OSPIDÉAL NAOMH SÉAMAS
ST. JAMES'S HOSPITAL

SIX-YEAR CANCER AUDIT REPORT
ST. JAMES'S HOSPITAL

2001–2006

Compiled by:
Cancer Audit Programme Team, St. James's Hospital

Table of Contents

Foreword 2

Objective 3

Background 4

Executive Summary 5

Section 1: General Aspects of Cancer Audit 7

1.1 Demographic Data 9
1.2 Multidisciplinary Team (MDT) Working 13
1.3 Systemic Therapy 16
1.4 Radiotherapy 21
1.5 Surgical Oncology 23
1.6 Palliative Care 24
1.7 Cancer Clinical Trials 26
1.8 Cancer Genetic Clinic 28
1.9 PsychoOncology 30
1.10 Nursing Service in Haematology/Oncology 30
1.11 Allied Health Services 32
1.12 Translational and Experimental Cancer Medicine Research 37
1.13 Anaesthesia Services 40

Section 2: Site Specific Cancer Audit 43

2.1 Lung Cancer 45
2.2 Upper Gastrointestinal Cancer 53
2.2.1 Oesophageal and Oesophago-gastric Junction 53
2.2.2 Gastric Cancer (excluding junctional) 59
2.3 Skin Cancer 63
2.4 Head & Neck Cancer 66
2.4.1 Endocrine Cancer 70
2.5 Colorectal Cancer 73
2.6 Gynaecological Cancer 81
2.7 Urological Cancer 86
2.8 Breast Cancer 90
2.9 Liver, Pancreas and Bile Duct Cancers 97
2.10 Lymphoma and Haematological malignancies 101
2.11 Sarcoma 109

Appendix 1 Methods 111

Appendix 2 Cancer Audit Programme Team 113

Appendix 3 References 114

Appendix 4 Audit Publications 116

Appendix 5 Abbreviations 118

Appendix 6 Acknowledgements 122

Foreword

It gives me great pleasure to contribute a Foreword to this Six Year Audit of Cancer Care at St. James's Hospital. This Report describes patient volume, complexity of care, diagnosis / treatment / support pathway, processes, and clinical outcomes achieved.

It is now internationally accepted that cancer diagnosis and treatment is optimally managed within a health delivery system that assures:

- a coordinated and structured approach to cancer diagnosis / treatment and support
- adequate cancer case volume and appropriate and effective integrated clinical skill mix and support capability and capacity
- clearly articulated process / outcome performance indicators
- ability to accurately track and measure performance in relation to designated cancer quality indicators in a comprehensive and integrated manner

St. James's has consistently effected a systematic approach to cancer strategy. The cancer delivery paradigm also optimally incorporates Research and Education requirements. This is predominantly attributable to well established Corporate and Executive structures including Hospital Board, patient -centred Clinical Directorates, cancer site-specific interdisciplinary teams and supportive corporate functionality, as well as a well-structured synergistic interface with Trinity College in cancer research and education.

In 2006 St. James's undertook the treatment of 2,300 new cancer patients, representing 11% for in-patient care and 33% for day care treatment of the national cancer work volume. It should be noted that this represents approximately a 100% local workload increase over the last ten years.

The Hospital Cancer Audit Program was established in 1997 and has evolved to include core and site-specific cancer electronic databases. The audit mission has been complemented by the appointment of dedicated cancer site-specific data managers. This has enabled the reporting of audit information sufficiently robust to enable benchmarking with internationally accepted performance standards including survival outcomes.

The recent designation of the hospital as Cancer Network Hospital – Mid-Leinster, as well as the existing national role in cancer service, it's leadership role in education, research and training, and the development of on site radiation oncology provision by 2010, will ensure St. James's development as a large comprehensive and integrated Cancer Centre along the lines of the best international models.

Ian Carter
Chief Executive
St. James's Hospital

Objective

The primary objective of this report is to present a comprehensive audit of cancer care undertaken at St. James's Hospital (SJH), from 2001 to 2006 inclusive. The principal goal is to highlight case volume, complexity, incidence trends, referral patterns, and process and outcome data, in particular key quality indicators of cancer service in patients undergoing curative unimodal or multimodal therapy. The key elements of how cancer care is currently structured at SJH, including multidisciplinary teams, structured clinics, and rapid-access processes, is also included, and we highlight herein cognate elements across many high volume cancer sites that impact on the standard care-pathways and outcomes achieved.

