Trinity St James's
Cancer Institute

Ospidéal San Séamas
Seirbhís Dé agus A Phobail

TRINITY ST JAMES'S CANCER INSTITUTE

THREE YEAR CANCER AUDIT REPORT 2018 - 2020

CONTENTS

FOREWORD

It is a great pleasure for me to write a foreword to the Trinity St James's Cancer Institute 3-year cancer audit in my capacity as co-Director of the Trinity St James's Cancer Institute. This is the 4th such document published since the Cancer Audit Programme was initiated in 2001. It represents the distillation of a great deal of work by clinicians, data managers, supervisors, scientists and clinical leads in the cancer care programmes of the hospital.

The data for the 3 years up to 2020 when compared to previous reports confirm the relentless rise in cancer incidence across the board. This ranges across the spectrum of diseases from over 70% to almost 300% in the period 2003 to 2019. In 2020 the incidence of cancer fell for the first time for several of the common cancers treated in St James's. This is no doubt due to the effects of the Covid-19 pandemic which hugely disrupted society in general and healthcare services in particular in the latter half of 2020. General practitioners restricted clinic services, screening programmes closed, patients were fearful of contagion and hospital clinics and elective treatments ceased for a time. All this clearly impacted on cancer diagnoses for 2020 as shown in this latest report.

This phenomenon is not confined to St James's. Preliminary data from the National Cancer Registry of Ireland suggest a similar drop in diagnoses of cancer in 2020.The majority of these delayed diagnoses will present late and for some of them this will have a negative impact on the patient's outcome. The expertise developed in the Clinical Audit programme should enable us to track and report on the impact of these delays in the years to come and help guide a national response to ameliorate the results.

Rigorous data collection, validation and analysis is critical to the continuous improvement in patient care which is a key objective of the Trinity St James's Cancer Institute. As we are work towards formalized assessment of more nuanced metrics such as waiting times, pathway compliance, complications of therapy and toxicity reporting, key enablers will include the Cancer Audit Programme, the electronic patient record and the Multidisciplinary Tumour board process. Data sharing and international benchmarking of our outcomes will represent a further evolution of the Cancer Audit programme requiring attention to the difficulties posed by GDPR regulations, issues of clarity on consent requirements and the absence of a unique patient identifier in the Irish health care system, among others. Nonetheless, I am confident that the expertise developed by the Cancer Audit Programme will assist us in overcoming these difficulties and will result in further enriched reports in the future which will continue to serve as the basis for continuous improvements in patient care and outcomes.

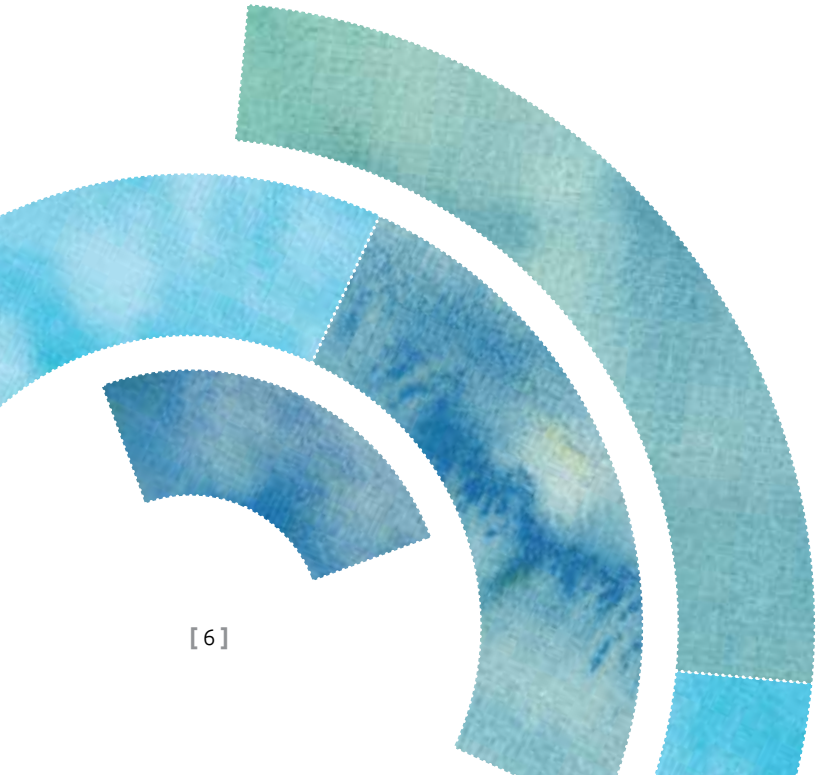
M John Kennedy
Co- director Trinity St James's Cancer Institute.

OBJECTIVE

The primary objective of this report is to present a comprehensive audit of cancer care undertaken at St. James's Hospital from 2018 to 2020 inclusive. The report provides data on the incidence of several cancer types, stage of disease, treatment approaches, curative or palliative, and outcomes. The outcomes and process data may be used to compared with previous cancer audit reports from the Hospital, and against published benchmarks.

The report provides detailed information for the Trinity St James's Cancer Institute (TSJCI), and relevant bodies including the National Cancer Control Programme (NCCP), the Department of Health (DOH), the Health Service Executive (HSE), and the Health Information Quality Authority (HIQA). It facilitates quality improvement through reporting and monitoring of in-house and national key performance indicators (KPIs). It also provides a framework for measuring the cost of cancer care.

The provision of high-quality cancer data remains an operational and strategic priority at the hospital and TSJCI. Cancer audit is a core foundation of the Institute, supporting research, education and quality improvement, and enabling other key platforms including bio-resourcing, basic and translational scientific research, and clinical care.



BACKGROUND

The Cancer Audit Programme (CAP) at St. James's Hospital was established in 2001. Its goal from the outset was to provide comprehensive prospective data on the structures, processes and outcomes of cancer care delivered by the many national, supra-regional and regional cancer services at the hospital. Outcome data provides information to patients, enables audit and continuous quality improving of services, planning, and benchmarking against best international data.

Cancer audit structure

The CAP has been led from the outset by Prof John Reynolds, Professor of Surgery. Cathy Enright was the Programme manager from 2017 – 2019 and since 2019, Lisa McDowell.

The CAP encompasses dedicated data managers for most cancer sites, including breast, colorectal, gynaecology, head and neck, lung, skin, upper gastrointestinal, and urology.

CANCER SITE	DATA MANAGER	WTE
Blood	Greg Lee	1.0
Blood	Kate Saloranta	1.0
Breast	Karina Delaney	1.0
Colorectal	Chris Gleeson	1.0
Gynaecology	Therese Brown	0.5
Head and Neck	Mary Devlin	0.5
Lung	Fiona Mulvany	1.0
Skin	Colin Farrington since 2022 (Anita Cafolla 2018-2020)	1.0
Upper GI	Sinéad King	1.0
Urology	Lynn Geraghty since 2021 (Mary O'Brien 2018-2020)	0.5

The technical function of the CAP is directly supported by the IMS Department. The CAP originally used Patient Analysis Tracking System (PATS) software but at the end of 2018 this was upgraded to a web based system (Intellect Web, Dendrite, UK).

Each data manager reports to both the Cancer Audit Programme Manager and the Clinical Lead with a direct responsibility for each cancer.

The CAP supports and highlights cancer activity at the hospital through publication of comprehensive audit reports, contributions to annual reports, national benchmarking and KPI reporting, quality improvement initiatives, and research.

The first audit report was published in 2004, followed by a six-year report of incidence and outcome cancer data in 2008, the first of its kind in Ireland. An overall 10-year report (2003 - 2012) was published in 2013 and most recently, in 2019, the Five Year Cancer Audit Report (2013 – 2017).

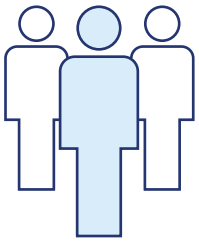
The team provides comprehensive Key Performance Indicator (KPI) reports to the National Cancer Control Programme (NCCP) for breast, lung, prostate, oesophago-gastric and rectal cancers. SJH have been involved since the inception of the melanoma KPIs, reporting for 2019 and 2020 as part of the pilot project, with the final KPIs going live in 2021.

The NCCP KPI programme allows St. James's Hospital to evaluate the quality of our cancer services, compare our performance against other cancer centres and ensure a culture of continuous quality improvement in the delivery of cancer care.

References

St James Hospital Cancer Audit Programme (2007) Six-year Cancer Audit Report 2001 – 2006
St James Hospital Cancer Audit Programme (2013) Ten-year Cancer Audit Report 2003 - 2012
St James Hospital Cancer Audit Programme (2018) Five-year Cancer Audit Report 2013 – 2017

EXECUTIVE SUMMARY



OVER

14,000

NEW CANCER PATIENTS

were entered by the Cancer Audit Programme over this 3 year audit

Continued

INCREASED MARKEDLY ACROSS ALL 9 CANCER SITES

compared with initial audit in 2003, including melanoma (257%) , lung (151%), head and neck (260%), urology (210%) and upper gastrointestinal cancer (146%), breast (75%), colorectal (80%) and gynaecological cancer (86%)

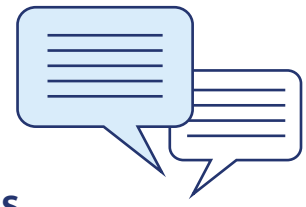
LYMPHOMA:

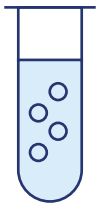
THERE WAS

1,511

MDT PATIENT DISCUSSIONS

in the 2018-2020 period, on 868 patients, 31,618 outpatient visits on 5,012 patients, 17,635 day discharges on 1,771 patients





HAEM PATH:

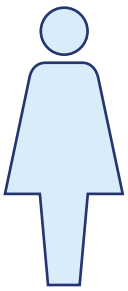
2154 PATIENT DISCUSSIONS

on 926 patients with a cancer diagnosis

There were

255 AUTOLOGOUS STEM CELL TRANSPLANTS

performed between 2018-2020, 59% for Myeloma . There were 233 Allogeneic Stem Cell Transplants performed , 94 myeloablative and 134 reduced intensity



BREAST:

NEARLY

12,000

PATIENTS ATTENDED

the Breast Clinic in 2019, with just over 350 cancers diagnosed.

The overall 5 year

SURVIVAL FOR BREAST CANCER IS 78%

and over 90% where patients were treated with curative intent for loco-regional disease

Following neoadjuvant therapy for breast cancer, 3 year survival was over

90%

FOR STAGES 0-2

and 80% for stage 3

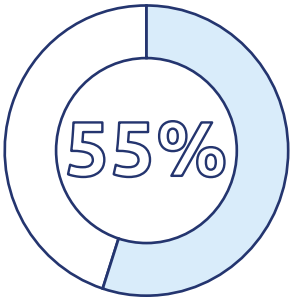
EXECUTIVE SUMMARY

COLORECTAL:

The majority of rectal cancer patients were tertiary referrals (38%).

8%

PRESENTED VIA BOWELSCREEN



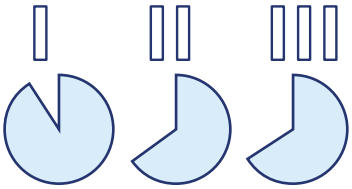
The overall 5 year survival for rectal cancer is

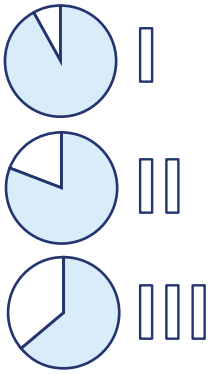
55% AND FOR COLON CANCER 61%

For rectal cancer the 5 year survival for Stages I, II and III was

91%, 65% AND 66%

respectively





For colon cancer, the 5 year survival for Stages I, II and III was

92%, 81% AND 64%

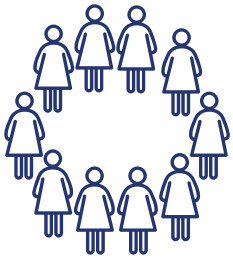
respectively

GYNAECOLOGICAL:

The 3 and 5 year overall survival for cervical cancer patients is

77% AND 73%

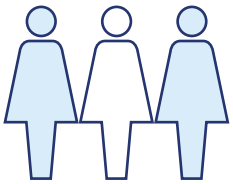
respectively; five year survival for clinical stage I is 89% and stage II 67%

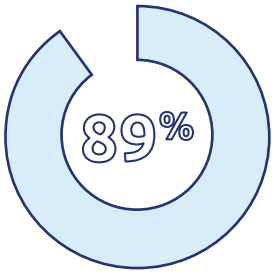


For endometrial cancer the overall survival rates at 3 and 5 years are

80% AND 74%;

three year survival for clinical stage I is 88% and stage II 67%





The 3 and 5 year overall survival for ovarian cancer patients is

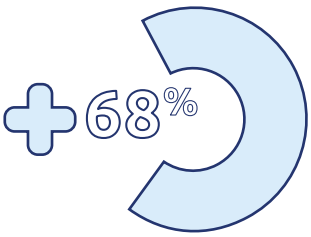
63% AND 51%

respectively; five year survival for

CLINICAL STAGE I IS 89%

The five year overall survival of vulval cancer is

OVER 68%



HEAD AND NECK CANCER:

In 2019 the head and neck service was responsible for managing approximately

40%

OF THE NATIONAL WORKLOAD

(including thyroid cancers).

Cancer of the oral cavity had a 3 and 5 year survival of

70% AND 58%,

respectively

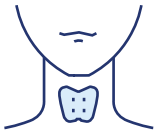
The 3 and 5 year survival for cancer of the larynx was

72% AND 59%

respectively

The 5 year survival for thyroid cancer is

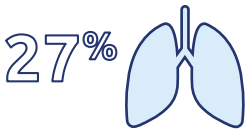
89%



LUNG CANCER:

SJH provides approximately

27% OF THE NATIONAL WORKLOAD

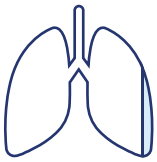


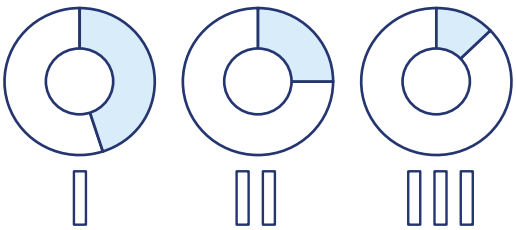
The overall lung cancer survival rate at 5 years for patients diagnosed

2015 – 2019 IS 24.3%

The overall 5 year survival rate of non small cell lung cancer (NSCLC) is 27.2%, and

6.8% FOR SMALL CELL LUNG CANCER (SCLC)

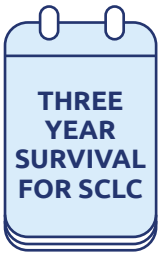




Five year survival for NSCLC for clinical stages I, II and III are

45%, 25% AND 13%,

respectively

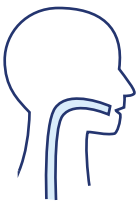


Three year survival for SCLC at clinical stages I, II and III are

34%, 17% AND 12%,

respectively

OESOPHAGEAL AND GASTRIC CANCER:



For oesophageal cancer survival within the National Centre for patients treated with curative intent, the

5 YEAR SURVIVAL OF 51.4% AND 3 YEAR SURVIVAL OF 65.8%.

The 3 year survival in node negative patients is 77%

For gastric cancer, the overall

5 -YEAR SURVIVAL IS 30.5%.

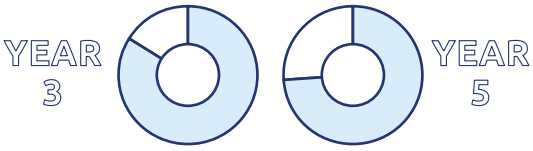
In patients treated with curative intent, the 3 and 5 year survival is 69.6% and 58.1% respectively, and an 87% 3 year survival in node negative disease

EXECUTIVE SUMMARY

SKIN CANCER:

OVER 1500 NEW CASES

of non-melanoma skin cancer (NMSC) were diagnosed each year, with an overall increase of almost 300% in 2019 compared with 2003



THE 3 AND 5 YEAR SURVIVAL FOR MELANOMA IS 84% AND 74%

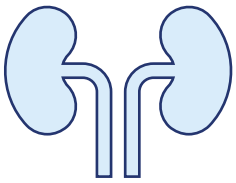
respectively, with 3 year survival of 69.4% for pathological stage III, and 42.7% for stage IV disease

UROLOGY:

44% of prostate cancer patients were

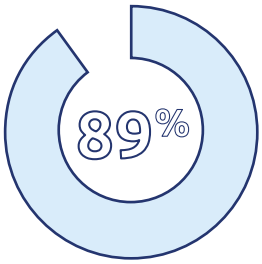
GLEASON SCORE 3 + 4 = 7,

compared with 39% in the previous five years



96% OF KIDNEY CANCER PATIENTS

diagnosed between 2018 – 2020 had laparoscopic resection, compared with 21% of patients diagnosed in the previous five years (2013 – 2017)



The 3 year overall survival for

PROSTATE CANCER IS 89%

The 3 and 5 year

OVERALL SURVIVAL FOR KIDNEY CANCER

is 79% and 71%, respectively.

79%

71%

SECTION 1:

GENERAL ASPECTS OF CANCER AUDIT

Demographic Data

Incidence

St. James's Hospital (SJH) diagnosed and/or treated on average, over 4670 cancer patients each year over the period of this report with a total of 14020 patients diagnosed and/or treated at SJH between 2018 and 2020 for the cancers described in Table 1.1 and 1.2.

The cancer workload 2018-2020 in SJH has increased by 21 percent (excluding NMSC) when compared to the previous three years' activity 2015-2017. SJH continues to diagnose and treat a large volume of patients across all cancers (Tables 1.1 and 1.2). Lung cancer remains the largest cohort of patients diagnosed and treated at SJH.

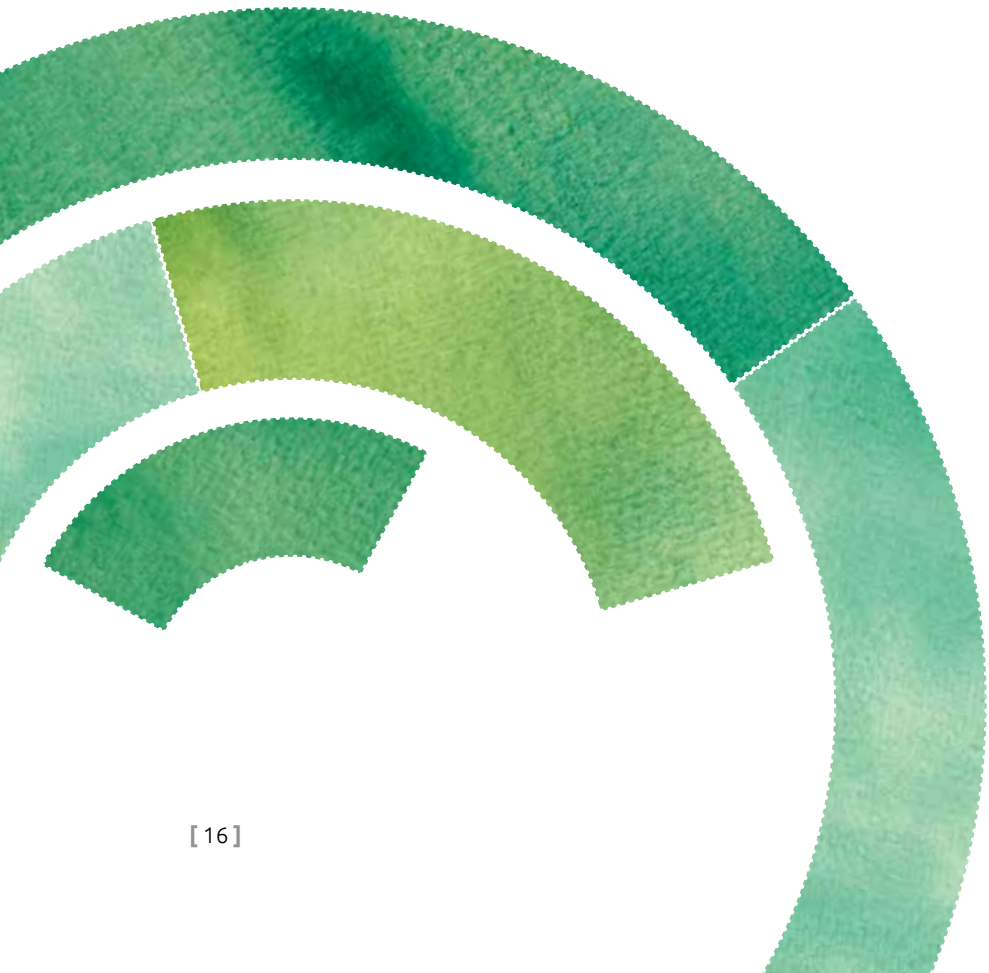
Table 1.1 Cancer Activity in SJH 2018-2020

CANCER SITE	2018	2019	2020	TOTAL 2018-2020
Breast	291	354	313	958
Colorectal	235	221*	161*	617
Gynaecology	334*	297*	306*	937
Head and Neck	470	461	465	1396
Lung	617	702	590	1909
Melanoma	177	243	219	639
NMSC	1579	1516	1505	4600
Oesophago gastric	279	290	260	829
Urology	296	397	378	1071
Newly Diagnosed Lymphoma and Lymphoproliferative Disorders	158	156	189	503
Myeloid and myelo - proliferative disorders	102	111	111	324
Myeloma and Plasma Cell Disorders	88	85	64	237

*tumour sites

Table 1.2 Solid Tumour Activity since 2003

	BREAST	COLORECTAL	GYNAECOLOGY	HEAD AND NECK	LUNG	MELANOMA	NMSC	OESOPHAGO GASTRIC	UROLOGY
2003	202	123	160	128	280	68	383	118	128
2004	138	139	153	153	302	76	425	143	144
2005	141	142	180	165	323	69	412	134	203
2006	134	166	198	151	348	99	517	164	208
2007	160	168	197	183	415	105	574	189	216
2008	162	180	243	195	394	119	679	197	226
2009	210	209	287	205	446	139	677	197	318
2010	276	198	288	240	512	127	730	229	381
2011	285	207	293	259	587	163	724	278	448
2012	272	176	308	285	648	152	804	263	445
2013	294	150	330	306	587	133	830	241	422
2014	305	152	353	269	566	165	902	259	429
2015	317	191	358	274	561	205	932	267	362
2016	323	189	335	275	572	181	920	259	316
2017	310	213	328	270	578	160	932	237	227
2018	291	235	334	470	617	177	1579	279	296
2019	354	221	297	461	702	243	1516	290	397
2020	313	161	306	465	590	219	1505	260	378
% increase from 2003 to 2019 (pre COVID-19)	**75.2%**	**79.7%**	**85.6%**	**260.2%**	**151%**	**257.4%**	**295.8%**	**145.8%**	**210.2%**



SECTION 2:

SITE SPECIFIC CANCER 3-YEAR AUDITS

1. Blood Cancers

Introduction

The Haematology Department at St. James's Hospital is the largest in Ireland and includes the National Adult Stem Cell Transplant Centre. There are seven consultant haematologists who provide care for patients with general and malignant haematological disorders, including leukaemia, lymphoma and myeloma.

Each of the haematology consultants has had training in all areas of stem cell transplantation but also have areas of special interest as follows:

- Dr. Larry Bacon: Acute Lymphoblastic Leukaemia, Lymphoma, Adolescent/ Young Adult (AYA) haematology, CAR T Cell Therapy
- Prof. Paul Browne: Myeloma, Acute Leukaemia.
- Dr. Evelyn Conneally: Acute Leukaemia, Myeloproliferative Neoplasms.
- Dr. Catherine Flynn: Acute Leukaemia, Bone Marrow Failure Syndromes.
- Dr. Patrick Hayden: Myeloma, Cryobiology/Apheresis.
- Prof. Elisabeth Vandenberghe: Lymphomas, Lymphoproliferative Disorders, molecular diagnostics.
- Dr. Nina Orfali: Acute Leukaemia, Myelodysplastic Syndromes

In addition, the haematology consultants provide specialist laboratory input and have clinical responsibility for the extensive haematology laboratory services.

There are three components to the Clinical Haemato-Oncology Service:

- The Acute Leukaemia/Stem Cell Transplant Service is based in the Denis Burkitt Stem Cell transplantation unit. This is a purpose-built facility with 21 single rooms for patients undergoing stem cell transplantation or treatment of acute leukaemia and aggressive lymphomas. There is special air filtering in place to minimize the risk of infection. The Unit is managed by a clinical nurse manager along with a staff of stem cell transplantation-trained nurses.
- Patients requiring less intensive therapy are admitted to a dedicated haemato-oncology ward: Donal Hollywood Ward. Patients with a wide range of haematological conditions such as lymphoma, myeloma or myelodysplasia are cared for on this service.
- Blood cancer patients are increasingly managed in the haematology day-care setting and treatment is delivered by a day centre team which includes a haematology specialist registrar and haematology trained nurses. Clinical nurse specialists are linked to each service to ensure that patients are educated about their disease and treatment and each patients 'cancer journey' is individually planned.

The Blood Cancer diagnostic service uniquely in Ireland has a multidisciplinary integrated reporting service incorporating morphology, immuno-phenotyping and molecular diagnostics reports, as well as providing a national service for complex flow-cytometry and molecular diagnostic delivered by haematologists and haematopathologists, trainees and diagnostic scientists.

The combined Blood Cancers diagnostic service publishes and presents extensively as well as mentoring scientists and clinicians though higher degrees (Masters projects, Ph.Ds, MDs). The diagnostic programme collaborates internationally with EUTOS, European Research Initiative in CLL (ERIC), Euroclonality, VU Amsterdam

for Refractory Coeliac Disease flow cytometry group, Euroflow Consortium, European Society for Clinical Cell Analysis (ESCCA) MPN & MPNr EuroNet, UK and the Ireland haematological malignancies diagnostics forum.

We actively encourage enrolment in clinical trials and are supported by an active Clinical Trials Unit. This ensures that patients have early access to new treatment options which may not yet be licensed for routine use.

Patients attend the outpatient and day service in the Haematology Oncology daycare centre (HODC) with attendances increasing year on year.

Weekly consultant-delivered counselling clinics are provided to support all haematology patients being considered for transplantation, clinical trials or with complex diagnostic/management requirements. A donor clinic runs weekly for the assessment of family donors and for matched unrelated donors in conjunction with the Irish Unrelated Bone Marrow Registry.

Weekly consultant-led and disease-specific clinics are provided for patients on active treatment for a haematological malignancy or post-transplant follow up. The management of patients for post-transplant review including management of ongoing graft versus host disease, screening for secondary malignancies and optimising long-term outcome of these cancer survivors. From 2018-2020 there were 1988 patient reviews in late effects clinics.

Weekly haematology clinics provide follow-up and management of patients who have completed treatment, or have indolent blood cancers requiring surveillance and intermittent treatment. Lymphoma patients treated successfully with curative intent are transitioned to an Advanced Nurse Practitioner clinic to ensure early pick up of treatment related morbidity and encourage active patient management of overall health.

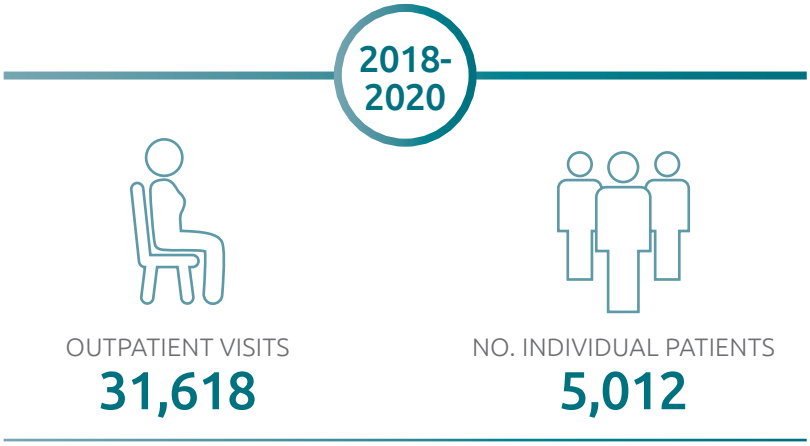


Table 2.1.1: Haematology Outpatient Activity 2016-2020

OUTPATIENT ACTIVITY HAEMATOLOGY 2015-2020					
	2016	**2017**	**2018**	**2019**	**2020**
New	1131	810	702	794	807
Return	9360	10153	9869	10231	9215
Total	**10491**	**10963**	**10571**	**11025**	**10022**

Figure 2.1.1: Blood Cancers and Haematological Malignancies individual patients reviewed in Out Patients 2018-2020

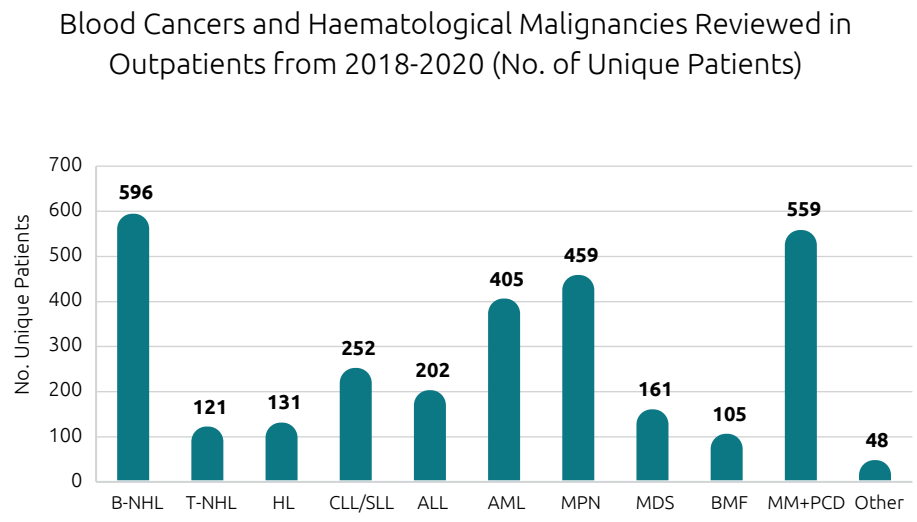
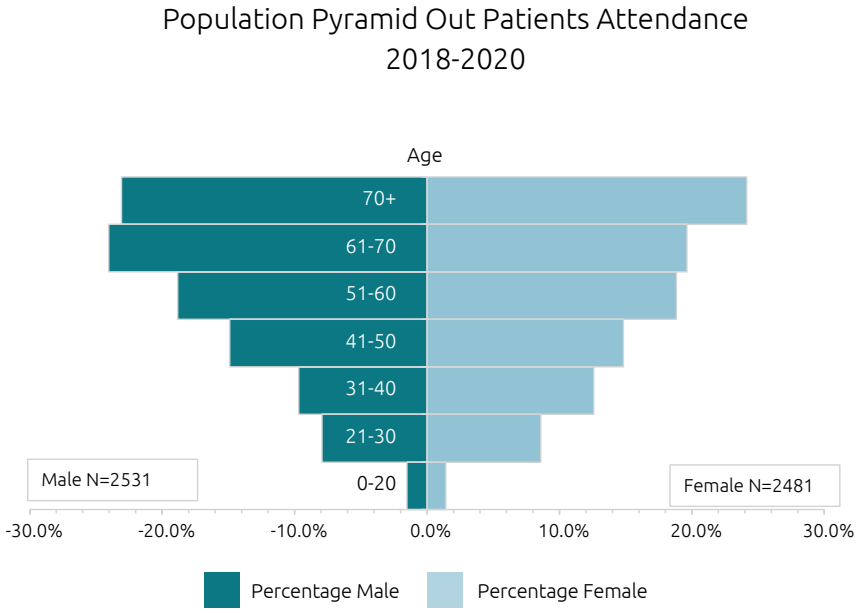


Figure 2.1.1 shows a breakdown of individual patients that attended outpatients by Cancer/Malignancy type. Many patients will have more than a single visit to outpatients. There were a total of 31618 outpatient attendances from 2018-2020. This accounted for 5012 individual patients.

Figure 2.1.2: Population pyramid for individual patients attending Outpatients 2018-2020



The day unit is staffed by clinical nurse managers who ensure delivery of chemotherapy, blood products and assessment of patients undergoing treatment in a dedicated facility with access to isolation features.

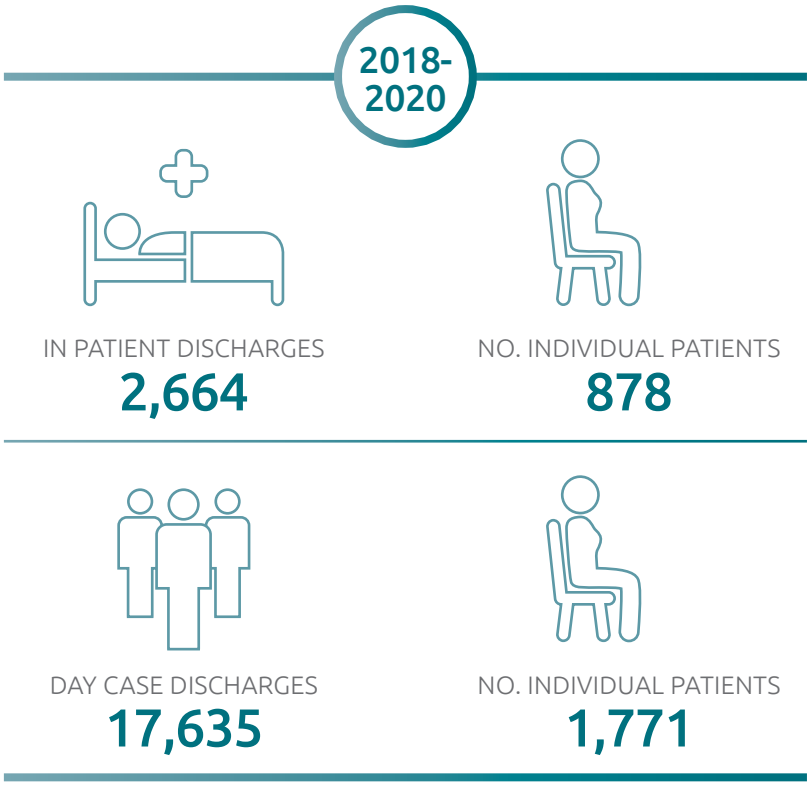


Table 2.1.2: Inpatient and Daycare Activity 2018-2020

DAY WARD AND INPATIENT NUMBERS 2016-2020					
	2016	2017	2018	2019	2020
Day ward Discharges	5857	6122	5167	6141	6327
Inpatient Stays	938	954	905	895	864

Figure 2.1.3: Blood Cancers and Haematological Malignancies individual patients treated in HODC and Inpatients 2018-2020

Individual patients attending Daycase and Inpatient stay 2018-2020 with Blood Cancers and Haematological Malignancies.

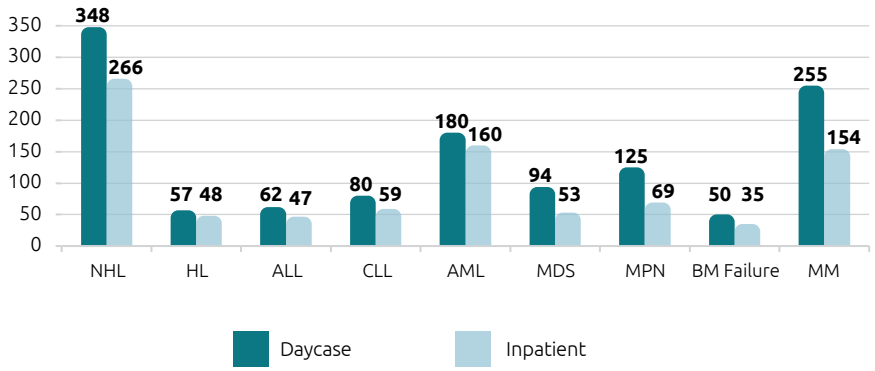


Figure 2.1.4: Patients attending as In Patients 2018-2020

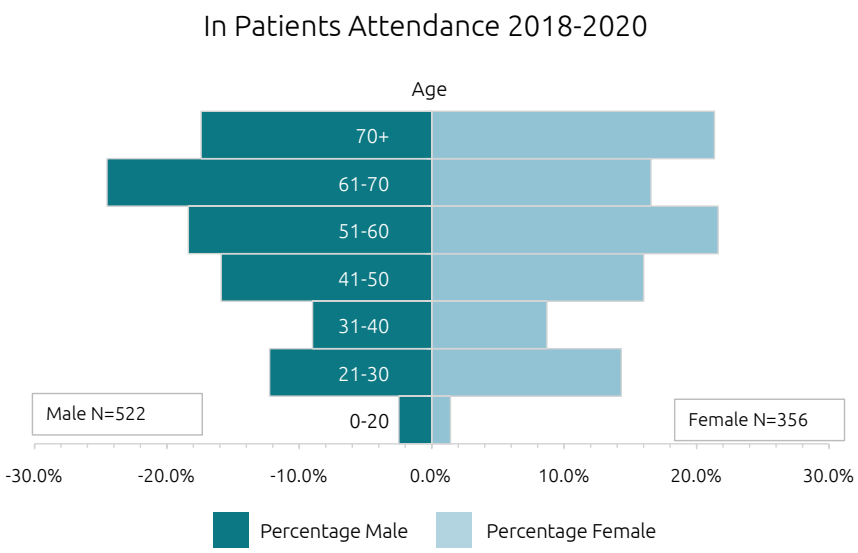


Figure 2.1.5: Patients attending as Day-Case Patients 2018-2020

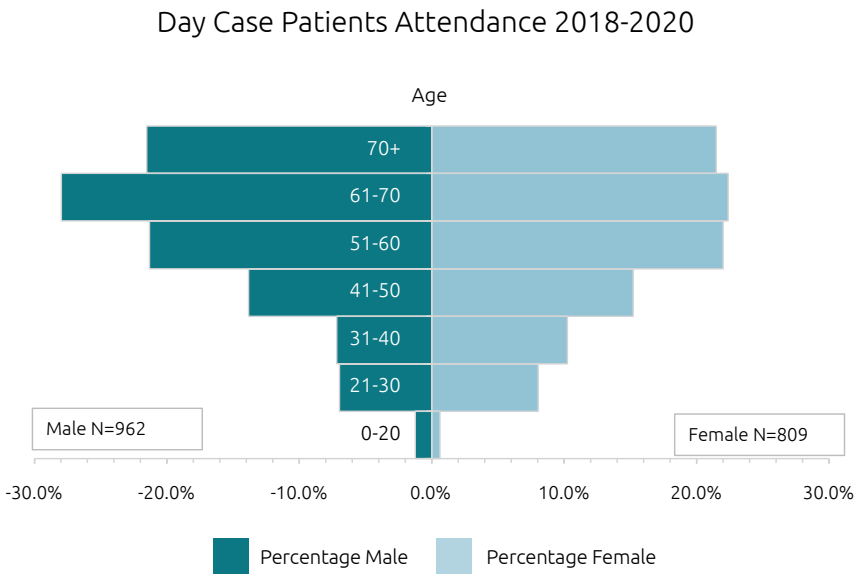


Figure 2.1.3 shows a breakdown of subsets of individual patients with blood cancers and haematological malignancies. There were 17635 day case discharges from 2018-2020 accounting for 1771 individual patients. There were 2664 inpatient stays from 2018-2020 accounting for 879 individual patients.

Figure 2.1.6: Frequency of visits for individual patients 2018-2020

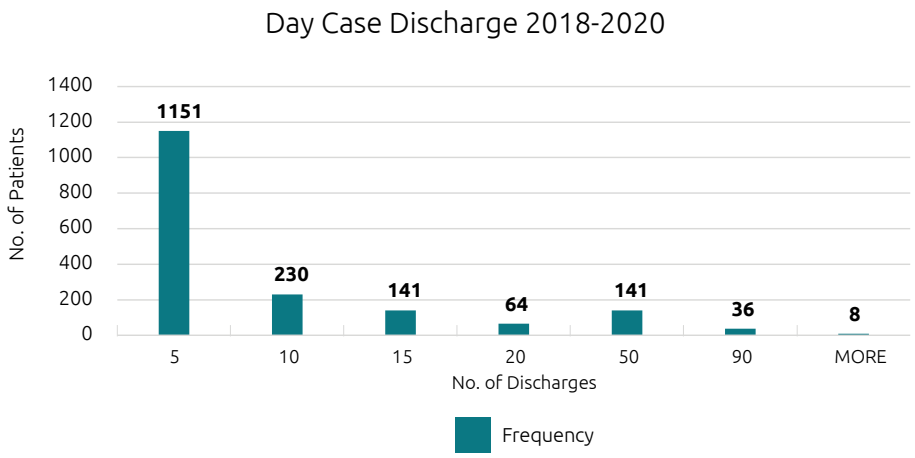
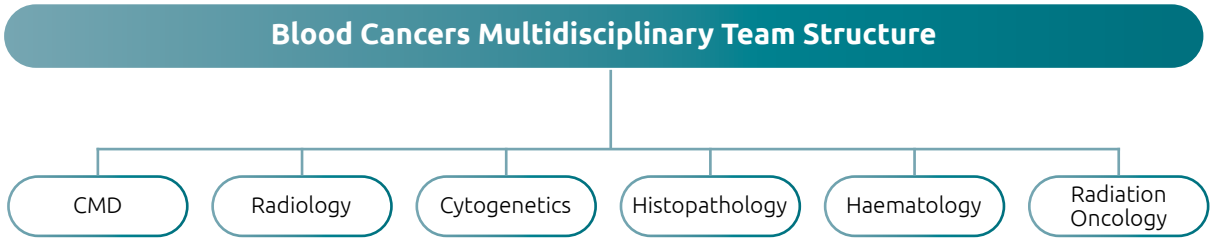


Figure 2.1.6 above shows frequency of visits to HODC by individual haematology patients. 65% of patients attending had between 1 and 5 visits from 2018-2020. 13% had between 6 and 10 visits, 8% had 11-15 visits, 3.6% had between 16 and 20 visits,

Multidisciplinary working is integral to haematology and includes several weekly multidisciplinary team meetings (MDT). These include a bone marrow transplant planning meeting, a haematology MDT and a Lymphoma MDT.



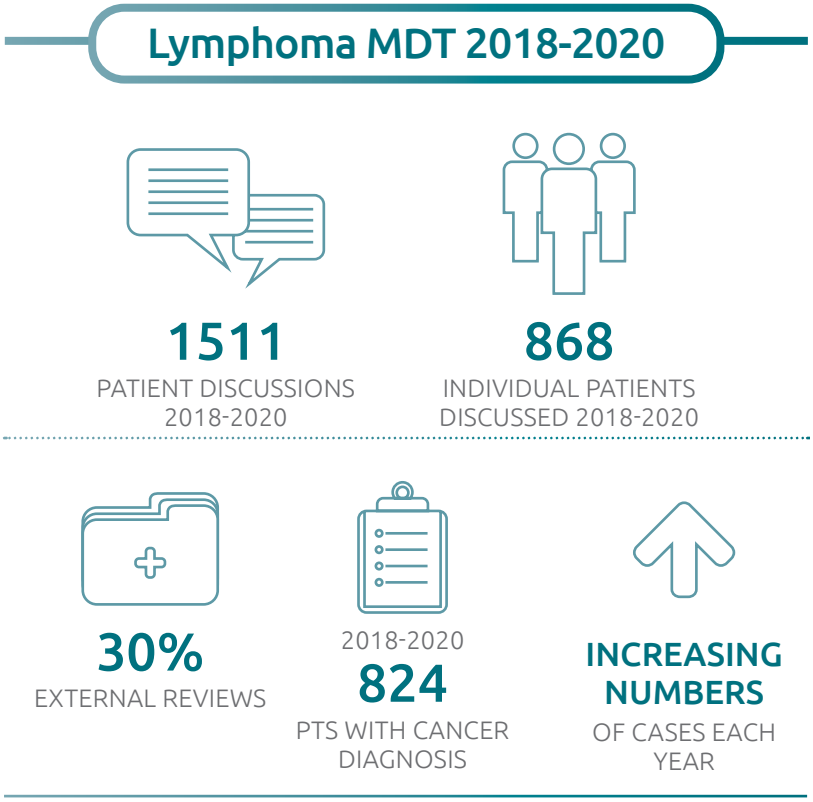
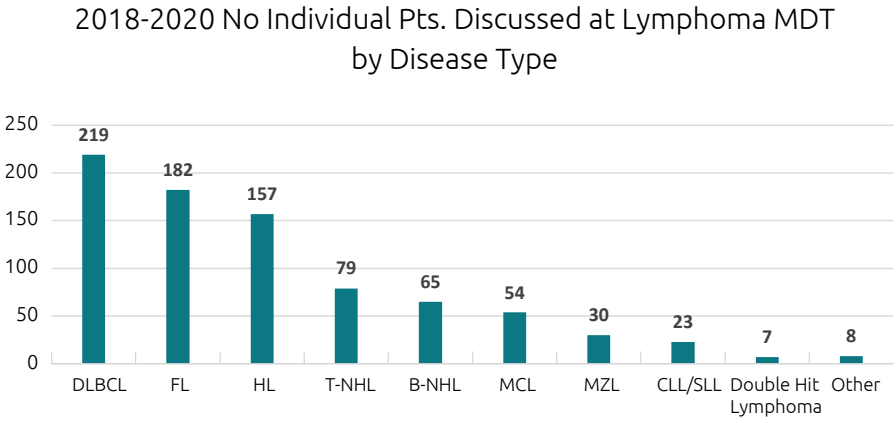


Figure 2.1.7: Snapshot of numbers of individual patients with Lymphoma discussed at MDT. Many patients are discussed on more than one occasion at MDT.



