreatic, lung, and ovarian cancer: an International Cancer Benchmarking Partnership (ICBP) population-based study
McPhail S, Barclay M E, Swann R, Johnson S A, Alvi R, Barisic A, Bucher O, Creighton N, Denny C A, Dewar R A, Donnelly D W, Dowden J J, Downie L, Finn N, Gavin A T, Habbous S, Huws D W, Eshwar Kumar S, May L, McClure C A, Whitfield E. The Lancet Oncology, March 2024.
https://doi.org/10.1016/S1470-2045(24)00032-9

Long-term survival for lymphoid neoplasms and national health expenditure (EUROCARE-6): a retrospective, population-based study
Sant, M., Vener, C., Lillini, R., Rossi, S., Bonfarnuzzo, S., Marcos-Gragera, R., Maynadié, M., Innos, K., Paapsi, K., Visser, O., Bernasconi, A., Demuru, E., Di Benedetto, C., Mousavi, S. M., Blum, M., Went, P., Serraino, D., Bennett, D., Sánchez, M-J., De Angelis, R., & 2 others, Jun 2024, In: Lancet Oncology. 25, 6, p. 731-743 13 p.
https://doi.org/10.1016/S1470-2045(24)00141-4

International benchmarking of childhood cancer survival by stage at diagnosis: The BENCHISTA project protocol
Botta L, Gatta G, Didonè F, Lopez Cortes A, Pritchard-Jones K; BENCHISTA Project Working Group. PLoS One. 2022 Nov 3;17(11):e0276997. doi: 10.1371/journal.pone.0276997. eCollection 2022.
https://doi.org/10.1371/journal.pone.0276997

Cancer data quality and harmonization in Europe: the experience of the BENCHISTA Project - international benchmarking of childhood cancer survival by stage.
Lopez-Cortes A, Didonè F, Botta L, Hjalgrim LL, Jakab Z, Canete Nieto A, Stiller C, Zeller B, Gatta G, Pritchard-Jones K; BENCHISTA Project Working Group.
Front Oncol. 2023 Aug 22;13:1232451. doi: 10.3389/fonc.2023.1232451. eCollection 2023.
https://doi.org/10.3389/fonc.2023.1232451

Posters

Oesophageal Columnar Metaplasia in Childhood: A Population-Based Case Series Analysis (1993-2018)

Lucy Loughrey, Victoria Cairnduff, Damian T McManus, Richard C Turkington, Damien Bennett, Brian T Johnston, Helen G Coleman.

British Society of Gastroenterology conference 18-20th June 2024 in ICC, Birmingham. Lucy was the presenting author.

CPH POSTER & ORAL PRESENTATION;

Trends in the incidence of endometrial hyperplasia in a UK population from 2008 to 2020.

Jordão H, Coleman HG, Cardwell CR, McCluggage WG, Wylie J, Quinn D, Sanni OB, Gavin A, Bennett D, McMenamin ÚC.

International Gynecologic Cancer Society (IGCS) Conference, Dublin, October 2024

Presenting author: Dr Úna McMenamin

CPH POSTER PRESENTATION;

Endometrial cancer and prior diagnosis of endometrial hyperplasia: a population-based study

McCoy CA, Coleman HG, McShane CM, Bannon FJ, Cardwell CR, McCluggage WG, Wylie J, Quinn D, Sanni OB, Gavin A, Bennett D, McMenamin ÚC.

International Gynecologic Cancer Society (IGCS) Conference, Dublin, October 2024

Presenting author: Dr Úna McMenamin (on behalf of Chloe McCoy)

ORAL PRESENTATION X3 + 1 INVITED TALK;

Skin in the game: the cost consequences of skin cancer diagnosis, treatment and care in Northern Ireland

McFerran, E., Donaldson, S., Dolan, O. & Lawler, M., Mar 2024, In: Journal of Cancer Policy. 39, 7 p., 100468.