Background

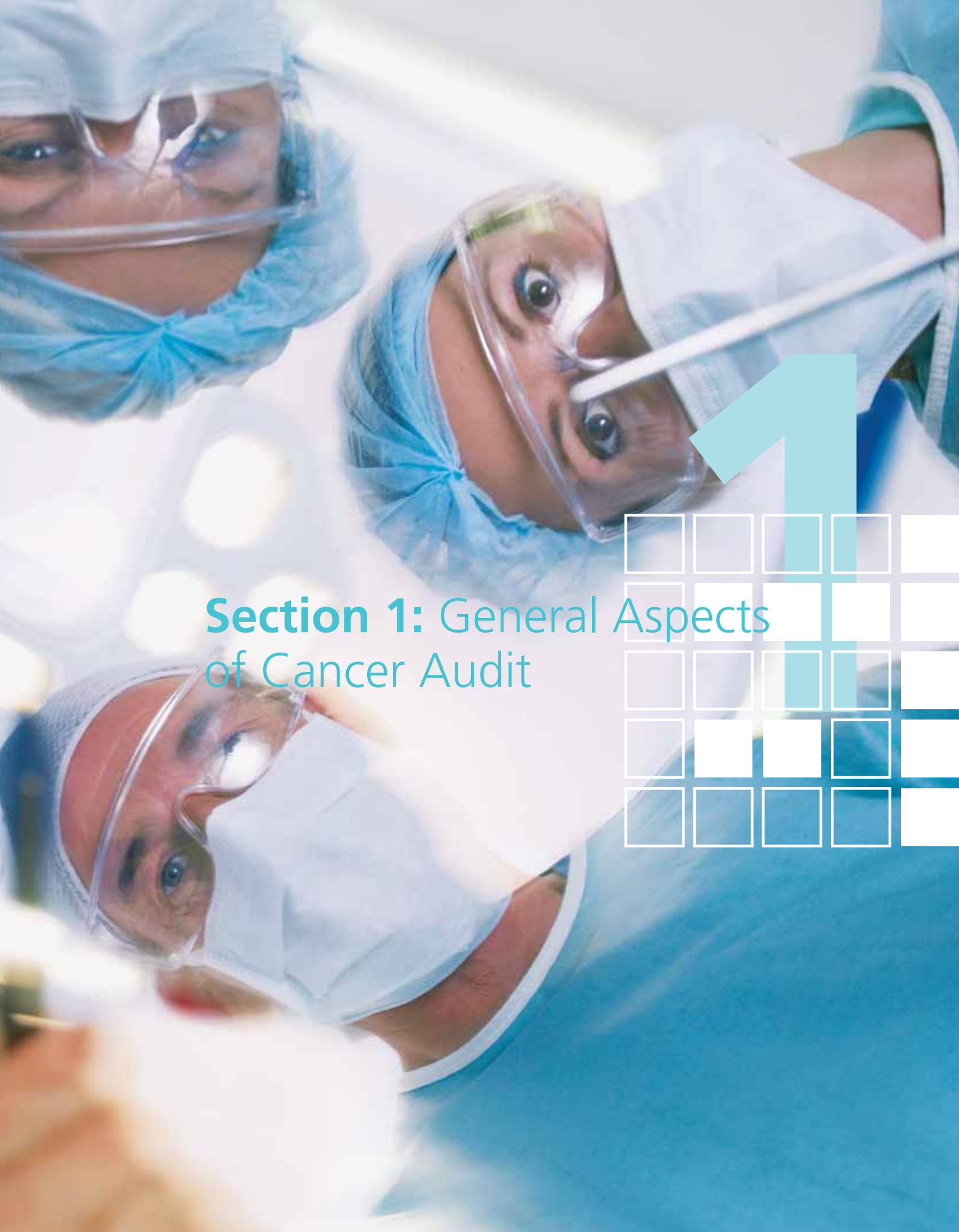
The National Cancer Plan was launched in 1996, and this resulted in significant investment in cancer services. Twelve years on, new structures and governance models, with a focus on setting standards nationally and achieving optimal outcomes, are being established, most notably the National Cancer Control Programme (NCCP) and the designation of Cancer Centres. Moreover, the Health Information and Quality Authority (HIQA), established in 2006, which has already participated in publishing *Quality Assurance Standards for Symptomatic Breast Disease*, is likely to have a similar remit across all of oncology. In a culture firmly shaped by the experience and aftermath of the Bristol inquiry and by the Harding-Clark report, a clear imperative exists to audit process and outcomes across health care delivery, most particularly in complex, expensive areas such as cancer.