HaemPath MDT 2018-2020

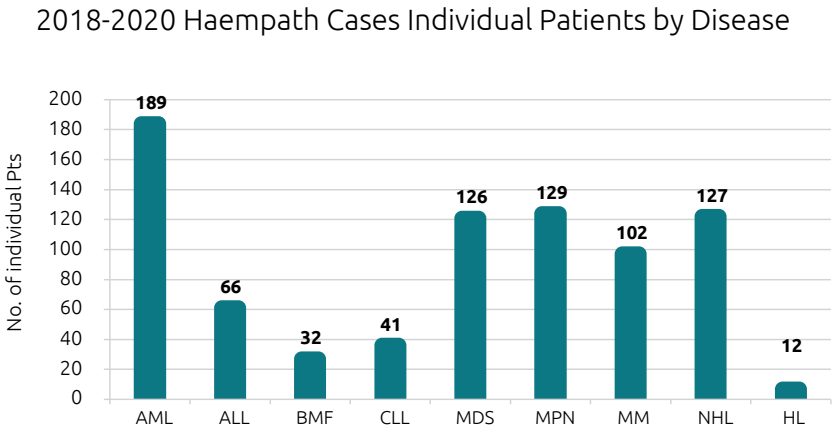
2,154
PATIENT DISCUSSIONS

1,096
INDIVIDUAL PATIENTS

2018-2020
926
PTS WITH CANCER DIAGNOSIS

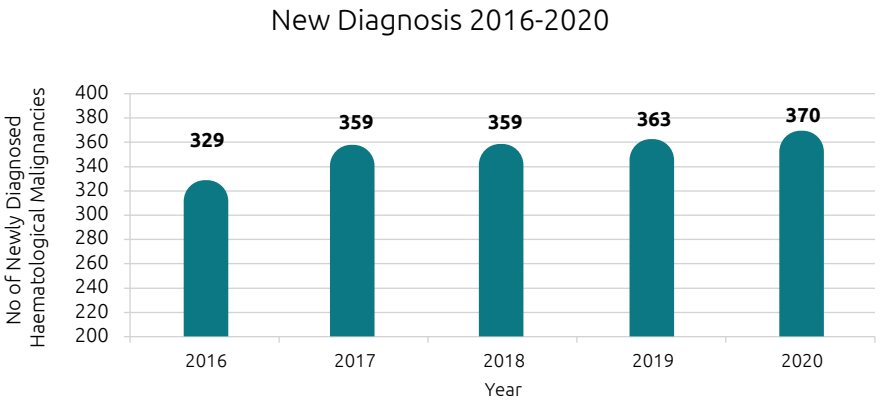
INCREASING NUMBERS
OF CASES EACH YEAR

Figure 2.1.8: Snapshot of numbers of individual patients with blood cancers and haematological malignancies discussed at haempath MDT from 2018-2020. Many patients are discussed on more than one occasion.



There were 1092 (average 364 per annum) individual patients with newly diagnosed haematological malignancies attending St. James's hospital from 2018 -2020 either as inpatients or managed through the Day Care Centre. The graph below shows number of newly diagnosed patients over the past 5 years.

Figure 2.1.9: Newly Diagnosed Patients in Calendar Year



Leukaemia's and Myeloproliferative Neoplasms

The myeloid malignancy service encompasses the care of patients diagnosed with acute myeloid leukaemia, myelodysplastic syndromes (low and high risk) and myeloproliferative neoplasms. The national incidence of these diseases is not comprehensive and our group is working with the Blood Cancer Network Ireland and the Irish cancer society to collect improved national data.

The myeloid service also looks after a group of patients with less common inherited and acquired bone marrow failure syndromes.

Myeloid malignancies are cancers of the bone marrow and arise de-novo or as a result of transformation of an existing myelodysplastic syndrome or myeloproliferative neoplasm. They can also arise in patients who have received immunotherapy, chemotherapy or radiation treatment for a previous solid organ neoplasm or immunodeficiency.

These patients are diagnosed following detection of a cytopenia in general practice or following presentation to SJH via another speciality including the Accident and Emergency Department with a cytopenia or related condition. The clinical and laboratory haematology service are linked, and the cytopenias are detected in the laboratory and further investigations are arranged with referring clinicians. Where high suspicion of a haematological malignancy is considered, these patients are seen promptly in a haematology clinic. In addition, referrals are frequent from national haematology centres on patients who may request a second opinion or consultation regarding the benefits of an allogeneic stem cell transplant. Transplant referrals are also received from the Northern Ireland health service for unrelated allogeneic transplants in myeloid disorders.

All new diagnoses of myeloid malignancies are reviewed at our Haematopathology Meeting which is held weekly, and plans are underway to establish a formal Myeloid MDT.

The myeloid malignancy service can be divided into inpatient and outpatient services.

Inpatients include patients having intensive chemotherapy for acute myeloid leukaemia and high-risk myelodysplastic syndrome diagnosed in St James or referred from Tullamore, Limerick or Waterford. In addition, we look after patients who have infective complications following outpatient treatment

Outpatient treatments are more common for older patients or those patients ineligible for an allogeneic transplant. These patients may require venesection or receive a variety of sub-cutaneous and intravenous treatments in the day ward facility, these include azacytidine and transfusions of blood and platelets. Self-administered treatments and oral chemotherapy are supervised during regular outpatient visits. Common self-administered treatments include includes growth factor support, interferon and oral chemotherapy including hydroxycarbimide, tyrosine kinase inhibitors, ruxolitinib, anegrelide and busulphan.

Figure 2.1.10. Breakdown of leukaemia diagnosis 2018-2020

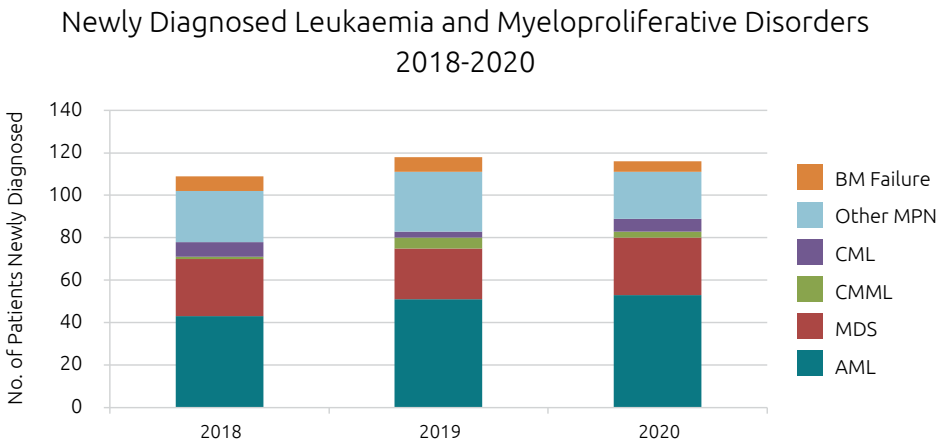
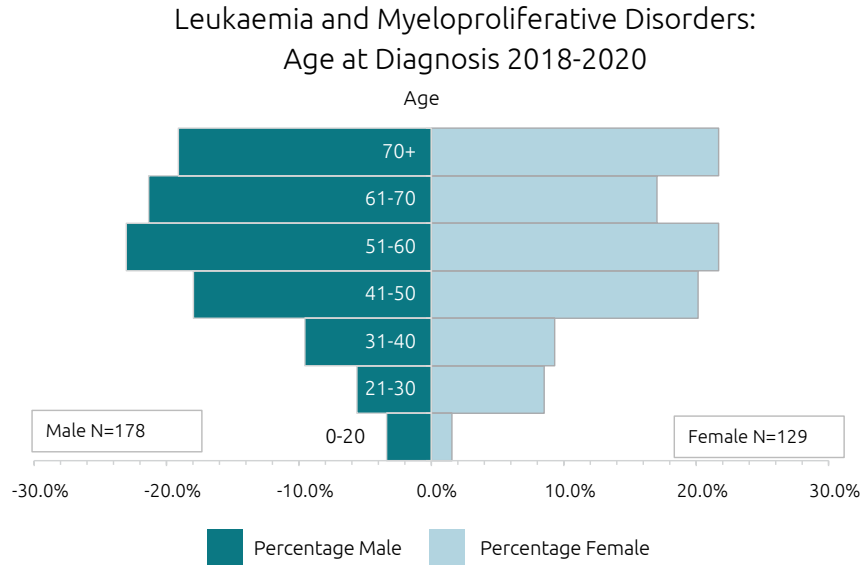


Figure 2.1.11. Breakdown of leukaemia age at diagnosis 2018-2020



Lymphomas and Lymphoproliferative Disorders

Lymphomas are cancers of the immune system, and approximately 900 new cases are diagnosed in Ireland every year. The diagnosis of lymphomas is complex because more than 50 sub-types of lymphoid malignancies have been identified, each requiring a specific treatment approach based on multi-disciplinary specialist diagnostics including, haematopathology flow cytometry, molecular diagnostics and radiology. Treatment pathways are complex and include surveillance without treatment, chemotherapy, antibody treatment, radiation and stem cell transplantation.

To help to ensure that each patient receives appropriate treatment, all patients with lymphomas are reviewed at a weekly Multi-Disciplinary Meeting (MDM). Over 300 patients are discussed at the MDM annually, including patients from the Midlands Regional Hospital Tullamore, University Hospital Waterford, and University Hospital Limerick.

The accurate and timely treatment of lymphomas is important. They constitute the most common cancer in young people and are often associated with a high cure rate if an accurate and timely diagnosis is made, and appropriate treatment is initiated. Many people with low-grade lymphomas survive with intermittent treatment and a relatively normal lifestyle and lifespan; it is estimated that 20% of patients with low-grade lymphoid malignancies will eventually die of their disease. This suggests that many thousands of patients are under the care of lymphoma specialists in Ireland, making it one of the most common cancers managed in cancer centres.

Figure 2.1.12. Breakdown of lymphoma diagnosis 2018-2020

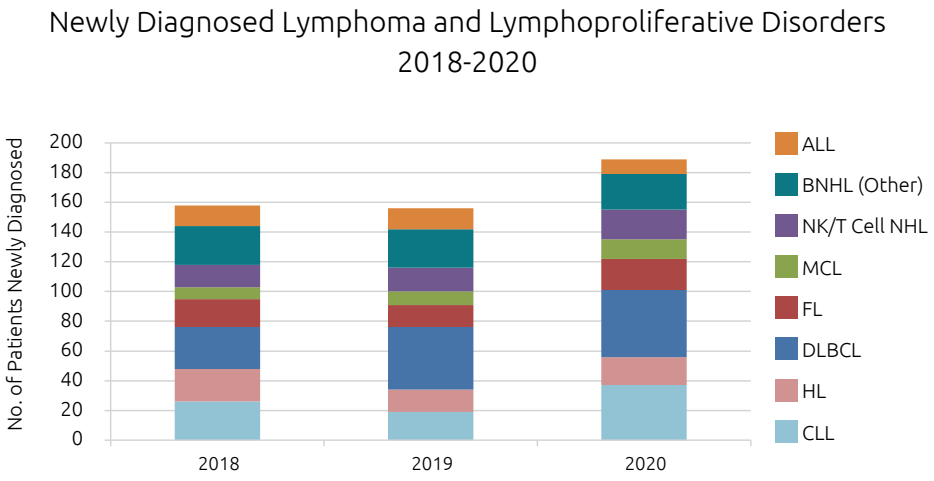
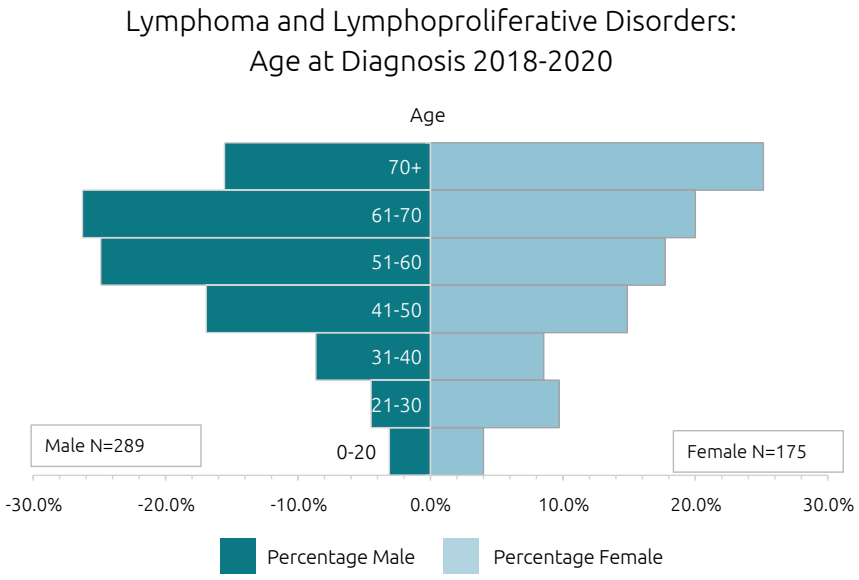


Figure 2.1.13. Breakdown of lymphoma age at diagnosis 2018-2020



Myeloma and Plasma Cell Disorders

Myeloma is a malignancy of plasma cells. These are the cells of the immune system that normally produce antibodies to protect us against infection. Patients with myeloma commonly present to their general practitioners with bone pain and fatigue. Laboratory tests to investigate these symptoms may reveal anaemia and damage to the kidneys. X-rays often show fractures.

Myeloma is commonly diagnosed in older people. The average age at diagnosis is approximately 70 years. The incidence of myeloma in Ireland is approximately 5 per 100,000 per year. There are, therefore, about 240 patients diagnosed with myeloma annually in Ireland.

The treatment of myeloma has greatly improved over the last 15 years, and it is considered one of the success stories of modern cancer treatment. New types of drugs have been developed, including proteasome inhibitors such as bortezomib (Velcade) and immune-modulatory drugs such as lenalidomide (Revlimid). These are now in widespread use in Ireland, allowing patients to live much longer with the disease. Many patients diagnosed this year can expect to live for a decade, if not longer.

The Haematology Service at St. James's Hospital is the largest in Ireland and includes the National Adult Stem Cell Transplant Centre. There is a dedicated Myeloma Service, which looks after patients with a range of plasma cell disorders, including symptomatic myeloma, solitary plasmacytomas, light chain amyloidosis and monoclonal gammopathy of uncertain significance. There are currently over 70 patients with myeloma and amyloidosis attending our clinic.

There is a Myeloma Clinic each week and another for Myeloma Transplantation Counselling.

Figure 2.1.14. Breakdown of Myeloma diagnosis 2018 -2020

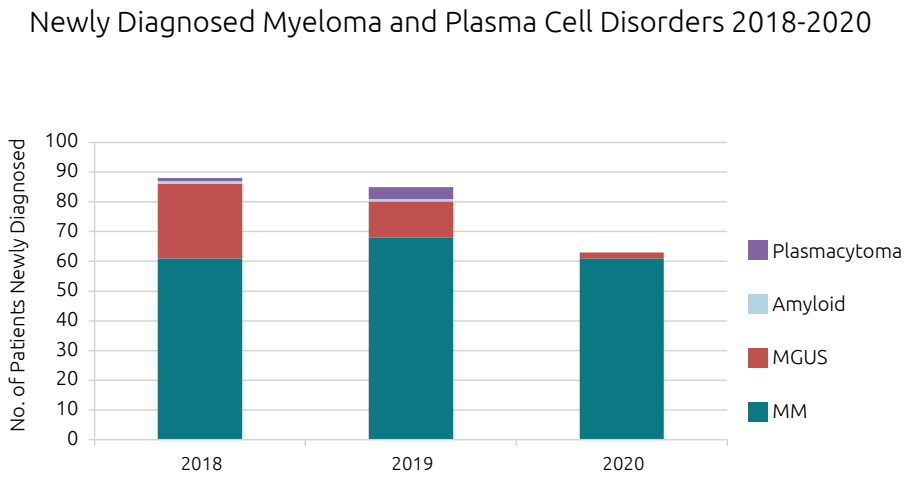
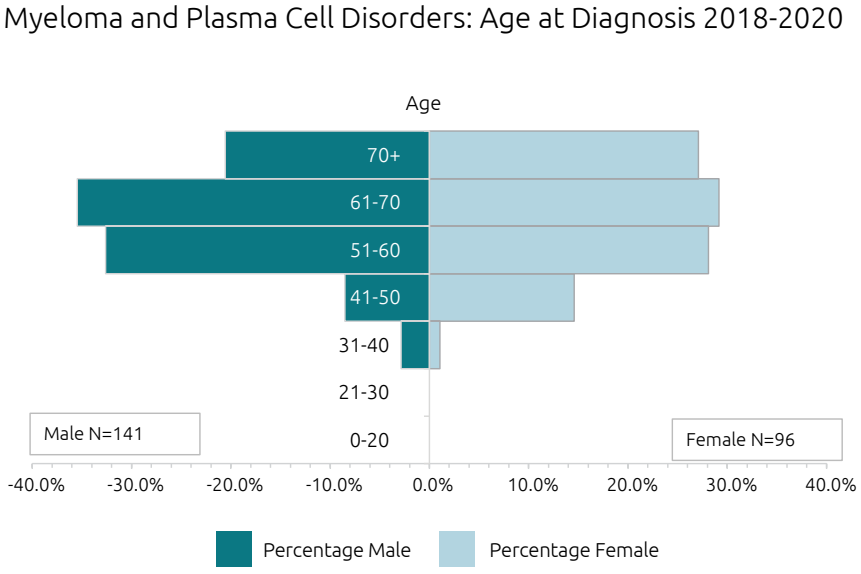


Figure 2.1.15. Myeloma and Plasma cell disorders new diagnosis 2018 -2020



BMT Service

The Stem Cell Transplantation (SCT) Service in St. James's Hospital was founded in 1984 and has since performed more than 2500 stem cell and bone marrow transplants. The service oversees transplants in about 160 patients each year. The SCT Unit includes the National Adult Allogeneic Transplant Programme, (allogeneic transplant means using stem cells from a family member or an unrelated matching donor), and an Autologous Stem Cell Transplant Program, (autologous transplant means using your own stem cells). The service is currently the third largest SCT unit in the United Kingdom and Ireland. It is affiliated with the European Blood and Marrow Transplantation (EBMT) Registry, and it reports all outcomes to the registry and takes part in EBMT research projects.

In 2018 the BMT unit applied for accreditation under the Joint Accreditation Committee ISCT-Europe & EBMT (JACIE) and an onsite inspection took place in November 2018.

Stem cell transplants are used to treat and cure many types of haematological, or blood-related, malignancies such as leukaemia, lymphoma or multiple myeloma as well as rare solid-organ tumours. In stem cell transplantation, healthy stem cells are transplanted from one individual to another. Alternatively, the individual's own stem cells are used. Sources of stem cells include bone marrow and peripheral blood, meaning blood circulating throughout the body. The procedure is referred to as a bone marrow transplant (BMT) or peripheral blood stem cell transplant (PBSCT), depending on the source of the cells that are transplanted.

In order to identify potential donors, the transplant unit works closely with the Tissue Typing Service and the Irish Unrelated Donor Registry (IUBMR), based at the Irish Blood Transfusion Service. It also holds joint SCT planning meetings with paediatricians in the National Paediatric Transplant Unit at Our Lady's Children's Hospital, Crumlin.

The SCT Service is led by six transplant trained-haematology consultants who each have specific sub-specialist interests and sit on the relevant working parties of the EBMT. The service is delivered by a Multi-Disciplinary Team (MDT). This consists of a group of doctors, clinical nurse specialists and other health professionals, including pharmacists and laboratory scientists, who specialize in stem cell transplantation. They discuss and manage the patient's care. The SCT Service is supported by the Apheresis Unit, where stem cells are collected, and a Stem Cell Laboratory that has facilities for cryopreservation, or cell storage. (A liquid nitrogen facility is used for the long-term storage of patients' stem cells).

Stem cell transplantation is carried out in a specialist 21-bed HEPA-filtered unit on Denis Burkitt Ward. The unit is managed by a clinical nurse manager, with a staff of SCT-trained nurses. Specialist support is provided by a team that includes dieticians, physiotherapists, a medical social worker and other medical/surgical teams, as required. Post-transplant care is delivered through the Haematology Oncology Day Care (HODC) Unit, supervised by a clinical nurse manager and specialist haematology nurses.

The Bone Marrow Leukaemia Trust (BMLT) is a charity founded in 1983 to support the SCT Service. It provides direct support for patients and their relatives and especially recognizes the needs of those coming from outside Dublin. Over the last number of years, the BMLT has provided and managed apartments near St. James's Hospital for patients and their families in the first crucial weeks of adapting to life after transplantation. It has also donated equipment, training and staff salaries.

Transplant Survivorship

AUTOLOGOUS TRANSPLANT PATIENT FROM 1985

Male transplanted for Lymphoma still alive, survival

35 YEARS

ALLOGENEIC TRANSPLANT PATIENT FROM 1986

Female transplanted for ALL still alive, survival

34 YEARS

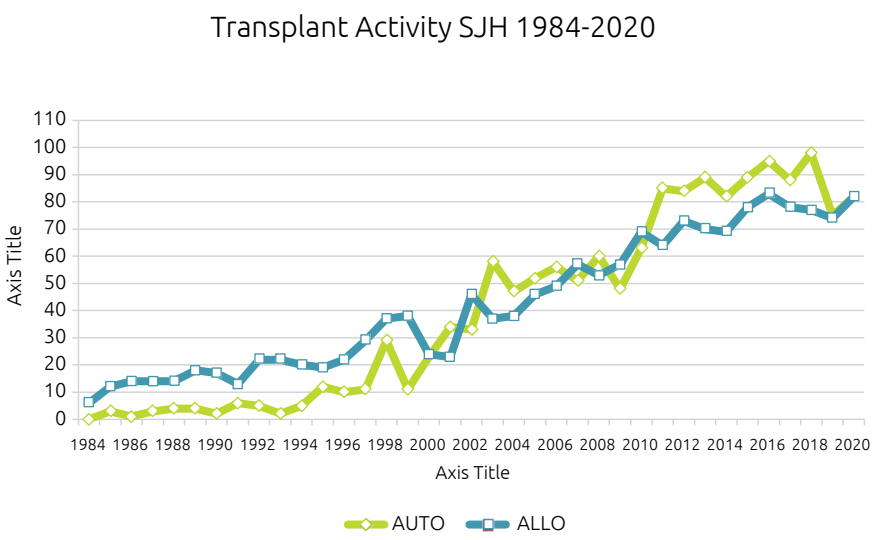
431

unique patients treated post transplant in late effects service in 2020

19

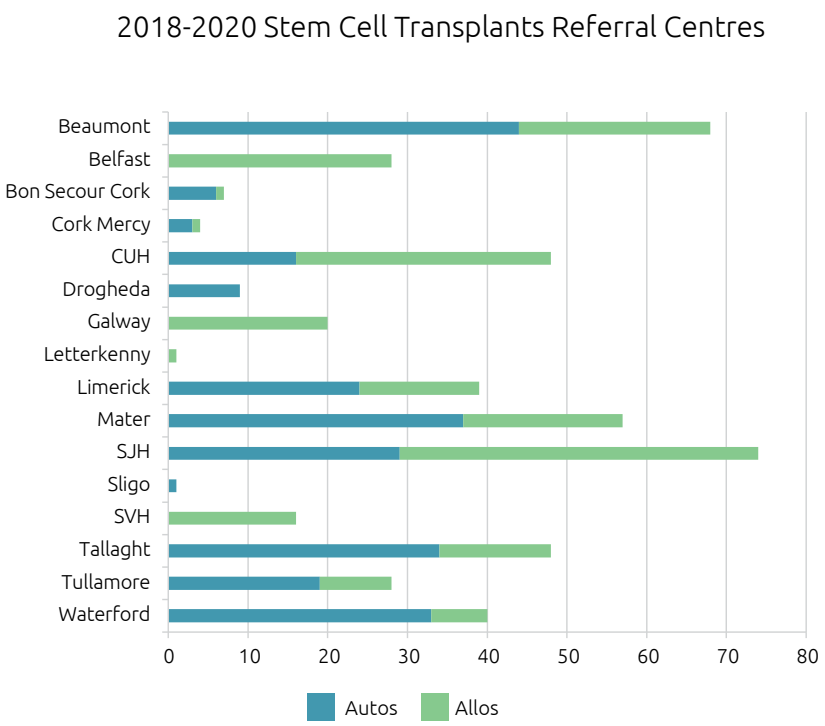
Allo patients transplanted between 1984 and 1990 are known to be still alive having a survival of 28-34 Years

Figure 2.1.16: Transplant Activity Trends 1984-2020



Transplant activity is increasing overall over time. Since 2003 activity transplant activity has increased by **72%** in 2020.

Figure 2.1.17: Referral Centres by Transplant Type in the last 5 years (2018-2020)



Autologous Transplants 2018-2020

There were 255 autologous transplants performed in the BMT unit between 2018 and 2020. Of these transplantation for Multiple Myeloma (MM) accounted for 59%. Other main transplant groups were Non Hodgkin Lymphoma (NHL), Hodgkin Lymphoma (HL) and Germ Cell tumours

Figure 2.1.18: Autologous Transplants 2018-2020

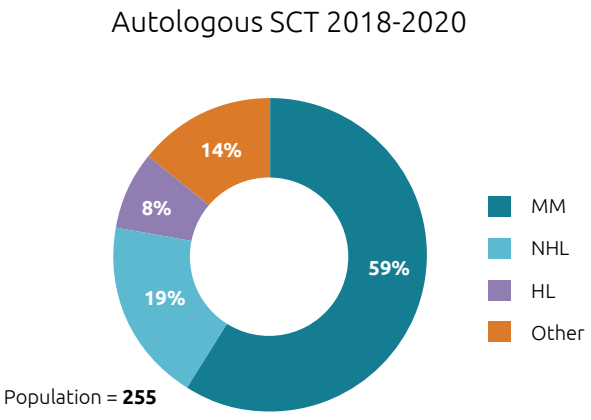
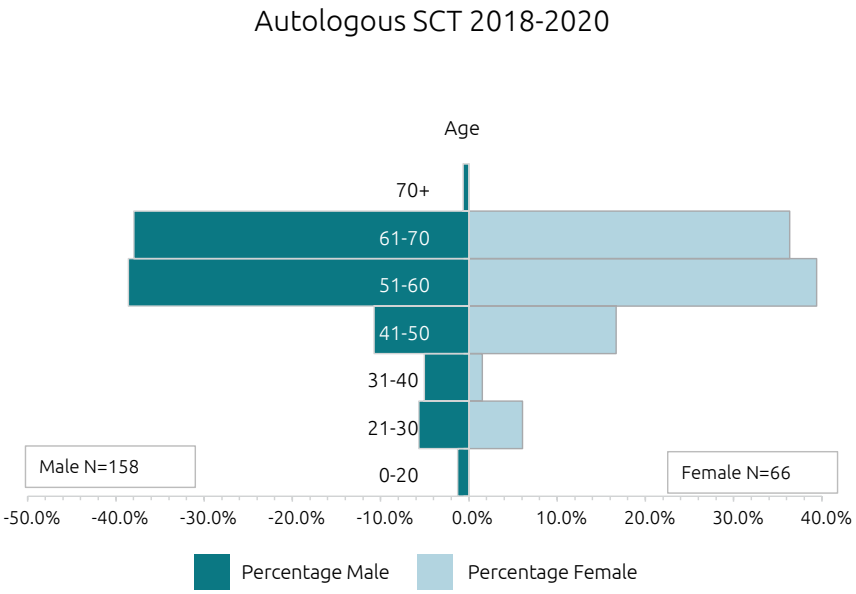


Figure 2.1.19: Autologous SCT 2018-2020



Allogeneic Transplants 2018-2020

There were 233 allogeneic stem cell transplants performed in the BMT unit between 2018 and 2020. There were 94 myeloablative and 134 reduced intensity transplants completed.

Figure 2.1.20: Allogeneic Transplants 2018-2020

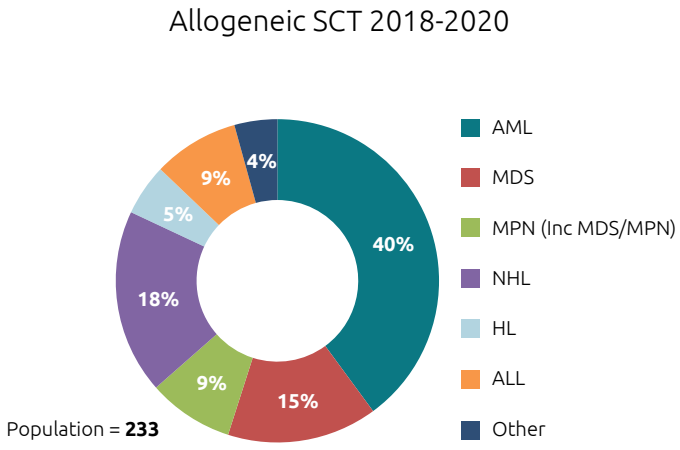
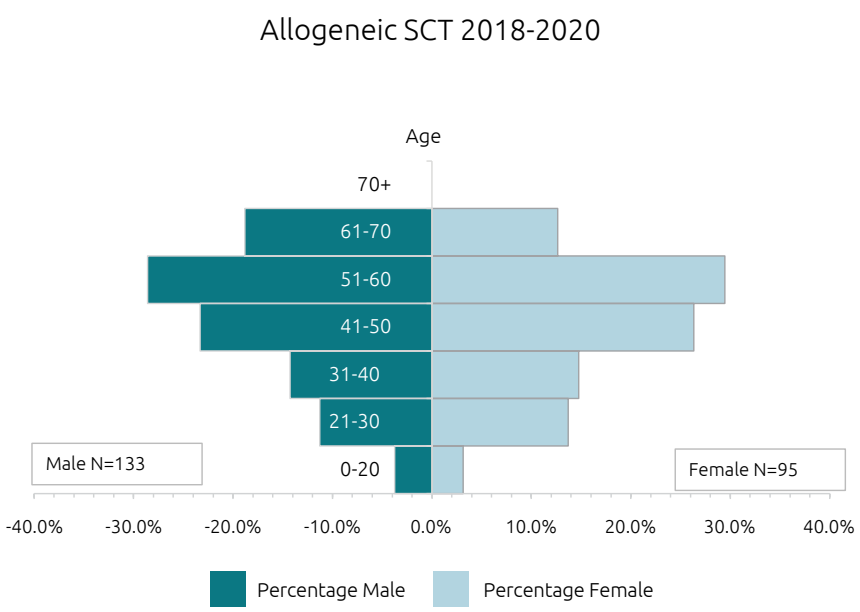


Figure 2.1.21: Allogeneic SCT 2018-2020



94
Full Intensity Myeloablative (MA) Transplants

139
Reduced Intensity Conditioning (RIC) Transplants

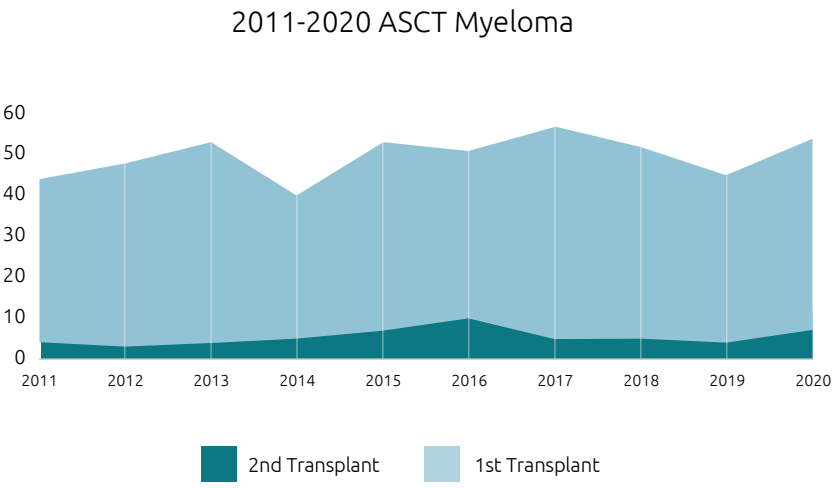
88
Related Donor Transplants

145
Matched Unrelated Donor Transplants

Survival Analysis

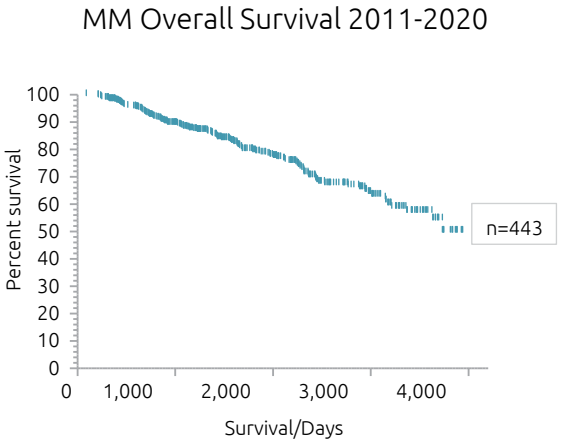
Myeloma Autologous Stem Cell Transplant

Figure 2.1.22: Myeloma 1st and 2nd Autologous SCT 2011-2020



497 patients underwent ASCT for Myeloma at SJH from 2011-2020, 443 upfront and 54 as a second transplant. Stem cell mobilisation was Cyclophosphamide+ G-CSF in almost all cases. Median age at transplant was 59yrs (29-71yrs). Overall survival for this first transplant is 50% and the 5 Year Survival for this cohort is 79%.

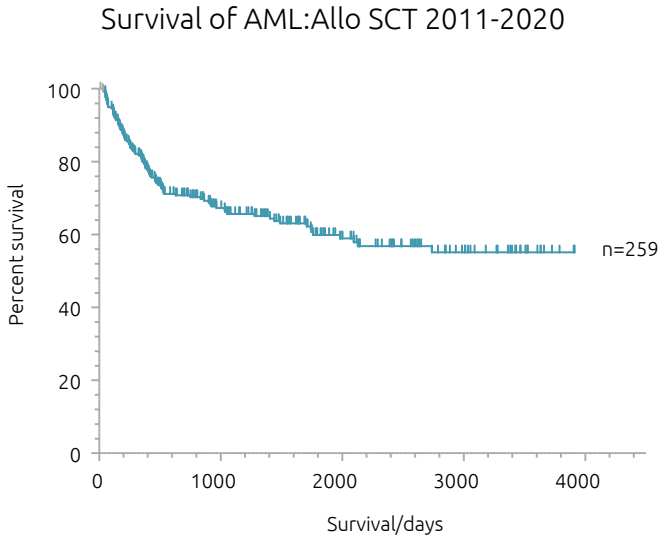
Figure 2.1.23: Survival of Myeloma patients post Autologous SCT



Acute Myeloid Leukaemia (AML)

From 2011-2020, 259 patients received Allogeneic stem cell transplant as part of treatment for AML. Of these 127 were myeloablative and 132 were reduced intensity. Overall survival for AML transplants is 55%. 5-year survival is 60%. The median age at transplant was 45yrs (16-69yrs). Of the transplants performed 165 had a related donor and 136 had a matched unrelated donor.

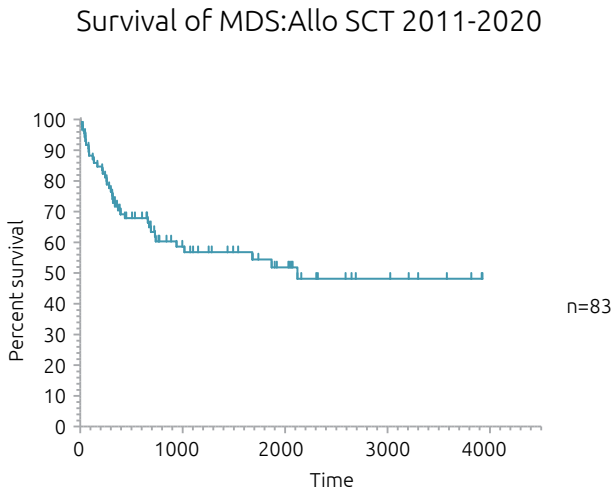
Figure 2.1.24: Survival of AML transplant patients post allogeneic transplant



Myelodysplastic Syndrome (MDS)

From 2011-2020 85 patients received an allogeneic stem cell transplant. Overall survival is 48% for this group. Median age at transplant was 57yrs (17-68yrs). Of the transplants performed 30 had a related donor and 55 had a matched unrelated donor.

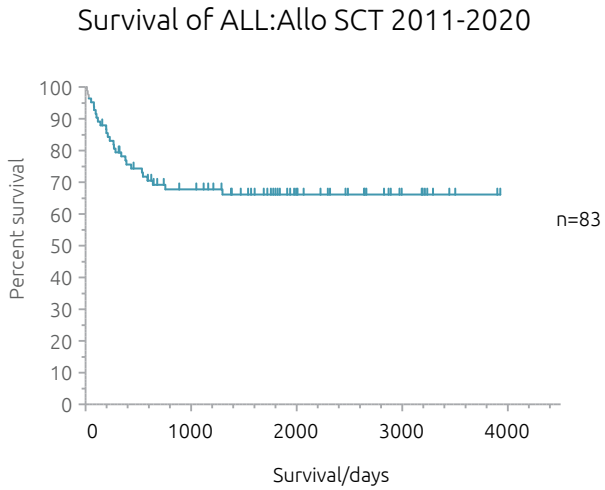
Figure 2.1.25: Survival of Patients Transplanted with MDS 2011-2020



Acute Lymphoblastic Leukaemia

From 2011-2020, 83 patients received an allogeneic stem cell transplant for ALL. Overall survival and 5-year survival for this group is 66%. The majority of transplants were performed using Cy/TBI conditioning. The median age at transplant was 36 yrs (16-61yrs). 48 patients were male and were 35 female.

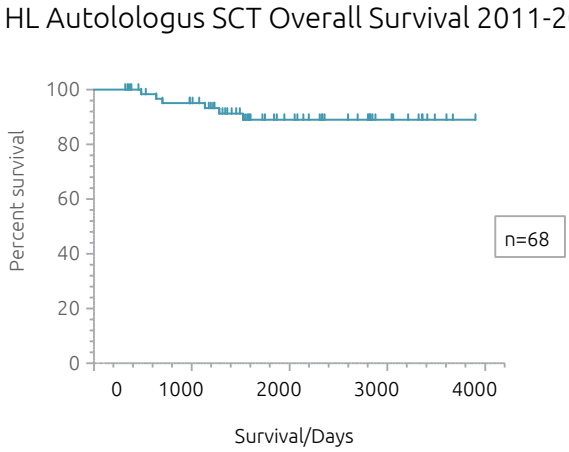
Figure 2.1.26: Survival of ALL transplant patients post allogeneic transplant



Hodgkin's Lymphoma (HL)

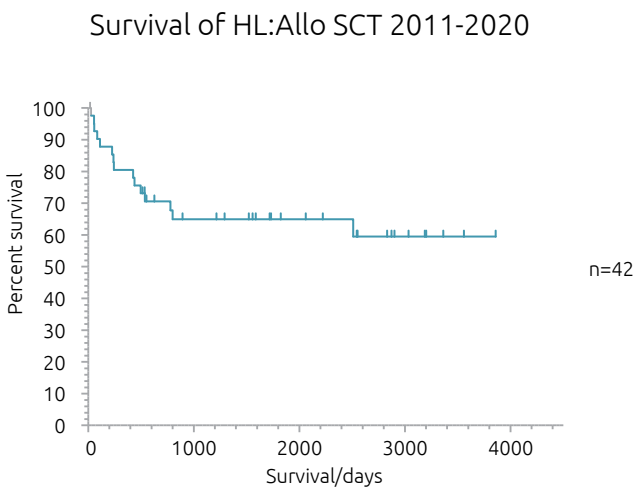
From 2011-2020 there were 68 autologous transplants performed. Overall survival is 89%. 5year survival for the cohort is 89%. Median age at transplant was 30yrs (17-69yrs).

Figure 2.1.27: Survival of HL transplant patients post autologous transplant



From 2011-2020, 42 patients received allogeneic transplant as part of treatment for Hodgkin's Lymphoma. Overall survival is 60%- and 5-year survival is 65% for this cohort. Median age at transplant was 30yrs (17-63yrs).

Figure 2.1.28: Survival of HL transplant patients post allogeneic transplant



Mantle Cell Lymphoma

- Pre-2010: Auto in CR/PR1 or CR2 unsuitable for allo-SCT
- Allogeneic SCT in >CR1, consider in blastic MCL in CR1

From 2002-2016 there were 47 autologous transplants and 9 allogeneic transplants performed. Overall survival of the autologous cohort is 64% and 5-year survival is 80%. Median age at transplant for autologous group was 59yrs (37-68yrs).

Figure 2.1.29: Mantle Cell Lymphoma Survival Autologous SCT majority with Nordic Protocol

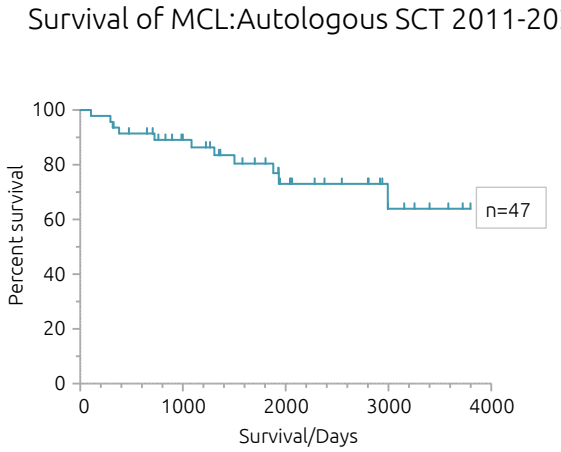
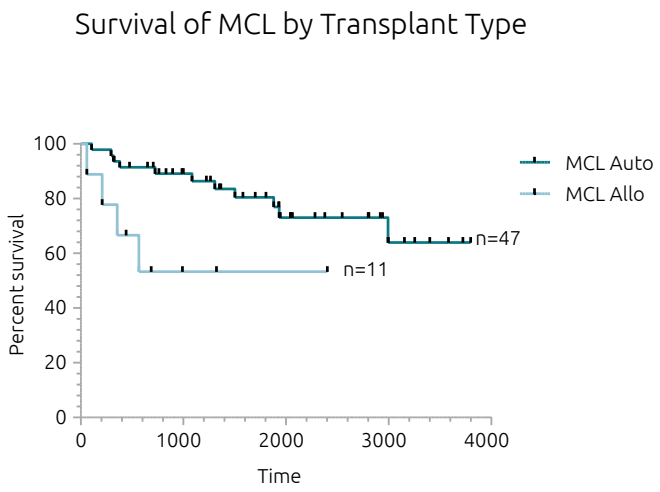


Figure 2.1.30: Mantle Cell Lymphoma Survival by transplant type 2010-2016



Abbreviations

ALL:	Acute Lymphoblastic Lymphoma
Allos:	Allogeneic Transplants
Autos:	Autologous Transplants
BMF:	Bone Marrow Failure
BMT:	Bone Marrow Transplant
BNHL:	B Cell Non-Hodgkin's Lymphoma
CLL:	Chronic Lymphocytic Leukaemia
CMD:	Cancer Molecular Diagnostics
CML:	Chronic Myeloid Leukaemia
CMML:	Chronic Myelomonocytic leukaemia
CR:	Complete Remission
Cy/Tbi:	Cyclophosphamide and total body irradiation
DLBCL:	Diffuse Large B Cell Lymphoma
EBMT:	European Group for Blood and Marrow Transplantation
ESCCA:	European Society for Clinical Cell Analysis
FL:	Follicular Lymphoma
HEPA filter:	High-Efficiency Particulate Air filter
HL:	Hodgkin's Lymphoma
HODC:	Hematology Oncology Day Care
IUBMR:	Irish Unrelated Bone Marrow Donor Registry
JACIE:	Joint Accreditation Committee ISCT-Europe
MA:	Myeloablative
MCL:	Mantle Cell Lymphoma
MDM:	Multi Disciplinary Meeting
MDS:	Myelodysplastic Syndrome
MDT	Multi Disciplinary Team
MGUS:	Monoclonal Gammopathy of Undetermined Significance
MM:	Multiple Myeloma
MPN:	Myeloproliferative Neoplasm
MZL:	Marginal Zone Lymphoma
NK/ TNHL:	Natural Killer/T Cell Non-Hodgkin's Lymphoma
PBSCT:	Peripheral Blood Stem Cell Transplant
PCD:	Plasma Cell Disorders
PR:	Primary Refractory
RIC:	Reduced Intensity Conditioning
SCT:	Stem Cell Transplant
SLL:	Small Lymphocytic Leukaemia

2. Breast Cancers

St. James's Hospital Breast Unit was designated as one of the eight specialist centres for Symptomatic Breast Disease Services in Ireland by the NCCP in 2007. This has led to an increase in our catchment area size and has resulted in a large increase in referrals into the service over the past number of years.

The Breast Care Unit at SJH provides services to patients with symptomatic breast disease, including breast cancer. The specialist breast MDT includes surgeons (Professor Liz Connolly, Mr Dhafir Alazawi, Mr Terry Boyle), radiologists (Dr Sylvia O'Keeffe, Dr Susannah Harte, Dr Mark Knox, Dr Ronan McDermott), pathologists (Dr Barbara Dunne, Dr Ciaran O' Riain, Dr Lisa Merrick), medical oncologists (Dr Ciara O Halloran Browne, Dr Cathy Kelly, Dr Grainne O Kane, Prof John Kennedy, Dr Sue Sukor), radiation oncologists (Dr. Fran Duane, Dr Sinead Brennan), geneticists (Prof David Gallagher, Dr Karen Cadoo), plastic surgeons (Ms Claragh Healy, Dr David O'Donovan), advanced nurse practitioners (Yvonne Hanhauser, Maeve Stenson), candidate advanced nurse practitioner (Caroline Spillane), specialised breast care nurses (Alison O' Driscoll, Niamh Byrne, Olive Merrigan, Fiona Lynch, Siobhan Ni Chinneide) and radiologist nurses (Sonia Thomas, Shalini Varghese). This team work together in order to ensure patients are seen and investigated promptly and once diagnosed, receive the highest quality of individually planned treatment and care.