Irish Association of Dermatologists Spring Meeting – Kilashee Castle, May 2024

Presenting author: Dr Ethna McFerran

CRUK Data-driven Cancer Research Conference, Manchester, 27-28 February 2024

Presenting author: Dr Ethna McFerran

Media

21-11-2024 ENP Newswire
-University Road, Belfast: Lung, bowel, breast, upper gastrointestinal cancer melanoma incidence survival statistics for NI
21-11-2024 M2 PressWIRE
-University Road, Belfast: Lung, bowel, breast, upper gastrointestinal cancer melanoma incidence survival statistics for NI
19-10-2024 The Irish News (Online)
Bennett, Damien
More than 14,000 people to be diagnosed with cancer every year in Northern Ireland by 2040
10-06-2024 News Bites - Private Companies – 2 weeks
WEEKLY RECAP: QUEENS UNIVERSITY BELFAST NEWS THIS PAST WEEK JUN 09, 2024
06-06-2024 News Bites - Private Companies – 2 weeks
Red flag referral and screening routes can improve cancer survival rates – study
04-06-2024 PA Newswire: Northern Ireland
Advisory: First issued under embargo
04-06-2024 The Irish News (Online)
Red flag referral and screening routes shown to have better cancer survival rates
04-06-2024 The Irish News (Online) – 2 weeks
Red flag referral and screening routes can improve cancer survival rates – study
03-06-2024 PA Newswire: Northern Ireland
Embargoed to 0001 Tuesday June 04
28-05-2024 Derry Journal (Online)
New cancer registry report shows most common cancers in the Western Trust with large increases in some types
28-05-2024 Derry Journal (Online) – 2 weeks
Cases of cancer diagnosed in Western Trust rose by 5.7 per cent to 1,755
23-05-2024 Indian Educa□on News
Report Delivered: Malignant growth Rate And Endurance Insights For Northern Ireland (1993-2021)
22-05-2024 India Educa□on Diary.in (Circula□on : 275000)
Report Released: Cancer Incidence and Survival Statistics for Northern Ireland (1993-2021)
21-05-2024 News Le□er (Belfast) Online
Cancer prevalence up 8% in NI should spark fresh impetus on waiting lists
04-05-2024 Bri□sh Journal of Cancer (Circula□on : 2000)
Impact of the COVID-19 pandemic on breast cancer patient pathways and outcomes in the United Kingdom and the Republic of Ireland – a scoping review
27-01-2024 MSN UK
Why you should take part in the Belfast-based cancer study seeking to learn the lessons of the Covid-19 pandemic
27-01-2024 MSN News US
Why you should take part in the Belfast-based cancer study seeking to learn the lessons of the Covid-19 pandemic
27-01-2024 The Irish News (Online)
Why you should take part in the Belfast-based cancer study seeking to learn the lessons of the Covid-19 pandemic
08-01-2024 News Bites - Private Companies – 2 weeks
WEEKLY RECAP: QUEENS UNIVERSITY BELFAST NEWS THIS PAST WEEK JAN 07, 2024
04-06-2024 The Irish News (Circula□on : 25010)
Red-flag referral 'yielding better cancer survival rates'
04-06-2024 News Le□er (Belfast) (Circula□on : 7809)
Red flags 'improve' cancer survival rates
23-05-2024 Londonderry Sen□nel (Circula□on : 155)
Cancer cases on rise as NIs population ages
22-05-2024 News Le□er (Belfast) (Circula□on : 7809)
Cancer cases on rise as NI ages
29-01-2024 The Irish News (Circula□on : 25010)
Lessons of pandemic's impact on breast cancer treatment
22-06-2024 BBCPARL
Cancer Statistics and Research in Northern Ireland
22-06-2024 BBCPARL
Report Recommends All-Island Approach to Cancer Research and Innovation
17-06-2024 BBC Parliament
Cancer Statistics and Queen's University Research
17-06-2024 BBC Parliament
Recommendations for Cancer Research Funding and Cross-Border Cooperation

Staff News

Personnel

Goodbye

In 2024 we said farewell to 2 members of staff. Mr Antony Collins (Cancer Intelligence Officer) and Mr Anish Chacko (IT Officer). We wish them every success in the next chapter of their career.

Antony Collins

Cancer Intelligence Officer

Anish Chacko

IT Officer

Weddings

In September 2024, NICR Statistician Helen Mitchell and her partner Sam entered into a civil partnership (left), and in October former NICR member of staff, and current external Research Victoria Cairnduff and her partner Peter got married (middle). In the August External Researcher Dr Úna McMenamin and her partner Ian got married (right). We wish Helen & Sam, Victoria & Peter and Úna & Ian a lifetime of happiness.

Tribute to Breige Torrans

It is with sadness and gratitude that we remember Briege Torrans who passed away February 2025.

Briege was one of the first four employees when the registry was formed in 1994. Along with her other three colleagues, Dr Richard Middleton, Colin Fox and Dr Anna Gavin, their first task was to assess which ideas from the existing the 11 English cancer registries should be introduced as best practice at the NICR. This turned out to be the start of a very solid team with Briege providing a pivotal role managing the administration of the NICR. In fact, some of her original documentation eg leave sheets are still in use today. During her time, she helped organise meetings and conferences, which saw the profile of the NICR increase. The early annual newsletters include many significant events which Briege contributed to. Those who knew Briege will remember her lovely smile and how she was always cheery despite health issues during her life. Our heartfelt condolences go to Briege's family.

NICR Staff Litter Pick

Through the QUB Sustainability Team, NICR staff took part in a litter pick around the Royal Victoria Hospital site and Westlink/Broadway areas on Tuesday 8th October. More than 40 bags of litter were collected within 2 hours! An application submitted to the QUB Green Funding initiative to purchase litter picking kits for NICR was successful! In the New Year NICR staff will be able to undertake further litter picks to help improve the Royal Victoria Hospital site.

The morning was really good fun and an excellent way to step away from the office desk and get some fresh air and exercise!

Charity Donation

For the 4th year running, in lieu of a Staff Secret Santa Registry staff have made a donation to a local charity. This year's chosen charity was Cancer Focus NI with a donation of £200 made.