A cancer strategy group was first established at SJH in 1994, and ever since the focus of this large group of professionals in association with senior administrators has been to develop the right structures and processes to deliver high-quality cancer care. Significant developments included the Multidisciplinary Team model (MDT) for all cancer sites, sub-specialisation in all key areas within oncology, the appointment of cancer specialist nurses within the MDT structure, the development of rapid-access cancer clinics, the development of on-site clinical and translational clinical trials and biobanking, and clinical audit.

This Cancer Audit Programme commenced in 1997, and electronic databases encompassing core and site-specific data, and linked to Patient Analysis and Tracking Systems (PATS) and Histopathology reporting, were introduced in 1999. Funding was obtained through the Eastern Health Board for a number of data-managers, and these were appointed to positions in the lung, upper gastrointestinal, colorectal, breast, gynaecology, head and neck, lymphoma, endocrine and sarcoma MDTs. The goal of the audit programme from its inception was to "know our own data" and not be reliant on proxy or surrogate inferences from audit undertaken at international cancer centres, nor from the data provided through the Hospital In-Patient Enquiry (HIPE) and the National Cancer Registry of Ireland (NCRI), which have inherent limitations. The process of monitoring quality through the cancer audit programme is now sufficiently mature to permit reporting of audit information that enables benchmarking with international standards, quality indicators, and survival outcome. In this report we provide comprehensive data for the period 2001 to 2006. This significantly expands on previous summary reports in 2004 and 2005, and actual rather than actuarial or relative survival figures are reported.

Executive Summary

- SJH accounts for 10% of the overall national cancer workload. This includes 11% of the in-patient cancer workload and 33% of the day case activity.
- In 2006, approximately 2,300 new cancer patients were treated.
- Attendances to the Haematology Oncology Day Care (HODC) facility have increased significantly, with an almost doubling of day-case attendances since 2001.
- Multidisciplinary conferences complement structured rapid-access clinics and underpin all cancer management.
- Defined site-specific sub specialisation in surgery, pathology and medical oncology exists within each MDT.
- The programmes for lung, oesophageal and head and neck are similar with respect to complexity of surgery, multidisciplinary care, and integrated peri-operative care pathways, requirement for critical care support, quality of life issues, and cost. These services at SJH account for between 33-53% of the national workload.
- 62% of oesophageal cancers, 47% of haematological malignancies, 46% of lung cancers, 41% of gynaecological cancers and 38% of lymphomas are tertiary referred.
- Approximately 20-25% of gynaecology oncology surgery in Ireland is undertaken at the hospital.
- Skin cancer is the commonest cancer. Over 100 patients have now been treated with Mohs microsurgery and the number of new melanoma skin cancers diagnosed in 2006 represents an 80% increase in patient numbers since 2001.
- Comparing 2006 with 2001, there has been a 54% increase in the numbers of new patients referred with colorectal cancer, a 30% increase in the numbers of new patients coming through the lymphoma cancer service, and a 109% increase in the numbers of new patients with urological cancer.
- Comprehensive outcome data in breast cancer shows 5-year survival figures for node-negative and node-positive breast cancer that are consistent with international benchmarks (EUROCARE and SEER).
- The average age of cancer patients diagnosed and/or treated in SJH was 59 years for women and 62 years for men. The majority of patients (76%) were over the age of 50.
- In 2005 following an open competition SJH was designated as the future location of the Dublin South Radiation Oncology Facility and Supra-regional Oncology Service as part of the NCCP.
- This development will enable the hospital to become the largest Comprehensive Cancer Centre in the country and the purpose built facility is due for completion of Phase 1 in 2011.
- Referrals to palliative care services have doubled since 2000. Approximately 90% of all referrals have a cancer diagnosis and the largest referral service is Medical and Haematology Oncology.
- Seven cancer data managers promote cancer audit through the hospital and are integrated within the multidisciplinary structures.
- SJH houses the National Adult Bone Marrow Transplantation Programme (NABMTP) and treats 30% of the national leukaemia workload.
- The cancer centre activity is supported by the critical care facilities (8 HDU, 15 ICU beds, 4 cardiothoracic), 5 intensive care specialists, and interventional radiology with 3 dedicated specialists, and state of the art endovascular facilities.
- Approximately one in 5 cancer patients are entered into clinical or translational trials, and the entire cancer programme is linked into the on-site Institute of Molecular Medicine (IMM) for biobanking and molecular research.