As well as the Symptomatic breast service the Breast Care unit in SJH provides a high risk surveillance programme to women at increased risk of breast cancer either due to a family history of this disease or other such risk factors e.g. previous high dose radiation exposure. This high risk clinic involves using scoring systems based on their family history to identify those who require intensive breast surveillance and or genetic testing which can be done on site by Prof David Gallagher and Dr Karen Cadoo. Depending on the level of risk identified these patients are entered into a surveillance programme using a combination of clinical exam, Mammogram and with the addition of breast MRI in those with identified high risk mutations e.g. BRCA1/BRCA 2 gene or equivalent risk.

We also discuss the option of prophylactic mastectomy and immediate reconstruction with the gene positive women. There is a high risk breast cancer MDT run monthly which includes surgeons, radiologists, a geneticist, genetic nurse counsellors and breast care nursing team.

SJH Breast Service includes:

- Consultant led triple assessment, review clinic, diagnosis clinics, post-operative clinic, and family risk clinics.
- Prompt access to all required diagnosis services and treatments.
- A team of specialist breast care nurses who are available to answer patient queries or concerns directly.
- Weekly MDT meetings, where each patient's management plan is discussed and agreed.
- Monthly High risk breast cancer MDT for discussion of those patients with strong family histories of breast cancer.
- Direct referral service to specialist medical oncologists, radiation oncologists, breast reconstructive surgeons, specialist genetic service and a well-established psycho-oncology service.
- Access to a range of physical and psychological support services.
- Dedicated genetic risk assessment and counselling service.

Breast Cancer trends

This report examines the details of 953 patients with breast cancer managed at SJH from 2018 to 2020. There was an 18% increase in the number of patients diagnosed with breast cancer in 2019, compared with 2013.

Figure 2.2.1 Cancer diagnosis 2018 – 2020 (n=953)

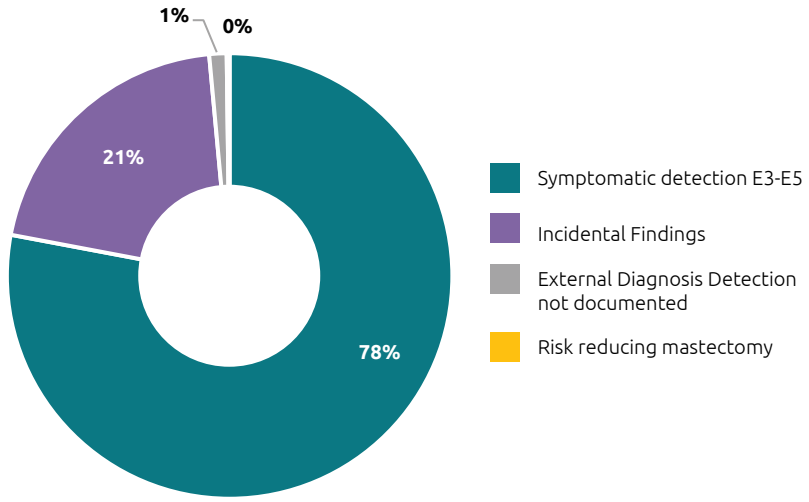
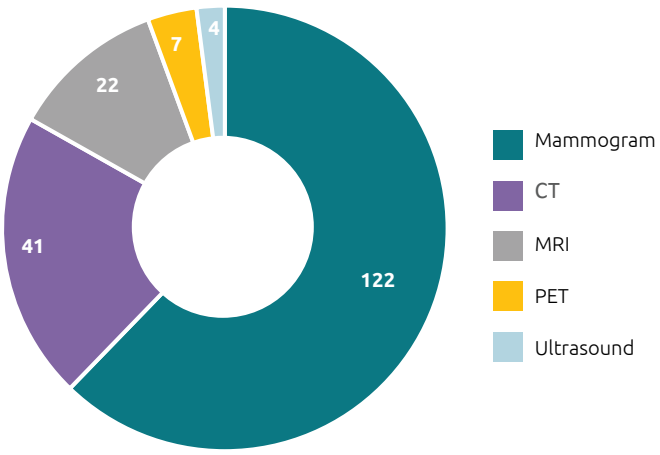
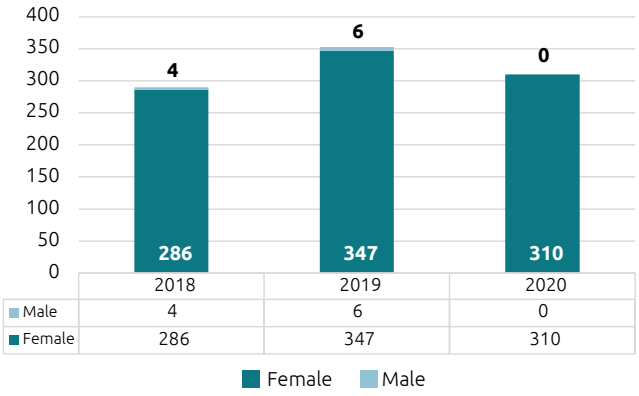


Figure 2.2.2 Screen detection mode 2018 – 2020 (n=196)



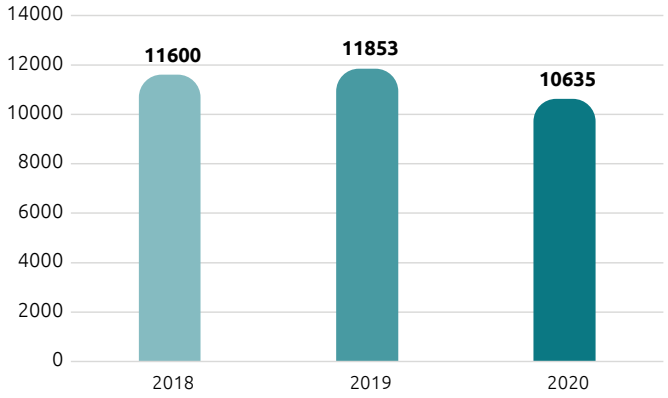
Of those that were screening detections, 39 were either Family risk or return patients on surveillance.

Figure 2.2.3 Breast Cancer 2018-2020 by gender



Total attendances to the Breast Care Department (Symptomatic Service, Family Risk & Nurse led clinics) have increased 25% since 2013. Triple Assessment Clinics for urgent referrals continued in person throughout 2020, initially with a reduced capacity, due to COVID restrictions.

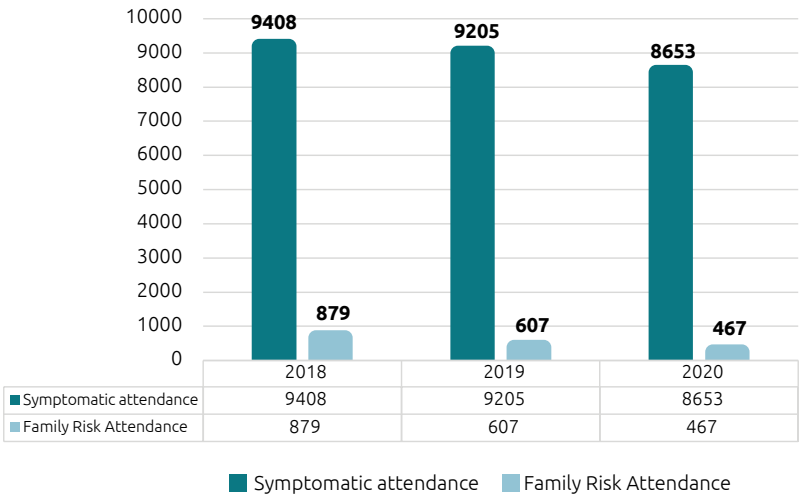
Figure 2.2.4 SJH Breast Clinic Activity 2018 - 2020



Family Risk clinic activity

From 2018 the high-risk service are mainly seeing those patients with high risk mutations such as BRCA mutation carriers or patients with history of Mantle radiation. The lower risk groups are referred direct to mammogram from primary care.

Figure 2.2.5 Attendances to Symptomatic and Family History / Clinic Type

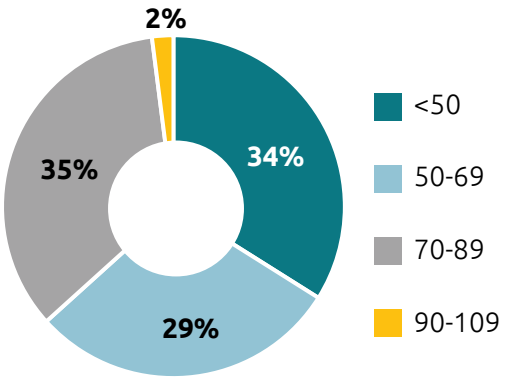


Age and gender

In keeping with the previous five-year report (2013-2017) 99% of patients were female and 1% male. The average age at diagnosis was 60 years (range 25 – 99). Figure 2.2.6 shows female breast cancer age at diagnosis.

BreastCheck is the national breast cancer screening programme for all women aged 50 – 69. For patients diagnosed 2018 – 2020, 29% were of BreastCheck age compared with 34% in the previous five-year report (2013 – 2017). Those aged under 50 at age of diagnosis made up 34% in both 2018 -2020 and 2013 – 2017. Patients aged 70 and over were 37% of those diagnosed from 2018 – 2020 compared with 33% in 2013 – 2017.

Figure 2.2.6 Female Breast cancer age at diagnosis 2018 – 2020 (n=943)



Surgery

Figure 2.2.7 Surgery analyses of breast cancer patients

	N	Breast Conserving Surgery	Mastectomy
2018 Primary Surgery	132	87	46
		66%	35%
2018 Post Neo-adjuvant Surgery	112	55	57
	45%	49%	51%
2019 Primary Surgery	191	121	80
		63%	42%
2019 Post Neo-adjuvant Surgery	111	59	57
	31%	53%	51%
2020 Primary Surgery	169	107	65
		63%	38%
2020 Post Neo-adjuvant Surgery	83	40	43
	27%	48%	52%

Reconstruction and risk reduction surgery

Reconstruction and risk reduction surgery is provided in conjunction with the Plastic Surgery service.

Figure 2.2.8 – reconstruction surgery performed 2018 – 2020 (n=112)

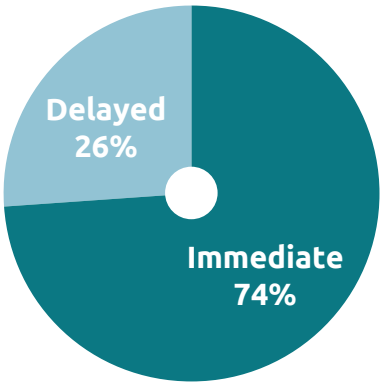


Figure 2.2.9 – type of reconstruction surgeries performed 2018 – 2020 (n=112)

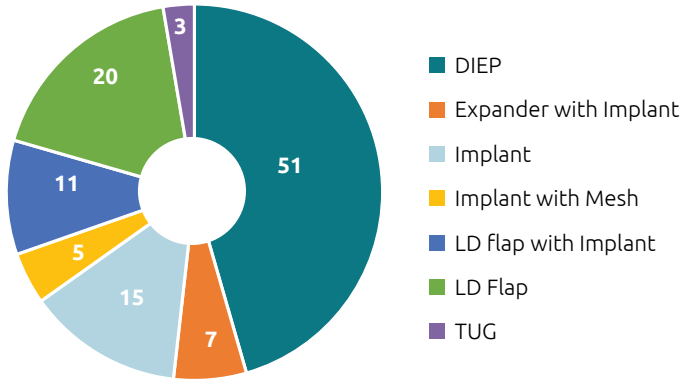
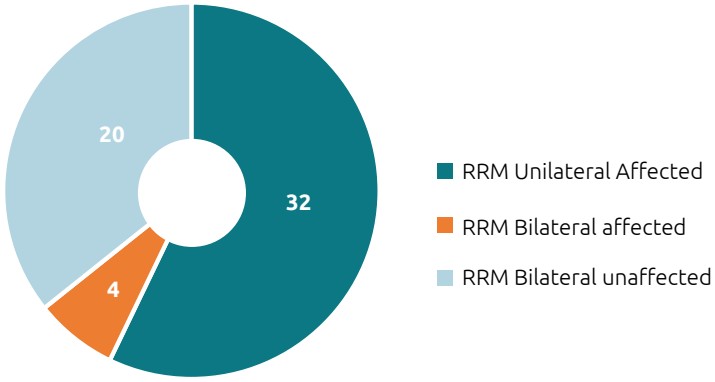


Figure 2.2.10 –risk reducing surgeries performed 2018 – 2020 (n=56)



Pathological staging

The pathological stage for all breast cancers post primary surgery and post neo adjuvant treatment for patients diagnosed 2015 – 2019 is shown in table 2.2.1.

Stage I breast cancer is the most common stage post primary surgery. Following neoadjuvant therapy, approximately 22 percent of patients achieved a complete pathological response, compared with 21 percent in the reported in the five-year report (2013 – 2017).

Table 2.2.1 Primary Surgery stage 2015 - 2019

Primary surgery 2015 - 2019		Percent	Post neo-adjuvant 2015-2019		Percent
Stage 0	74	9.49%	Stage 0	116	21.89%
Stage I	246	31.54%	Stage I	100	18.87%
Stage IA	91	11.67%	Stage IA	47	8.87%
Stage IB	31	3.97%	Stage IB	35	6.60%
Stage IIA	205	26.28%	Stage IIA	93	17.55%
Stage IIB	82	10.51%	Stage IIB	55	10.38%
Stage IIIA	37	4.74%	Stage IIIA	57	10.75%
Stage IIIB	5	0.64%	Stage IIIB	9	1.70%
Stage IIIC	7	0.90%	Stage IIIC	11	2.08%
Stage IV	2	0.26%	Stage IV	7	1.32%

Morphology and site

Invasive ductal carcinoma remains the most common morphology, accounting for 65% of all breast cancers (table 2.2.2).

Table 2.2.2 Breast Cancer Morphology

Morphology Type	Occurrences	Percentage
Ductal (NOS)	783	65.20%
DCIS-Non Invasive	228	18.98%
Lobular	108	8.99%
LCIS-Non Invasive	17	1.42%
Mucinous	17	1.42%
Papillary	11	0.92%
Paget's Disease	8	0.67%
Tubular /Cribiform	6	0.50%
Other *	23	1.92%
* Apocrine, Metaplastic, Adenocarcinoma, Adenosquamous carcinoma, Angiosarcoma, Malignant Phyllodes, Small cell carcinoma, Unknown external biopsy		

Table 2.2.3 Breast cancer Site

Location	Total
Upper Outer Quadrant	376
Upper Inner Quadrant	94
Lower Outer Quadrant	52
Lower Inner Quadrant	72
Central/Nipple Areolar	157
Axillary Tail	13
Multicentric	84
Multifocal	26
Null	103

Treatment

Figure 2.2.11 Breast Cancer Treatments 2018 – 2020

	ALL PATIENTS N=953	STAGE 0-STAGE III N=877	METASTATIC N=76
Surgery Only	4%	5%	0%
Primary Surgery	50%	54%	4%
Surgery post Neoadjuvant Therapy	33%	35%	11%
Neoadjuvant Chemotherapy	24%	25%	8%
Adjuvant Chemotherapy	14%	15%	3%
Primary Chemotherapy	3%	0.3%	37%
Neoadjuvant Endocrine Therapy	10%	11%	3%
Adjuvant Endocrine Therapy	52%	57%	1%
Primary Endocrine Therapy	6%	6%	5%
Adjuvant Radiotherapy	69%	75%	12%
Primary Radiotherapy	5%	2%	33%
External treatment	3%	3%	13%
No treatment	0.7%	0.7%	1%

Survival analysis

Overall breast cancer survival – patients diagnosed 2015 - 2019

Table 2.2.4 Survival outcomes in breast cancer cohort

Cohort size	Events	Median (years)	0.95 LCI	0.95 UCI
1599	274	NA	NA	NA

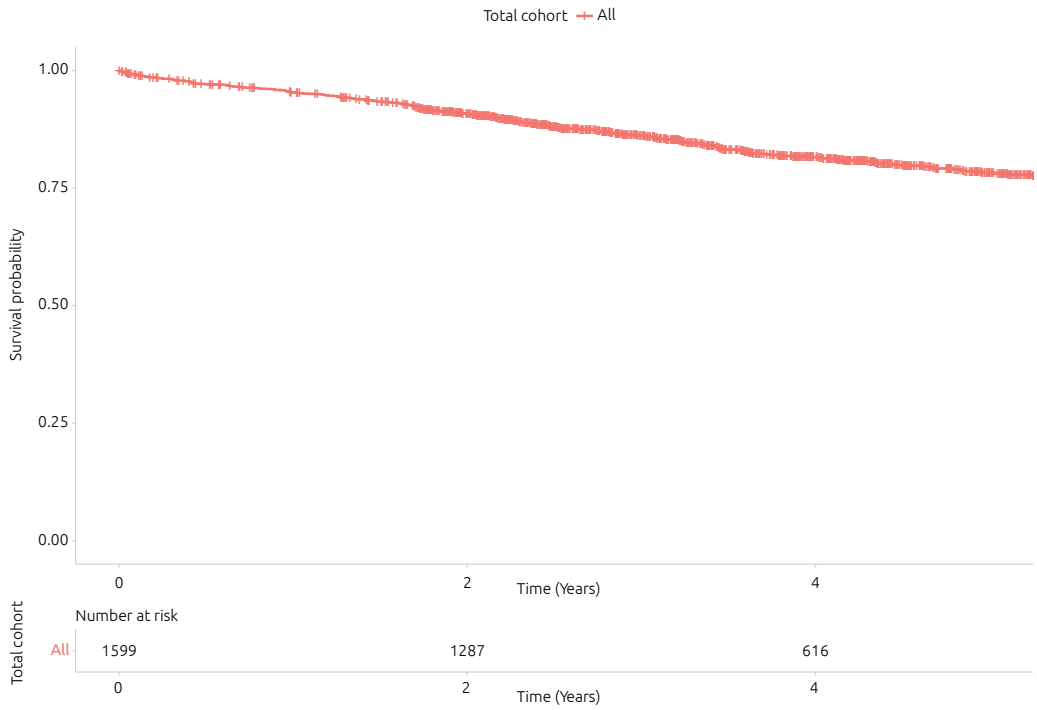
NA: not applicable; LCL: lower confidence interval; UCL: upper confidence interval

Table 2.2.5 Landmark OS analysis (full breast cancer cohort)

1-year OS	3-year OS	5-year OS
95.3% (95% CI 94.3, 96.4)	86.1% (95% CI 84.3, 87.9)	78.3% (95% CI 75.8, 80.9)

CI: confidence interval; OS: overall survival

Table 1.2.5



Breast Cancer Survival by pathological stage post neo adjuvant therapy – patients diagnosed 2015 - 2019

Table 2.2.6 Outcomes by pathological stage in breast cancer cohort

Disease stage	Cohort size	Events	Median (years)	0.95 LCI	0.95 UCI
Stage 0	116	8	NA	NA	NA
Stage I	182	10	NA	NA	NA
Stage II	148	24	NA	NA	NA
Stage III	77	20	NA	5.25	NA
Stage IV	7	1	NA	NA	NA

NR: not reached; NA: not applicable; LCI: lower confidence interval; UCI: upper confidence interval.

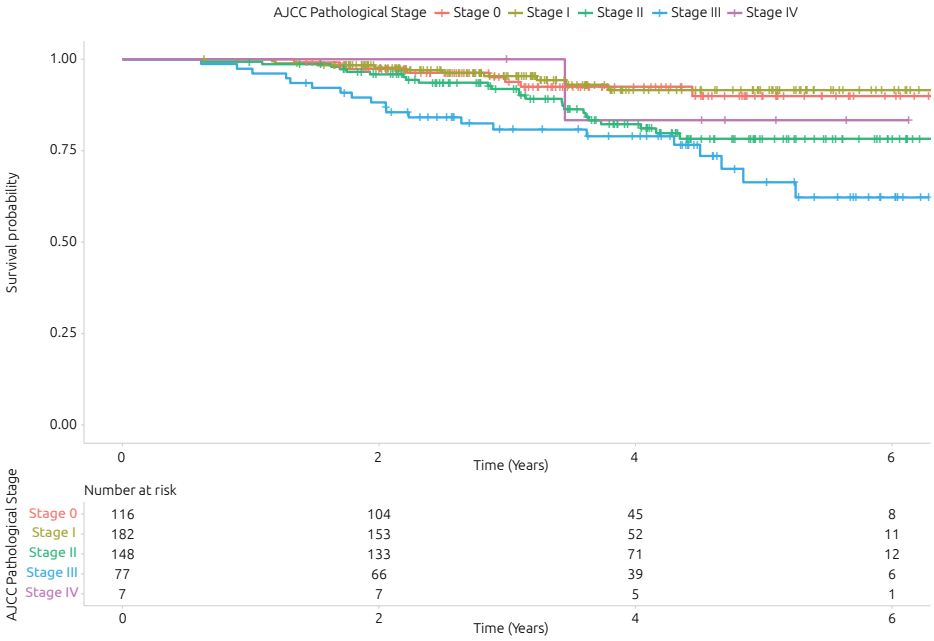
Table 2.2.7 Landmark survival analysis by pathological stage in breast cancer cohort

Stage	1-year OS	3-year OS	5-year OS
Stage 0	100%	93.8% (95% CI 89.0, 98.8)	89.9% (95% CI 83.0, 97.5)
Stage I*	100%	95.4% (95% CI 92.0, 98.8)	
Stage II	99.3% (95% CI 98.0, 100)	91.9% (95% CI 87.4, 96.6)	78.3% (95% CI 70.7, 86.7)
Stage III	97.4% (95% CI 93.9, 100)	80.8% (95% CI 72.1, 90.4)	70.0% (95% CI 58.3, 84.2)
Stage IV**			

NA: not applicable; NR: not reached; OS: Overall Survival

* Stage I - Five year overall survival not reported due to lack of follow up

** Stage IV - Not enough events to report on OS in this cohort



Breast Cancer Survival by pathological stage (surgery as primary treatment) – patients diagnosed 2015 - 2019

Table 2.2.8 Outcomes by pathological stage in breast cancer cohort

Disease stage	Cohort size	Events	Median (years)	0.95 LCI	0.95 UCI
Stage 0	74	7	NR	NA	NA
Stage I	368	11	NR	NA	NA
Stage II	287	25	NR	NA	NA
Stage III	49	13	NR	4.68	NA
Stage IV	2	2	5.13	4.79	NA

NR: not reached; NA: not applicable; LCI: lower confidence interval; UCI: upper confidence interval.

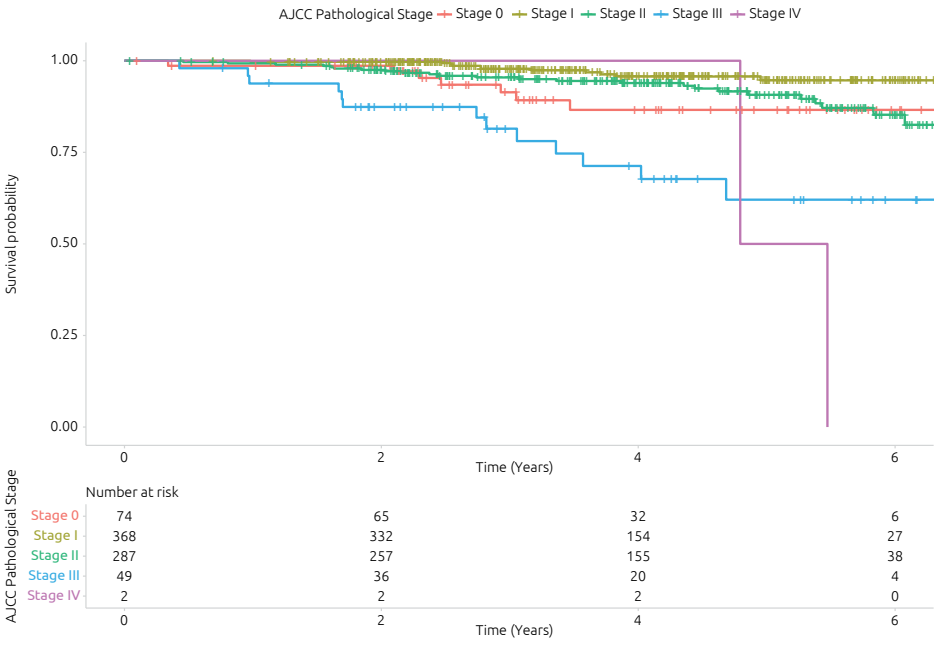
Table 2.2.9 Landmark survival analysis by pathological stage in breast cancer cohort

Stage	1-year OS	3-year OS	5-year OS
Stage 0*	98.6% (95% CI 96.0, 100)	91.4% (95% CI 84.4, 99.0)	
Stage I	99.7% (95% CI 99.2, 100)	97.8% (95% CI 96.1, 99.6)	94.6% (95% CI 91.4, 98.0)
Stage II	99.3% (95% CI 98.3, 100)	95.4% (95% CI 93.0, 98.0)	90.7% (95% CI 86.6, 95.1)
Stage III	93.8% (95% CI 87.2, 100)	81.5% (95% CI 70.4, 94.2)	62.1% (95% CI 46.5, 82.8
Stage IV**			

NA: not applicable; NR: not reached; OS: Overall Survival

* Stage 0 - Five year overall survival not reported due to lack of follow up

** Stage IV – cohort too small to report



3. Colorectal Cancer

Background to the Service

- The colorectal service is involved in the management of approximately 10% of the national delivery of service for rectal cancer, and 8% for colon cancer. The meeting has a tele-link with Tullamore General Hospital.
- All colorectal cancer cases are discussed at a weekly MDT conference where the most appropriate treatment modality is proposed for the individual patient.
- SJH rates for sphincter preservation, anastomotic leaks, in-hospital morbidity and mortality, and stage for stage survival are consistent with international benchmarks as per the Association of Coloproctology of Great Britain and Ireland (ACPGBI).

Structure

- There are six colorectal Consultant Surgeons: Prof Brian Mehigan, Prof Paul McCormick, Mr John Larkin and Mr Michael Kelly in St James while Mr Jamie O'Riordan and Mr Dara Kavanagh hold joint SJH and Tallaght University Hospital appointments for rectal cancer surgeries.
- Full time colorectal cancer Clinical Nurse Specialists, Ms. Delia Flannery and Ms. Katrina O'Connor, facilitate the management and support of the colorectal cancer patient and the weekly nurse-led follow up clinic for patients who have curative surgery for colorectal cancer is a key component of our patients' surveillance. Audit, research, and KPI reporting are supported by a full time colorectal data manager, Ms. Chris Gleeson, who maintains the electronic colorectal cancer database, in place since 2001.
- Colorectal Cancer Screening commenced in 2013, offering free screening to men and women aged between 60-69 years. The first screening colonoscopy was carried out in August 2013. Since then, SJH has accounted for approximately 12% of the national screening service. From 2018 – 2020, 1645 screening colonoscopies were performed, 28 sigmoidoscopies, and 56 new cancers diagnosed.

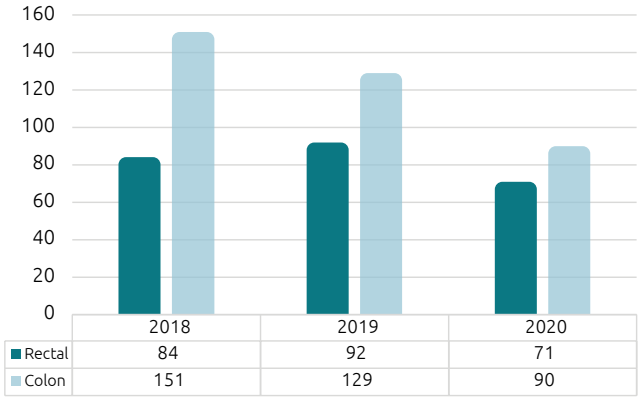
Colorectal service Process

- Four colorectal out-patient clinics per week.
- Nine theatre sessions weekly, and two-day surgery sessions.
- The once weekly MDT meeting provides a structured and co-ordinated approach to the delivery of cancer care
- SJH continues to participate in national audit via the NCCP- defined Key Performance Indicator (KPI) program for rectal cancers. SJH continues to meet and exceed compliance.

Colorectal Cancer Audit

During the period 2018 to 2020 a total of 637 patients were referred to, diagnosed with and/or treated in SJH for colorectal cancer. This report focuses in detail on 617 of these patients referred to or diagnosed in SJH with colorectal cancer who had full treatment; surgery alone or adjuvant therapy. The remaining 20 patients were referred specifically for the opinion of the GI oncology MDT, a small percentage of patients were referred for lung resection, chemotherapy or palliative care for recurrence of colorectal cancer having been initially diagnosed and treated elsewhere. Colorectal cancer includes malignant tumours of the appendix, colon, rectum and anus. Approximately three new cases of colorectal cancer are diagnosed or referred to SJH weekly.

Figure 2.3.1 Colorectal Cancer 2018-2020



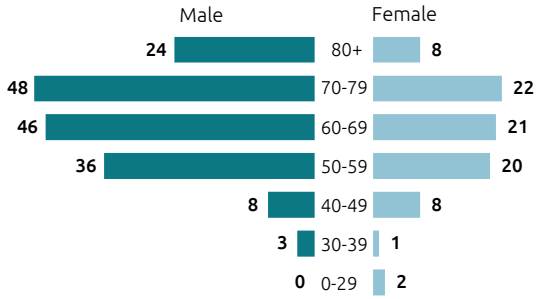
	2018	2019	2020
Rectal	84	92	71
Colon	151	129	90

Rectal Cancer

Gender & age analysis

Thirty-three percent were female and sixty-seven percent male. Sixty-eight percent of patients were over 60, with a median age of 68 and range from 25 to 90 years.

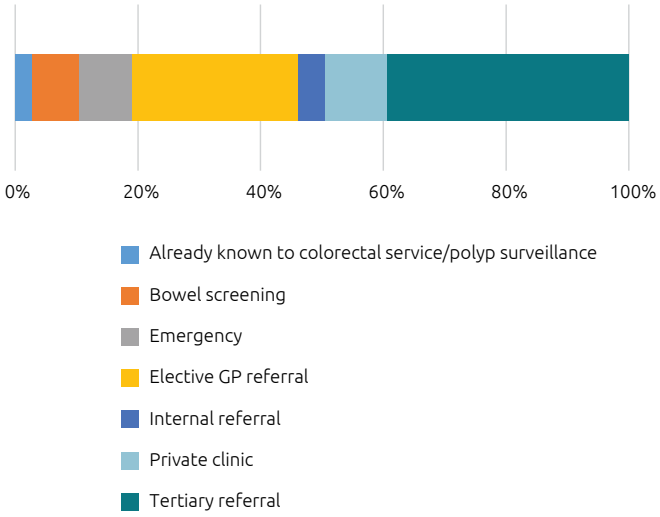
Figure 2.3.2 Rectal cancer age at diagnosis by gender 2018 – 2020



Referral Source

The majority of rectal cancer patients were tertiary referrals, with 8% coming from BowelScreen.

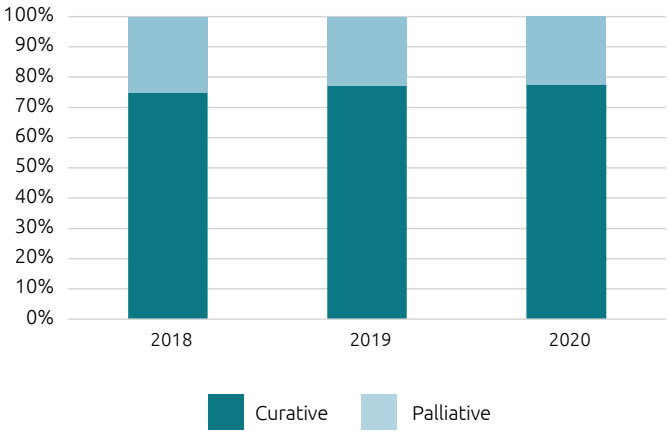
Figure 2.3.3 Rectal cancer referral source



Curative intent at presentation

On average, 77% of rectal cancer patients were treated with curative intent at presentation, compared with 79% in the previous five- year report. This may be in part due to alterations in presentation patterns due to the COVID pandemic.

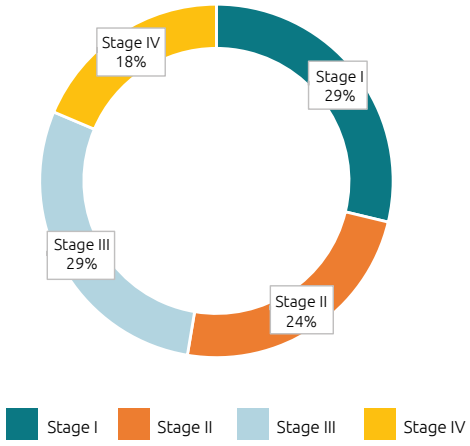
Figure 2.3.4 Rectal cancer curative intent at presentation



Staging

Over half of the patients diagnosed in 2018-2020 had stage 1-2 rectal cancer. As per Figure 2.3.5 18% of patients presented with metastatic disease, which is unchanged from the previous five-year report.

Figure 2.3.5 Rectal cancer AJCC 8th edition clinical staging



The percentage of stage IV patients who were treated with curative intent at presentation was 35% for 2018, 23% for 2019 and 37% for 2020.

Treatment

	2018	2019	2020
Neo adjuvant Radiotherapy	30	40	41
Neo adjuvant Chemotherapy	30	38	43
Tumour resection surgeries for rectal cancer	56	50	43*

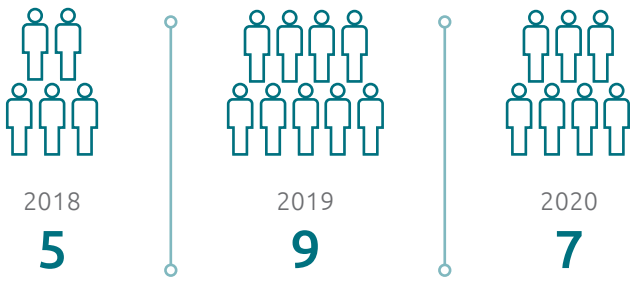
*Nine surgeries were carried out externally due to COVID 19

58% of patient received neo adjuvant radiotherapy

58% of patients received neo adjuvant chemotherapy

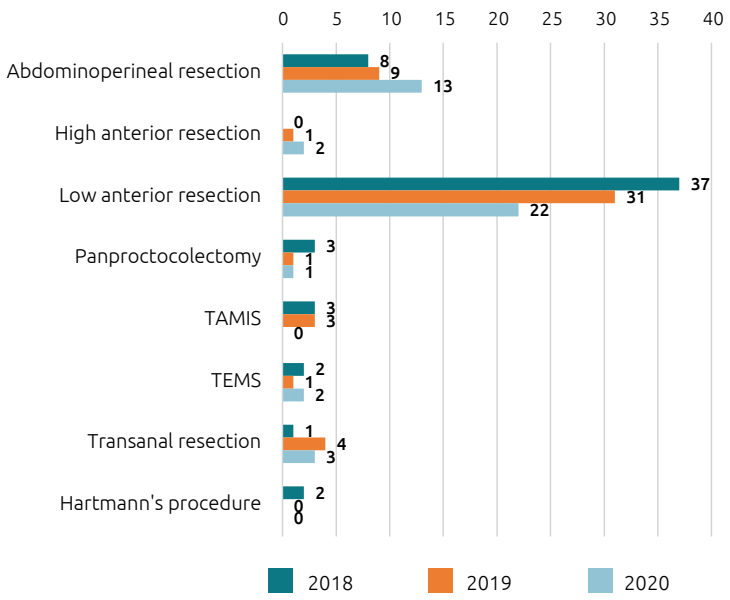
Watch and wait

A watch and wait protocol is in practice for rectal preservation for patients with complete clinical response following neoadjuvant chemoradiation.



Surgical resection

Figure 2.3.6 Rectal cancer surgical procedures for tumour resection



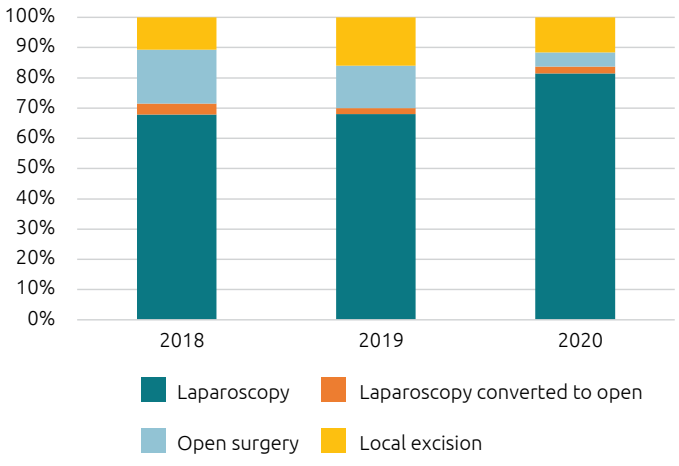
Liver metastasis is the most common form of distant metastasis in colorectal cancer. Resections of metastatic liver disease is managed in both SJH and the Mater Misericordiae University Hospital.

In 2018, three patients had resections, one in 2019 and none in 2020.

For 2018 - 2020 two patients went on to have resection surgery for their lung metastases at presentation.

Surgical Access

Figure 2.3.7 Rectal cancer surgical access by audit year



Laparoscopic surgery is the preferred approach. Within the audit period 71% of rectal cancer surgery was laparoscopic.

The previous audit covering 2013 – 2017 reported both rectal and colon surgery access combined. For 2018 - 2020 this combined figure for all colorectal surgery was 78% laparoscopic compared with 75% of surgeries in 2013 – 2017 and 58% between 2008 and 2012.

Surgical Care for rectal cancer

Unplanned return to theatre is a quality measure to evaluate post-operative complications, having an impact on morbidity and mortality.

UNEXPECTED RETURN THEATRE WITHIN 30 DAYS OF RESECTION

2018	2019	2020
	1	4

UNEXPECTED RETURN TO SJH WITHIN 30 DAYS OF DISCHARGE

2018	2019	2020
2	3	4

30 DAY POST-OPERATIVE SURVIVAL

2018	2019	2020
100%	100%	100%

90 DAY POST-OPERATIVE SURVIVAL

2018	2019	2020
100%	100%	99%

Post-operative length of stay

Median length of stay of patients - local excision was 4 days over the three year reporting period. Median length of stay of patients - radical surgery was 11 days over the three year reporting period.

Recurrence

Of 149 patients who had surgery for rectal cancer 16 recurred = 10% over the three-year surgical period.

Survival analysis

Rectal Cancer

Overall survival – patients diagnosed 2015 - 2019

Table 2.3.1 Survival outcomes in rectal cancer cohort

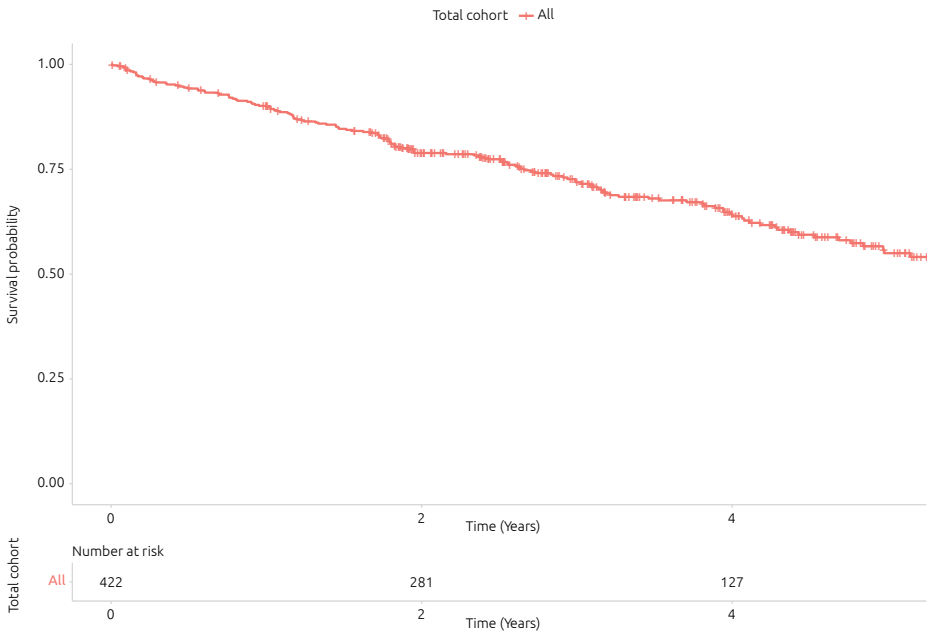
Cohort size	Events	Median (years)	0.95 LCI	0.95 UCI
422	143	NR	4.97	NR

NR: not reached; LCL: lower confidence interval; UCL: upper confidence interval

Table 2.3.2 Landmark OS analysis (full rectal cancer cohort)

1-year OS	3-year OS	5-year OS
90.1% (95% CI 87.3, 93.0)	71.9% (95% CI 67.4, 76.7)	55.0% (95% CI 49.0, 61.7)

CI: confidence interval; OS: overall survival



By treatment intent – patients diagnosed 2015 - 2019

Table 2.3.3 Outcomes by treatment intent in rectal cancer cohort

Treatment intent	Cohort size	Events	Median (years)	0.95 LCI	0.95 UCI
Uncertain	7	3	2.37	1.33	NA
Curative	324	64	NR	NR	NR
Palliative	91	76	1.72	1.24	2.34

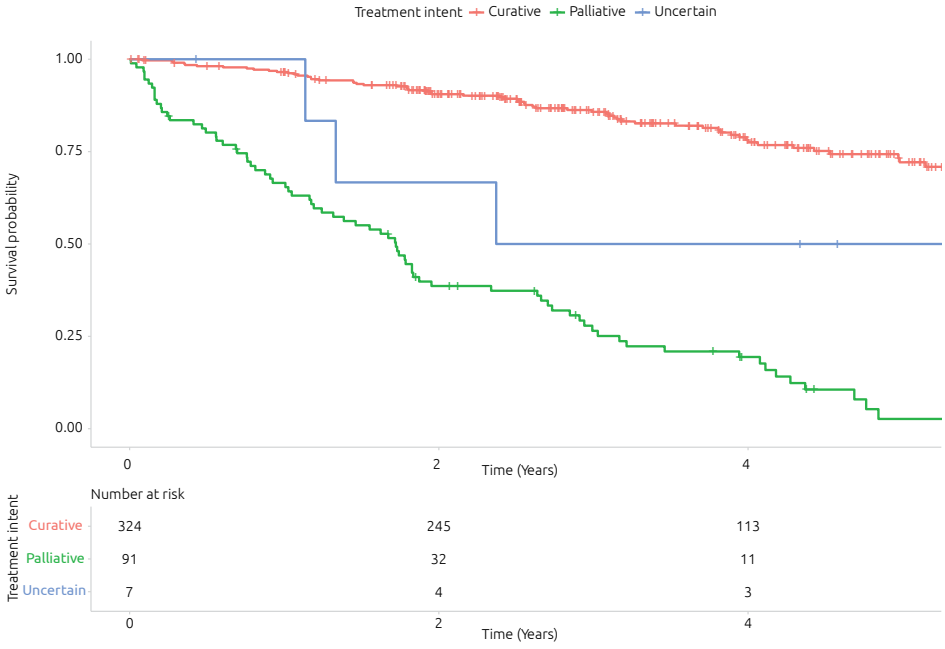
NR: not reached; LCI: lower confidence interval; UCI: upper confidence interval.

Table 2.3.4 Landmark survival analysis by treatment intent in rectal cancer cohort

Treatment Intent	1-year OS	3-year OS	5-year OS
Uncertain*	NA	NA	NA
Curative	96.5% (95% CI 94.5, 98.6)	85.8% (95% CI 81.7, 90.0)	72.1% (95% CI 65.7, 79.1)
Palliative	66.5% (95% CI 57.4, 77.1)	26.5% (95% CI 18.4, 38.1)	2.65% (95% CI 0.4, 16.6)

NA: not applicable; OS: Overall survival; CI: confidence interval

*cohort too small to report



By pathological stage – patients diagnosed 2015 - 2019

Table 2.3.3 Outcomes by pathological stage in rectal cancer cohort

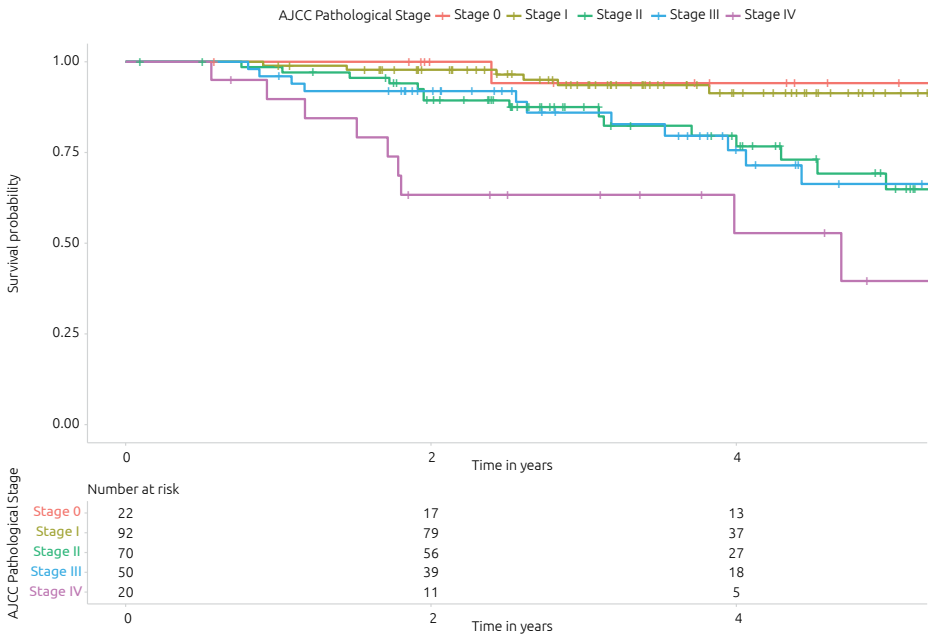
Disease stage	Cohort size	Events	Median (years)	0.95 LCI	0.95 UCI
Stage 0	22	3	NR	5.54	NR
Stage I	92	7	NR	NR	NR
Stage II	70	15	NR	NR	NR
Stage III	50	11	NR	NR	NR
Stage IV	20	9	4.69	1.80	NR

NR: not reached; NA: not applicable; LCI: lower confidence interval; UCI: upper confidence interval.