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Section 1: General Aspects of Cancer Audit

1.1 Demographic Data

Incidence

SJH treated nearly 2,300 new cancer patients in 2006; this represents almost 10% of national cancer activity, based on the latest data available from the NCRI. The overall workload has increased in this 10-year period by 100%, with the largest increase in activity in melanomas, urological, breast, lung, head & neck and haematological cancers. (Table 1.1)

Overall Cancer Activity

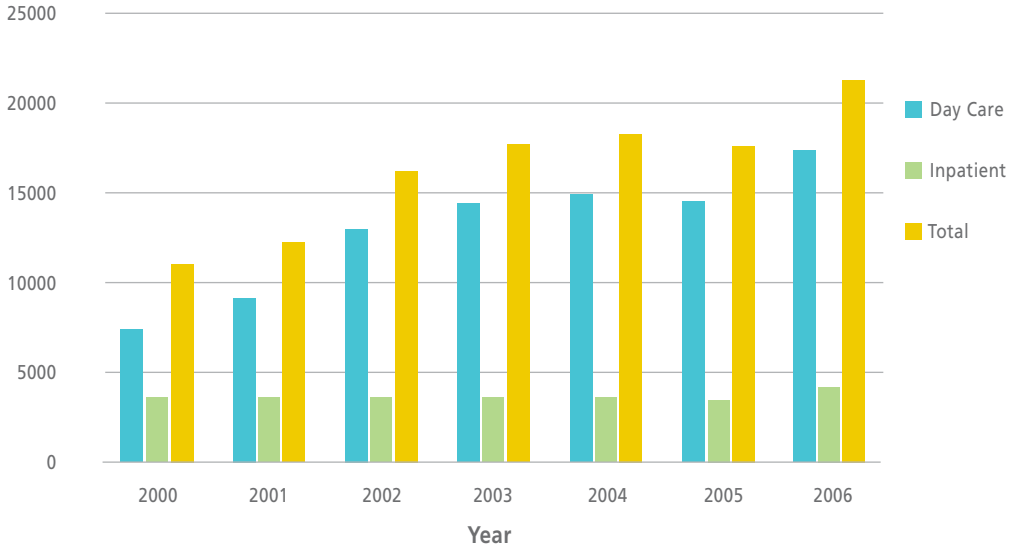
Both day-case and in-patient activity from HIPE (Hospital Inpatient Enquiry System) indicate a substantial increase in all cancer activity in SJH to the end of 2006 with a 98% increase in all activity across the hospital since 2000 (See figure 1.1).

Table 1.1

Cancer Type	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	% Increase in Activity in last 10 years
NMSC*	249	247	294	381	398	489	394	381	422	406	513	106%
Lung	205	261	251	258	208	263	266	280	299	320	342	67%
Breast	62	72	114	126	170	139	169	201	137	140	130	110%
Oesophagogastric	131	141	127	130	145	148	138	120	147	135	164	25%
Urology	63	55	56	55	67	90	118	134	151	207	205	225%
Colorectal	101	111	118	117	107	103	117	116	136	139	159	57%
Head & Neck	87	83	89	128	126	110	126	125	150	161	152	75%
Lymphoma	71	73	82	106	101	98	105	104	134	134	131	85%
Gynaecological	51	56	64	62	111	119	111	165	138	154	165	224%
Melanoma	17	29	47	47	42	54	59	71	68	67	97	471%
Hepatic/Pancreas	33	44	43	34	64	60	54	69	57	60	57	73%
Haematological	53	70	83	97	106	100	115	117	119	110	110	108%
Bone	4	3	4	2	1	2	2	3	0	1	4	0%
Endocrine	11	14	16	8	11	8	16	16	31	33	39	255%
Sarcoma**	7	11	7	10	8	10	11	16	22	25	16	128%

* NMSC = Non Melanoma Skin Cancer
** Excluding mesotheliomas which are captured in lung cancer figures

Figure 1.1 Cancer Activity 2000–2006 in SJH (H.I.P.E.)