Table 2.3.4 Landmark survival analysis by pathological stage in rectal cancer cohort

Stage	1-year OS	3-year OS	5-year OS
Stage 0*	NA	NA	NA
Stage I	98.9% (95% CI 96.8, 1.0)	93.6% (95% CI 88.2, 99.2)	91.3% (95% CI 84.6, 98.5)
Stage II	98.5% (95% CI 98.7, 1.0)	87.5% (95% CI 79.8, 96.0)	64.9% (95% CI 50.6, 83.2)
Stage III	96.0% (95% CI 90.7, 1.0)	86.0% (95% CI 76.0, 96.3)	66.3% (95% CI 50.9, 86.5)
Stage IV	89.7% (95% CI 77.2, 1.0)	63.3% (95% CI 45.0, 89.1)	39.6% (95% CI 18.7, 83.9)

NA: not applicable; NR: not reached; OS: Overall Survival

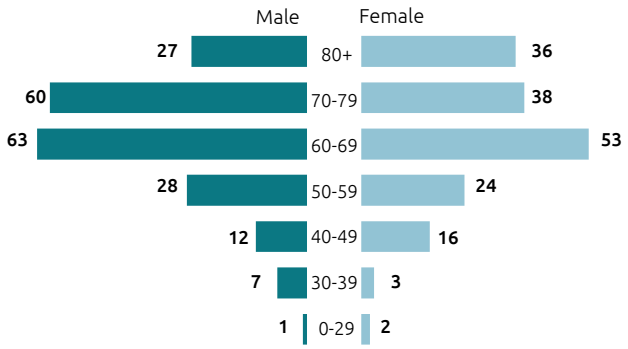

AJCC Pathological Stage
Stage 0
Stage I
Stage II
Stage III
Stage IV
Survival probability
1.00
0.75
0.50
0.25
0.00
0
2
4
Time in years
Number at risk
Stage 0 22 17 13
Stage I 92 79 37
Stage II 70 56 27
Stage III 50 39 18
Stage IV 20 11 5
AJCC Pathological Stage
0
2
4
Time in years

Colon Cancer

Gender & age analysis

Forty-six percent were female and fifty-four percent male. Seventy-five percent of patients were over 60, with a median age of 67 and range from 22 to 93 years.

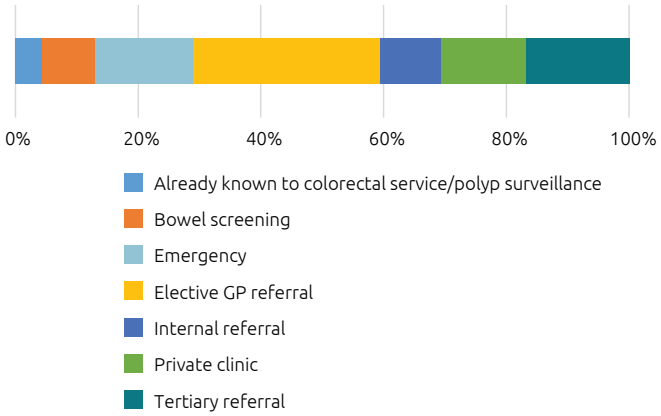
Figure 2.3.8 Colon cancer age at diagnosis by gender 2018 – 2020



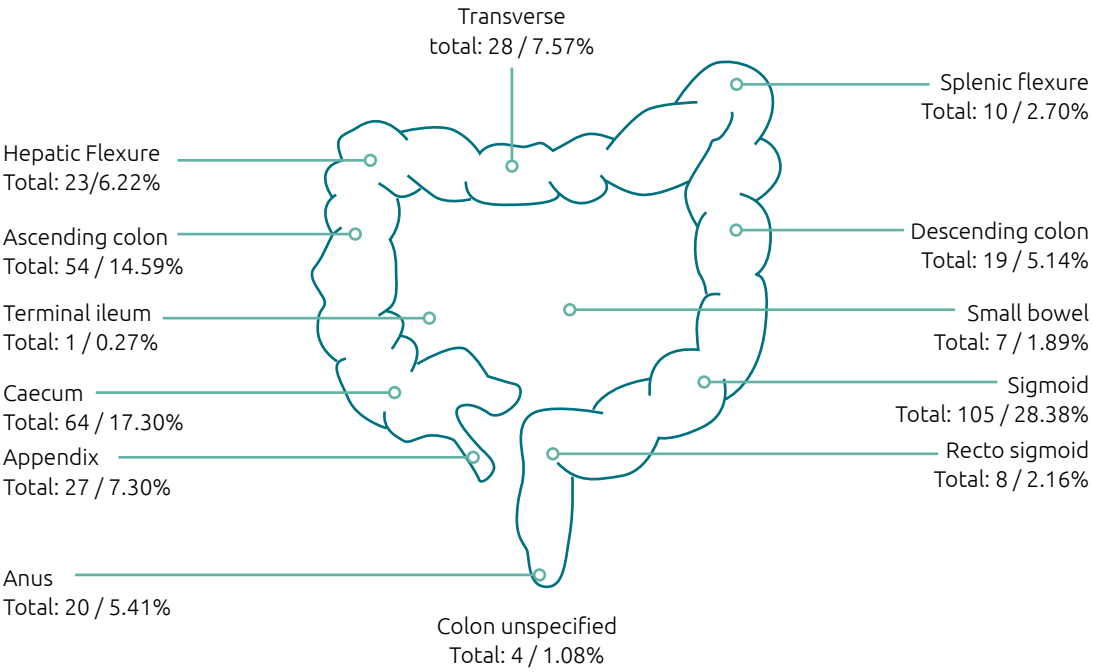
Referral Source

The majority of colon cancer patients were GP referrals, with 9% coming from BowelScreen.

Figure 2.3.9 Colon cancer referral source



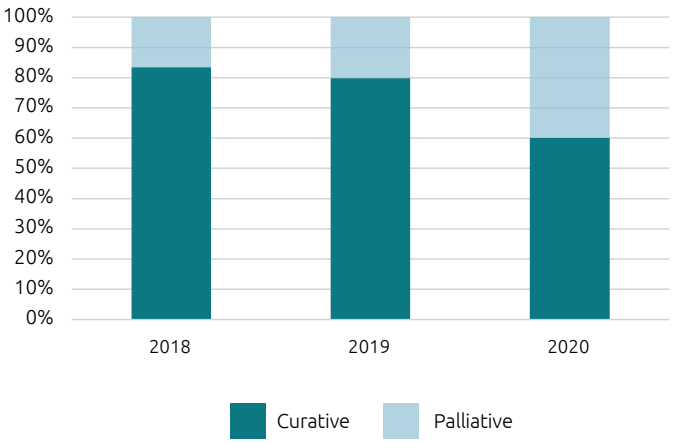
Tumour site



Curative intent at presentation

On average, 76% of colon cancer patients were treated with curative intent at presentation, compared with 78% in the previous five-year report. This may be in part due to alterations in presentation patterns due to the COVID pandemic.

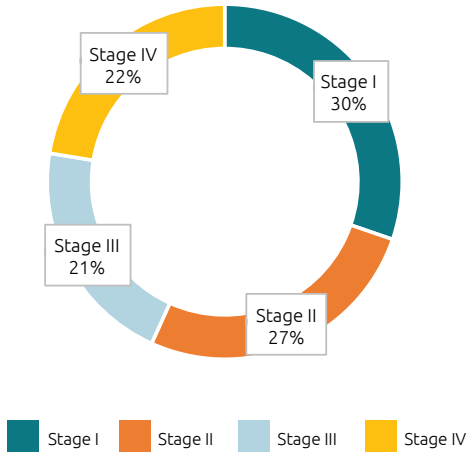
Figure 2.3.10 Colon cancer curative intent at presentation



Diagnosis

Over half of the patients diagnosed in 2018-2020 had stage 1-2 colon cancer. As per figure 2.3.10 22% of patients presented with metastatic disease, up from 16% in the previous five-year report. This is most apparent in 2020 and we will be monitoring this to see if it reflects the impact of COVID on the service.

Figure 2.3.11 Colon cancer AJCC 8th edition clinical staging



The percentage of stage IV patients who were treated with curative intent at presentation was 23% for 2018, 42% for 2019 and 11% for 2020.

Treatment

	2018	2019	2020
Definitive Radiotherapy (anal cancers)	9	3	6
Concomitant chemotherapy (anal cancers)	9	3	6
Neo adjuvant Chemotherapy	7	7	8
Tumour resection surgeries for colon cancer	121	89	53*

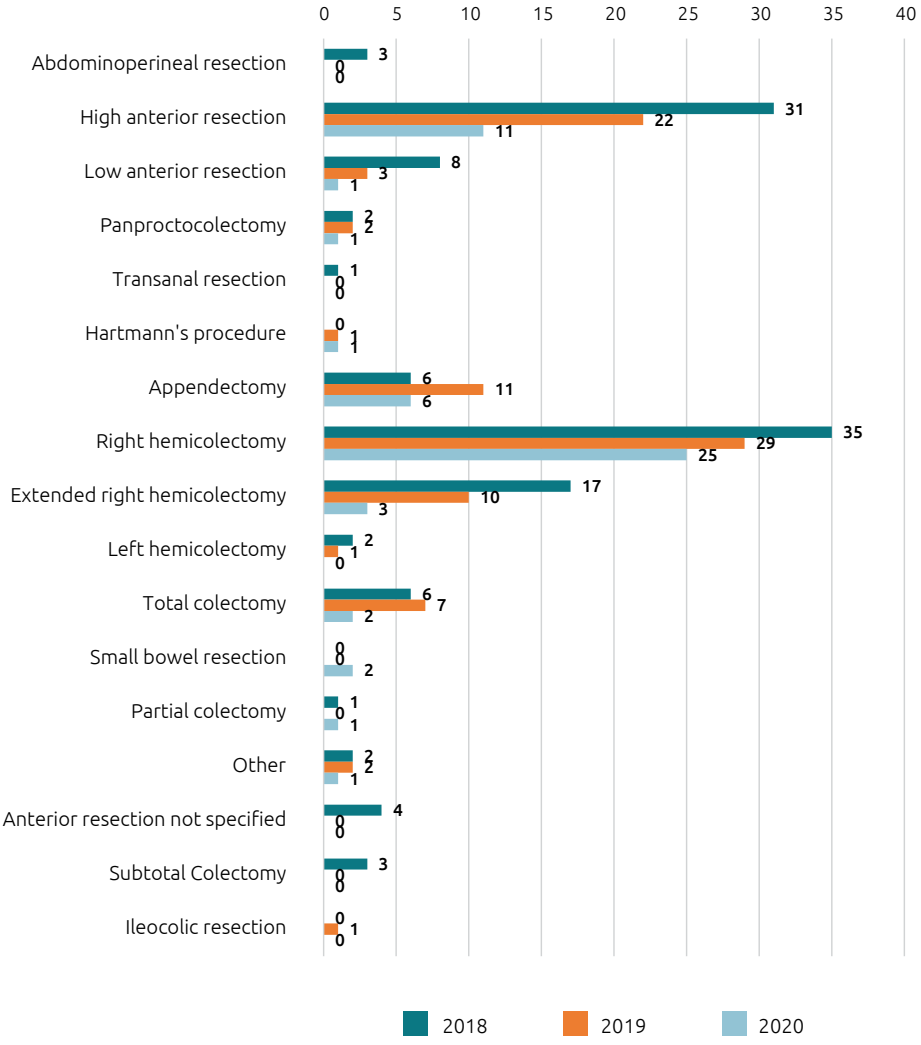
* Six surgeries were carried out externally due to COVID 19

5% of patients received neo adjuvant radiotherapy

10% of patients received neo adjuvant chemotherapy

Surgical resection

Figure 2.3.12 Colon cancer surgical procedures for tumour resection

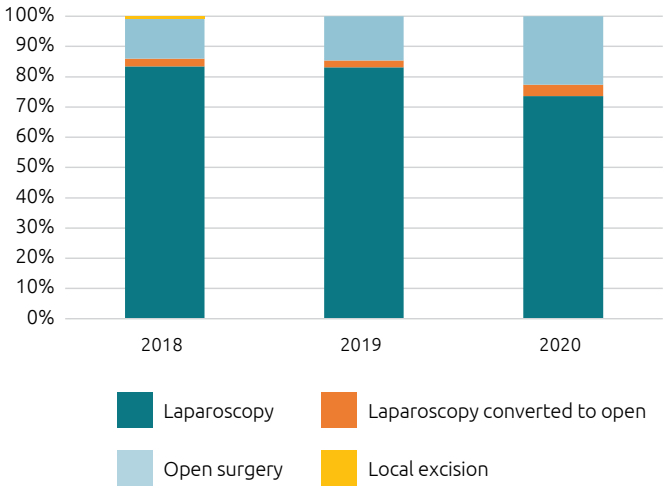


Liver metastasis is the most common form of distant metastasis in colorectal cancer. Resections of metastatic liver disease is managed in both SJH and the Mater Misericordiae University Hospital.

In 2018, two patients had resections, four in 2019 and one in 2020.

For 2018 - 2020 no patients went on to have resection surgery for their lung metastases at presentation.

Figure 2.3.13 Colon cancer surgical access by audit year



Laparoscopic surgery is the preferred approach. Within the audit period 81% of colon cancer surgery was laparoscopic.

The previous audit covering 2013 – 2017 reported both rectal and colon surgery access combined. For 2018 - 2020 this combined figure for all colorectal surgery was 78% laparoscopic compared with 75% of surgeries in 2013 – 2017 and 58% between 2008 and 2012.

Surgical care for colon cancer

UNEXPECTED RETURN THEATRE WITHIN 30 DAYS OF RESECTION

2018	2019	2020
1	0	1

UNEXPECTED RETURN TO SJH WITHIN 30 DAYS OF DISCHARGE

2018	2019	2020
3	1	2

30 DAY POST-OPERATIVE SURVIVAL

2018	2019	2020
99%	99%	99%

90 DAY POST-OPERATIVE SURVIVAL

2018	2019	2020
99%	99%	99%

Post-operative length of stay

The median length of stay of patients with colon cancer who had local excision was 1 day over the three year reporting period.

The median length of stay of patients with colon cancer who had radical surgery was 9 days over the three year reporting period.

Recurrence

Of 263 patients who had surgery for colon cancer 21 recurred = 8% over the three-year surgical period

Survival analysis

Colon cancer

Overall survival – patients diagnosed 2015 - 2019

Table 2.3.7 Survival outcomes in colon cancer cohort

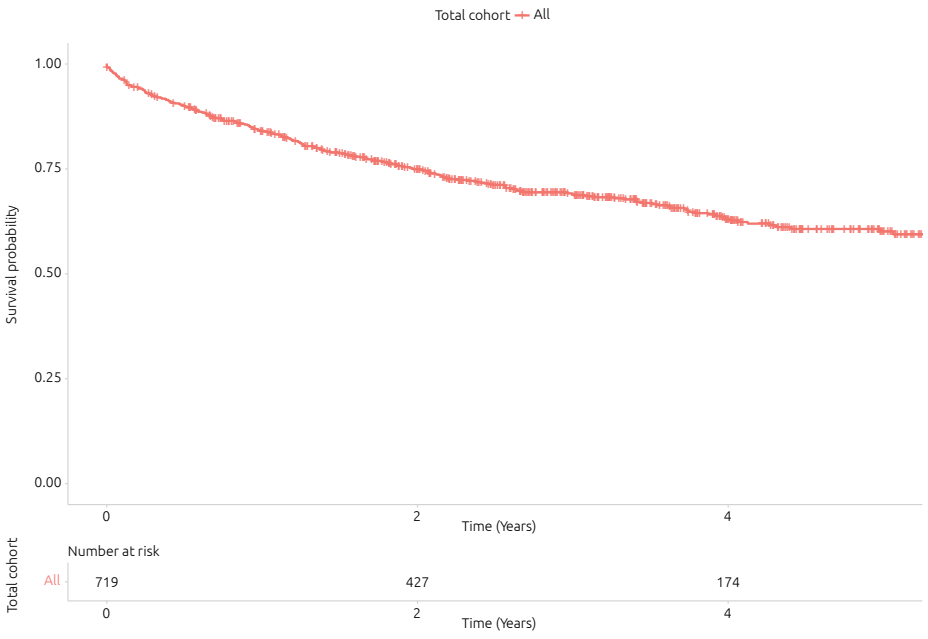
Cohort size	Events	Median (years)	0.95 LCI	0.95 UCI
638	210	NR	NA	NA

NR: not reached; LCL: lower confidence interval; UCL: upper confidence interval

Table 2.3.8 Landmark OS analysis (full colon cancer cohort)

1-year OS	3-year OS	5-year OS
85.8% (95% CI 83.1, 88.5)	70.3% (95% CI 66.7, 74.1)	61.3% (95% CI 56.8, 66.1)

CI: confidence interval; OS: overall survival



By pathological stage – patients diagnosed 2015 - 2019

Table 2.3.5 Outcomes by pathological stage in colon cancer cohort

Disease stage	Cohort size	Events	Median (years)	0.95 LCI	0.95 UCI
Stage 0	2	0	NA	NA	NA
Stage I	136	11	NR	NR	NR
Stage II	157	25	NR	NR	NR
Stage III	131	35	NR	NR	NR
Stage IV	52	35	2.41	1.97	3.87

NR: not reached; NA: not applicable; LCI: lower confidence interval; UCI: upper confidence interval.

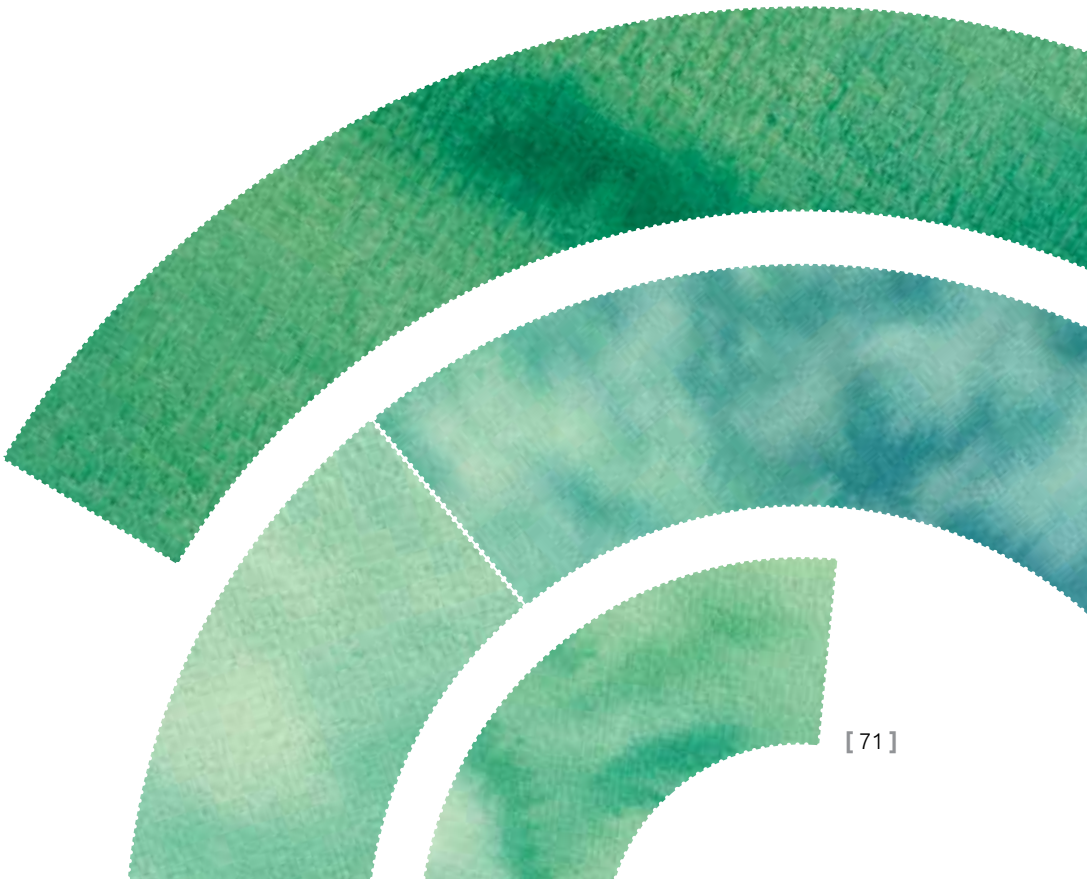
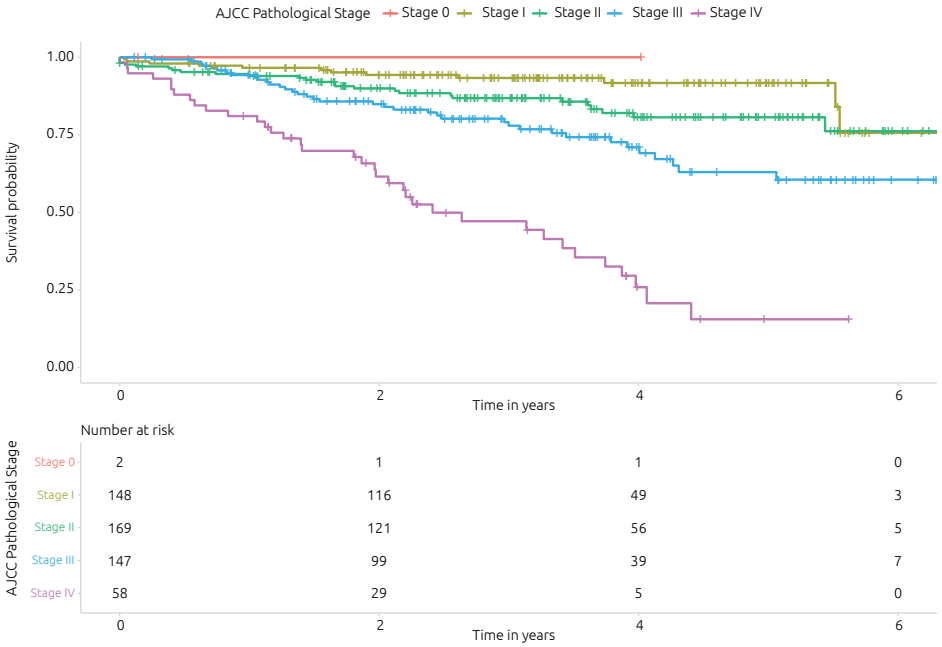


Table 2.3.6 Landmark survival analysis by pathological stage in colon cancer cohort

Stage	1-year OS	3-year OS	5-year OS
Stage 0*	NA	NA	NA
Stage I	97.0% (95% CI 94.2, 99.9)	93.8% (95% CI 89.6, 98.1)	92.1% (95% CI 87.1, 97.5)
Stage II	93.6% (95% CI 89.8, 97.5)	87.1% (95% CI 81.8, 92.7)	80.9% (95% CI 73.9, 88.5)
Stage III	95.3% (95% CI 91.7, 99.0)	78.6% (95% CI 71.4 86.5)	63.5 (95% CI 53.4, 75.5)
Stage IV	80.8% (95% CI 70.7, 92.2)	46.7% (95% CI 34.3, 63.6)	15.4% (95% CI 6.2, 38.0)

NA: not applicable; OS: Overall Survival



By treatment intent – patients diagnosed 2015 - 2019

Table 2.3.7 Outcomes by treatment intent in colon cancer cohort

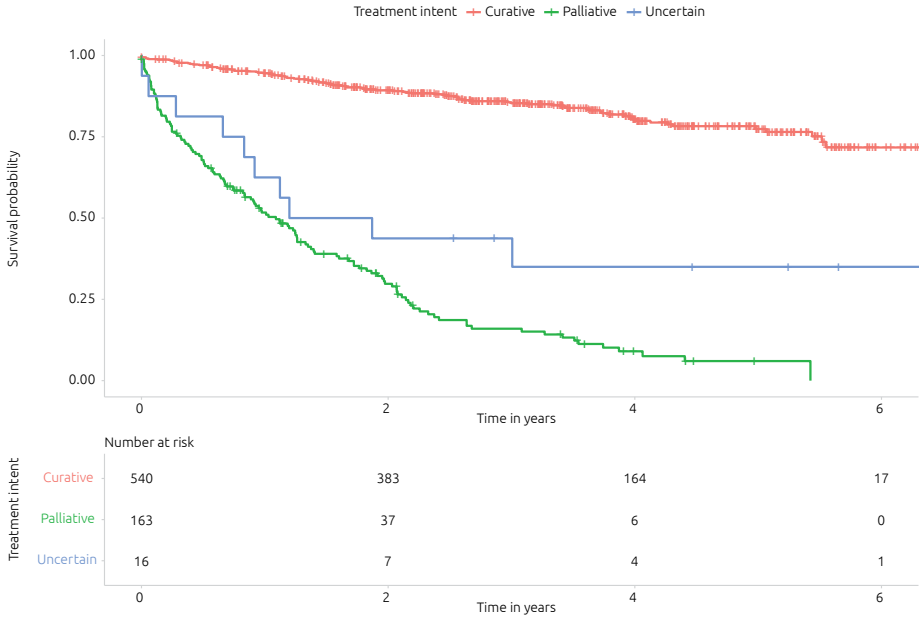
Treatment intent	Cohort size	Events	Median (years)	0.95 LCI	0.95 UCI
Uncertain	16	10	1.53	83.2	NA
Curative	489	85	NR	NR	NR
Palliative	133	115	1.20	88.7	1.58

NR: not reached; LCI: lower confidence interval; UCI: upper confidence interval.

Table 2.3.8 Landmark survival analysis by treatment intent in colon cancer cohort

Treatment Intent	1-year OS	3-year OS	5-year OS
Uncertain	62.5% (95% CI 42.8, 91.4)	43.8% (95% CI 25.1, 76.3)	35.0% (95% CI 17.2, 71.0)
Curative	94.8% (95% CI 92.9, 96.8)	85.7% (95% CI 82.5, 89.1)	77.8% (95% CI 73.2, 82.7)
Palliative	55.1% (95% CI 47.2, 64.3)	16.9% (95% CI 11.3, 25.3)	6.4% (95% CI 2.8, 14.5)

OS: Overall survival


Treatment intent Curative Palliative Uncertain
Survival probability
1.00
0.75
0.50
0.25
0.00
0
2
4
6
Time in years
Number at risk
Treatment intent
Curative 540 383 164 17
Palliative 163 37 6 0
Uncertain 16 7 4 1
0
2
4
6
Time in years

4. Gynaecology Cancer

Gynaecological cancer care at SJH is accredited by the NCCP as a referral centre for the care of women with all genital tract malignancies, and as a specialist centre for ovarian cancer cytoreductive and exenterative surgery. The gynaecological surgical facility at SJH is now dedicated exclusively to the provision of research-led care for women with gynaecological cancer, including gynaecological disease arising in women with other cancers, and women with complex benign gynaecological diagnoses. This arrangement has been facilitated by agreement with the Coombe Women's & Infants' University Hospital (CWIUH) and Tallaght Hospital, and a robust referral mechanism has been developed. The gynaecological cancer care programme is based around a weekly multidisciplinary meeting (MDM) with a structured case review and real time electronic recording. MDM are attended by all relevant specialists. Major specialist radiology and histopathology input is provided by the dedicated specialists.

The oncology division is staffed with surgical gynaecological oncologists, namely Professor Tom D'Arcy, Mr Waseem Kamran, Mr Feras Abu Saadeh, Mr Patrick Maguire and Mr James Beirne (locum tenens). Minimally invasive surgery is part of standard of care for endometrial cancers and complex gynaecological conditions.

The surgical gynaecological oncologists are subspecialist trainers and the training programme is approved by the Royal College of Obstetricians & Gynaecologists (RCOG). SJH is the only centre in the Republic of Ireland which is RCOG accredited for senior subspeciality fellowship training in gynaecology oncology. The centre also offers an advanced pelvic surgery fellowship to post-CCST Irish trainees. The large case volume and complex clinical caseload in a multidisciplinary setting provide a high quality training framework.

The gynaecological oncology division closely work with the breast and genetic service to offer risk reduction procedures to at risk women.

Dr Dearbhaile O'Donnell and Dr Karen Cadoo are the two specialist medical oncologists. There is an active clinical trials portfolio with dedicated research nurses. The centre has actively participated with some important national and international studies. This includes SHAPE, tBRCA and PORTEC4a trials. Molecular diagnostics are provided by the Centre for Molecular Diagnostics (CMD), enabling personalized and targeted treatment. Specialist radiation care is led by Dr Charles Gillham and Dr Naomi Lavan. There are three clinical nurse specialists (CNS) in gynaecological cancer care (Ms Debra McKnight, Ms Ciara Donohoe and Ms Elaine Gray). The data manager is Ms Therese Brown.

Comprehensive radiology support is provided by subspecialist diagnostic radiologists (Professor Mary Keogan, Dr Suzannah Harte, Dr Sylvia O Keefe, Dr Mark Knox). Interventional radiology support is provided by the interventional radiology team (Dr Niall McEniff, Dr Mark Ryan, Dr Ian Brennan and Dr Mike Guiney). All imaging modalities are available on the SJH site including CT, MRI and PET-CT. The radiology department is part of the digital NIMIS system (national image management information system) with access to all imaging in NIMIS supported referring hospitals nationally.

Diagnostic pathology services are led by consultant histopathologists Dr Ciarán Ó Riain and Dr Richard Flavin along with Professor John O'Leary (CWIUH). As well as interpretation of biopsy and surgical resection material from SJH, a high volume of cases from other hospitals are reviewed for MDM discussion prior to definitive therapy. Recent advances have included involvement of medical scientists in advanced roles in gynaecological specimen dissection, the introduction of screening by immunohistochemistry of relevant gynaecological cancers for Lynch Syndrome and extensive involvement in clinical trials.

Research is undertaken in conjunction with Cancer Trials Ireland/GCIG for clinical trials and Trinity College for basic science/laboratory projects. The basic science facilities are directed by Professor John O'Leary, Dr Lucy Norris and Dr Sharon O'Toole. The research activity includes gynaecological cancer biology, pathology, coagulation, genomics and onco-metabolomics. Basic science research fellowships are available for clinicians in training.

Gynaecological Cancer Audit

There were 919 new gynaecological cancer patients diagnosed and/or treated in SJH over the last 3 years. This figure includes 18 patients with more than one tumour site, and 25 Second opinions/ discussion only.

Tumour Site

The following is a breakdown by tumour site for the years 2018 to 2020. There were 18 patients with two tumour sites. The 937 newly diagnosed patients' tumour sites are broken down as follows.

Figure 2.4.1 Gynaecological Cancers by Tumour Site

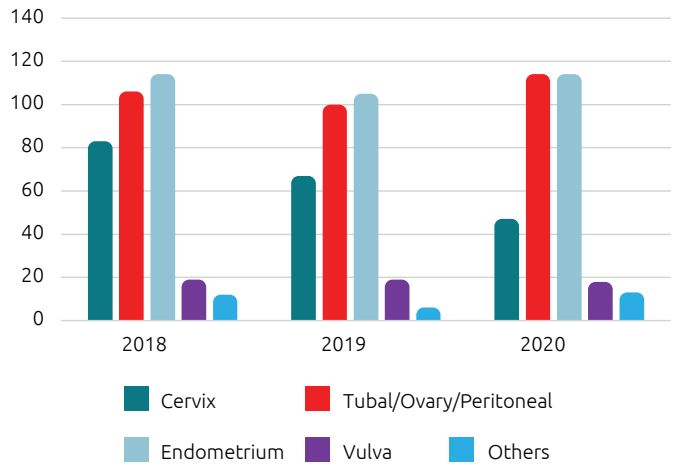


Table 2.4.1 SJH 3 year Gynaecological Cancer data by year by tumour site.

Tumour Site	2018	2019	2020	Total
Cervix	83	67	47	197
Tubal/Ovary/Peritoneal	106	100	114	320
Endometrium	114	105	114	333
Vulva	19	19	18	56
Others	12	6	13	31
Total	**334**	**297**	**306**	**937**

Cervix Uteri

There were 197 new cervical cancers diagnosed in this period. The median age was 57, and the age range was from 25 years to 90 years.

Table 2.4.2 Cervical Cancer – Morphology

Morphology Type	Occurrences	Percentage
Squamous Cell Carcinoma	145	74%
Adenocarcinoma	37	19%
Adenosquamous	8	4%
Other/ Unknown	7	3%

Tubal/Ovarian/Peritoneal Cancer

There were 320 new Tubal/ovarian/Peritoneal cancers diagnosed in this period, including 48 of which were Borderline. The median age was 53, and the age range was from 14 years to 92 years.

Table 2.4.3 Tubal/Ovarian/Peritoneal Cancer – Morphology

Morphology Type	Occurrences	Percentage
Endometrioid	24	7%
Serous High Grade	169	53%
Serous Low Grade	6	2%
Adenocarcinoma	15	5%
Clear Cell	14	4%
Carcinosarcoma	7	2%
Germ Cell	15	5%
Borderline	48	15%
Other/ Mixed/ Unknown	22	7%

Uterine/ Endometrial Cancer

There were 333 new Uterine/ Endometrial cancers diagnosed in this period. The median age was 61, and the age range was from 28 years to 95 years.

Table 2.4.4 Uterine/ Endometrial Cancer – Morphology

Morphology Type	Occurrences	Percentage
Endometrioid Adenocarcinoma	250	75%
Serous	34	10%
Carcinosarcoma	27	8%
Sarcoma/ Leiomyosarcoma	4	1%
Other/ Mixed/ Unknown	18	6%

Vulval Cancer

There were 56 new vulval cancers diagnosed in this period. The median age was 68, and the age range was from 42 years to 95 years.

Table 2.4.5 Vulval Cancer – Morphology

Morphology Type	Occurrences	Percentage
Squamous Cell Carcinoma	51	91%
Melanoma	3	5%
Basal Cell	2	4%

Table 2.4.6 Gynaecological Cancer patients discussed at MDT

2018	2019	2020
100%	100%	99%

Table 2.4.7 Treatment Details of Gynaecological Cancers

Cervix (n= 197)	Occurrences	Percent
None	2	1%
Surgery Only	77	39%
Surgery with adjuvant Radiotherapy	13	7%
Surgery with adjuvant Chemoradiotherapy	12	6%
Radiotherapy	22	11%
Chemotherapy	4	2%
Chemoradiotherapy	57	29%
Other/Unknown	10	5%

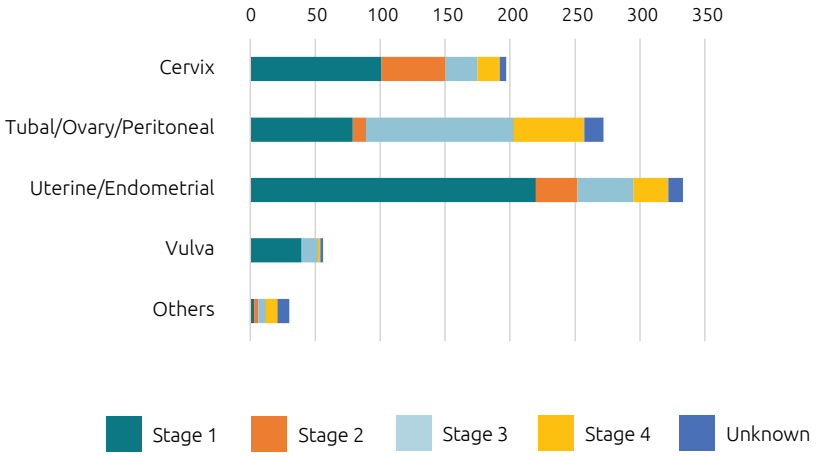
Tubal/Ovary/Peritoneal (n= 320)	Occurrences	Percent
None	6	2%
Surgery Only	97	30%
Surgery with adjuvant chemotherapy	106	33%
Surgery with adjuvant radiotherapy	6	2%
Surgery with adjuvant chemoradiotherapy	6	2%
Chemotherapy	35	11%
Palliative care / best supportive care	6	2%
Neoadjuvant Chemotherapy and Surgery	51	16%
Unknown	7	2%

Endometrial (n= 333)	Occurrences	Percent
None	8	2%
Surgery Only	157	47%
Surgery with adjuvant chemotherapy	16	5%
Surgery with adjuvant radiotherapy	114	34%
Surgery with adjuvant chemoradiotherapy	17	5%
Radiotherapy	6	2%
Chemotherapy	6	2%
Other/ Unknown	9	3%

Vulva (n= 56)	Occurrences	Percent
None	4	7%
Surgery Only	43	77%
Surgery with adjuvant radiotherapy	6	11%
Other	3	5%

Staging

Figure 2.4.2 FIGO Staging by site 2018 - 2020



Stage	Tumour Site					
	Cervix	Tubal/Ovary/ Peritoneal	Uterine/E'L	Vulva	Others	Total
Stage 1	101	79	220	39	3	**442**
Stage 2	49	10	32	1	3	**95**
Stage 3	25	114	43	12	6	**200**
Stage 4	17	54	27	2	9	**109**
Unknown	5	15	11	2	9	**42**
Other/Borderline		48 x Borderline			1 x GTD	**49**
Total	**197**	**320**	**333**	**56**	**31**	**937**

Survival analysis by tumour site

Cervical Cancer

Overall survival – patients diagnosed 2015 - 2019

Table 2.4.8 Summary of survival outcomes in full cervical cohort

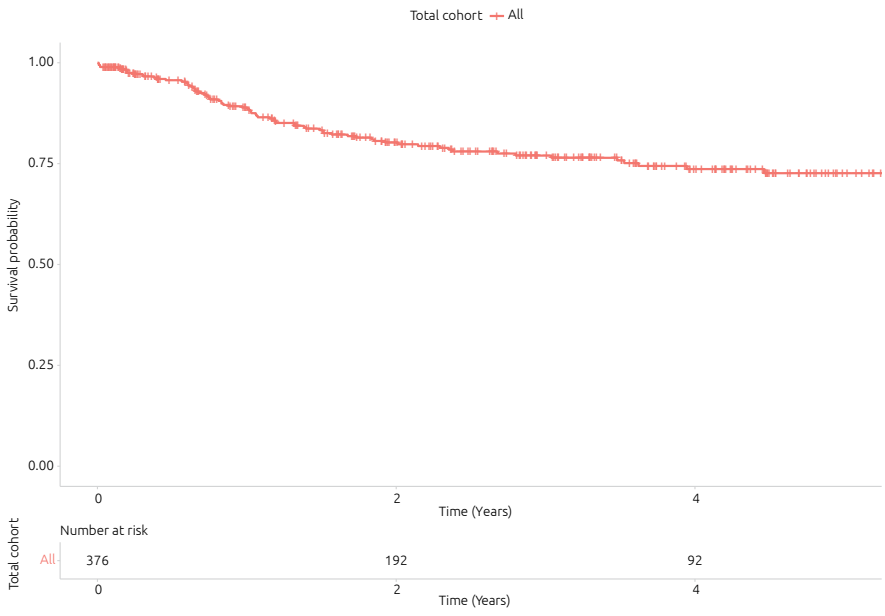
Cohort size	Events	Median OS (years)	LCL	UCL
376	74	NR	NR	NR

NR: not reached; LCL: lower confidence interval; UCL: upper confidence interval

Table 2.4.9 Landmark survival in whole cohort

1 year OS	3-year OS	5-year OS
88.9% (95% CI 85.5, 92.4)	77.0% (95% CI 72.2, 82.1)	72.6% (95% CI 67.0, 78.7)

OS: overall survival; CI: confidence interval



Survival by Clinical stage – patients diagnosed 2015 - 2019

Table 2.4.10 Summary of survival outcomes by clinical stage

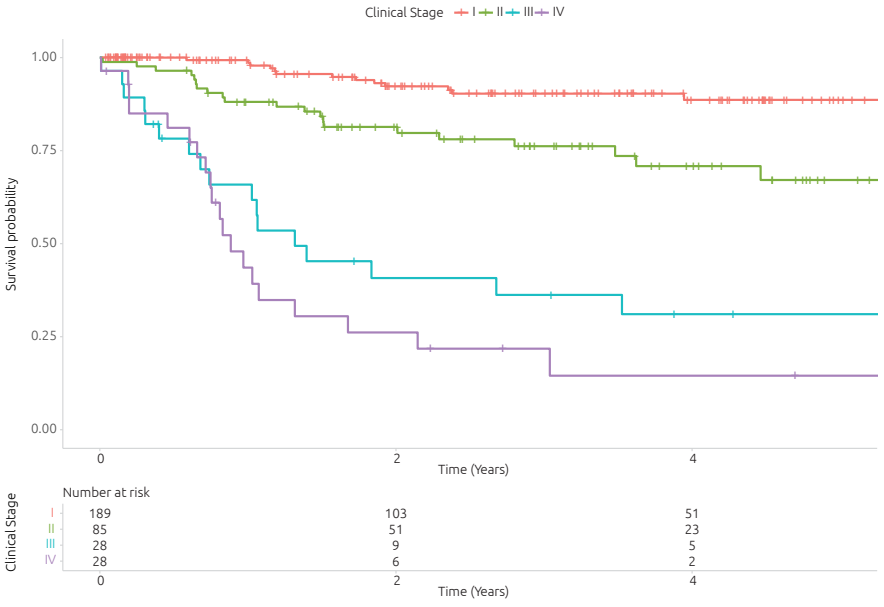
Stage	Cohort size	Events	Median OS (years)	LCL	UCL
I	189	13	NR	NR	NR
II	85	21	NR	NR	NR
III	28	18	1.317	0.739	NR
IV	28	20	0.884	0.747	2.15

NR: not reached; LCL: lower confidence interval; UCL: upper confidence interval

Table 2.4.11 Landmark survival by clinical stage

Stage	1 year OS	3 year OS	5 year OS
I	98.6% (96.7, 1)	90.3% (85.2, 95.7)	88.6% (82.8, 95.0)
II	88.1% (81.4, 95.3)	76.2% (67.0, 86.7)	67.1% (55.2, 81.6)
III	65.9% (49.9, 86.9)	36.2% (21.3, 61.6)	31.1% (16.9, 57.2)
IV	43.6% (27.7,68.6)	21.8 (10.1, 47.0)	14.5% (4.79, 44.0)

OS: overall survival; CI: confidence interval

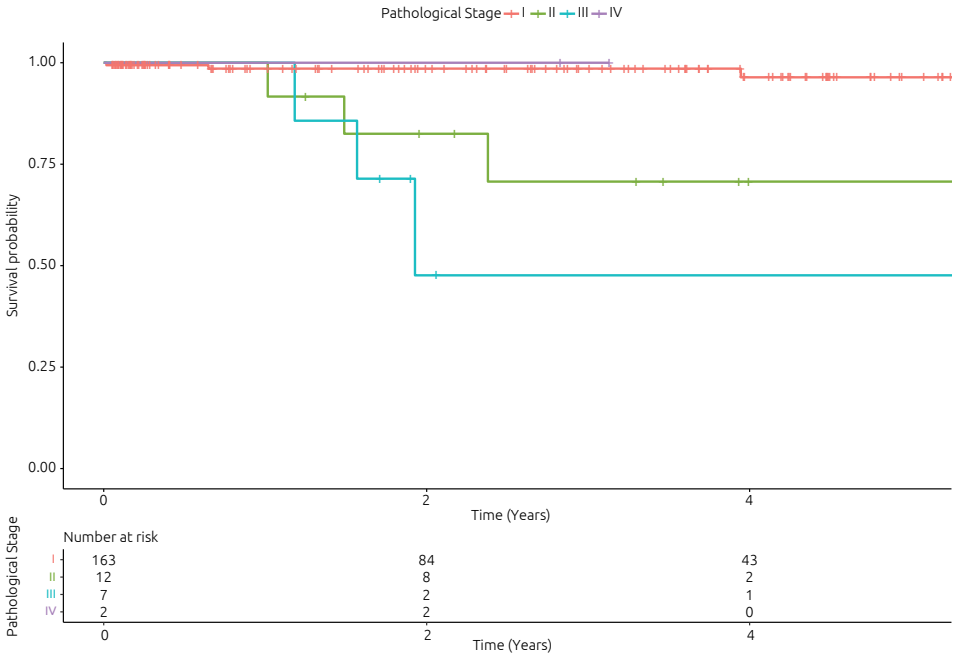


Survival by pathological stage – patients diagnosed 2015 - 2019

Table 2.4.12 Summary of survival outcomes by pathological stage

Stage	Cohort size	Events	Median OS (years)	LCL	UCL
I	163	3	NR	NR	NR
II	12	3	NR	2.38	NR
III	7	3	1.93	1.57	NR
IV	2	0	NR	NR	NR

NR: not reached; LCL: lower confidence interval; UCL: upper confidence interval



Ovarian Cancer

Overall survival – patients diagnosed 2015 - 2019

Table 2.4.13 Survival outcomes in full ovarian cancer cohort

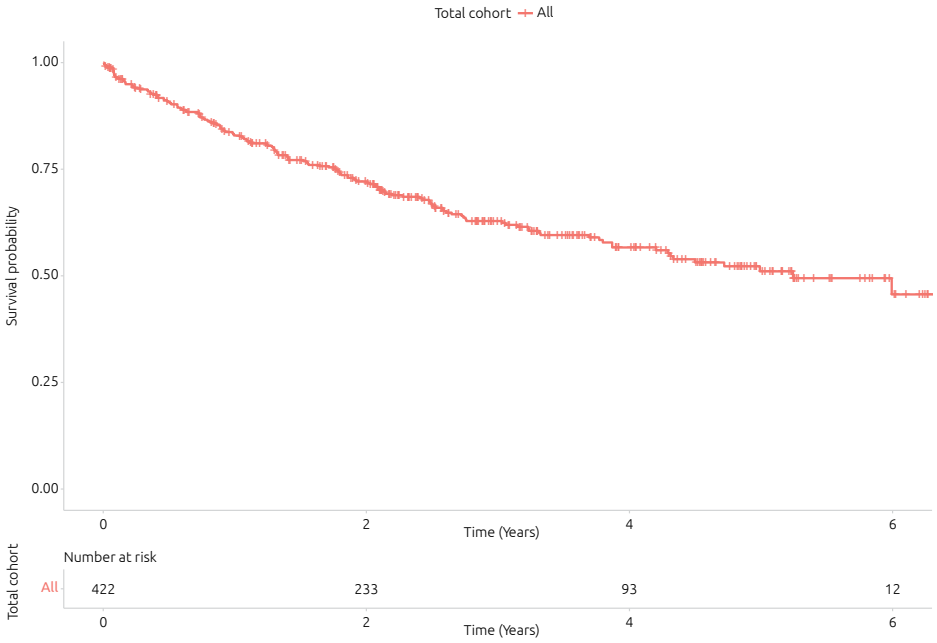
Cohort size	Events	Median	0.95 LCI	0.95 UCI
422	153	5.24	4.29	NR

NR: not reached; LCL: lower confidence interval; UCL: upper confidence interval

Table 2.4.14 Landmark OS analysis (full ovarian cohort)

1-year	3-year	5-year
82.9% (95% CI 79.3, 86.7)	62.8% (95% CI 57.9, 68.3)	51.0% (95% CI 44.9, 58.1)

CI: confidence interval



Survival by clinical stage – patients diagnosed 2015 - 2019

Table 2.4.15 Outcomes by clinical stage in ovarian cohort

Disease stage	Cohort size	Events	Median	0.95 LCI	0.95 UCI
Not specified	214	50	NR	NR	NR
Stage I	27	2	NR	NR	NR
Stage II	2	0	NR	NR	NR
Stage III	68	40	2.48	1.9	3.23
Stage IV	111	61	1.79	1.33	3.31

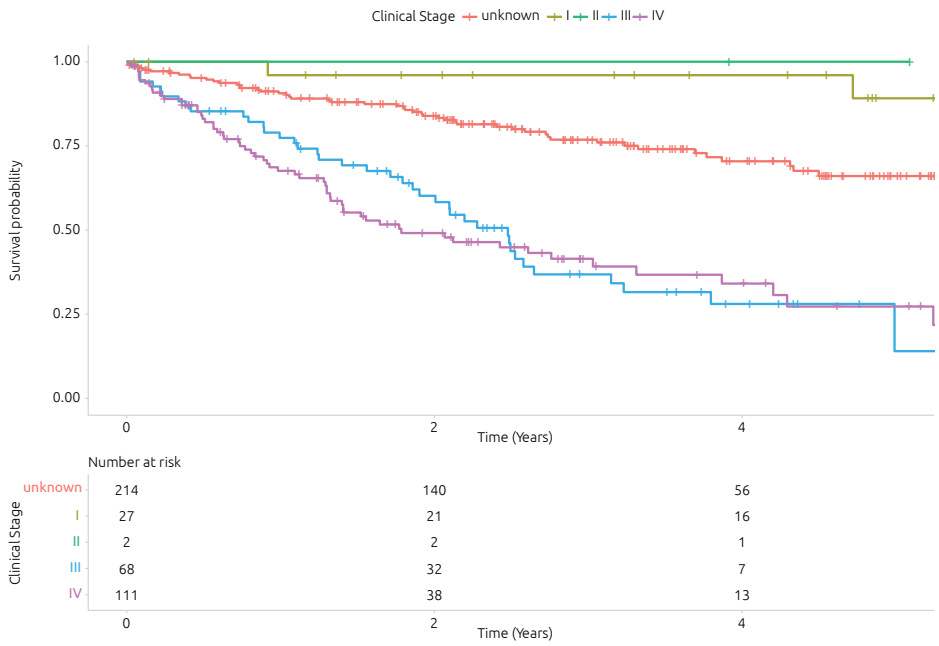
NR: not reached; LCI: lower confidence interval; UCI: upper confidence interval

Table 2.4.16 Landmark survival analysis by clinical stage-ovarian cohort

Stage	1-year OS	3-year OS	5-year OS
Not specified	90.6% (95% CI 86.7, 94.7)	76.9% (95% CI 70.7, 83.5)	66.0% (95% CI
Stage I*	91.7% (95% CI 88.6, 1)	91.7% (95% CI 88.6, 1)	89.1% (95% CI 75.5, 1)
Stage II~	NA	NA	NA
Stage III	77.4% (95% CI 67.9, 88.2)	36.8% (95% CI 25.68, 52.8)	14.0% (95% CI 3.24, 60.8)
Stage IV	67.6% (95% CI 59.0, 77.4)	41.5% (95% CI 32.1, 53.6)	27.3% (95% CI 17.2, 43.2)

*1 year and 3-year OS are the same for stage I patients, as there was only 2 death events over the whole time span.

~ in the stage II cohort, there were no events, survival is 100%.



Survival by pathological stage – patients diagnosed 2015 - 2019

Table 2.4.17 Survival outcomes by pathological stage-ovarian cohort

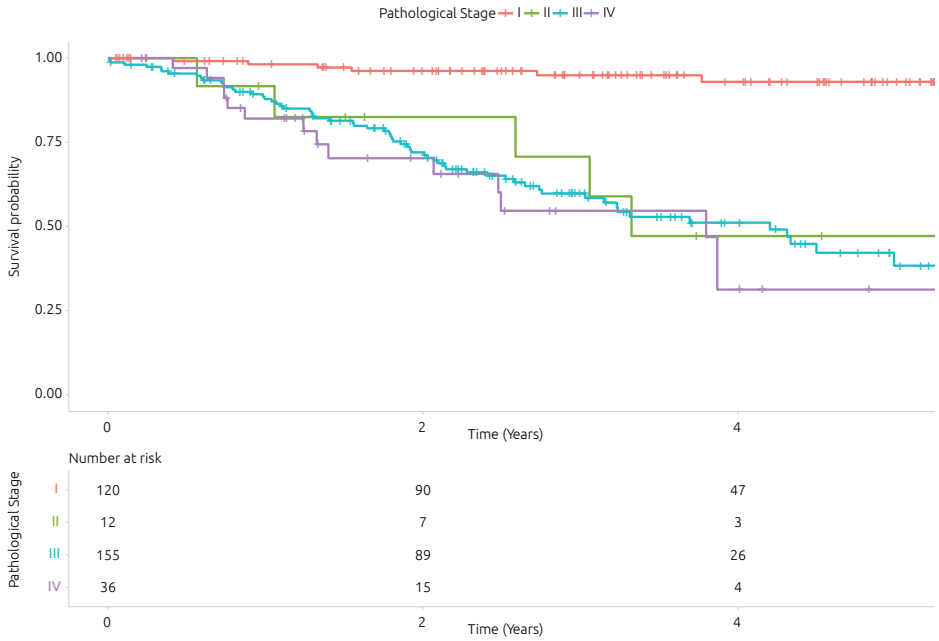
Disease stage	Cohort size	Events	Median	0.95 LCI	0.95 UCI
Stage I	120	6	NR	NR	NR
Stage II	12	5	3.32	2.59	NR
Stage III	155	64	4.20	3.15	NR
Stage IV	36	15	3.80	2.07	NR

LCI: lower confidence interval; UCI: upper confidence interval

Table 9 Landmark analysis by pathological stage-ovarian cohort

Stage	1-year OS	3-year OS	5-year OS
Stage I	98.2% (95% CI 95.7, 1)	94.9% (95% CI 90.6, 99.4)	93.0% (95% CI 87.4, 98.9)
Stage II	91.7% (95% CI 77.3, 10	70.7% (95% CI 47.2, 1)	47.1% (95% CI 23.5, 94.5)
Stage III	87.8% (95% CI 82.7, 93.3)	59.8% (95% CI 51.6, 69.2)	38.3% (95% CI 27.6, 53.3)
Stage IV	82.0 (95% CI 70.0, 96.2)	54.6% (95% CI 37.7, 79.3)	31.2% (95% CI 14.9, 65.6)

OS: overall survival; CI: confidence interval



Cancer of the endometrium

Overall survival – patients diagnosed 2015 - 2019

Table 2.4.19 Summary of survival outcomes in full endometrial cohort

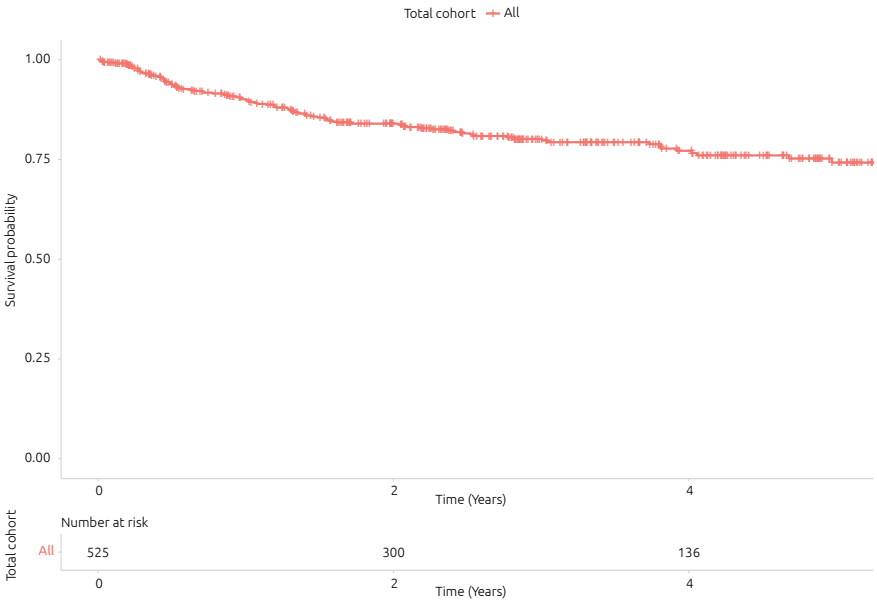
Cohort size	Events	Median OS (years)	LCL	UCL
525	96	NR	6.09	NR

NR: not reached; LCL: lower confidence interval; UCL: upper confidence interval

Table 2.4.20 Landmark survival in whole cohort

1 year OS	3-year OS	5-year OS
90.1% (95% CI 87.4, 92.9)	80.2% (95% CI 76.3, 84.2)	74.2 (95% CI 69.2, 79.6)

OS: overall survival; CI: confidence interval



Survival by Clinical stage – patients diagnosed 2015 - 2019

Table 2.4.21 Summary of survival outcomes by clinical stage

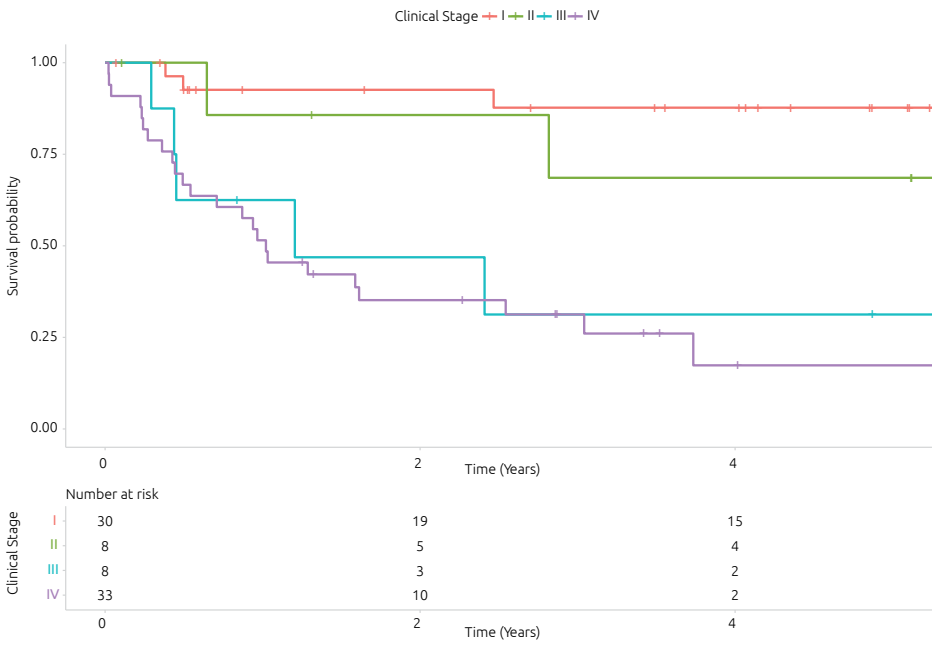
Stage	Cohort size	Events	Median OS (years)	LCL	UCL
I	30	3	NR	NR	NR
II	8	2	NR	2.82	NR
III	8	5	1.2	0.45	NR
IV	33	24	1.02	0.54	3.04

NR: not reached; LCL: lower confidence interval; UCL: upper confidence interval

Table 2.4.22 Landmark survival by clinical stage

Stage	1-year OS	3-year OS	5-year OS
I	92.6% (95% CI 83.2, 1)	87.7% (95% CI 75.5, 1)	-
II	85.7% (95% CI 63.3, 1)	68.6% (95% CI 40.3, 1)	-
III	62.5% (95% CI 36.5, 1)	31.1% (95% CI 10.2, 95.5)	-
IV	51.5% (95% CI 37.0, 71.7)	31.1% (95% CI 18.5, 53.0)	17.4% (95% CI 6.2, 48.3)

OS: overall survival; CI: confidence interval



Survival by pathological stage – patients diagnosed 2015 - 2019

Table 2.4.23 Summary of survival outcomes by pathological stage

Stage	Cohort size	Events	Median OS (years)	LCL	UCL
I	328	19	NR	NR	NR
II	46	7	NR	NR	NR
III	71	19	NR	5.64	NR
IV	24	17	1.06	0.71	1.48

NR: not reached; LCL: lower confidence interval; UCL: upper confidence interval

Table 2.4.24 Landmark survival by pathological stage

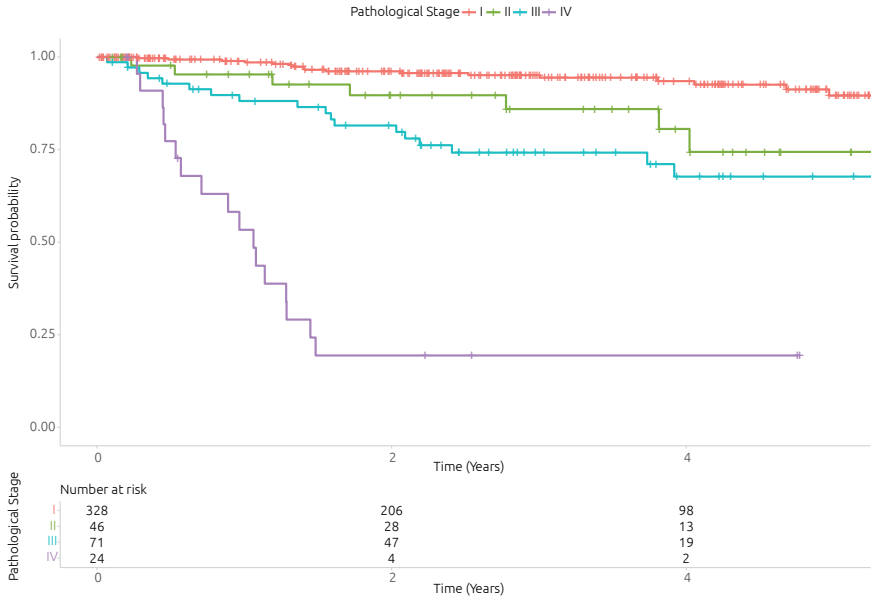
Stage	1-year OS	3-year OS	5-year OS
I	98.9% (95% CI 97.7, 1)	95.1 (95% CI 92.4, 97.9)	89.6% (95% CI 84.1, 95.3)
II	95.3% (95% CI 89.1, 1)	85.9% (95% CI 75.0, 98.5)	74.4% (95% CI 58.3, 94.9)
III	88.1% (95% CI 80.7, 96.2)	74.2% (95% CI 63.9, 86.1)	67.7 (95% CI 55.7, 82.3)
IV	53.3% (95% CI 35.8, 79.4)	19.4 (95% CI 8.1, 46.6)	-

Survival by tumour site – patients diagnosed 2015 - 2019

Table 2.4.25 Summary of survival outcomes by tumour location

Tumour location	Cohort size	Events	Median OS (years)	LCL	UCL
Corpus uteri	62	32	2.52	1.29	NR
Endometrium	463	64	NR	6.09	NR

NR: not reached; LCL: lower confidence interval; UCL: upper confidence interval



Vulval Cancer

Overall survival - – patients diagnosed 2015 - 2019

Table 2.4.26 Survival outcomes in full vulval cancer cohort

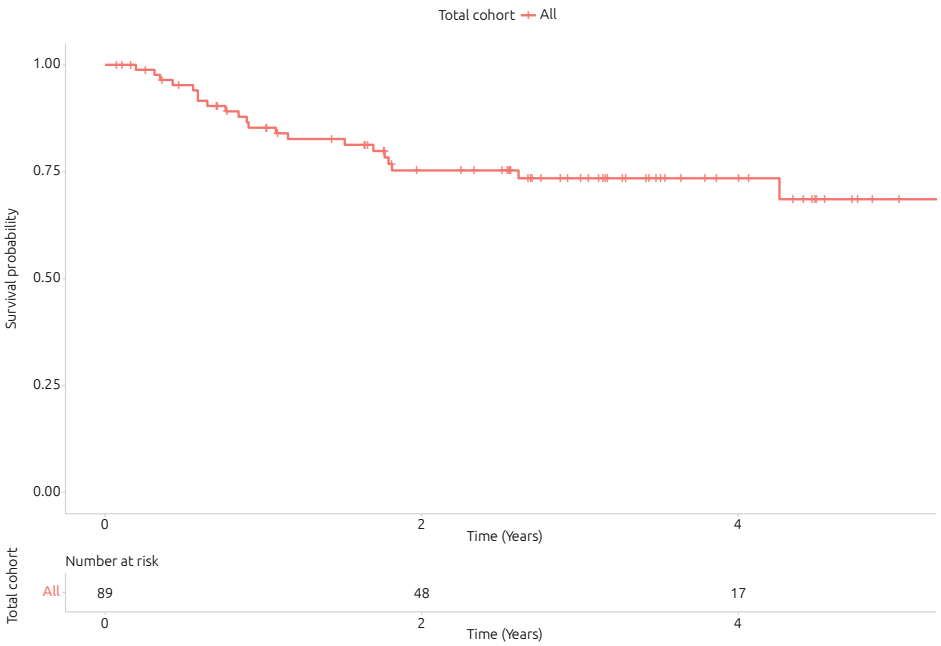
Cohort size	Events	Median	0.95 LCI	0.95 UCI
89	21	NR	NR	NR

NR: not reached; LCL: lower confidence interval; UCL: upper confidence interval

Table 2.4.27 Landmark OS analysis (full vulval cohort)

1-year	3-year	5-year
85.3% (95% CI 77.9, 93.3)	73.5% (95% CI 64.0, 84.3)	68.6% (95% CI 56.5, 83.2)

CI: confidence interval



Survival by clinical stage – patients diagnosed 2015 - 2019

Table 2.4.28 Outcomes by clinical stage in vulval cohort

Disease stage	Cohort size	Events	Median	0.95 LCI	0.95 UCI
Stage I	36	8	NR	4.26	NR
Stage II	2	2	105	0.59	NR
Stage III	3	2	0.65	0.43	NR
Stage IV	1	1	1.15	NR	NR

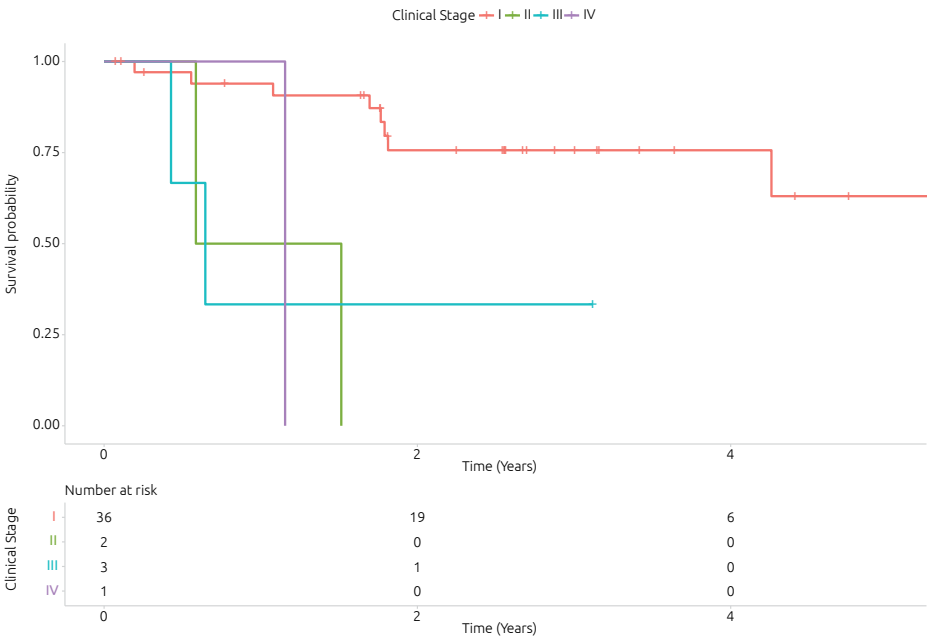
NR: not reached; LCI: lower confidence interval; UCI: upper confidence interval

Table 2.4.29 Landmark survival analysis by clinical stage-vulval cohort

Stage	1-year OS	3-year OS	5-year OS
Stage I	93.9% (95% CI 86.1, 1)	75.6 (95% CI 61.3, 93.3)	63.0% (95% CI 41.6, 95.5)
Stage II*	50.0% (95% CI 12.5, 1)	0%	0%
Stage III	33.3% (95% CI 6.73, 1)	-	-
Stage IV	-	-	-

*3-year and 5-year OS are the same for stage II patients, as there was only 2 death events over the whole time span.

No data provided for stage IV as there was only 1 patient



Survival by pathological stage – patients diagnosed 2015 - 2019

Table 2.4.30 Survival outcomes by pathological stage-vulval cohort

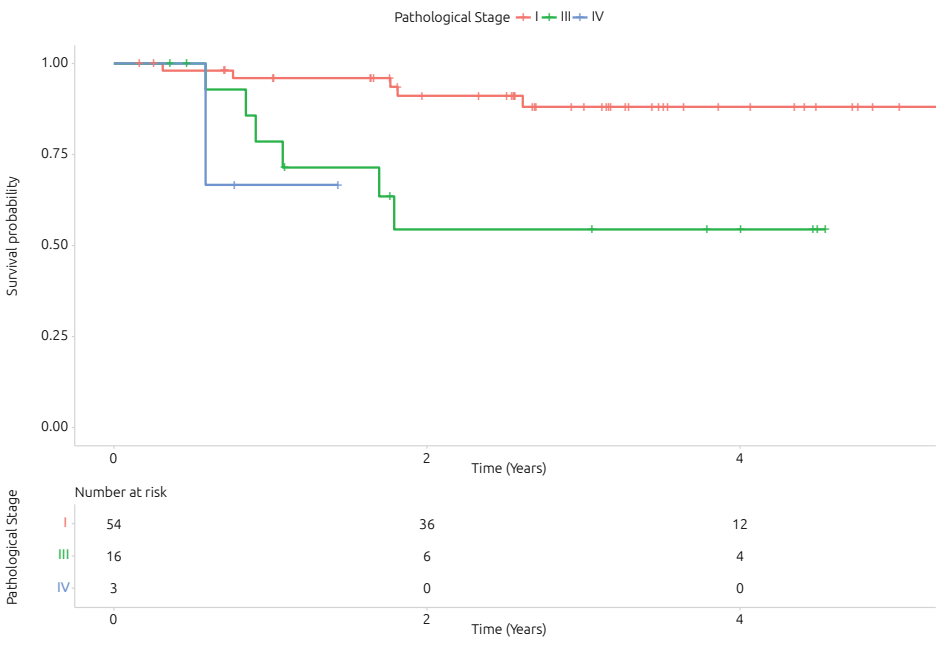
Disease stage	Cohort size	Events	Median	0.95 LCI	0.95 UCI
Stage I	54	5	NR	NR	NR
Stage II	NA	NA	NA	NA	NA
Stage III	16	6	NR	1.7	NR
Stage IV	3	1	NR	0.59	NR

LCI: lower confidence interval; UCI: upper confidence interval; NR: not reached; NA: not applicable

Table 2.4.31 Landmark analysis by pathological stage-vulval cohort

Stage	1-year OS	3-year OS	5-year OS
Stage I	96.0% (95% CI 90.7, 1)	88.1% (95% CI 78.7, 98.7)	-
Stage II	-	-	-
Stage III	78.6% (95% VI59.8, 1)	54.4% (95% CI 32.9, 90.1)	-
Stage IV	66.7% (95% CI 0.3, 1)	-	-

OS: overall survival; CI: confidence interval



Head and Neck Cancer

Head and Neck cancers are a diverse group of cancers that in the main are made up of mucosal malignancies of the upper aerodigestive tract, including the oral cavity, larynx and pharynx. They also include salivary gland malignancies, thyroid malignancies, and many cutaneous malignancies of the head and neck are treated by our service.

In St. James's hospital, patients are managed by both the Department of Otolaryngology-Head & Neck Surgery (Professor Conrad Timon, Mr John Kinsella and Mr Paul Lennon) and the Department of Maxillofacial Surgery (Mr John Edward O Connell, Mr Conor Bowe and Mr Padraig O Ceallaigh).

Radiotherapy (Dr Sinead Brennan and Dr Fran Duane) is a mainstay of treatment for our patients, often along with chemotherapy provided by Dr Cliona Grant. The MDT also comprises specialist Endocrinology (Prof. Marie Louise Healy), Pathology (Prof. Mary Toner and Dr Esther O'Regan) and Radiology input. Restorative dental (prosthodontics) services are provided by Dr Aisling O' Mahony.

Three specialist nurses support the service, Anne Marie Farrelly, Joanne MacDonagh and Aiby Thomas.

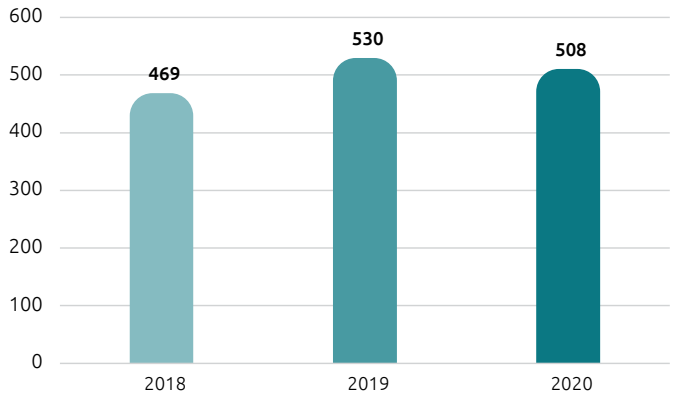
SJH acts as the hub, with patients often diagnosed and/or treated in spokes such as Royal Victoria Eye and Ear Hospital (RVEEH), Dublin Dental Hospital, Tallaght University Hospital, Tullamore Hospital and St Luke's Hospital in Rathgar. St James's MDT acts as a tertiary referral centre for Head and Neck Cancers, with patients being referred from throughout Ireland.

Surgery for this group of patients may be complex and difficult, often requiring multiple surgical teams to play a part. A comprehensive cancer centre model of combined multi-surgeon operations is in use for the most complex cases, with the considerable benefit of on-site links with the largest national plastic and reconstructive team, the national oesophageal service and a high volume cardiothoracic service.

Our patients often require extensive rehabilitation, provided by specialist Speech and Language therapists and Dietitians, and dedicated nursing staff on St. John's, Anne Young and Private 3 wards. In more recent years our patients have benefited from the newly established physiotherapy pre-rehabilitation program.

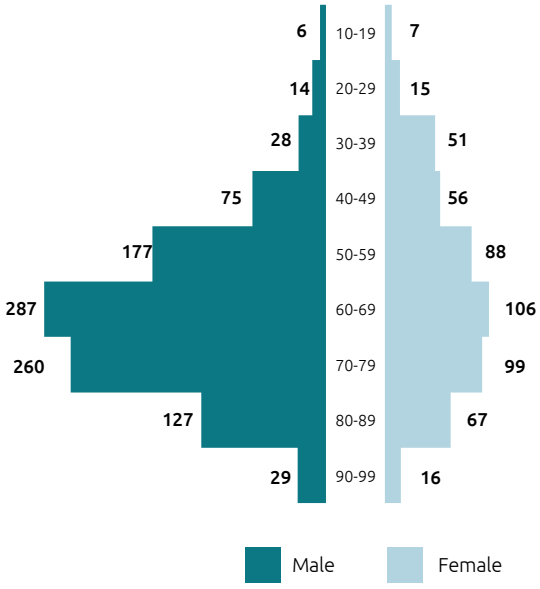
The data summarised in the following tables and graphs relates to patients who were treated for Head & Neck cancer in the period 2018-2020 by the St. James's Hospital Head & Neck MDT group.

Figure 2.5.1 Head and Neck Cancer 2018-2020



*Numbers include patients managed at MDT only, follow up patients and patients who have had a recurrence

Figure 2.5.2 New Head and Neck Cancer cases 2018-2020 by gender and age at diagnosis



The average age at diagnosis was 64 years (range 13 – 99) and the median age was 66. Sixty-seven percent of patients were male.

Figure 2.5.3 Hospital of Diagnosis Head & Neck Cancer Patients 2020

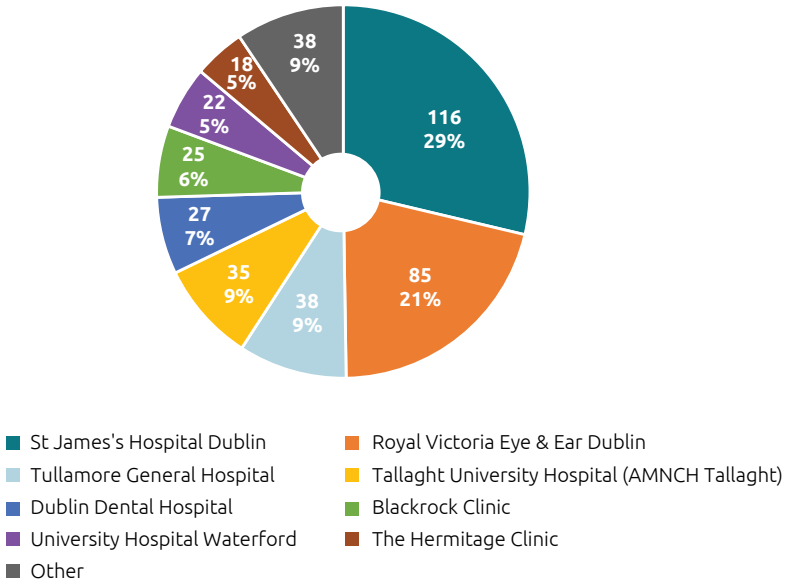


Table 2.5.1: Tumour Site All Primary Patients Curative Intent 2020

Tumour Site 2020 Curative Intent	Number	%
Oral Cavity	85	23
Larynx	72	19
Thyroid	64	17
Oropharynx HPV +ve	41	11
Hypopharynx	21	6
Cutaneous Carcinoma of the Head and Neck	32	9
Oropharynx HPV -ve	14	4
Major Salivary Glands	28	8
Unknown Primary	6	2
Nasopharynx	5	1
Oesophagus	2	0.5
Sarcoma	3	1

Table 2.5.2: First Treatment Given Thyroid Patients 2020 (Primary Cohort)

1st Treatment Given Thyroid Pts 2020	Number	%
Surgery	64	95.5
Palliative Treatment	2	3
Palliative (No active treatment)	2	1.5

Table 2.5.3: First Treatment Given Head & Neck Cancer Patients* 2020 (Primary Cohort)

1st Treatment Given H&N Pts* 2020	Number	%
Surgery	189	57
Radical Radiotherapy	115	34
Palliative Treatment	31	9

*Excluding Thyroid Patients

Table 2.5.4: Surgical Analysis Head & Neck Cancer Patients* 2020 (Primary Cohort)

Surgery Analysis H&N*Pts 2020	Number	%
Surgery alone	94	50
Surgery + Adjuvant Radiotherapy	70	37
Surgery + Adjuvant Chemo/Radiotherapy	25	13

*Excluding Thyroid Patients

Table 2.5.5: Radiotherapy Analysis Head & Neck Cancer Patients* 2020 (Primary Cohort)

Radiotherapy Analysis H&N Pts 2020	Number	%
Radical Radiotherapy	41	32
Radical Radiotherapy + Chemotherapy	74	57
Palliative Radiotherapy	15	11

*Excluding Thyroid Patients

Table 2.5.6: Hospital of Surgery Head & Neck Cancer Patients 2020

Hospital of Surgery 2020 Patients	Number
St. James's Hospital	149
Surgery in RVEEH	55
Surgery in The Blackrock Clinic	20
Surgery in another Hospital	17
Surgery in AMNCH	8
Surgery in the Hermitage	8

Table 2.5.7: Analysis of p16 Status (Oropharyngeal Site with Curative Intent)

Oropharyngeal Site Curative Intent	Number	%
p16 +	41	73
p16 -	14	27

Surgery Numbers St. James's MDT Group 2020

The tables below outline the surgery performed by the ENT and Maxillofacial Surgeons St. James's hospital MDT group in 2020. The first table exhibits both the surgery performed on patients who presented to St. James's for the first time with a Head & Neck Cancer and, also those were treated by the group previously but now needed an operation for recurrence (264 patients in total). The next table shows the number of second operations needed by the primary group. The last tables show the treatment given to patients who recurred in 2020 and then finally the types of recurrence operations.

Table 2.5.8: Surgery Performed Head & Neck Cancer Patients 2020 (Primary Surgery)

Operation Type H & N Cancer 2020	Primary	Recurrence	Total
Neck Dissection	192	25	217
Oral Cavity/ Oropharyngeal resection	86	4	90
Free Flap/Pedicled	48		48
Laryngectomy/PLO	35	9	44
Parotidectomy*	23		23
Thyroidectomy**	62	4	66
Skin cancer	24	1	25
Other	1	2	3
Laser	10		10
Attempted Surgery but not completed	3		3

*For primary parotid cancer or presumed skin cancer

**12 Thyroidectomies as part of a more extensive operation

Table 2.5.9: Number of Patients who needed ICU care 2020*

ICU Numbers 2020	Average Length of Stay
56	4.3 Days

* This number accounts for patients who had their surgery in St. James's Hospital and needed immediate post-operative ICU care

Recurrence Analysis

The tables below offer a summary of the treatments given to patients whose cancer recurred in 2020.

Table 2.5.10 Treatments Given for Recurrence of Head & Neck Cancer in 2020

Treatment for Recurrence 2020	Number
Surgery	27
Chemotherapy	26
Radiotherapy	4
Best Supportive Care	3

Table 2.5.11: Surgery performed for Recurrence Head & Neck Cancer 2020

Operation Type H & N Recurrence 2020	Number
Neck Dissection	25
Oral Cavity/ Oropharyngeal resection	4
Laryngectomy/PLO	9
Thyroidectomy*	4
Skin cancer	1
Other	1
Nasal cavity tumour excision	1

*3 thyroidectomies were performed as part of a larger surgery

Survival analysis by tumour site

Oral cavity overall survival – patients diagnosed 2015 - 2019

Table 2.5.12 Survival outcomes in full oral cavity cancer cohort

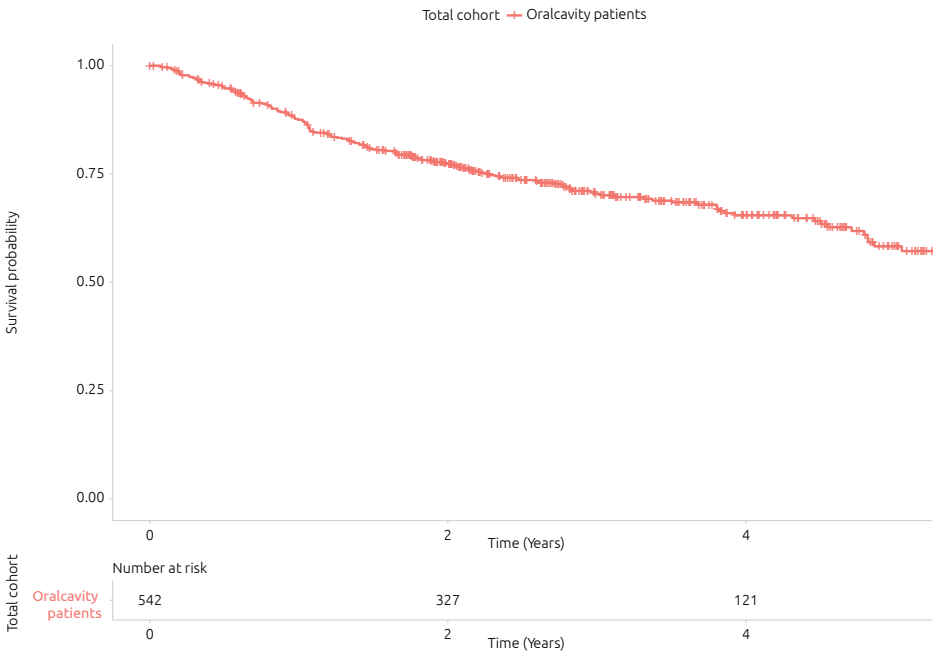
Cohort size	Events	Median	0.95 LCI	0.95 UCI
542	165	6.13	5.54	NR

NR: not reached; LCL: lower confidence interval; UCL: upper confidence interval

Table 2.5.13 Landmark OS analysis (full oral cavity cohort)

1-year	3-year	5-year
87.5% (95% CI 84.7, 90.4)	70.4% (95% CI 66.3, 74.8)	58.3% (95% CI 52.4, 64.9)

CI: confidence interval



Larynx overall survival – patients diagnosed 2015 - 2019

Table 2.5.14 Survival outcomes in full larynx cancer cohort

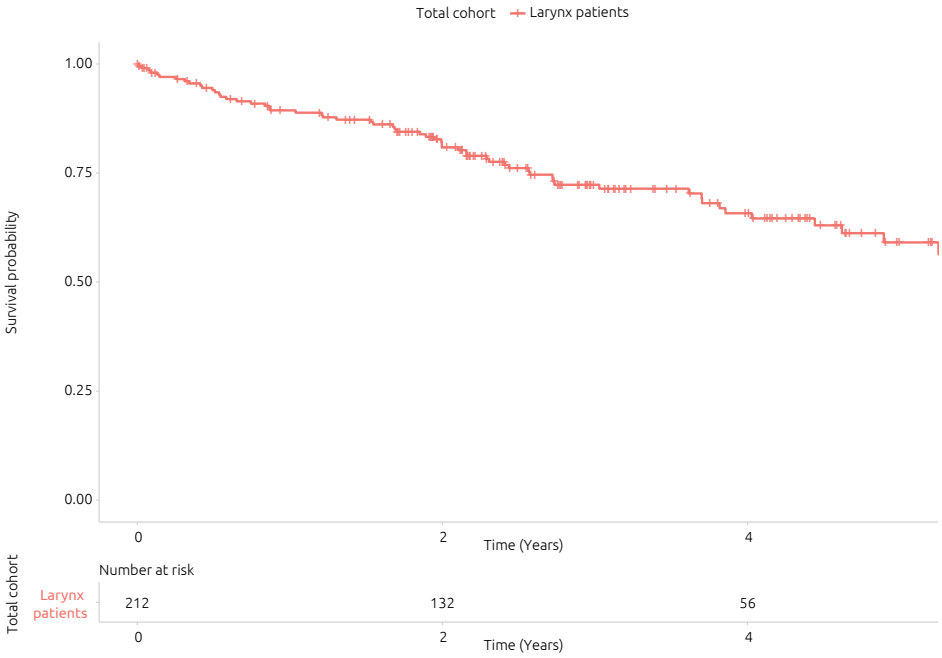
Cohort size	Events	Median	0.95 LCI	0.95 UCI
212	62	5.82	5.25	NR

NR: not reached; LCL: lower confidence interval; UCL: upper confidence interval

Table 2.5.15 Landmark OS analysis (full larynx cohort)

1-year	3-year	5-year
89.4% (95% CI 85.2, 93.8)	72.3% (95% CI 65.8, 79.5)	59.1% (95% CI 50.2, 69.5)

OS: overall survival; CI: confidence interval



Thyroid overall survival – patients diagnosed 2015 - 2019

Table 2.5.16 Survival outcomes in full thyroid cancer cohort

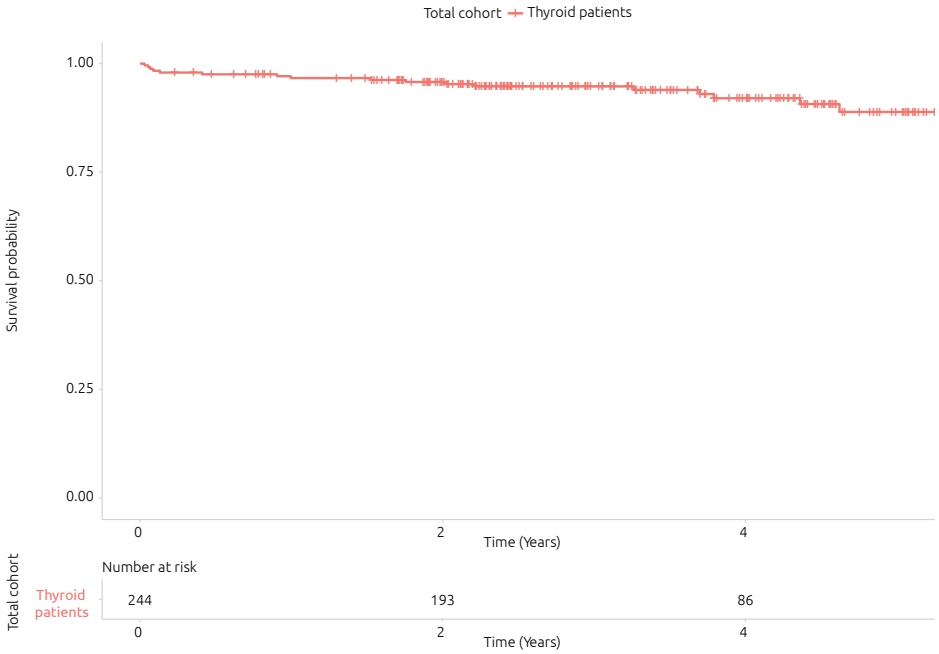
Cohort size	Events	Median	0.95 LCI	0.95 UCI
244	18	NR	NR	NR

NR: not reached; LCL: lower confidence interval; UCL: upper confidence interval

Table 2.5.17 Landmark OS analysis (full thyroid cohort)

1-year	3-year	5-year
96.7% (95% CI 94.4, 99.0)	94.7% (95% CI 91.9, 97.7)	88.9% (95% CI 83.2, 95.0)

OS: overall survival; CI: confidence interval


Total cohort
Thyroid patients
1.00
0.75
0.50
0.25
0.00
Survival probability
0
2
4
Time (Years)
Number at risk
Total cohort
Thyroid patients
244
193
86
0
2
4
Time (Years)

6. Lung Cancers

Lung cancer remains the leading cause of invasive cancer deaths in Ireland. The incidence rate of lung cancer is 41.0 per 100,000 for females and 55.3 per 100,000 for males. Lung cancer is the fourth most common cancer in the Irish population and is the second most common cancer for females and the third most common cancer for males [National Cancer Registry, 2018].

Lung Multidisciplinary Team (MDT) at SJH

The mission of the lung MDT is to provide best care for all lung cancer patients – safe, responsive, person-centred, with excellent outcomes. The MDT brings together the specialties required to achieve this, from respiratory medicine, diagnostic imaging and pathology, to thoracic surgery, medical oncology, radiation oncology and palliative medicine. Our lung cancer nurse coordinators ensure continuity of care for patients, with seamless transition between specialties, supported by advanced nurse practitioners. The MDT is underpinned by a data manager, MDT coordinators and research team.

The lung MDT meets weekly and includes a tele-link with referring hospitals in Mullingar, Tullamore, Limerick, Waterford and Letterkenny. There is also a weekly MDT planning meeting to ensure that patients waiting for difficult or complex biopsies are discussed with radiology consultants post-bronchoscopy, and that patients who are part of surveillance programmes are discussed in a multidisciplinary environment. The cardiothoracic surgeons and lung cancer nurse co-ordinators also attend the lung MDT meetings at Tallaght University Hospital and Beaumont Hospitals, through which referrals for surgery are received.