When we compared SJH cancer activity with comparisons from the latest data available from national HIPE records, SJH delivered the following:

- 11% of all national cancer in-patient episodes
- 33% of all cancer day-case therapies

For most cancer sites, a high proportion of surgery is undertaken at SJH compared with national figures (Table 1.2) provided by the NCRI.

Basic Demographics [2001-2006]

When we analysed some of the basic demographic details (exc. NMSC) from 2001-2006, we found the following details on SJH patients over that period of time. The ratio of male to female patients was 1:1. There was little variation (p=0.213) on this ratio year on year. (Table 1.3)

Table 1.2 St. James's Hospital cancer surgery rates compared to National rates

Cancer site	SJH*	National	Year**
Oesophageal	50%	26%	2003
Lung	32%	14%	1994-2001
Head & Neck	70%	60%	2003
Gynaecology	76%	76%	2003
Colorectal	80%	76%	2003

* SJH cancer surgery rates are based on the year 2005
** Please note that NCRI treatment rates for 2003 are provisional

Table 1.3 Male to female ratio by Year of Diagnosis

	Year of Diagnosis					
Sex	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**
Female	49%	49%	53%	50%	51%	51%
Male	51%	51%	47%	50%	49%	49%

The average age of patients diagnosed and/or treated in SJH was 59 years [median age = 61]. The average age of diagnosis was lower at 59 years for women compared with 62 years for men. The majority of patients (76%) were over the age of 50.

A greater percentage of women were diagnosed ($p<0.001$) at less than 50 compared with males.

Table 1.4 Male to female ratio by Age of Diagnosis

	Age-group (years)							
Sex	**0-20**	**21-30**	**31-40**	**41-50**	**51-60**	**61-70**	**71-80**	**81+**
Female	55%	61%	66%	62%	48%	45%	46%	51%
Male	45%	39%	33%	38%	52%	55%	54%	49%

Smoking History

Smoking causes one in three of all cancer related deaths, including 90% of lung cancer deaths. It is also associated with an increased risk of head & neck, cervical, bladder, stomach, oesophageal, pancreas and colon cancers.

Table 1.5 Smoking Status by Sex

Sex	History of Smoking
Female	57%
Male	78%

Across tumour sites, 93% of all lung cancer patients had a history of smoking, as did 70% colorectal, 70% oesophageal, 64% head and neck, 46% breast and 36% of gynaecological cancer patients.

The smoking history of the new patient demographic has not changed significantly over the five years of this study.

There was a large variation ($p<0.001$) in smoking history when the age of diagnosis of patients was analysed, with less smokers in the younger cancer cohorts, perhaps suggesting greater genetic influences in younger patients. (Table 1.6).

Table 1.6 Smoking Status by Age

	Age-group (years)						
	21-30	31-40	41-50	51-60	61-70	71-80	81+
Smoking history	42%	49%	62%	68%	73%	71%	66%

Family History of Cancer

Family history of cancer was recorded where available. 54% of breast cancers had a family history of cancer, 39% colorectal, 36% oesophageal, 27% gynaecological, 27% head and neck and 31% of lung cancers. In breast cancers, 39% of patients had a previous history of familial breast cancer, and many of these patients at SJH are linked to a genetic testing and counselling service (section 1.8)

Referral Details

In the national context, a large proportion (Table 1.7) of the SJH experience for several cancer sites is tertiary referred, defined as having an address outside the former Eastern Region Health Authority (ERHA) boundary which includes Dublin, Wicklow and Kildare.

Table 1.7 Tertiary referral rates for cancer in SJH (2001-2006)

Cancer site	Referral rate
Oesophageal	62%
Haematology malignancy	47%
Lung	46%
Gynaecology	41%
Lymphoma	38%
Head & Neck	37%
Urology	33%
Pancreatico-biliary	30%
Gastric	29%
Melanoma	20%
Breast	12%
Colorectal	7%

1.2 Multidisciplinary Team (MDT) Working

Overview

It is universally held that optimal treatment for the cancer patient involves rapid access to an efficient multi-disciplinary programme of care. The provision of such a programme requires an integrated approach to both diagnostic and treatment services. Cancer treatment is becoming increasingly complex and expensive with the advent of new diagnostic tools and therapeutic approaches. Consequently the optimal assessment and treatment of each patient requires the participation of health care professionals from many diverse disciplines, with increased sub-specialisation within services.