Composition of MDT

Respiratory Physicians
- Dr Nadim Akasheh
- Dr Ruairi Fahy
- Dr Joe Keane
- Dr Barry Kennedy
- Dr Brian Kent
- Dr Anne Marie Mc Laughlin
- Dr Paddy Nadarajan
- Dr Finbarr O'Connell
- Dr Rory O'Donnell
- Dr Deirdre O'Riordan

Radiologists
- Dr Peter Beddy
- Dr Danielle Byrne
- Dr Grainne Govender
- Dr John Kavanagh
- Dr Ronan Mc Dermott
- Dr Jim Meany
- Dr Darra Murphy

Pathologists
- Dr Siobhan Nicholson
- Dr Ciara Ryan

Cardiothoracic Surgeons
- Mr Gary Fitzmaurice
- Mr Ronan Ryan
- Mr Vincent Young

Medical Oncology
- Dr Sinead Cuffe

Radiation Oncology
- Dr Pierre Thirion

Palliative Care
- Dr Lucy Balding
- Dr Norma O'Leary

Lung Cancer Nurse Coordinators
- Finola Fitzsimons
- Rosemary Kennedy

Oncology Nurse Coordinator
- June Gleeson

Surveillance Clinic
- Jacinta Flynn
- Niamh Kiely

Data Manager
- Fiona Mulvany

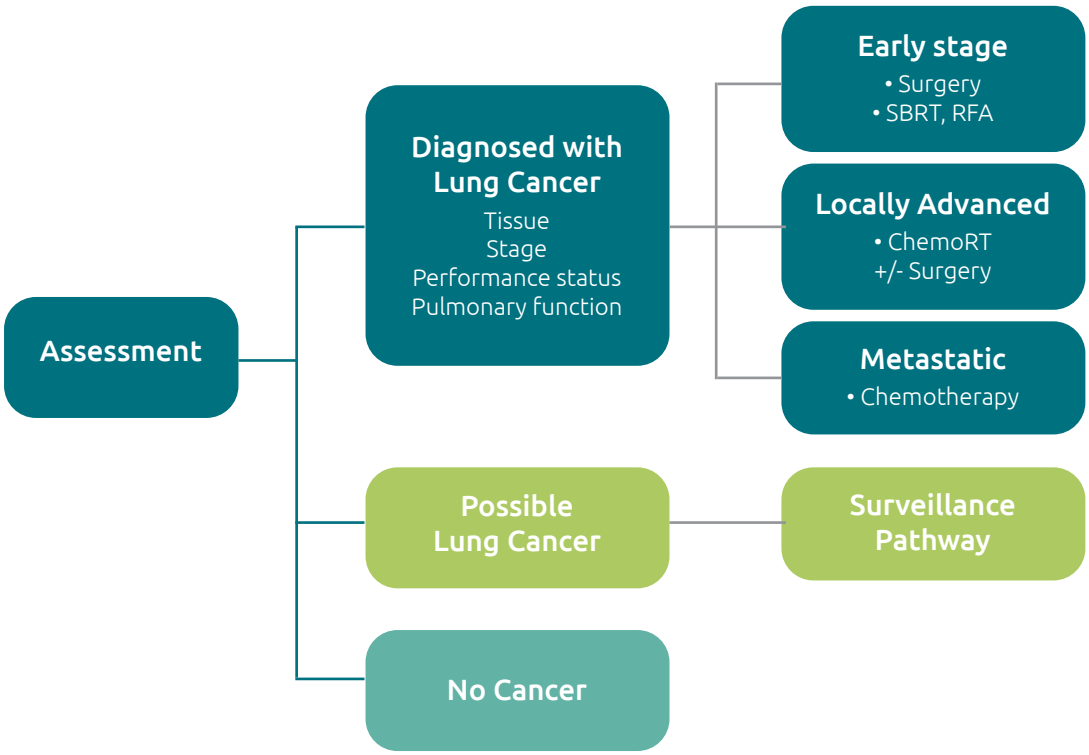
MDT Coordinator
- Karl Doyle
- Caroline Gleeson
- Avril Nolan

Research Team

Lung Cancer Pathway

Figure 2.6.1 provides an overview of the lung cancer patient's journey from their initial assessment through their clinical investigations, to diagnosis and recommended treatments.

Figure 2.6.1: Lung Cancer Pathway

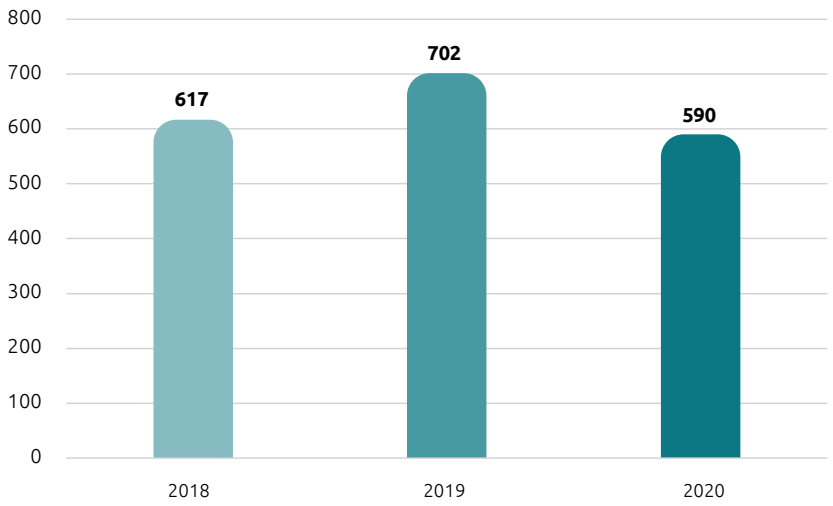


Lung Cancer Audit

For the audit period 01 January 2018 – 31 December 2020, data is reported on all patients diagnosed with, referred with, and/or treated for, a primary lung cancer at SJH. In general, patients who are referred with a primary diagnosis of lung cancer, but are neither diagnosed or treated at SJH, will usually have a PET CT scan, a review of their histology, occasionally a staging procedure such as EBUS, and at least one full MDT discussion, before being referred back locally for the most appropriate treatment for their diagnosis/disease status or for the treatment preferred by the patient.

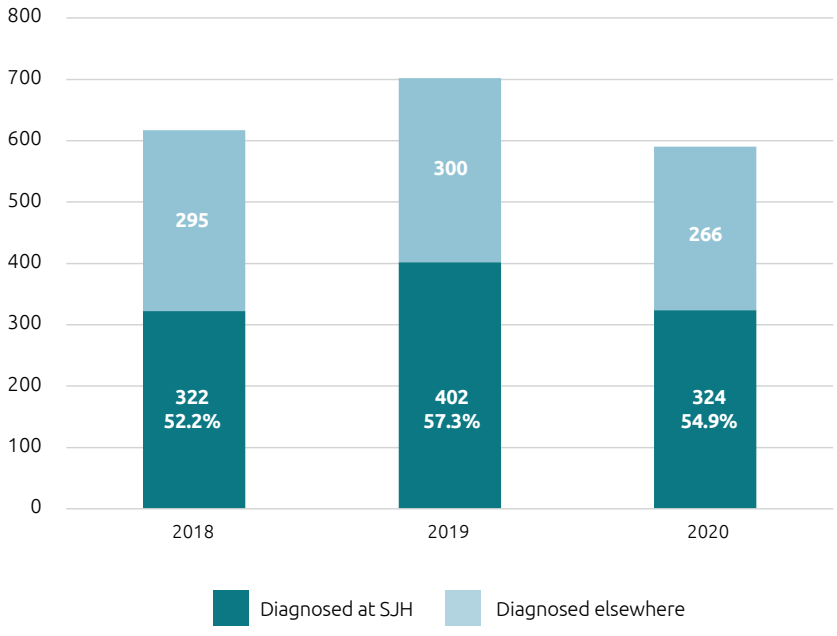
There were 1,909 patients diagnosed with, referred with, and/or treated for, a primary lung cancer at SJH between 2018 and 2020. While the 2020 figure of 590 is lower than the 2019 figure of 702, it is more in keeping with the average of 573 cases per year reported in the previous cancer audit report for the period 2013-2017 and the 617 new cases in 2018. (Figure 2.6.2).

Figure 2.6.2: Lung Cancers 2018 - 2020



Just over half of the patients (54.9%) that had contact with the lung cancer service between 2018 and 2020 were diagnosed at SJH, with the balance being referred in for staging procedures or imaging, MDM discussion, and/or treatment, having being diagnosed elsewhere (Figure 2.6.3).

Figure 2.6.3: Hospital of Diagnosis 2018 - 2020

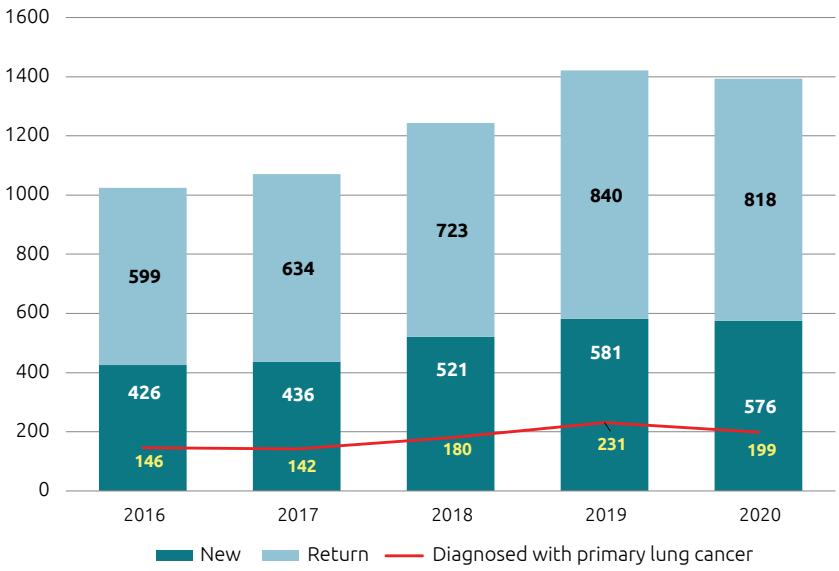


Rapid Access Lung Clinic

St James's Hospital is one of the eight nationwide rapid access lung clinics, providing diagnostics and staging to patients. The service aims to be in a position to determine appropriate primary therapy within a 4-6 week time frame. All bronchoscopies are provided on a "next list" basis which means there is no waiting list for any patient needing this service. Where CT and bronchoscopy are the only investigations required this is usually achieved within two weeks. Where additional investigations such as CT guided biopsy, US guided biopsy, EBUS, PET, MRI or mediastinoscopy are required, the aim is within six weeks of initial contact. The respiratory consultants in SJH specialise in providing bronchoscopy under fluoroscopy and EBUS guided TBNA for mediastinal staging.

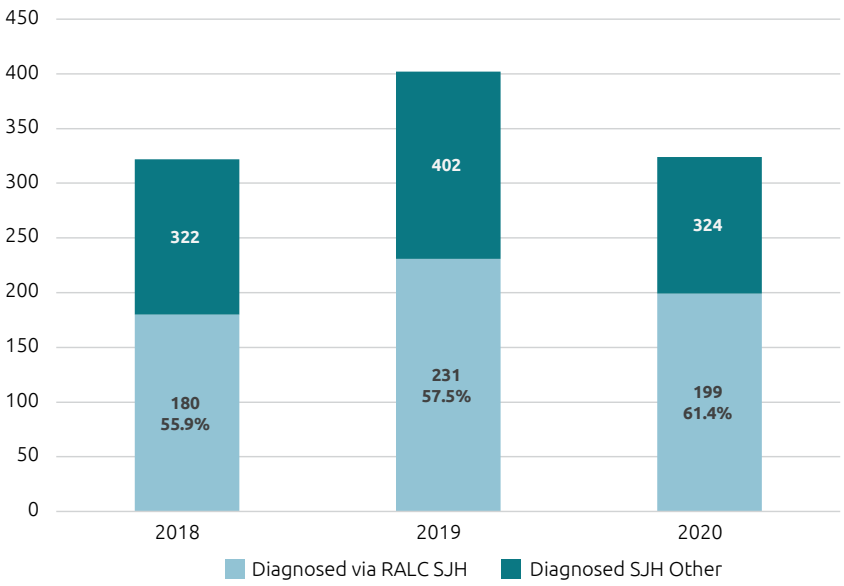
Attendance at the service continues to increase, from 1,025 attendances in 2016 to a peak of 1,421 attendances in 2019. There was a small drop off in 2020 to 1,394 attendances. On average, 41% of all attendances are new referrals. Rapid Access Lung Clinic KPI data has been submitted to NCCP since mid-2010. The Rapid Access Lung Clinic continues to reach and exceed targets during the period of this report for new referrals to the service being seen within 10 working days (Figure 2.6.4).

Figure 2.6.4: Rapid Access Lung Clinic 2016 – 2020 Activity and New Diagnoses



Over the period of this audit, the proportion of patients diagnosed at SJH, who obtained that diagnosis through the Rapid Access Lung Centre has, increased year on year, from 55.9% in 2018 to 61.4% in 2020 (Figure 2.6.5).

Figure 2.6.5: Lung Cancer Diagnoses 2018 - 2020



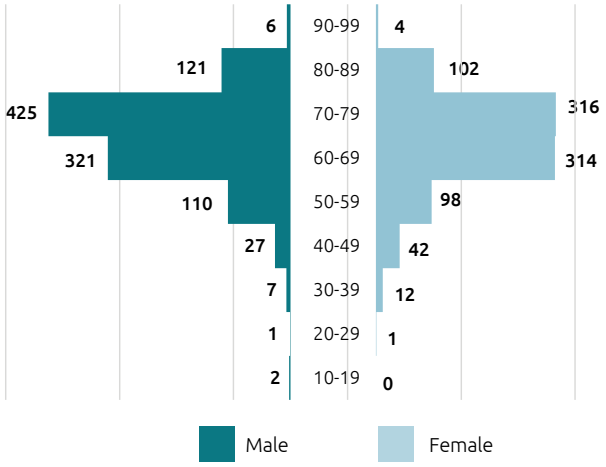
Demographic profile

Gender & age

The average age at diagnosis of patients diagnosed with, referred with, and/or treated for, a primary lung cancer at SJH 2018 – 2020 was 69 years (range 16 – 94 years) and the median was 70 years. As was the case for the previous five-year report (2013 – 2017), 53.4% of patients were male and 46.6% female. Figure 2.6.6 gives the new lung cancer cases 2018 – 2020 by gender and age at diagnosis.

At time of diagnosis, 4.8% of patients were under the age of 50 (5.2% in 2013 – 2017), 83.0% were aged 50 – 79 years (85.6% in 2013 – 2017) and 12.2% were 80 years and over (9.1% in 2013 – 2017).

Figure 2.6.6 New Lung Cancer cases 2018-2020 by gender and age at diagnosis



Cancer Type - Gender & age

Table 2.6.1 Cancer type by gender %

Cancer type by gender	
All cases	100.0 (n=1,909)
Male	53.4
Female	46.6
NSCLC	82.3
Male	54.6
Female	45.4
SCLC	10.2
Male	46.9
Female	53.1
Carcinoid	3.0
Male	39.7
Female	60.3
Other	4.5
Male	55.3
Female	44.7

Table 2.6.2 Cancer type by age %

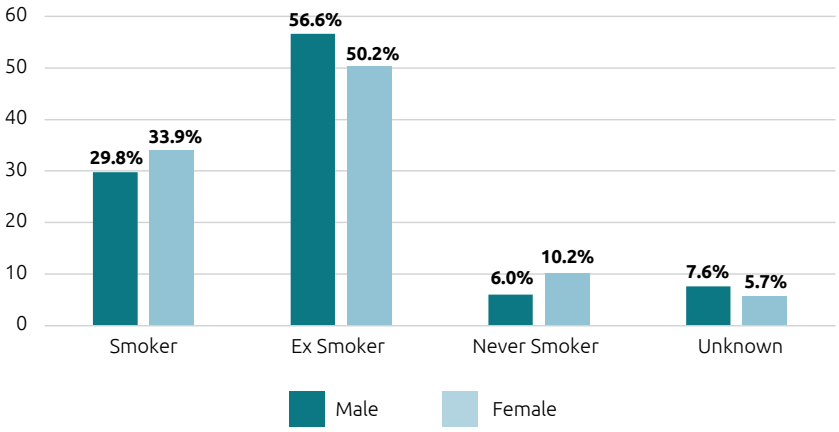
Cancer type by age	
All cases	100.0 (n=1,909)
<70 yrs	49.0
70+ yrs	51.0
NSCLC	82.3
<70 yrs	47.7
70+ yrs	52.3
SCLC	10.2
<70 yrs	60.8
70+ yrs	39.2
Carcinoid	3.0
<70 yrs	74.1
70+ yrs	25.9
Other	4.5
<70 yrs	28.2
70+ yrs	71.8

Table 2.6.1 shows that lung cancer was slightly more common in males than females during the audit period but females were more likely to be diagnosed with small cell lung cancer (SCLC) or with a carcinoid tumour. A higher proportion of patients under 70 years received a diagnosis of SCLC or carcinoid tumour (Table 2.6.2). Older patients are over-represented in the Other category as this group contains, among others, patients for whom a tissue diagnosis was not ascertained. These patients are, in general, older and more frail at presentation and their diagnosis of lung cancer is made by the clinical team based on diagnostic imaging. A more detailed breakdown of lung cancer type is provided in Table 2.6.3.

Smoking

Smoking is the most common risk factor for lung cancer. Overall, 31.7% of cases diagnosed with, referred with, and/or treated for, a primary lung cancer at SJH in the period 2018-2020 were currently smoking and 53.6% were ex-smokers. Just 8.0% had never smoked. Females were more likely to be either currently smoking or to have never smoked. (Figure 2.6.7). The recent publication of the National Clinical Guideline Stop Smoking will be of value to healthcare professionals as they assist adults to stop smoking (Department of Health, 2022).

Figure 2.6.7 Smoking status 2018-2020 (n=1909)



Histopathology

82.3% of patients were diagnosed with a non small cell lung cancer, the majority receiving a diagnosis of adenocarcinoma (45.4%) or squamous cell carcinoma (30.4%). 10.2% received a diagnosis of small cell lung carcinoma (SCLC). 3.0% had carcinoid tumours and 0.2% were categorised as other. 1.7% were diagnosed with malignant mesothelioma over the audit period. 2.6% of patients did not receive a tissue diagnosis (Table 2.6.3).

Table 2.6.3. Tumour histopathology 2018-2020

Morphology	n=	%
NSCLC - Adenocarcinoma	866	45.4
NSCLC - Squamous cell carcinoma	580	30.4
NSCLC - Pleomorphic carcinoma	22	1.2
NSCLC - Adenosquamous carcinoma	4	0.2
NSCLC - Large Cell Neuroendocrine carcinoma	12	0.6
NSCLC - Large Cell carcinoma	7	0.4
NSCLC - Combined LCNEC & NSCLC	3	0.2
NSCLC - NOS	72	3.8
NSCLC - Miscellaneous - to include salivary gland type	6	0.3
SCLC	190	10.0
Combined SCLC & NSCLC	4	0.2
NSCLC - Carcinoid tumour	58	3.0
Other	4	0.2
Not histologically proven	49	2.6
Malignant Mesothelioma	32	1.7
All cases	**1909**	**100.0**

Tumour Location

Table 2.6.4: Tumour location 2018-2020

Location	Occurrences	%
LUL	475	24.9
LLL	260	13.6
Left Lung	22	1.2
RUL	583	30.5
RML	92	4.8
RLL	302	15.8
Right Lung	27	1.4
Pancoast	9	0.5
Both Lungs	6	0.3
Bronchus	52	2.7
Trachea	2	0.1
Lymph Nodes	23	1.2
Mediastinum	14	0.7
Pleura	28	1.5
Pleural Effusion	14	0.7
Grand Total	**1909**	**100.0**

LUL – Left Upper Lobe; LLL – Left Lower Lobe

RUL – Right Upper Lobe; RML – Right Middle Lobe; RLL – Right Lower Lobe

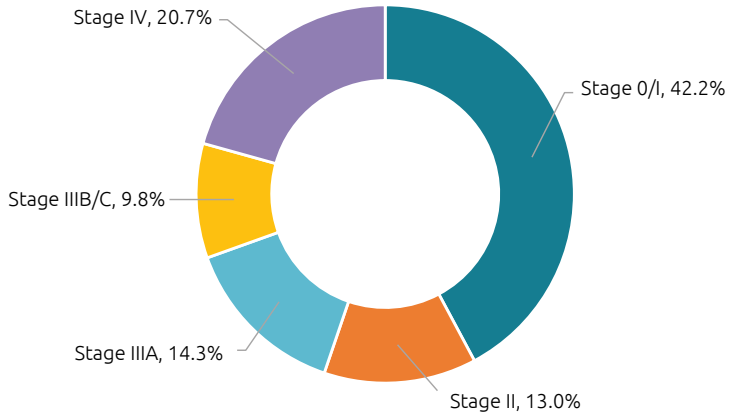
Table 2.6.4 gives details of the location of lung cancer tumours over the period 2018-2020. This data shows remarkable stability when examined over the three years with the proportion of tumours in the left lung at 39.7% - 40.8% - 39.5% over the 3 audit years 2018, 2019 and 2020, and right lung tumours at 52.6% - 52.5% - 52.7%.

Cancer Stage

Over the three-year period, 1 in 5 patients (20.7%) presented with incurable Stage IV disease (Figure 2.6.8). In the UK, the comparable figure from the latest year that data for the entire UK is available (2019) is 43% (Royal College of Physicians, 2022).

Figure 2.6.8: Cancer Clinical Stage distribution 2018-2020

excluding Occult carcinoma, Mesothelioma and patients with missing stage data (n=62)



The large proportion of early stage cancers seen at SJH likely reflects a referral bias for patients who can be treated with curative intent as SJH is one of the four lung cancer surgery centres in the country. Figure 2.6.9, which looks at the cancer stage distribution for patients diagnosed at SJH only, bears this out.

Figure 2.6.9: Cancer Clinical Stage distribution Diagnosed at SJH 2018-2020

excluding Occult carcinoma, Mesothelioma and patients with missing stage data (n=43)

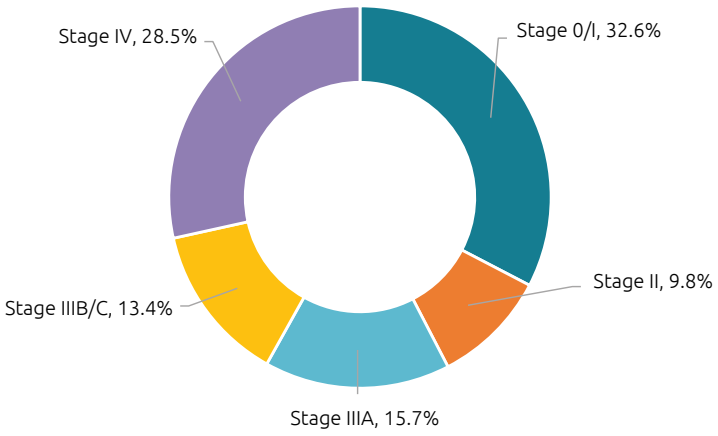


Table 2.6.5 presents the cancer stage data by year of diagnosis for all patients diagnosed with, referred with, and/or treated for, a primary lung cancer at SJH between 2018 and 2020. The proportion presenting at Stage IV has increased from 18.1% in 2018 to 21.7% in 2019 and to 22.2% in 2020.

Table 2.6.5: Cancer Clinical Stage distribution (%) by year of diagnosis

excluding Occult carcinoma, Mesothelioma and patients with missing stage data (n=62)

	2018	2019	2020	2018-2020
Stage 0/I	41.3	42.6	42.6	42.2
Stage II	15.9	11.9	11.4	13.0
Stage IIIA	15.3	14.4	13.2	14.3
Stage IIIB/C	9.4	9.5	10.6	9.8
Stage IV	18.1	21.7	22.2	20.7
All Stages	100.0	100.0	100.0	100.0

Table 2.6.6 presents this data for those diagnosed at SJH only and this corrects for the referral bias with a reduced proportion with Stage 0/1 and Stage II and higher proportions at Stages IIIA, IIIB/C and Stage IV. While the increase in numbers presenting at Stage IV is still evident between 2018 and 2019, increasing from 27.4% to 29.4%, the number falls back to 28.3% in 2020. Taking Stage IIIB/C and Stage IV together, there is a very marginal increase evident in the data between 2019 and 2020 when proportions grew from 42.2% to 42.6%.

Table 2.6.6: Cancer Clinical Stage distribution (%) diagnosed at SJH 2018 - 2020

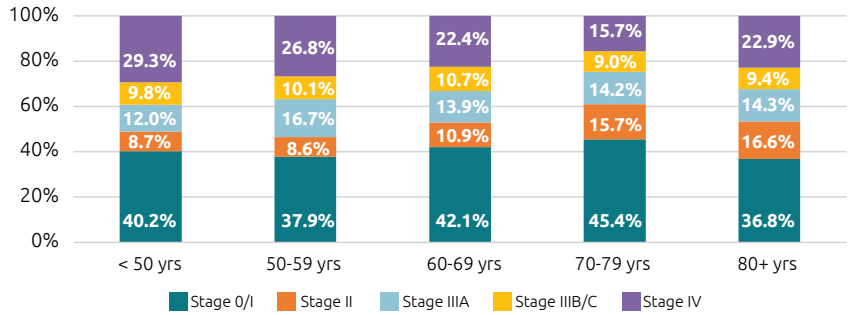
excluding Occult carcinoma, Mesothelioma and patients with missing stage data (n=43)

	2018	2019	2020	2018-2020
Stage 0/I	29.3	33.6	34.7	32.6
Stage II	12.7	8.3	8.6	9.8
Stage IIIA	17.3	15.9	14.0	15.7
Stage IIIB/C	13.4	12.8	14.3	13.4
Stage IV	27.4	29.4	28.3	28.5
All Stages	100.0	100.0	100.0	100.0

Figure 2.6.10 shows that younger patients, under 60 years, are more likely to be diagnosed with Stage IV lung cancer than older patients. The 70-79 years age group are more likely to be diagnosed with Stage I or Stage II lung cancer.

Figure 2.6.10: Cancer Clinical Stage distribution by age group 2018 - 2020

excluding Occult carcinoma, Mesothelioma and patients with missing stage data (n=62)



Treatment Pathway

Figure 2.6.11. Summary of Treatment Received 2018-2020

Excluding patients diagnosed with mesothelioma (n=32) and patients with unknown clinical stage (n=31)

	All patients n=1,846	Early Stage n=1,159	Locally Advanced n=307	Metastatic n=380
Lung Resection	40.0%	61.2%	8.5%	1.1%
Neoadjuvant Chemotherapy	0.4%	0.1%	1.6%	0.3%
Chemo/Immuno therapy	7.5%	1.0%	6.5%	27.9%
Adjuvant Chemotherapy	8.2%	12.2%	3.3%	0.3%
Palliative Chemotherapy	0.2%	0.1%	0.7%	0.3%
SABR	8.9%	13.6%	0.3%	1.3%
RFA	0.3%	0.4%	0.3%	0.0%
Adjuvant Radiotherapy	1.0%	1.5%	0.7%	0.0%
Radiotherapy	9.3%	7.0%	9.8%	16.1%
Palliative Radiotherapy	3.5%	1.2%	4.9%	9.5%
Neoadjuvant ChemoRT	0.3%	0.3%	0.3%	0.0%
ChemoRT	9.6%	3.9%	32.9%	6.8%
Adjuvant ChemoRT	0.2%	0.3%	0.3%	0.0%
Therapeutic surgical procedure	2.1%	0.9%	1.6%	6.1%
Best Supportive Care	19.0%	7.6%	23.5%	48.7%

Abbreviations: SABR - Stereotactic ablative radiotherapy; RFA - Radiofrequency ablation

Note: Early Stage [Stages 0, I, II and IIIA with N0/N1 disease only];
Locally Advanced [Stages IIIA with N2/N3 disease; IIIB, IIIC];
Metastatic [Stages IVA, IVB]

Figure 2.6.11 outlines the treatment that patients who were diagnosed with, referred with, and/or treated for, a primary lung cancer at SJH in the period 2018-2020 received. Patients with early stage disease were most likely to have surgery +/- adjuvant chemotherapy or stereotactic ablative radiotherapy (SABR). Patients with locally advanced disease mostly received chemo/radiotherapy and patients with metastatic disease were most likely to receive chemotherapy/ immunotherapy, radiotherapy and/or best supportive care.

Some of these patients are diagnosed and/or staged at SJH, and discussed at the MDM, after which they return to their local hospital for treatment. Table 2.6.7 provides further data on the treatment pathway of patients including the level of service provision at SJH, and the numbers who did not progress to treatment.

Table 2.6.7: Treatment by disease stage 2018 - 2020

Treatment	Early Stage n=1,159		Locally Advanced n=307		Metastatic n=380		All patients n=1,846	
	n	%	n	%	n	%	n	%
Lung resection	709	61.2	26	8.5	4	1.1	739	40.0
of which, treated at SJH	696	60.1	25	8.1	4	1.1	725	39.3
Neoadjuvant Chemotherapy	1	0.1	5	1.6	1	0.3	7	0.4
of which, treated at SJH	0	0.0	3	1.0	1	0.3	4	0.2
Chemo/Immuno therapy	12	1.0	20	6.5	106	27.9	138	7.5
of which, treated at SJH	10	0.9	14	4.6	93	24.5	117	6.3
Adjuvant Chemotherapy	141	12.2	10	3.3	1	0.3	152	8.2
of which, treated at SJH	66	5.7	4	1.3	1	0.3	71	3.8
Palliative Chemotherapy	1	0.1	2	0.7	1	0.3	4	0.2
of which, treated at SJH	0	0.0	1	0.3	1	0.3	2	0.1
Stereotactic ablative radiotherapy (SABR)	158	13.6	1	0.3	5	1.3	164	8.9
of which, treated at SJH	157	13.5	1	0.3	3	0.8	161	8.7
Radiofrequency ablation (RFA)	5	0.4	1	0.3	0	0.0	6	0.3
of which, treated at SJH	5	0.4	1	0.3	0	0.0	6	0.3
Radiotherapy	81	7.0	30	9.8	61	16.1	172	9.3
of which, treated at SJH	76	6.6	29	9.4	59	15.5	164	8.9
Adjuvant Radiotherapy	17	1.5	2	0.7	0	0.0	19	1.0
of which, treated at SJH	14	1.2	2	0.7	0	0.0	16	0.9
Palliative Radiotherapy	14	1.2	15	4.9	36	9.5	65	3.5
of which, treated at SJH	12	1.0	15	4.9	36	9.5	63	3.4
Neoadjuvant Chemo/Radiotherapy	4	0.3	1	0.3	0	0.0	5	0.3
of which, treated at SJH	4	0.3	1	0.3	0	0.0	5	0.3
Chemo/Radiotherapy	45	3.9	101	32.9	26	6.8	177	9.6
of which, treated at SJH	43	3.7	92	30.0	25	6.6	160	8.7
Adjuvant Chemo/Radiotherapy	3	0.3	1	0.3	0	0.0	4	0.2
of which, treated at SJH	3	0.3	1	0.3	0	0.0	4	0.2
Therapeutic Surgical Procedure	11	0.9	5	1.6	23	6.1	39	2.1
of which, treated at SJH	11	0.9	5	1.6	23	6.1	39	2.1
Best Supportive Care	88	7.6	72	23.5	185	48.7	350	19.0
of which, treated at SJH	79	6.8	69	22.5	182	47.9	330	17.9
Follow up with referring hospital	107	9.2	92	30.0	116	30.5	315	17.1
Unknown	4	0.3	4	1.3	1	0.3	9	0.5
No active cancer treatment	19	1.6	3	1.0	0	0.0	22	1.2
Patient died before treatment commenced	4	0.3	7	2.3	10	2.6	21	1.1
Refused all treatment	5	0.4	4	1.3	0	0.0	9	0.5

Lung Cancer Resections 2018-2020

As Table 2.6.8 shows, the number of lung cancer resections had been increasing year on year until 2020 when a reduction in the number of resections is seen, in line with the overall reduction in the number of patients diagnosed at, or referred to, SJH. Access to the full thoracic surgical oncology program at SJH was maintained throughout the pandemic, with the team relocating offsite.

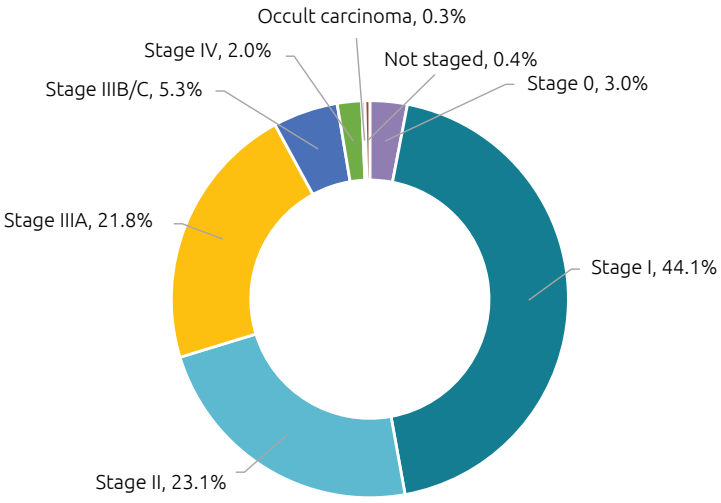
Table 2.6.8: Lung cancer surgery 2018 - 2020

	2018	2019	2020	2018-2020
Exploratory thoracotomy with inoperable disease detected	1	2	2	5
Sub Lobar resection	13	12	7	32
Sleeve Lobectomy	15	15	9	39
Lobectomy/Bi-lobectomy	208	223	189	620
Pneumonectomy	21	29	11	61
Grand Total	**258**	**281**	**218**	**757**

81.9% of all curative lung resections (n=620) were lobectomy or bi-lobectomy operations. A further 5.2% of resections were sleeve lobectomies. 8.1% of all curative lung resections were pneumonectomies. The remaining 4.2% of patients had a sub-lobar resection, consisting of either a wedge resection or segmentectomy. Five patients were admitted for lung resections but at the time of their operation inoperable disease was detected and the planned resection did not proceed.

Figure 2.6.12 summarises the pathological staging of all patients who had lung resections in the period 2018-2020.

Figure 2.6.12: Pathological Stage following resection 2018 - 2020



Lung Cancer Surgery 2020

This section provides a detailed analysis of the lung resections performed in 2020.

There were 218 lung cancer surgeries performed at SJH in 2020.

This figure is an increase of six on the 212 surgeries reported under the NCCP KPI return because the six additional surgeries do not meet the NCCP criteria for the following reasons: the KPI is limited to patients having surgery as their first treatment - 3 patients had neo-adjuvant therapy prior to surgery and were excluded from the KPI return; the KPI only applies to patients with a primary lung cancer - 1 patient had surgery for a recurrence of their lung cancer and was excluded from the KPI return; and the KPI reports on patients who had lung resections - 2 patients had exploratory thoracotomies with inoperable disease detected and did not proceed to resection. Both of these patients were assessed as having Stage I/II disease in advance of their surgery.

Ireland reported its first case of coronavirus on February 29, 2020. The pandemic presented a unique challenge to the thoracic surgical oncology service at SJH and its ability to maintain elective cancer surgery in a time-sensitive manner. In response, the service transferred off-site to a dedicated coronavirus-free environment at the Blackrock Clinic (Fitzmaurice GJ, Ryan RJ, Young VK, et al. 2020). In total, 65 of the 218 lung cancer surgeries performed in 2020 were carried out at the Blackrock Clinic, primarily during the months of March, April, May and June 2020.

Demographic profile

More females than males underwent lung cancer surgery – 54.1% of patients were female and 45.9% were male. The median age at diagnosis for patients undergoing lung cancer surgery was 68 years with the median age of females being slighter lower, at 67 years, than males, at 68 years.

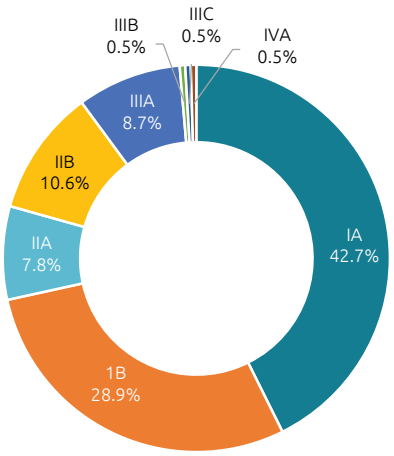
Morphology

There were 204 resections for NSCLC and 14 for carcinoid tumours.

Clinical Stage

89.9% of all resections were performed on patients who were Stage I or Stage II disease pre-operatively. The remaining, more advanced-stage patients, had surgery as part of a multi-modality approach to their treatment (Figure 2.6.13).

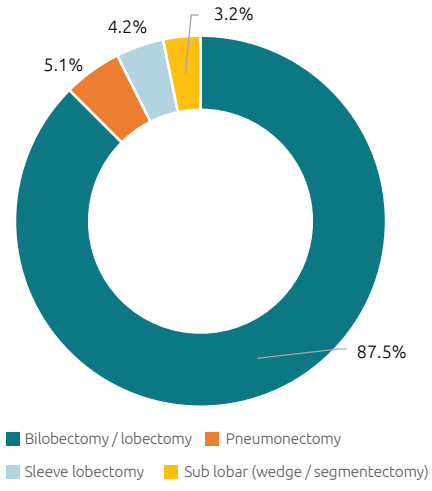
Figure 2.6.13: Resections in 2020 by clinical stage



Surgery Type

87.5% of all curative lung resections (n=216) were lobectomy or bi-lobectomy operations. A further 4.2% of resections were sleeve lobectomies. Lobectomy is the surgery recommended in patients who are fit for surgery and where it is the most appropriate type of surgery for the patient to achieve clear resection margins. This compares very favourably to the latest published UK figures that report a lobectomy rate of 77% (Royal College of Physicians, 2020). 5.1% of all curative lung resections were pneumonectomies, which involve the removal of the entire lung, compared to a rate of 3.5% in the UK. The remaining 3.2% of patients had a sub-lobar resection, consisting of either a wedge resection or segmentectomy (Figure 2.6.14).

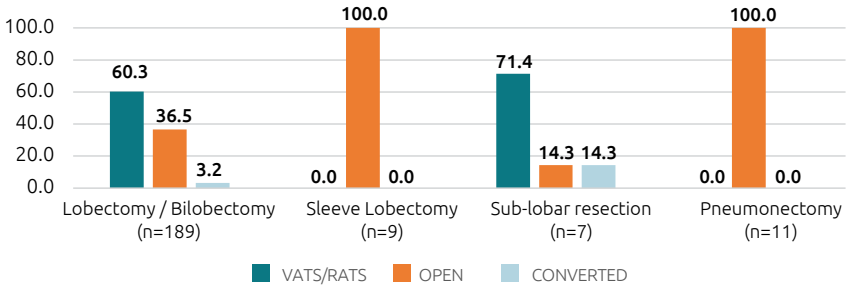
Figure 2.6.14: Curative resection type 2020



Access Type

Of the 216 curative lung resections performed, 118 (55.1%) were completed using video-assisted thoracic surgery (VATS) and 1 using robotic assisted thoracic surgery (RATS). This minimal access approach is now the predominant approach for lung cancer surgery at SJH. 41.7% of surgeries were completed as open operations, including all sleeve lobectomies and pneumonectomies. 3.2% of surgeries started as VATS but converted to open operations (Figure 2.6.15).

Figure 2.6.15: Surgical approach by resection type 2020



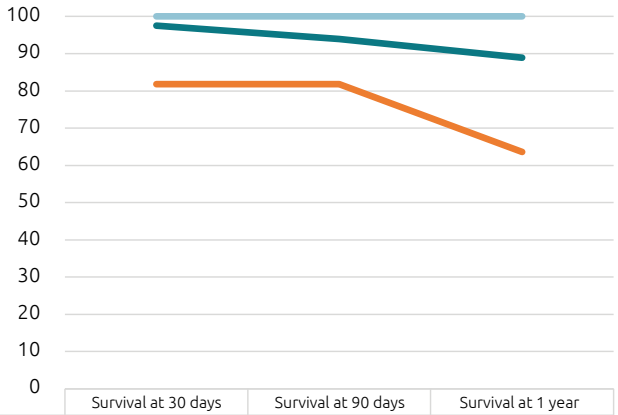
Length of stay

In 2020, the median length of stay for all patients undergoing curative lung resections was 7 days. Length of stay was shorter for patients undergoing lobectomies/bi-lobectomies or sleeve lobectomies (both groups had a median stay of 7 days) compared to patients who underwent pneumonectomies (median stay was 13 days). Patients undergoing lobectomies/bi-lobectomies using VATS/RATS, had a short length of stay (median 7 days) when compared to patients who had lobectomies/bi-lobectomies under open surgery (median 10 days).

Survival

Of the 216 patients who underwent a curative resection for lung cancer in 2020, 209 were alive at 30 days (96.8%), 202 were alive at 90 days (93.5%) and 190 were alive one year after surgery (88.0%) (Figure 2.6.16). The proportion who are alive one year after surgery, 88.0%, compares favourably to the rate reported for the UK (88.7%) (Royal College of Physicians, 2020). Survival after pneumonectomy is lower than for other resections, reflecting patients with larger tumours which require major operations. The lines for sleeve resections and sub-lobar resections overlap on the graph below as the survival data is the same for both.

Figure 2.6.16: Survival (%) at 30 days, 90 days and 1 year by procedure performed



	Survival at 30 days	Survival at 90 days	Survival at 1 year
Lobectomy / Bilobectomy (n=189)	97.5	93.9	88.9
Pneumonectomy (n=11)	81.8	81.8	63.6
Sleeve resection (n=9)	100.0	100.0	100.0
Sub-lobar resection (n=7)	100.0	100.0	100.0

Resection rate

The resection rate is arrived at by calculating the proportion of patients who proceeded to resection out of the total number of patients diagnosed in the cancer centre in 2020. SJH is the surgery centre for patients referred from a number of external hospitals. Any patients who had surgery but were diagnosed outside of SJH are excluded from the calculation. Similarly, patients who were diagnosed at SJH and proceeded to surgical resection outside of SJH are not included as comprehensive data on this cohort is not available.

The overall resection rate for patients diagnosed and treated at SJH in 2020 is 23.5%. This compares with an overall resection rate ranging from 13.0-30.4% in the UK (Royal College of Physicians, 2020). However, it is becoming more commonplace to calculate the resection rate for early-stage patients (stage 0, I, II) with good performance status as this is the group most likely to have a lung resection as their first-line treatment. Performance status is not routinely coded in a standardised fashion for all SJH patients diagnosed with lung cancer and it is not possible to stratify our population by performance status at this point in time. This is identified as a quality improvement priority for future years. The resection rate for SJH patients with stage 0, I and II lung cancer is 50.0%.

Survival

Overall survival – patients diagnosed 2015 – 2019

The overall lung cancer survival rate at 5 years for patients diagnosed in the period 2015-2019 is 24.3%. This rate includes both NSCLC and SCLC, diagnosed at all stages. The overall NSCLC survival rate at 5 years is 27.2% and for SCLC is 6.8% (Table 2.6.9).

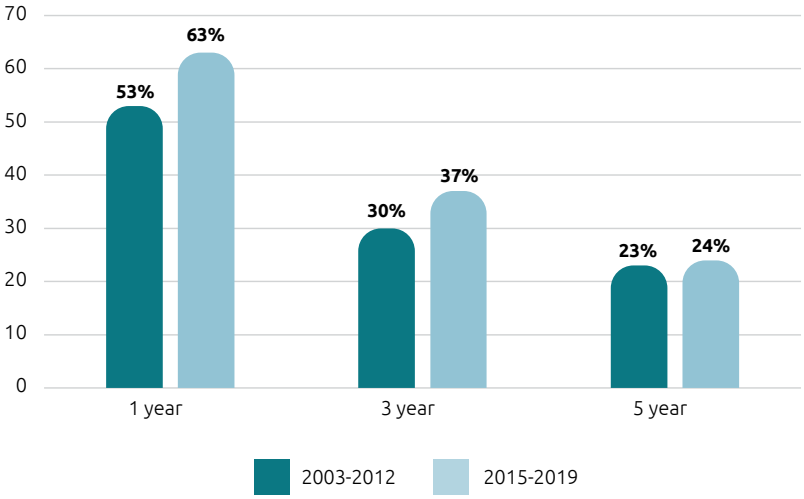
Table 2.6.9 Landmark survival analysis by lung cancer type

Stage	1-year OS	3-year OS	5-year OS
Overall	62.7% (95% CI 61.0, 64.5)	37.4% (95% CI 35.6, 39.4)	24.3% (95% CI 22.3, 26.5)
NSCLC	66.0% (95% CI 64.2, 67.9)	41.7% (95% CI 39.6, 43.8)	27.2% (95% CI 24.9, 29.6)
SCLC	43.5% (95% CI 38.3, 49.5)	10.9% (95% CI 7.6, 15.7)	6.8% (95% CI 4.1, 11.3)

OS: Overall Survival; LCI: lower confidence interval; UCI: upper confidence interval.

Figure 2.6.17 demonstrates an improvement in survival rates for lung cancer at 1 and 3 years with only minimal improvement at 5 years when the 2003-2012 and 2015-2019 datasets are compared.

Figure 2.6.17: Overall lung cancer survival – 2003-2012 compared to 2015-2019



Tables 2.6.10 to 2.6.15 outline the 1, 3 and 5 year survival rates by clinical stage for the overall cohort patients diagnosed in the period 2015-2019, and separately for those diagnosed with non-small cell lung cancer and small cell lung cancer.

Table 2.6.10 Outcomes by clinical stage in lung cancer cohort

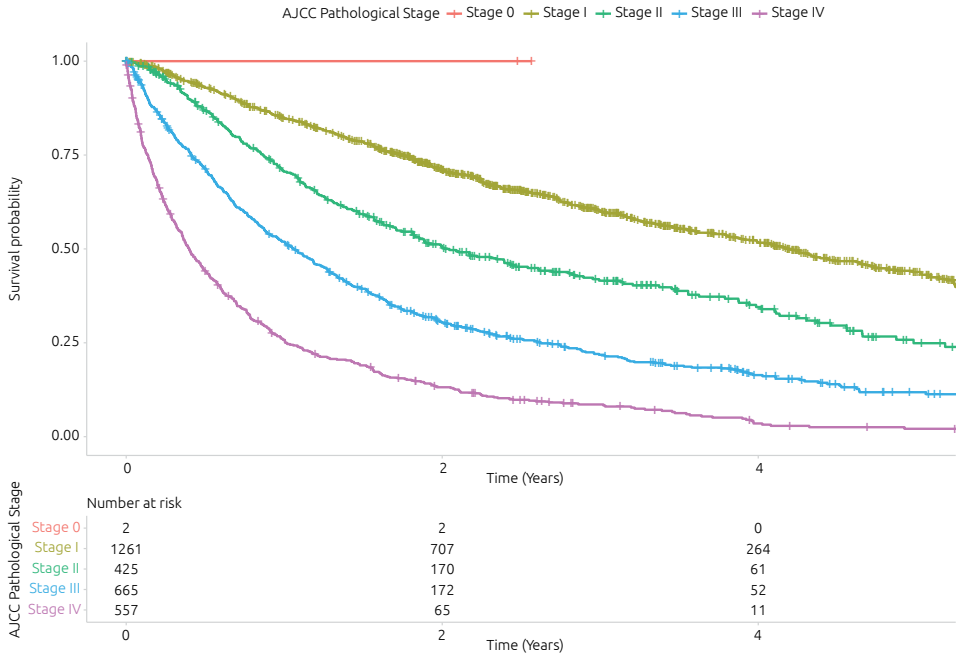
Disease stage	Cohort size	Events	Median (years)	0.95 LCI	0.95 UCI
Stage 0	2	0	NA	NA	NA
Stage I	1261	533	4.21	3.814	4.644
Stage II	425	252	2.02	1.744	2.609
Stage III	665	526	1.06	0.912	1.1964
Stage IV	557	517	0.4	0.353	0.474

NR: not reached; NA: not applicable; LCI: lower confidence interval; UCI: upper confidence interval.

Table 2.6.11 Landmark survival analysis by clinical stage in lung cancer cohort

Stage	1-year OS	3-year OS	5-year OS
Stage 0*			
Stage I	84.7% (95% CI 82.7, 86.7)	60.0% (95% CI 57.1, 63.2)	43.9% (95% CI 40.2, 47.9)
Stage II	70.6% (95% CI 66.2, 75.2)	41.6% (95% CI 36.7, 47.1)	24.9% (95% CI 19.6, 31.6)
Stage III	51.9% (95% CI 48.2, 55.9)	21.8% (95% CI 18.6, 25.5)	11.8% (95% CI 9.01, 15.6)
Stage IV	25.7% (95% CI 22.3, 29.7)	8.5% (95% CI 6.4, 11.4)	2.1% (95% CI 0.09, 4.42)

OS: Overall Survival; LCI: lower confidence interval; UCI: upper confidence interval. *Cohort size (n=2) too small to report



NSCLC survival – patients diagnosed 2015 - 2019

Table 2.6.12 NSCLC Outcomes by clinical stage

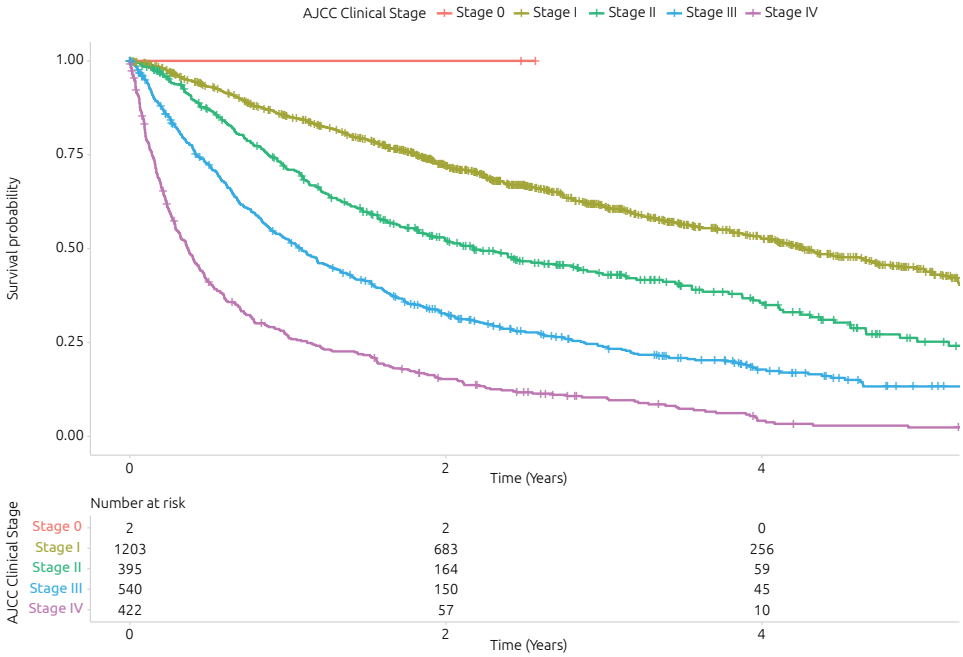
Disease stage	Cohort size	Events	Median (years)	0.95 LCI	0.95 UCI
Stage 0	2	0	NA	NA	NA
Stage I	1203	498	4.26	3.943	4.731
Stage II	395	233	2.18	1.818	2.842
Stage III	540	417	1.09	0.925	1.254
Stage IV	422	388	0.37	0.304	0.438

NR: not reached; NA: not applicable; LCI: lower confidence interval; UCI: upper confidence interval.

Table 2.6.13 NSCLC Landmark survival analysis by clinical stage

Stage	1-year OS	3-year OS	5-year OS
Stage 0*			
Stage I	85.1% (95% CI 83.0, 87.2)	61.1% (95% CI 58.1, 64.3)	44.6% (95% CI 40.9, 48.8)
Stage II	71.0% (95% CI 66.5, 75.8)	43.1% (95% CI 38.0, 48.8)	25.2% (95% CI 19.7, 32.2)
Stage III	52.5% (95% CI 48.4, 57.0)	23.8% (95% CI 20.2, 28.0)	13.3% (95% CI 10.0, 17.7)
Stage IV	26.9% (95% CI 22.8, 31.5)	10.4% (95% CI 7.7, 13.9)	2.4% (95% CI 1.1, 5.24)

OS: Overall Survival; LCI: lower confidence interval; UCI: upper confidence interval. *Cohort size (n=2) too small to report



SCLC survival – patients diagnosed 2015 – 2019

Table 2.6.14 SCLC Outcomes by clinical stage

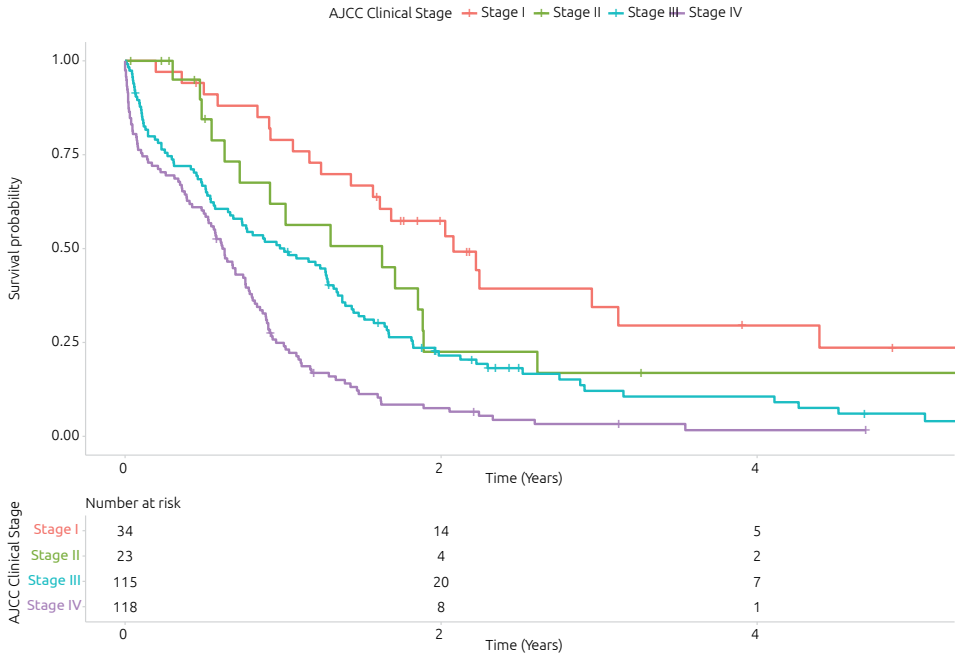
Disease stage	Cohort size	Events	Median (years)	0.95 LCI	0.95 UCI
Stage I	34	21	2.078	1.569	NA
Stage II	23	15	1.626	0.726	2.609
Stage III	115	100	1.008	0.684	1.32
Stage IV	118	112	0.616	0.526	.0764

NR: not reached; NA: not applicable; LCI: lower confidence interval; UCI: upper confidence interval.

Table 2.6.15 SCLC Landmark survival analysis by clinical stage

Stage	1-year OS	3-year OS	5-year OS
Stage I	78.9% (95% CI 66.2, 94.1)	34.4% (95% CI 19.9, 59.4)	23.6% (95% CI 11.0, 50.6)
Stage II	61.9% (95% CI 43.2, 88.8)	16.9% (95% CI 6.0, 47.3)	Not estimable
Stage III	50.0% (95% CI 41.7, 60.1)	12.1% (95% CI 6.84, 21.4)	6.1% (95% CI 2.47, 14.9)
Stage IV	24.9% (95% CI 18.1, 34.1)	3.3% (95% CI 1.1, 9.56)	Not estimable

OS: Overall Survival; LCI: lower confidence interval; UCI: upper confidence interval.



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7. Oesophageal, Oesophago-gastric Junction, and Gastric

Summary Points

SJH is designated by National Cancer Control Programme (NCCP) as both the National Centre for Oesophageal and Gastric Cancer, and the National Centre for Management of Early Upper Gastrointestinal Mucosal Neoplasia (i.e. early tumours arising in Barrett's Oesophagus).

Professor John Reynolds, TCD Professor of Surgery, is the National Lead for oesophageal and gastric cancers.

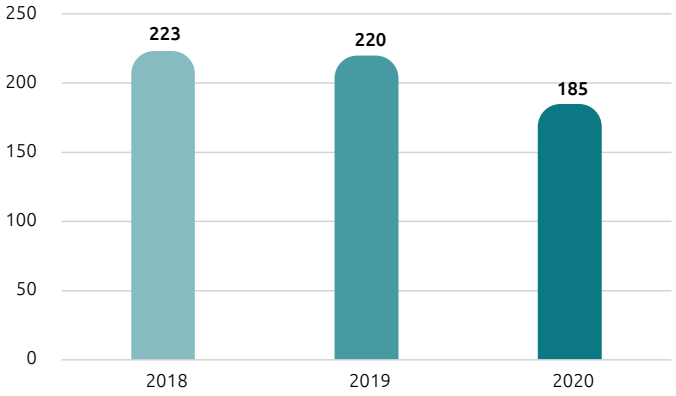
The key summary points in ongoing prospective audit are as follows:

- 80% of all referrals are tertiary.
- Twice-weekly Rapid Access clinics.
- Therapeutic endoscopy is increasing, and is the treatment pathway for 20% of our patients.
- Endoscopic mucosal resection (EMR) in particular has increased in frequency, with 74 patients undergoing this procedure for early cancer.
- The team over the time period of the audit includes Professor John Reynolds, Professor Narayamasamy Ravi and Ms Claire Donohoe (surgeons); Professor Dermot O'Toole and Dr. Finbar Mc Carthy (specialist gastroenterology for endoscopic ultrasound (EUS) and endoscopic resection (EMR); Dr. M. Cunningham (radiation oncology); Professor Maeve Lowery and Dr. Sinead Cuffe (medical oncology). Ms. Jennifer Moore is the Cancer Nurse Co-ordinator, and Ms Catherine O'Farrell is the Cancer Trials Nurse .
- A major advance was the completion of the international Neo-AEGIS trial, led by SJH. This is an investigator-led international randomized, controlled trial comparing preoperative chemotherapy with preoperative chemotherapy and radiation therapy in patients with adenocarcinoma of the oesophagus and oesophago-gastric junction (NCT01726452). 372 patients were randomized, 106 from SJH, and the trial closed to recruitment in December 2020, with presentation of the interim results at the ASCO Meeting in June 2021.
- A Multidisciplinary model is well established, in particular for clinical trials of multimodality therapy and related molecular and scientific research.
- Tumour and Barrett's tissue is bio banked, as are blood samples.
- The standards and performance indicators for oesophageal cancer are well within internationally-accepted benchmarks in high volume centres: an in-hospital post-operative mortality of 1.3% and all patients linked to the cancer clinical trials programme and to scientific research.
- Programme strengths include cognate tertiary services in thoracic and head and neck surgery, interventional radiology, critical care and medical gastroenterology.
- Between 20-30 peer review publications are published each year.

Oesophageal and Oesophago-gastric junction

In the period 2018 to 2020, 628 patients were diagnosed or treated at SJH for oesophageal or junctional cancer.

Figure 2.7.1 New Oesophageal Cancer cases 2018-2020



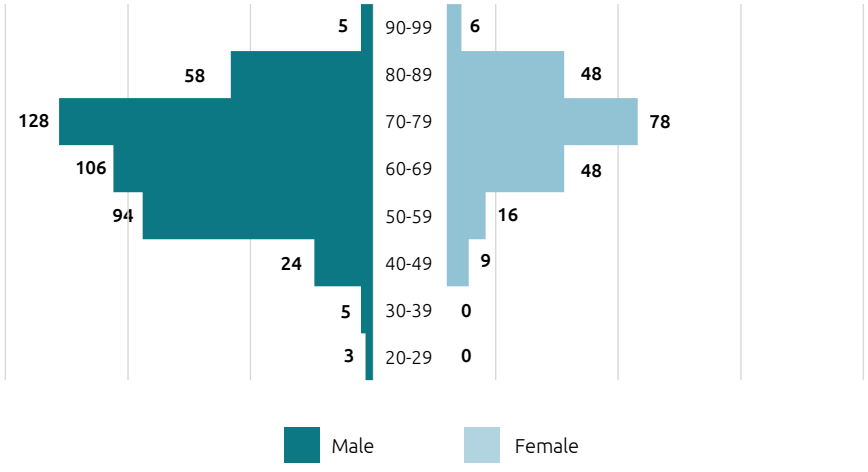
Gender & age

Oesophageal adenocarcinoma remains predominantly a male cancer, and 67% of cases overall are male.

There was an increase in the proportion of females from 27% females 2013-2017 to 33% 2018-2020.

Ages ranged from 25-100 years, the median age was 70, and 58% of patients were aged between 61 and 80 years.

Figure 2.7.2 New Oesophageal Cancer cases 2018-2020 by gender and age at diagnosis



Tumour site

Table 2.7.1

Tumour Site	Occurrences	Percent
Upper Oesophagus	24	4%
Middle Oesophagus	133	21%
Lower Oesophagus	203	32%
OG Junction	268	43%

The tumour site is predominantly lower oesophagus and junction, representing 75% (79% 2013 - 2017) of the total new cases. Squamous cell cancers represented 29% of pathology, with 49% invasive adenocarcinoma, and 19% high grade dysplasia & intra mucosal adenocarcinoma.

Table 2.7.2: Morphology

Morphology	Occurrences	Percent
Adenocarcinoma	311	49%
Squamous Cell Ca	180	29%
High Grade dysplasia /Intramucosal adenocarcinoma	116	19%
Neuro/Small cell	7	1%
Adeno Squamous	7	1%
Other	4	0.50%
Unknown	3	0.50%

Staging

Since 2018 the staging edition changed and is now based on the AJCC 8th edition instead of the 7th. Heavy nodal involvement (N3) is viewed as Stage IVA, hence 31% are now in this stage compared with 23% in last 5-year report. Stage IVA is treated with radical intent if deemed appropriate.

Clinical and pathological staging for Adenocarcinomas & Squamous Cell Cancer differ in the AJCC 8th edition

Clinical stage reflects a referral practice to a National Center weighted towards patients who can be treated with curative intent, with just 31% having stage 4 disease, and 27% with Stage 0/1.

Table 2.7.3 Oesophageal cancer AJCC Clinical Staging 8th edition

Clinical Stage	Occurrences	Percent
HGD	85	14%
Stage I	83	13%
Stage II	71	11%
Stage IIA	1	<0.5%
Stage IIB	26	4%
Stage III	160	25%
Stage IVA	47	7%
Stage IVB	149	24%
Unknown	6	1%

Table 2.7.4 Pathology post surgery alone

Pathological Stage	Occurrences	Percent
Stage 0	2	3%
Stage IA	3	5%
Stage IB	22	35%
Stage IC	8	13%
Stage IIA	3	5%
Stage IIB	5	8%
Stage IIIA	1	2%
Stage IIIB	15	24%
Stage IVA	3	5%
Stage IVB	0	0%

Table 2.7.5 Pathology post neo-adjuvant treatment and surgery

Pathological Stage	Occurrences	Percent
Stage I	40	31%
Stage II	14	11%
Stage IIIA	12	9%
Stage IIIB	33	26%
Stage IVA	26	21%
Stage IVB	2	2%

10% of patients had a complete pathological response. ypT0N0M0.

Treatments

Table 2.7.6 Treatment Intent

Treatment Intent		
Curative Intent	372	59%
Palliative	256	41%

Table 2.7.7 Treatment Administered

Treatment Administered	Occurrences*	Percent
Curative Surgery	182	29%
Palliative Surgery	7	1%
Neo-adjuvant treatment	154	25%
Adjuvant treatment	6	1%
Radical Chemo/Radiotherapy	43	9%
Endomucosal Resection (EMR)	86	14%
Radiofrequency Ablation	84	13%
Radical Chemotherapy	2	<1%
Radical Radiotherapy	3	<1%
Palliative Chemotherapy	108	17%
Palliative Radiotherapy	103	16%

*Please note patients may have more than one treatment

Table 2.7.8 Endotherapy Treatment

Endotherapy n=127	Occurrences	Percent
Endomucosal Resection (EMR) only	24	19%
Radiofrequency Ablation (RFA) only	34	27%
Endomucosal Resection & Radiofrequency Ablation	50	39%
Surveillance	7	6%
Endotherapy fail/not amenable - proceeded to surgery	12	9%

20% of all patients had Endotherapy.

Surgical Outcomes post Curative Intent Surgery

SURGERY N=182

MEDIAN LOS **14 DAYS**

90 DAY SURVIVAL

180 | **99%**

RETURN TO THEATRE

14 | **7.50%**

RESECTION MARGINS CLEAR

171 | **94%**

READMISSION

19 | **10%**

Survival

Oesophageal and Junctional Cancer

Overall survival – patients diagnosed 2015 - 2019

Table 2.7.10 Survival outcomes in entire oesophageal cancer cohort

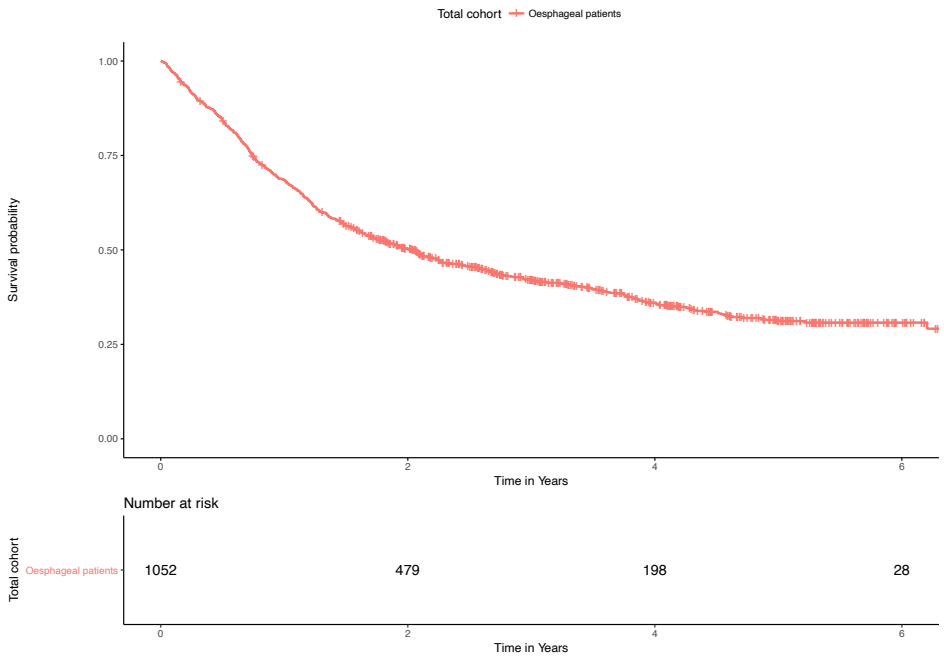
Cohort size	Events	Median (years)	0.95 LCI	0.95 UCI
1052	651	2.04	1.74	2.27

NR: not reached; LCL: lower confidence interval; UCL: upper confidence interval

Table 12.7.11 Landmark OS analysis (full oesophageal cancer cohort)

1-year OS	3-year OS	5-year OS
68.4% (95% CI 65.7, 71.3)	42.0% (95% CI 39.0, 45.2)	31.2% (95% CI 28.0, 34.7)

CI: confidence interval; OS: overall survival



Treated with curative intent – patients diagnosed 2015 - 2019

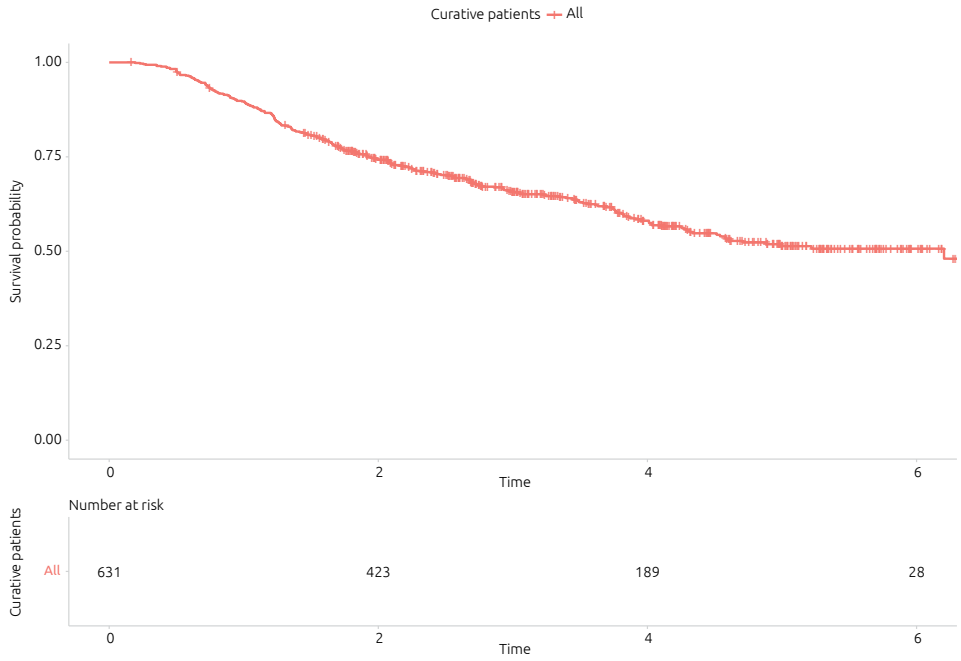
Table 2.7.12 Outcomes in oesophageal cancer patients treated with curative intent

Cohort size	Events	Median (years)	0.95 LCI	0.95 UCI
631	251	6.2	4.51	NR

NR: not reached; LCI: lower confidence interval; UCI: upper confidence interval.

Table 2.7.13 Landmark survival analysis in oesophageal cancer patients treated with curative intent

1-year OS	3-year OS	5-year OS
89.7% (95% CI 87.3, 92.1)	65.8% (95% CI 62.0, 69.8)	51.4% (95% CI 46.7, 56.5)



By pathological status – patients diagnosed 2015 - 2019

Table 2.7.14 Outcomes by pathological stage in oesophageal cancer cohort

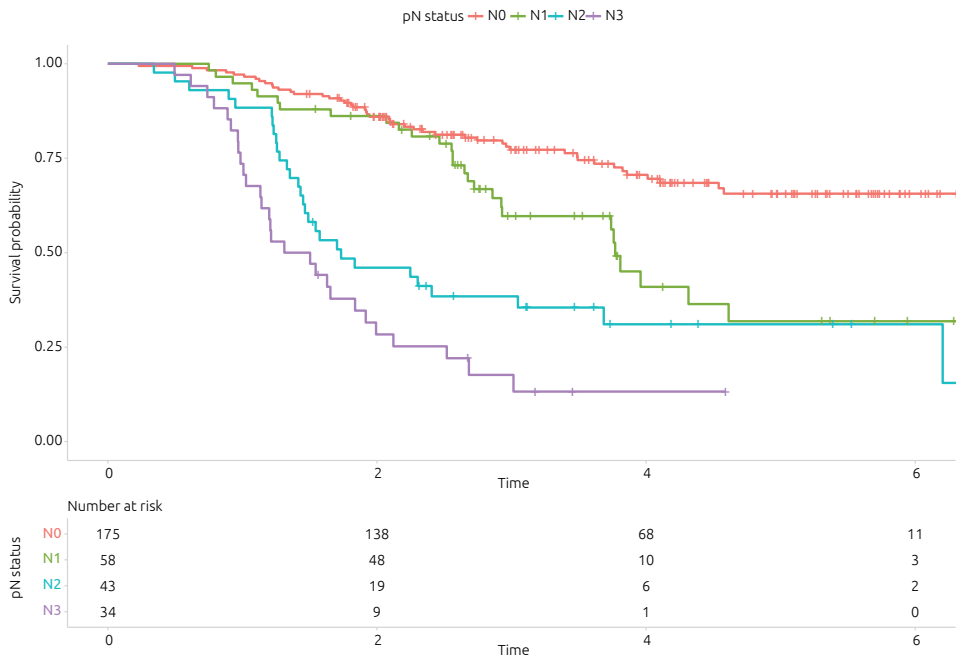
Disease stage	Cohort size	Events	Median (years)	0.95 LCI	0.95 UCI
N0	175	47	NR	NR	NR
N1	58	28	3.77	2.93	NR
N2	43	29	1.73	1.45	NR
N3	34	28	1.41	1.14	1.99

NR: not reached; LCI: lower confidence interval; UCI: upper confidence interval.

Table 2.7.15 Landmark survival analysis by pathological stage in oesophageal cancer cohort

Stage	1-year OS	3-year OS	5-year OS
N0	97.1% (95% CI 94.7, 99.6)	77.2% (95% CI 70.9, 84.2)	65.6% (95% CI 57.6, 74.8)
N1	94.8% (95% CI 89.3, 100.0)	59.7% (95% CI 47.5, 75.0)	31.9% (95% CI18.6, 54.4)
N2	88.4% (95% CI 79.3, 98.5)	38.4% (95% CI 26.1, 56.5)	31.0% (95% CI 19.0, 50.8)
N3	73.5% (95% CI 60.1, 90.0)	17.6% (95% CI 8.1, 38.5)	13.2% (95% CI 5.1, 34.7)*

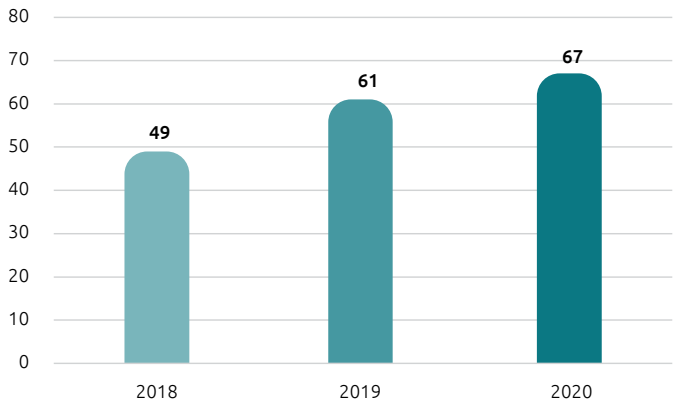
OS: Overall Survival. *For the N3 cohort, 5-year OS is highly uncertain due to limited follow-up of patients beyond three years.



Gastric Cancer (excluding junctional)

In the period 2018 to 2020, 177 patients were diagnosed and / or treated at SJH for gastric cancer.

Figure 2.7.3 New Gastric Cancer cases 2018-2020

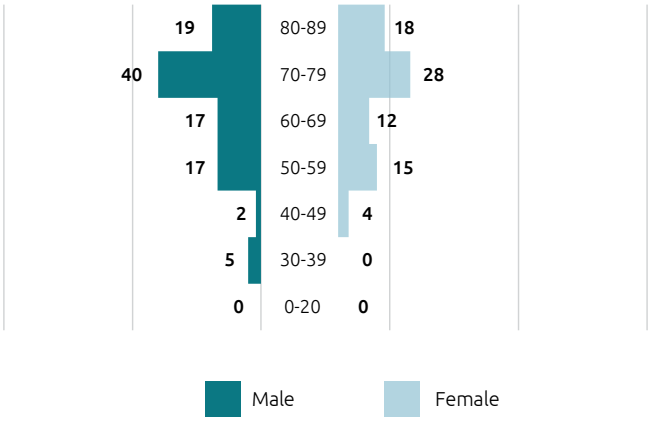


Gender & age

Gastric cancer remains predominantly a male cancer, and 56% of cases overall are male.

Ages ranged from 36-89 years, the median age was 72, and the average 69 years.

Figure 2.7.4 New Gastric Cancer cases 2018-2020 by gender and age at diagnosis



Staging

Table 2.7.16 Gastric cancer clinical staging AJCC 8th edition

Clinical Stage	Occurrences	Percent
Stage HGD/0	12	7%
Stage I	48	27%
Stage IIA	1	0.5%
Stage IIB	25	14%
Stage III	23	13%
Stage IVA	0	0%
Stage IVB	64	36%
Unable to assess	4	2%

The most common morphology was adenocarcinoma, accounting for 80% of all tumours. 51% of patients (n=90) were treated with curative intent.

Treatment received in SJH for Gastric Cancer

Table 2.7.17: Treatments Administered

Treatment Options for Gastric Cancer	Occurrences*	Percent
Curative Surgery	56	32%
Palliative Surgery	2	1%
Neo-adjuvant treatment**	29	16%
Adjuvant treatment	4	2%
Endomucosal Resection (EMR)	27	15%
Radiofrequency Ablation	0	0%
Palliative Chemotherapy	38	21%
Palliative Radiotherapy	8	5%
Surveillance only	6	3%

*Patients may have more than one treatment

**Neo-adjuvant number includes patients whose treatment was shared between centres

18% of patients were treated with endotherapy

Pathology post surgery

Table 2.7.18: Pathology post surgery

Pathological Stage	Occurrences	Percent
Stage 0	1	3%
Stage IA	11	33%
Stage IB	5	15%
Stage IIA	3	9%
Stage IIB	4	12%
Stage IIIA	5	15%
Stage IIIB	2	6%
Stage IIIC	1	3%
Stage IVA	1	3%

Pathology post neo-adjuvant treatment & surgery

Table 2.7.19: Pathology post neo adjuvant treatment and surgery

Pathological Stage	Occurrences	Percent
Stage 0	0	0%
Stage I	2	8%
Stage II	9	36%
Stage III	14	56%
Stage IV	0	0%

Surgical Outcomes post gastrectomy for gastric cancers

GASTRECTOMY N= 56

MEDIAN LOS **11 DAYS**

90 DAY SURVIVAL

55	**98%**

RETURN TO OT

3	**5%**

RESECTION MARGINS

54	**96%**

READMISSION

3	**5%**

Survival

Gastric Cancer

Overall survival – patients diagnosed 2015 - 2019

Table 2.7.21 Survival outcomes in gastric cancer cohort

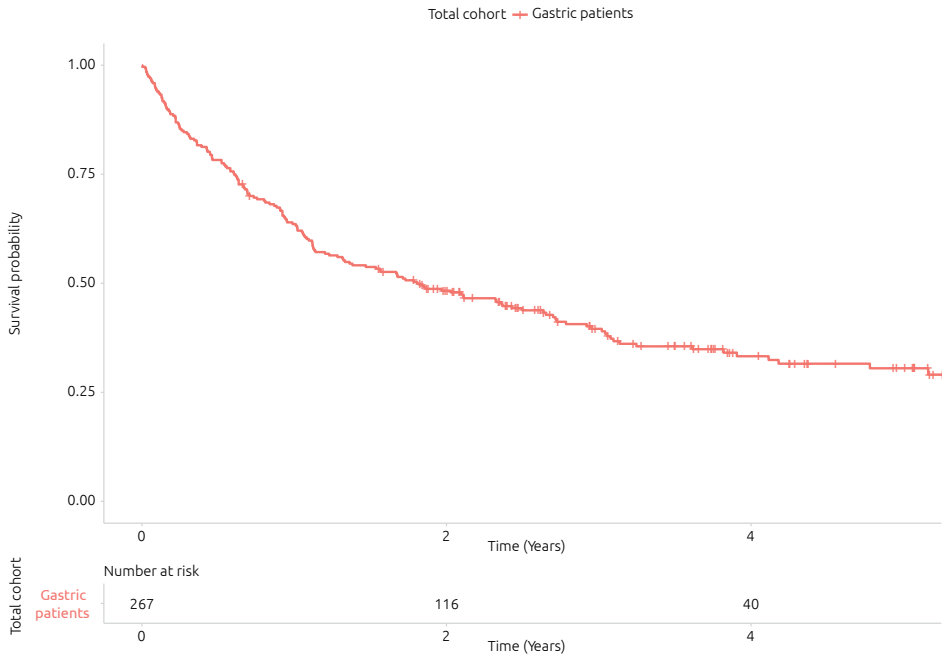
Cohort size	Events	Median (years)	0.95 LCI	0.95 UCI
267	170	1.81	1.32	2.64

NR: not reached; LCL: lower confidence interval; UCL: upper confidence interval

Table 2.7.22 Landmark OS analysis (full gastric cancer cohort)

1-year OS	3-year OS	5-year OS
63.6% (95% CI 58.1, 69.6)	39.6% (95%CI 33.9, 46.2)	30.5% (95% CI 24.6, 37.8)

CI: confidence interval; OS: overall survival



Treatment intent (curative) – patients diagnosed 2015 – 2019

Table 2.7.23 Outcomes in gastric cancer patients treated with curative intent*

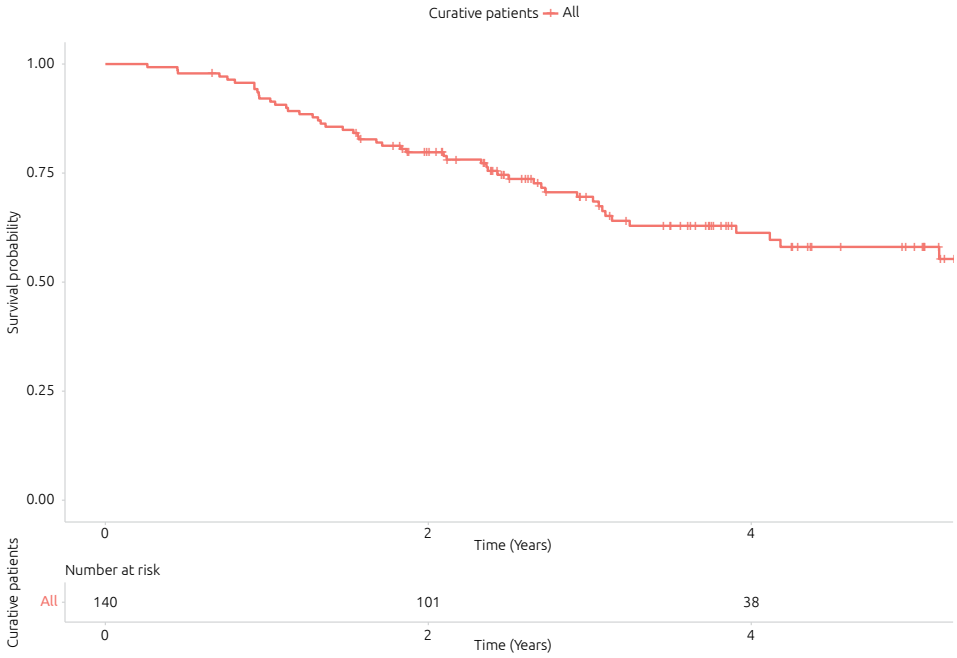
Cohort size	Events	Median (years)	0.95 LCI	0.95 UCI
140	50	6.35	4.18	NR

NR: not reached; LCI: lower confidence interval; UCI: upper confidence interval.

Table 2.7.24 Landmark survival analysis in gastric cancer patients treated with curative intent

1-year OS	3-year OS	5-year OS
92.1% (95% CI 87.7, 96.7)	69.6% (95% CI 61.9, 78.2)	58.1% (95% CI 49.1, 68.7)

OS: overall survival; CI: confidence interval



Survival by nodal stage – patients diagnosed 2015 – 2019

Table 2.7.25 Outcomes by pathological stage in gastric cancer cohort

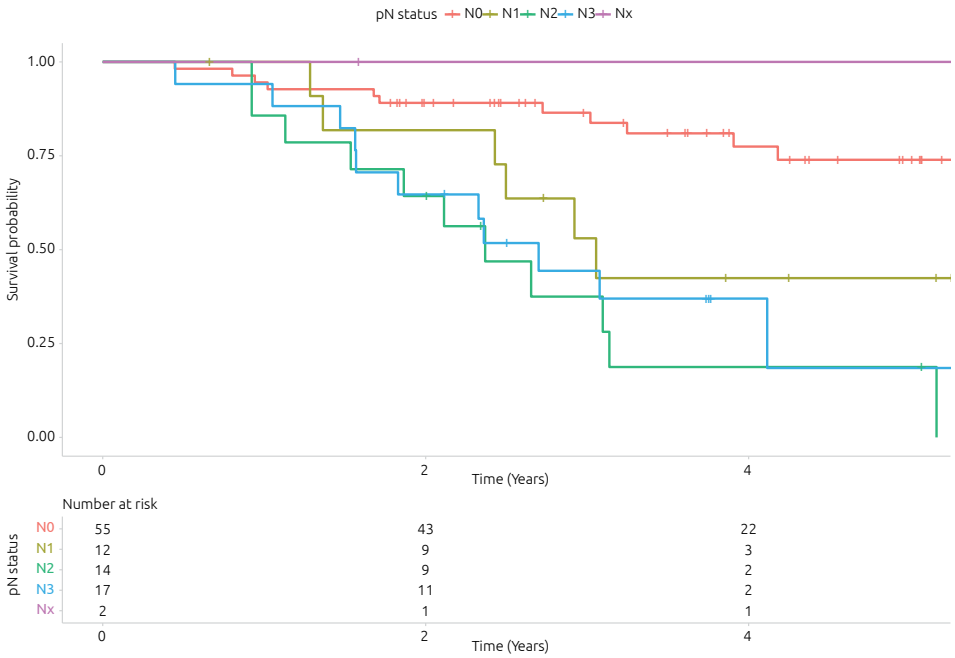
Disease stage	Cohort size	Events	Median (years)	0.95 LCI	0.95 UCI
Nx*	2	1	6.35	NA	NA
N0	55	11	NR	NR	NR
N1	12	6	3.06	2.50	NR
N2	14	11	2.37	1.86	NR
N3	17	11	2.70	1.83	NR

NR: not reached; NA: not applicable; LCI: lower confidence interval; UCI: upper confidence interval.
*Cohort too small to report accurately.

Table 2.7.26 Landmark survival analysis by pathological stage in gastric cancer cohort

Stage	1-year OS	3-year OS	5-year OS
Nx*	-	-	-
N0	94.5% (95% CI 88.7, 1.0)	86.5% (95% CI 77.5, 96.5)	73.9% (95% CI 61.1, 89.4)
N1	100%	53.0% (95% CI 29.9, 94.0)	42.4% (95% CI 20.6, 87.2)
N2	85.7% (95% CI 69.2, 100)	37.5% (95% CI 17.9, 78.3)	18.8% (95% CI 5.51, 63.9)
N3	94.1% (95% CI 83.6, 100)	44.4% (95% CI 25.4, 77.5)	18.5% (95% CI 4.0, 85.9)

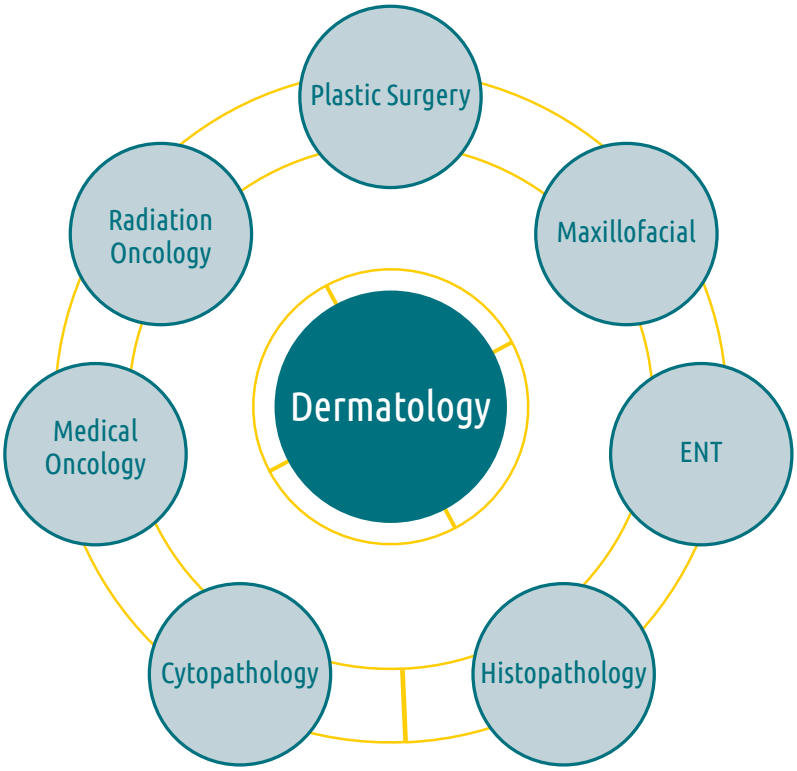
NA: not applicable; OS: Overall Survival. *Cohort too small to report accurately.



8. Skin Cancers

Skin cancer care in St James Hospital is provided by a large range of specialties in a coordinated and close multidisciplinary team. The hospital pioneered the role of the Multidisciplinary Team [MDT] in skin cancer and has led the development of dedicated skin cancer services within the largest Dermatosurgery department in Ireland. Key elements include: Mohs micrographic surgery; Dermatopathology; Rapid access pigmented lesion and "See and Treat" clinics"; Nurse-led surgery and care; innovative tele-dermatology platforms; and dedicated interdisciplinary care pathways.

The critical mass for multi-speciality diagnostic, surgical and non-surgical management is most visible at the ever-enlarging weekly skin cancer MDT meeting, with all relevant departments being an integral part of this decision-making forum. Close liaison exists with other MDTs (Lymphoma, Head and Neck, Lung) as a result of the diverse range of specialists available on site – all of whose expertise ensures the best possible care for each individual patient with their individual skin cancer.



Patient Pathway and Services

- Skin cancer patients are referred via electronic and traditional referrals, triaged and directed into the Departments of Dermatology, Plastic surgery, Radiation Oncology, Medical Oncology, Maxillo - facial surgery and Head and Neck surgery depending on the individual requirements. Close links between Occuloplastic surgery and other departments nationally facilitate the delivery of complex skin cancer throughout the Country.
- The Department of Histopathology has three dedicated Dermatopathologists, who work as an integral part of the team and provide both secondary and tertiary services, including the provision of laboratory support for Mohs micrographic surgery.
- St James Hospital set up and runs the national Mohs Micrographic Surgery [MMS] service with the department of Dermatology with three dedicated Mohs surgeons, leading training in Dermatologic surgery for Irish and international trainees. All play pivotal roles in the development of national and international standards of care for people with skin cancer.
- St James has the largest department of Plastic and reconstructive surgery in Ireland, with a wide range of subspecialties available to our patients, and sub-specialty areas of expertise including melanoma, sarcoma, and the full range of reconstructive surgery.
- Integral to excellence in Skin Cancer Care are the roles of Radiation Oncology and Medical Oncology, both which are possible as a result of Cancer workload in St James and St Lukes – and the culture of excellence and collegiality.
- Dermatosurgery Nursing in St James has developed the role of nurse lead dermatology surgery care – pre, intra and post operatively.
- The large cohort of cancer survivors from other cancer types, attending St James Hospital are looked after by the skin cancer team. This is of particular importance in maintaining the well-being of patients, particularly those at high risk of secondary skin cancers as a result of the primary disease process such as CLL or from their prior treatments such as BMT.
- Coordinating the care pathway of paediatric melanoma patients and rare tumours from Our Lady's Hospital for Sick Children via the skin cancer MDM. This will be of more significance in the future as paediatric care is transferred on site to the St James campus within the National Paediatric Hospital.
- Members of the Skin cancer care team are involved in the development of national skin cancer guidelines and processes through participation in the National Cancer Control Programme (NCCP) RCPI, RCSI and national charities such as the Irish Skin Foundation, Marie Keating Foundation, and the Irish Cancer Society.
- St James has been involved in pioneering and piloting a range of changes in the management of patients in a diverse range of areas, such as KPIs, data management, referral processes. Nurse led dermatologic surgery service.
- St James have utilized the emerging technologies of teledermatology to keep patient care continuing during the pandemic years, and most recently to improve waiting times for access using the platform " Dermview" via an NTPF funded project.
- The members of the skin cancer team are a leading voice advocating and advising on behalf of skin cancer patients through the Irish Skin Foundation, Marie Keating Foundation, Irish Cancer Society and the Media.
- Consultant staff actively involved in regular teaching and research at national and international meetings.