The development of MDT working has been a key feature of cancer services over the last number of years in SJH. A team of MDT co-ordinators and a MDT manager were appointed in January 2005 to maximise the effectiveness of the structure. The objective of the MDT process process is that every cancer patient will receive an evidenced based treatment plan that has been reviewed and agreed by the appropriate MDT. In this section the process of MDT working at SJH will be outlined. This structure and process complements the many cancer access clinics at SJH which will be outlined in subsequent sections on site-specific cancers.

What is MDT working?

Increasing evidence indicates that the optimal way to deliver high quality cancer care is through site/tumour specialisation within the context of MDT working. Furthermore the MDT approach needs to be based on well-constructed care pathways established through evidence-based medicine. This results in a change in perception such that an individual clinician no longer 'owns' a patient, but within his or her field of expertise offers the patient access to the best available evidence-based treatments. The framework document Cancer Services in Ireland: A National Strategy (1996) states that an "integrated multi-disciplinary approach to patient care" is one of the fundamental principles that should underpin the delivery of cancer services in Ireland. An evaluation report on the progress of the National Cancer Strategy highlighted the development of MDT's as a key gap and recommended that all patients should be managed through an integrated multi-disciplinary team approach. Such have been the observed benefits of this approach, adopted following the Calman-Hine report in the UK, that it is no longer considered acceptable practice for any clinician to look after cancer patients outside the setting of an MDT.

Benefits of MDT Working

This way of working offers advantages for both patients and clinicians. For clinicians MDT meetings ensure that professionals with different areas of expertise consider each patient from a range of viewpoints. For example, haematological cancer has many variants and both diagnosis and management can be complex. The supportive environment of an MDT meeting, which allows members to share difficult problems, can be especially helpful for clinicians. Those who have experience working in MDTs report that they also provide valuable and often unanticipated, learning opportunities.

For patients, management by an MDT offers many potential benefits, particularly a greater probability of timely and appropriate treatment and better continuity of care. The contributions made by clinical nurse specialists and palliative care nurses can be particularly valuable as patients are usually more honest with nurses about their symptoms, emotional state and social circumstances. Their input helps focus the clinical decision making on the needs and values of individual patients.

The Cancer Referral Process

The cancer MDT cycle starts when either a member of the referring medical team or a Clinical Nurse Specialist (CNM) completing the referral form. Referral forms for the MDT groups are available electronically on the SJH intranet site. The cancer MDT Co-ordinator will receive this referral via email. Referrals are received from external organisations via telephone, fax or letter. The MDT Co-ordinator requests any external histology specimens or hard copy radiology films from external organisations. The conference list is compiled and emailed to the core members of the Cancer MDT. As part of the process, during the conference the MDT Co-ordinator records the outcomes of the patients that have been discussed. The outcomes are then reviewed by the lead clinician for accuracy and filed in the patient's medical chart. If required, the process loop will begin again, with a further referral to the MDT. Figure 1.2 diagrammatically outlines the process required to enable a comprehensive review of each case at the MDT.

Staffing

A team of four MDT co-ordinators and a MDT manager are employed to maximise the effectiveness of the MDT approach to patient care. The MDT team is the central reference point for these conferences. The MDT co-ordinators provide dedicated administrative support to the cancer MDT.

Cancer MDT Activity

Table 1.8 demonstrate the increase (2006 – 2007) in cases discussed at each MDT. Please note a patient may have been discussed several times.