Skin Cancer Trends

This report examines both NMSC and melanomas from 2018-2020. On average, there were 1533 newly diagnosed NMSC patients over each of the last three years. Please note that this figure represents NEW patients diagnosed and not new NMSCs diagnosed on a previously diagnosed patient. Consequently the number does not reflect the true workload of the department. There was a significant increase in the number of NMSCs recorded in the database some of which is due to the major landmark of the appointment of a skin cancer data manager. In the previous five-year cancer audit report, an average of 900 NMSCs per year were being recorded in the database.

Figure 2.8.1 Newly diagnosed NMSC cases 2018 - 2020

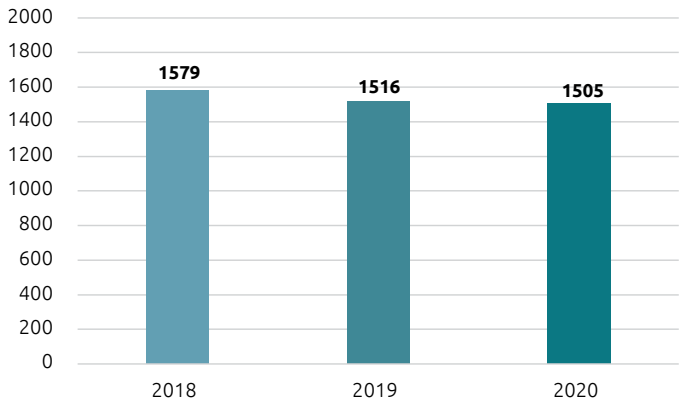
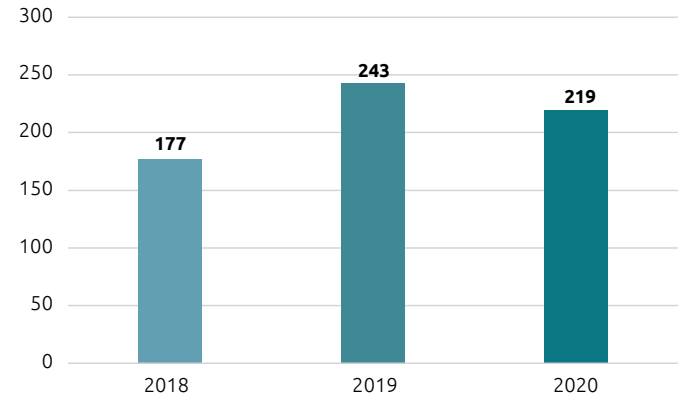


Figure 2.8.2 Melanoma newly diagnosed cases 2018 - 2020



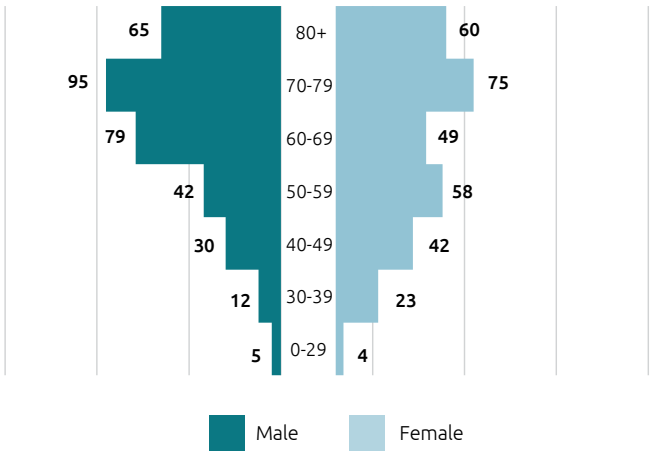
Malignant Melanoma

There were 619 new patients with 639 melanomas diagnosed and treated in SJH over the last three-year period.

The median age at diagnosis was 68 years (compared with 65 in the previous five years) with a range from 14 - 101 years.

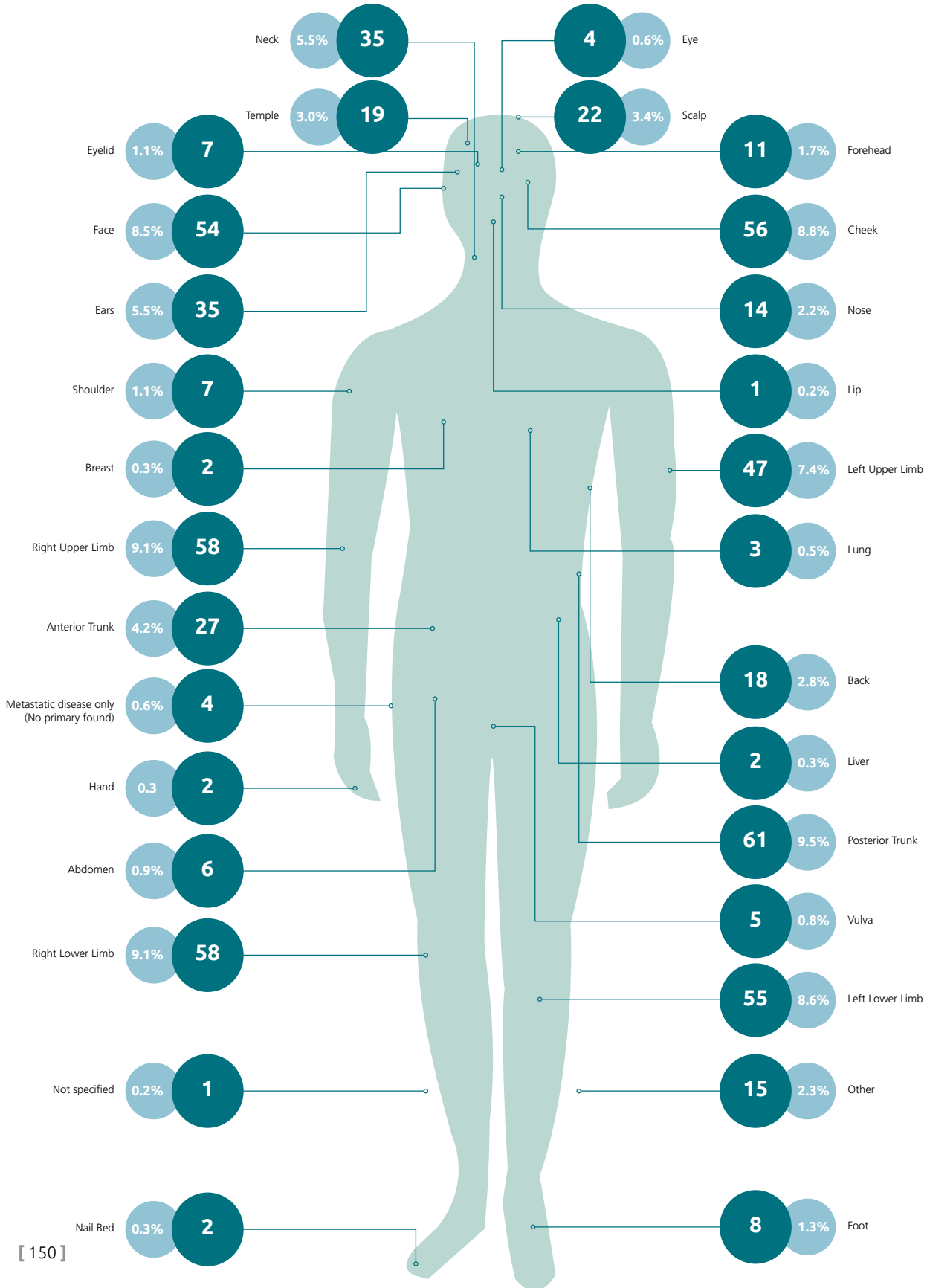
51 percent of patients were male and 49% of patients were female, similar to the previous report and what is described nationally (NCRI 2005-2015). Approximately 94% of patients were treated with curative intent.

Figure 2.8.3 melanoma age at diagnosis by gender 2018 – 2020



Tumour site

Figure Tumour Site (n= 639)



Histology

Table 2.8.1 Type of Melanoma

Melanoma type	Occurrences	Percentage
Acral Lentiginous Melanoma	9	1.4%
Desmoplastic melanoma	7	1.1%
Lentigo Maligna	167	26.1%
Lentigo Maligna Melanoma	58	9.1%
Malignant Melanoma-not specified	32	5.0%
Melanoma in Situ nos	113	17.7%
Metastatic Melanoma of Unknown Primary	10	1.6%
Nodular Melanoma	52	8.1%
Other	4	0.6%
Subungual Melanoma	2	0.3%
Superficial Spreading Melanoma	184	28.8%

Table 2.8.2 Breslow depth

Breslow Depth	Occurrences	Percentage
<1 mm (T1)	152	23.8%
1.01-2 mm (T2)	62	9.7%
2.01-4.0mm (T3)	43	6.7%
>4.0mm (T4)	52	8.1%
Not Applicable (in situ and lentigo maligna)	330	51.6%

Nearly 75% of all melanomas referred to St James were thin and early – less than 1mm in Breslow depth. As early detection is still the key – this reflects well on the processes for timely access to care.

Table 2.8.3 Pathological Stage

UICC Staging (Pathological)	Occurrences	Percentage
Stage 0	277	43.3%
Stage Ia	147	23.0%
Stage Ib	55	8.6%
Stage IIa	23	3.6%
Stage IIb	19	3.0%
Stage IIc	14	2.2%
Stage III	1	0.2%
Stage IIIa	9	1.4%
Stage IIIb	10	1.6%
Stage IIIc	39	6.1%
Stage IIID	9	1.4%
Stage IV	12	1.9%
Not recorded	24	3.8%

The most common pathological stage seen is stage 0 at 43 percent of all pathologically staged melanomas.

Table 2.8.4 Sentinel node biopsies and Complete Lymph node Dissection

SLNB	2018	2019	2020
	20	41	23
CLND	**2018**	**2019**	**2020**
	18	16	6

As evidenced by the figures above the requirement for sentinel node biopsy continued to rise (Covid impact 2020) but the number of completion lymph node dissections fell. Whether this is due to delay in patient presentation due the Global situation, or the change in adjuvant therapy availability, only time will tell. It highlights the importance of sufficient infrastructure to enable timely Sentinel node biopsy surgery and its increasingly important role in management decision of malignant melanoma.

Outcomes and Survival

Melanoma overall survival – patients diagnosed 2015 – 2019

Table 2.8.4 Outcomes in melanoma patients

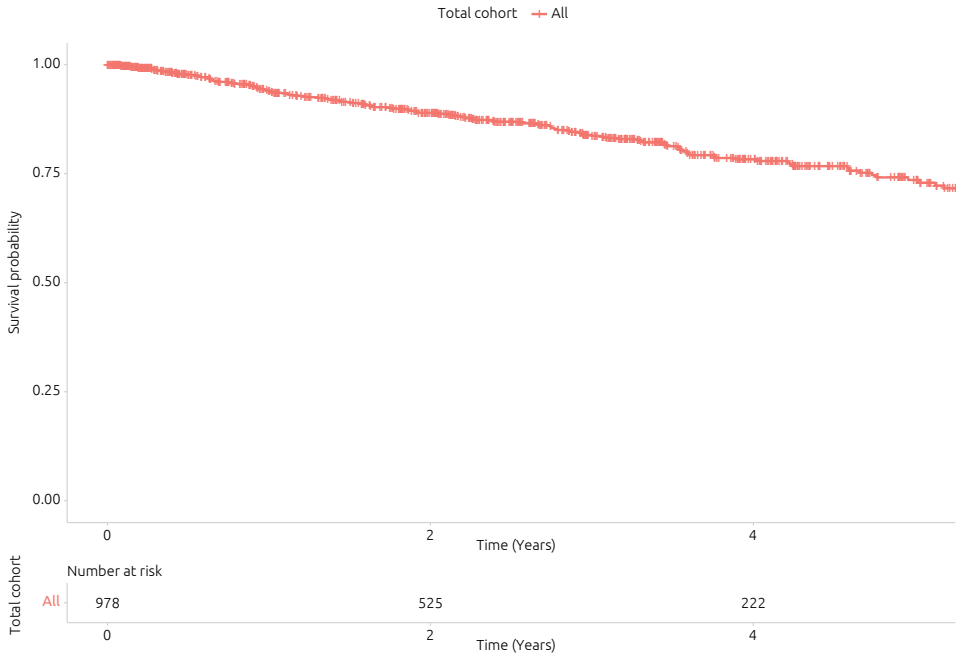
Cohort size	Events	Median (years)	0.95 LCI	0.95 UCI
978	143	NR	NR	NR

NR: not reached; LCI: lower confidence interval; UCI: upper confidence interval.

Table 2.8.5 Landmark survival analysis in melanoma patients

1-year OS	3-year OS	5-year OS
93.8% (95% CI 92.1, 95.5)	83.7% (95% CI 80.8, 86.6)	73.5% (95% CI 69.2, 78.1)

OS: overall survival; CI: confidence interval



Survival by pathological stage – patients diagnosed 2015 – 2019

Table 2.8.6 Outcomes by pathological stage in melanoma cohort

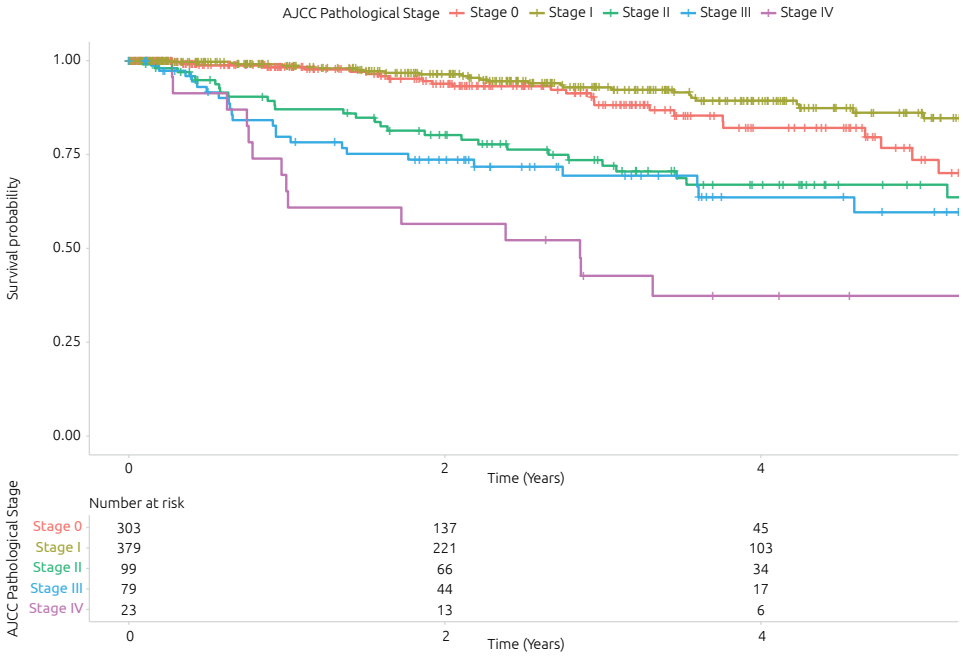
Stage	Cohort size	Events	Median (years)	0.95 LCI	0.95 UCI
Stage 0	303	25	NR	NA	NA
Stage I	379	28	NR	NA	NA
Stage II	99	30	NR	6.09	NA
Stage III	79	23	NR	4.59	NA
Stage IV	23	15	2.86	0.99	NA

NR: not reached; NA: not applicable; LCI: lower confidence interval; UCI: upper confidence interval.

Table 2.8.7 Landmark survival analysis by pathological stage in melanoma cohort

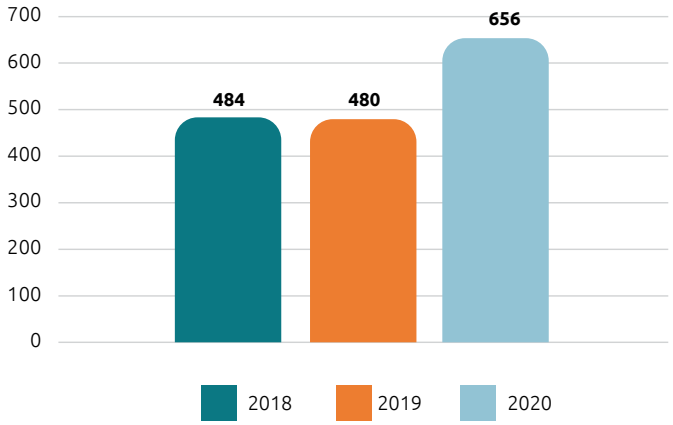
Stage	1-year OS	3-year OS	5-year OS
Stage 0	98.2% (95% CI 96.4, 100)	88.1% (95% CI 82.7, 93.9)	73.6% (95% CI 62.9, 86.0)
Stage I	98.7% (95% CI 97.4, 100)	92.9% (95% CI 89.6, 96.2)	86.1% (95% CI 80.7, 91.9)
Stage II	87.0% (95% CI 80.4, 94.2)	72.0% (95% CI 63.0, 82.3)	67.0% (95% CI 57.2, 78.4)
Stage III	79.7% (95% CI 70.8, 89.8)	69.4% (95% CI 58.8, 81.8)	59.6% (95% CI 46.9, 75.8)
Stage IV	65.2% (95% CI 48.4, 87.9)	42.7% (95% CI 26.4, 69.0)	37.4% (95% CI 21.6, 64.6)

OS: overall survival; CI: confidence interval



NMSC

Figure 2.8.4 Trends in Mohs Surgeries per year



There was a 215% increase in the number of Mohs surgeries performed in 2020 compared with the previous five-year report (208 in 2013).

Morphology

Table 2.8.8 NMSC Morphology 2018 – 2020

	2018		2019		2020	
	Patients	Specimens	Patients	Specimens	Patients	Specimens
Basal Cell Carcinoma	1145	1279	1089	1199	1045	1172
Squamous Cell Carcinoma	326	375	338	390	344	410
Squamous cell carcinoma in-situ	32	32	26	26	32	33
Basosquamous carcinoma	32	34	34	35	54	55
Mycosis fungoides	11	12	6	6	5	6
Bowen's Disease	9	10	6	6	10	10
Sarcoma	7	7	4	5	4	5
Dermatofibrosarcoma	5	8	1	1	4	6
Kaposi's sarcoma	3	3	4	5	2	2
Leiomyosarcoma	3	3	1	1	2	2
Malignant lymphoma, non-Hodgkin's type	3	3	1	1	1	1
Atypical fibrous histiocytoma	1	1	0	0	0	0
Liposarcoma	1	1	1	2	0	0
Neoplasm, Metastatic	1	2	0	0	1	1
Atypical fibroxanthoma	0	0	2	2	1	1
Neoplasm, Malignant	0	0	2	2	0	0
Verrucous carcinoma	0	0	1	2	0	0
TOTALS	**1579**	**1770**	**1516**	**1683**	**1505**	**1704**

Over 71% of NMSC in 2018 – 2020 were basal cell carcinomas and nearly 22% were squamous cell carcinomas.

Urology Cancer

Structure

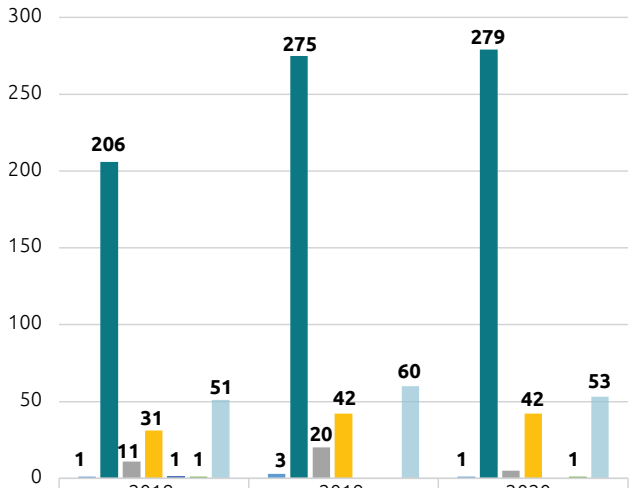
- Well-developed MDT approach to urological cancers provided by Professor Thomas Lynch, Prof. Rustom Manecksha, Mr Peter Lonergan, Ms Lisa Smyth and Mr Imtiaz Ahmad. Approximately 90 patients are discussed per month.
- The service is supported by four Clinical Nurse Specialists; Marion O'Brien and Tanya Conroy (Job Share), Grainne Kelly, and Anna Loughlin
- Oncology: Dr Dearbhaile O'Donnell provides specialised oncology care for patients with urology cancer, and 2 Consultant Radiation Oncologists, Dr Moya Cunningham and Dr Patricia Daly provide specialist radiation oncology.
- Academic unit led by Prof T. Lynch with a special interest in laboratory based research in prostate cancer with interface to the Trinity Translational Medicine Institute (TTMI) and the UCD Conway Institute. The majority of prostate cancers bio banked
- Recognised centre for higher specialist training in urology surgery.
- SJH has been established as one of eight National Rapid Access Prostate Clinics (RAPC) in Ireland. These clinics provide rapid access to a prostate clinic where they will be assessed by a Urologist and will have access to a Urology CNS. The clinics have been established in an effort to speed up the process of referring men with a possible prostate cancer, to bypass waiting times for out-patient clinics and to provide access to prostate biopsy more quickly for those who need it.
- There are two RAPC each week and three 'one stop' haematuria clinics.
- All cases discussed at MDT have access to special palliative care and psychological oncology services, if required.

Urology Cancer Trends

There were 1083 urology cancers newly diagnosed and / or newly treated in SJH between 2018 and 2020 (Figure 2.9.1).

This represents an average of 361 patients a year, a slight increase from the previous five-year report (2013-2017).

Figure 2.9.1 Urology Cancers by Tumour Site

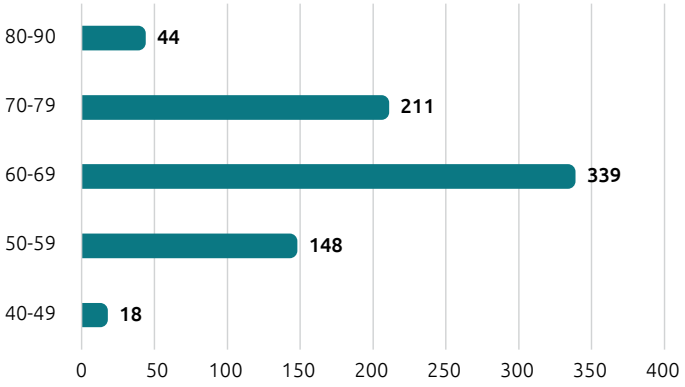


	2018	2019	2020
C60 - Malignant Neoplasm of the Penis	1	3	1
C61 - Malignant Neoplasm of Prostate	206	275	279
C62 - Malignant Neoplasm of Testis	11	20	5
C64 - Malignant Neoplasm of Kidney except renal pelvis	31	42	42
C65 - Malignant Neoplasm of Renal Pelvis	1		
C66 - Malignant Neoplasm of Ureter	1		1
C67 - Malignant Neoplasm of Bladder	51	60	53

Prostate Cancer

The average age of patients at diagnosis was 66 years (range 43-88). Figure 2.9.2 shows the age at diagnosis for all patients diagnosed 2018 – 2020.

Figure 2.9.2 Prostate Cancer age at diagnosis 2018 - 2020



Rapid Access Prostate Clinic

Audit data has been submitted to the NCCP for the Rapid Access Prostate Clinic since 2010.

Table 2.9.1: RAPC activity 2018 – 2020

	2018	2019	2020
New attendances	397	492	375
Return attendances	4	56	26
Total attendances	401	548	401
Number of clinics	56	64	56
New cancers diagnosed	128	172	128

Rapid access clinics took place virtually via phone in 2020 as a result of the impact of COVID restrictions.

Table 2.9.2: Prostate Cancer: Gleason Score (GS) prognostic Grade (Epstein Grading System)

Gleason Prognostic Grade	Occurrences	Percentage
Prognostic Grade I (GS</=6)	135	17.76%
Prognostic Grade II (GS 3+4=7)	328	43.16%
Prognostic Grade III (GS 4+3=7	107	14.08%
Prognostic Grade IV (GS=8)	60	7.89%
Prognostic Grade V (GS 9-10)	104	13.68%
Not recorded/Unknown	26	3.42%

Forty-three percent of patients were Gleason Score 3+4=7, compared with 39% in the previous five-year report (2013-2017).

Treatment

Table 2.9.3: Prostate Cancer: Planned primary treatment options 2018-2020

	Occurrences	Percentage
Active surveillance/Active monitoring	90	11.8%
Surgery only	172	22.6%
Surgery and Neoadjuvant Chemotherapy/Radiotherapy	1	0.1%
Surgery and adjuvant Radiotherapy	23	3.0%
Surgery and adjuvant Hormone Therapy	6	0.8%
Radiotherapy and Hormone therapy	138	18.2%
Radiotherapy only	67	8.8%
Hormone therapy only	63	8.3%
Chemotherapy only	1	0.1%
Combined Radiotherapy/Chemotherapy	5	0.7%
Hormone therapy / Radiotherapy and Brachytherapy boost	1	0.1%
Neoadjuvant Hormone therapy / Surgery and Adjuvant Radiotherapy	1	0.1%
None	8	1.1%
Palliative Care - Best Supportive Care	3	0.4%
Palliative Chemotherapy	3	0.4%
Palliative Chemotherapy and Hormone Therapy	7	0.9%
Palliative Radiotherapy	1	0.1%
Unknown - private patient*	134	17.6%
Unknown/Not stated	36	4.7%
TOTAL	**760**	**100%**

* due to PSMA facilities in SJH a large number of private patients attend for diagnosis but return to their referral hospital for treatment

Survival analysis

Prostate Cancer

Overall survival – patients diagnosed 2015 - 2019

Table 2.9.4 Overall Survival; prostate cancer cohort

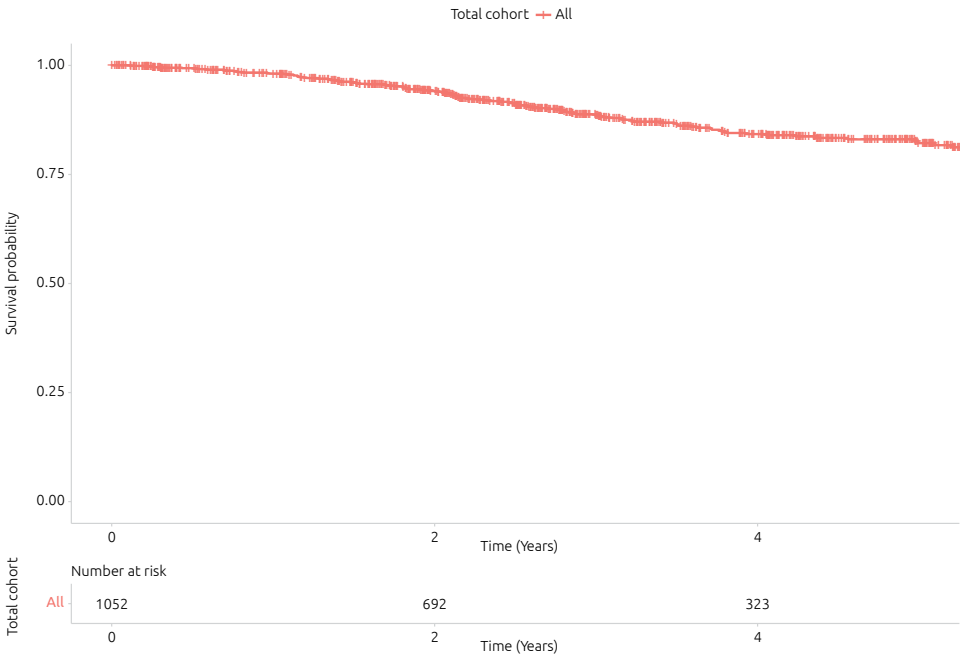
Cohort size	Events	Median OS	95% LCI	95% UCI
1052	118	NR	NR	NR

LCI: lower confidence interval; UCI: upper confidence interval; NR: not reached; OS: overall survival

Table 2.9.5 Landmark survival analysis; prostate cancer cohort

One-year OS	Three-year OS	Five-year OS
98.1% (95% CI 97.3, 99.0)	88.6% (95% CI 86.2, 90.9)	82.2% (95% CI 78.9, 85.6)

CI: confidence intervals; OS: overall survival



Kidney Cancer

SJH is a major tertiary referral centre for the treatment of kidney cancers, and was the first centre in Ireland to manage kidney cancers laparoscopically.

The average age at diagnosis was 64 years (range 29 – 91). Approximately 60% of all diagnoses were male, with Figure 2.9.3 giving the gender and age at diagnosis.

Figure 2.9.3 Kidney cancer age at diagnosis by gender 2018 – 2020

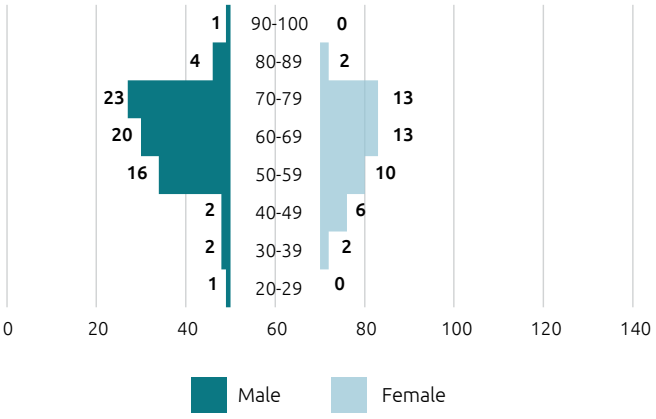


Table 2.9.6: Kidney Cancer Planned Treatment

	Occurrences	Percentage
Surgery only	81	70%
Surgery and adjuvant Chemotherapy/Radiotherapy	3	3%
Surgery and adjuvant Chemotherapy	1	1%
Surgery and immunotherapy	1	1%
Surgery and palliative chemo	1	1%
Radiofrequency Ablation	5	4%
Chemotherapy only	2	2%
Palliative Chemotherapy	2	2%
Palliative Radiotherapy	3	3%
Palliative care	7	6%
Active surveillance/Active monitoring	3	3%
Unknown/Not stated	6	5%
TOTAL	**115**	**100%**

Table 2.9.7: Kidney Surgery 2018 - 2020

Type Of Surgery	Occurrences	Percentage
Laparoscopic Nephrectomy Radical	66	76%
Laparoscopic Nephrectomy Partial	14	16%
Open Nephrectomy	3	3%
Laparoscopic Nephrouretetectomy	4	5%
	87	**100%**

For kidney cancer patients diagnosed between 2018-2020, 97% of patients had laparoscopic resection, compared with 21% of patients diagnosed in the previous five years (2013-2017).

Survival analysis

Kidney cancer

Overall survival – patients diagnosed 2015 - 2019

Table 2.9.8 Overall Survival; kidney cancer cohort

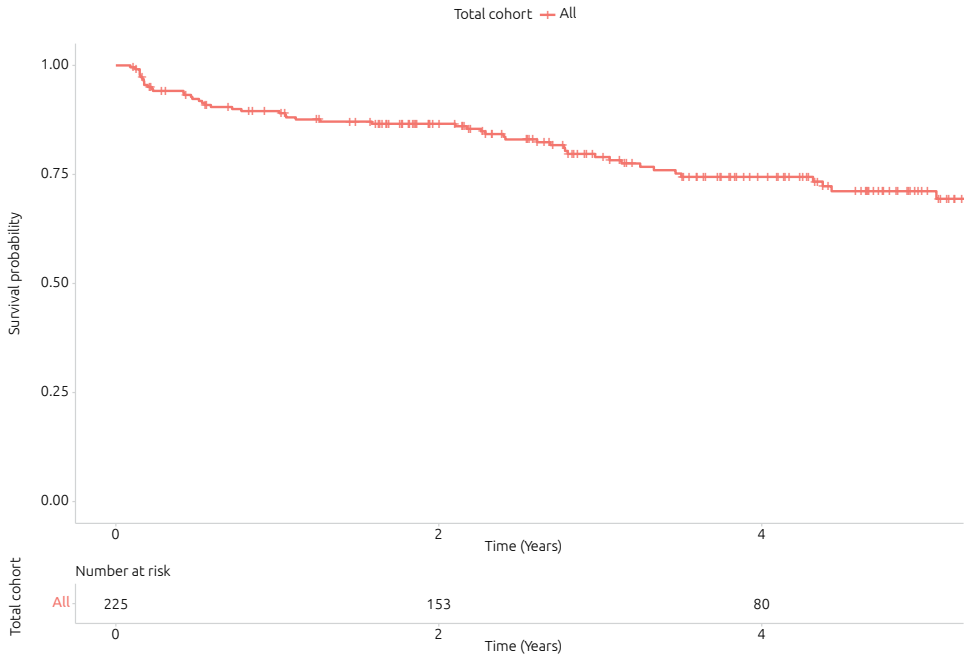
Cohort size	Events	Median OS	95% LCI	95% UCI
225	53	NR	6.03	NR

LCI: lower confidence interval; UCI: upper confidence interval; NR: not reached; OS: overall survival

Table 2.9.9 Landmark survival analysis; kidney cancer cohort

One-year OS	Three-year OS	Five-year OS
89.5% (95% CI 85.6, 93.7)	79.0% (95% CI 73.3, 85.1)	71.2% (95% CI 64.3, 78.8)

CI: confidence intervals; OS: overall survival



Bladder Cancer

The average age at diagnosis was 72 years (range 36 – 94). Approximately 75% of patients were male, with Figure 2.9.4 showing the age and gender at diagnosis for all patients diagnosed 2018 – 2020.

Figure 2.9.4 Bladder cancer age at diagnosis by gender 2018 – 2020

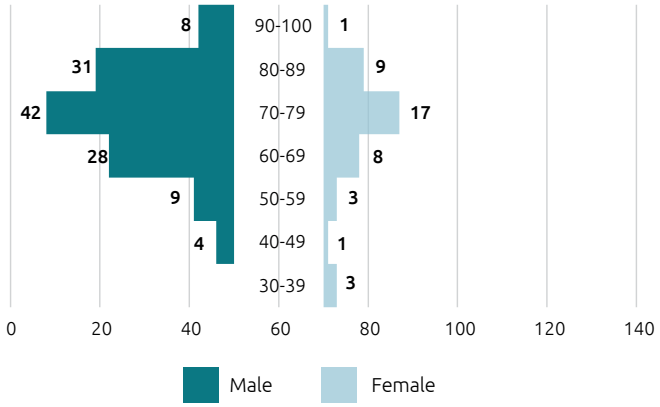


Table 2.9.10 Bladder Cancer Planned treatment

	Occurrences	Percentage
Surgery only	64	39%
Surgery & intravesical cytotoxic agent	55	34%
Surgery and Neoadjuvant Chemotherapy	4	2%
Surgery and Neoadjuvant Chemotherapy/Radiotherapy	1	1%
Surgery and adjuvant Chemotherapy	10	6%
Surgery and adjuvant Radiotherapy	12	7%
Surgery & palliative radiotherapy	2	1%
Surgery and palliative chemoradiotherapy	1	1%
Palliative Chemotherapy	1	1%
Palliative Radiotherapy	1	1%
Palliative Treatment	3	2%
Radiotherapy only	1	1%
Active surveillance/Active monitoring	5	3%
Unknown/Not stated	4	2%
Total	**164**	**100%**

Table 2.9.11 Bladder Cancer Surgery (patients diagnosed 2018 - 2020)

	No. procedures*	Percentage
Cystectomy	3	2%
Cystectomy & prior TURBT	7	4%
Cystoprostatectomy	5	3%
Cystoprostatectomy & prior TURBT	7	4%
TURBT	126	81%
Other	8	5%

* patients may have had more than one procedure

Survival analysis

Bladder Cancer

Overall survival – patients diagnosed 2015 – 2019

Table 2.9.12 Overall Survival; bladder cancer cohort

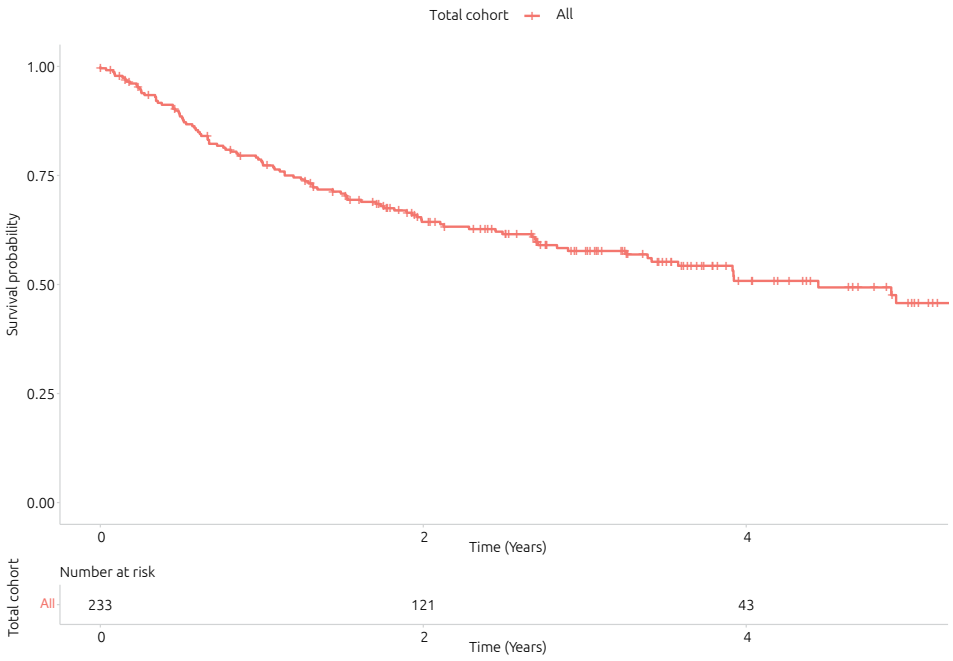
Cohort size	Events	Median OS	95% LCI	95% UCI
233	101	4.45	3.39	NR

LCI: lower confidence interval; UCI: upper confidence interval; NR: not reached; OS: overall survival

Table 2.9.13 Landmark survival analysis; bladder cancer cohort

One-year OS	Three-year OS	Five-year OS
78.2% (95% CI 73.0, 83.8)	57.7% (95% CI 51.2, 65.0)	45.7% (95% CI 37.7, 55.5)

CI: confidence intervals; OS: overall survival



Testicular Cancer

Testicular cancer is a relatively rare disease. However, it is the most common cancer found in young men aged between 15 and 34 years. Every year about 164 men are diagnosed with testicular cancer in Ireland.

The average age at diagnosis was 41 years (range 18 – 82).

Some patients treated in SJH (with chemotherapy, surveillance by Medical Oncology) may have had their orchidectomy and therefore, diagnosis elsewhere.

Table 2.9.14: Planned Treatment testicular cancer patients diagnosed 2018 – 2020

Testicular cancer	Treatment	Percentage
Chemotherapy	5	13.89%
Surgery	13	36.11%
Surgery, Chemotherapy	14	38.89%
Surveillance/active monitoring	4	11.11%
Grand Total	**36**	**100.00%**

Penile Cancer

Table 2.9.15: Planned Treatment penile cancer patients diagnosed 2018 – 2020

Penile Cancer	Treatment	Percentage
Surgery	4	80.00%
Surgery, Chemotherapy, Radiotherapy	1	20.00%
Grand Total	**5**	**100.00%**

APPENDICES

Appendix 1 Methods

Sources of Data

All information is actively obtained and audited by the cancer data managers, with the clinicians and nursing staff ongoing input on all patients diagnosed and treated with cancer in SJH.

Data acquisition is obtained from the following sources:

- SJH Patient Administration System (PAS)
- SJH Pathology system
- SJH theatre management system
- SJH EPR system
- HIPE Data from www.esri.ie HIPE data provided by staff from the HIPE coding department in SJH
- MDT meetings
- SJH Endoscopy system
- Services for death registration information https://deathevents.gov.ie/
- RIP.ie
- Chemotherapy recording system SJH
- GP
- NCRI
- Radiotherapy information from SLRON

Recording of Data

The cancer audit programme has been in place in SJH for over 15 years. CAP uses a cancer information system (PATS/Intellect – software by Dendrite Clinical Systems) and this system is managed and audited by a data manager.

The information system has a core set of data items that captures key SJH cancer information requirements, the NCRI minimum dataset and incorporates site-specific national and international cancer and clinical datasets. The data is used to report cancer activity trends, outcomes, and to fulfil NCCP KPI reporting requirements.

Patient information is captured from time of referral through follow-up and to time of death or last follow-up. The data managers ensure that follow-up is as up to date as possible to facilitate accurate survival analysis.

Advances in electronic data capture at SJH through Project Oak have and will continue to impact positively on data collection, analysis and outcomes reporting allowing SJH to continually review its cancer services and provide a resource for quality improvement.

Data analysis

All basic calculations have been completed in PATS and Intellect, i.e. tabulation of the data. All survival curves were generated by a statistical software package, R by our colleague Claire Gorry in NCPE. Survival analysis was generated using the Kaplan Meier method (all-cause mortality).

Data Quality

One of our constant key priorities of the cancer audit team has been the continuous improvement of QA initiatives to ensure the accurate and timely information is available to clinicians and management to measure the quality of care received by cancer patients in SJH.

There are two mechanisms for quality control and validation of our data. Continuous data quality checks at the time of data capture and periodical reviews of the accuracy and validity of our data.

All data managers complete regular QA, error and completeness checks across all registries across the entire data collection process. The PATS software system allows the facility to control user access and privilege. There is an audit trail facility to track data entry by all users. The system restricts users to a range of predetermined values for each data item, and checks for internal consistency.

Monthly and annual audits of all information are routinely done and presented to clinicians to review. Lead clinicians are ultimately responsible for data produced.

The introduction of collaborative quality improvement programmes (QIP) in each of the individual tumour sites has been significant in improving the validation and quality control of our data. These QIP groups meet regularly and data is can be prospectively measured, assessed, and benchmarked against national and international performance indicators.

Appendix 2 Cancer Audit Programme Team

Name	Role
Professor John Reynolds	Cancer Audit Clinical Director
Ms Lisa McDowell	Cancer Audit Programme Manager (2019 - present)
Ms Cathy Enright	Cancer Audit Programme Manager (2017 – 2019)
Ms Karina Delaney	Breast Cancer Data Manager
Ms Chris Gleeson	Colorectal Cancer Data Manager
Ms Therese Brown	Gynaecology Cancer Data Manager
Ms Mary Devlin	Head and Neck Cancer Data Manager
Ms Fiona Mulvany	Lung Cancer Data Manager
Ms Anita Cafolla	Skin Cancer Data Manager
Ms Sinead King	Upper GI and Hepatobiliary Data Manager
Ms Lynn Geraghty	Urology Data Manager (2021 to present)
Ms Mary O'Brien	Urology Data Manager (2018 – 2020)

Appendix 3 Acknowledgements

Many thanks to all of the teams from haematology, breast, colorectal, gynaecology, head and neck, lung, dermatology, plastics, upper GI and urology for your assistance in putting the report together. Special thanks goes to following for their review and contributions to the reports.

Mr James Beirne	Gynaecology
Ms Aisling Carolan	Endoscopy
Dr Eibhlin Conneally	Haematology
Prof Elizabeth Connolly	Breast
Ms Hilary Craig	Regional Oncology Programme Office
Dr Moya Cunningham	Consultant Radiation Oncologist
Ms Ann Dalton	COO/DCEO
Ms Elaine Dunne	IMS (HIPE)
Ms Cathy Enright	TSJCI
Mr Barry Fanning	IMS
Prof Stephen Finn	CMD
Ms Lynda Foy	CNS Colorectal Cancer Screening
Ms Claire Gorry	NCPE
Ms Claragh Healy	Plastics
Mr Waseem Kamran	Gynaecology
Ms Ingrid Kiernan	Cancer Clinical Trials Office
Mr Paul Lennon	Head and Neck
Ms Niamh Leonard	Histopathology
Mr Peter Lonergan	Urology
Prof Thomas Lynch	Urology
Prof Paul McCormick	Colorectal
Ms Mairin McMenamin	Histology
Prof Brian Mehigan	Colorectal
Dr Siobhan Nicholson	Histopathology
Dr Finbarr O'Connell	Respiratory
Dr Susan O'Gorman	Dermatology
Dr Esther O'Regan	Histopathology
Dr Ciaran O'Riain	Histopathology
Dr Patrick Ormond	Dermatology
Mr Christoph Theopold	Plastics
Dr Mary Toner	Histopathology
Prof Elisabeth Vandenberghe	Haematology
Mr Ronan Ward	Pathology

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