Figure 1.2 MDT Process

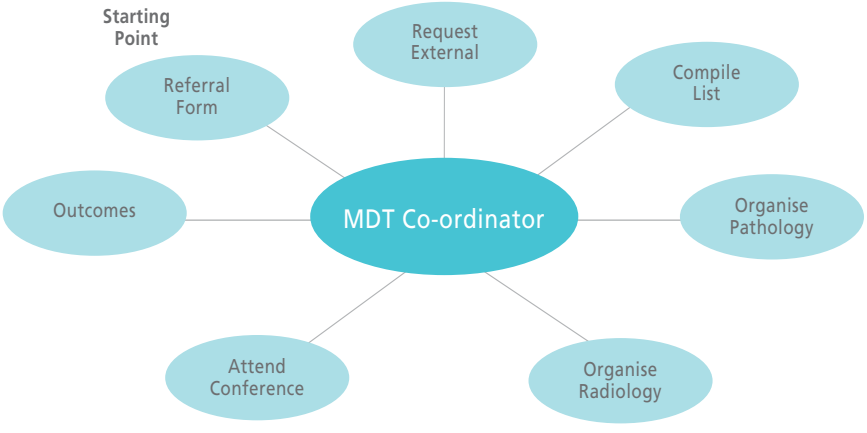


Table 1.8 MDT by Tumour Site

	2006	2007*	% Increase
Melanoma	120	125	4
NMSC	715	870	22
Breast	742	896	21
Urology	206	244	18
Upper & Lower GI	429	635	48
Lung	821	999	22
Head & Neck	160	284	78
Gynaecological	465	509	10
Lymphoma	229	210	-8
Total	5893	6767	

* Projected numbers for 2007

1.3 Systemic Therapy

Haematology Oncology

The comprehensive multidisciplinary programme in haematologic malignancies within the HOPE Directorate represents the largest programme for the management of leukaemia and related disorders in Ireland. The programme incorporates the designated NABMTP centre for Ireland, which was established in 1984. The unit performs allogeneic and autologous peripheral blood and bone marrow stem cell transplants for leukaemia, lymphoma, myeloma and aplastic anaemia, using standard and, more recently, reduced-intensity conditioning protocols.

The purpose-built Haematology Oncology Day Care Centre (HODC) was opened in December 2004. This facility comprises of a day treatment unit consisting of 16 treatment couches, 7 consultation rooms, a procedure room and Haemapheresis unit, as well as a suite of multidisciplinary offices and secretarial facilities for the all the oncologists using the unit. The HODC is devoted to the delivery of the full range of chemotherapy treatment protocols for patients with haematological and solid tumour malignancies. Of the 16 couches, a six-couch bay is dedicated to Haematology Oncology for the delivery of treatment to patients with acute and chronic leukaemia, lymphoma and myeloma not undergoing transplantation.

Four full-time haematologists with special training and expertise in leukaemia and BMT provide continuing consultant care. Recently a fifth consultant haematologist was appointed as Medical Director of the Stem Cell Facility and Cryobiology. Work practices promote a consultant delivered service.

Medical Oncology

The Medical Oncology Department in SJH is the largest in Ireland and delivers care to patients with solid tumours and, in conjunction with Haematology Oncology, to patients with lymphoma. The Medical Oncology Service has strong research links with Trinity College Dublin (TCD) and the Cancer Clinical Trials Programme Office (CCTO), located on the SJH Campus.

Work practices promote a consultant delivered service. All medical oncologists are in Category I positions and thus attend only in SJH apart from two who each have a single session commitment to St Luke's Hospital (SLH) for the supervision of concurrent chemoradiotherapy within the multidisciplinary setting. Non-consultant hospital doctors are organised into a joint team with attachments to inpatient, outpatient and consult services. Consultant-led ward rounds take place daily, including weekends and public holidays. As with Haematology Oncology, there is a formal handover of patients to the on-call Medical Oncologist on Friday evenings, ensuring continuity of care. All new patients have their treatment plans developed and delivered by their consultant. This approach promotes a learning environment for junior doctors, nursing and ancillary staff and facilitates critical elements of patient care such as participation in clinical trials.

The purpose-built HODC functions as the core of the medical oncology service delivery programme. Ten of the 16 couches in the unit are given over to the delivery of medical oncology day care treatment programs.

At any one time the medical oncology department looks after in the region of 50 in-patients. There is a dedicated 12-bedded medical oncology, medium dependency unit, the Walter Stevenson Ward. The present unit was commissioned in 2001, and has operated at full occupancy since then. The remainder of the in-patient therapy and management of cancer and treatment complications are managed throughout the hospital in non-specialist wards.

Overall Activity

The national average for any chemotherapy treatment received by cancer patients, either as a single or multi-modality treatment, is 18% (inc. NMSC). Activity for both medical and haematology oncology increase year on year. There were a total of 24,068 patient attendances (both in-patient and out-patient) in 2006. This represents a 94% increase in patient attendances in SJH from 2001 to the end of 2006.

As seen in figure 1.3, attendances to the HODC continue to increase significantly. There has been a 177% increase in day-case attendances over this period of time.

Large increases have occurred in the number of chemotherapy treatments administered in the in-patient and day-case environment.

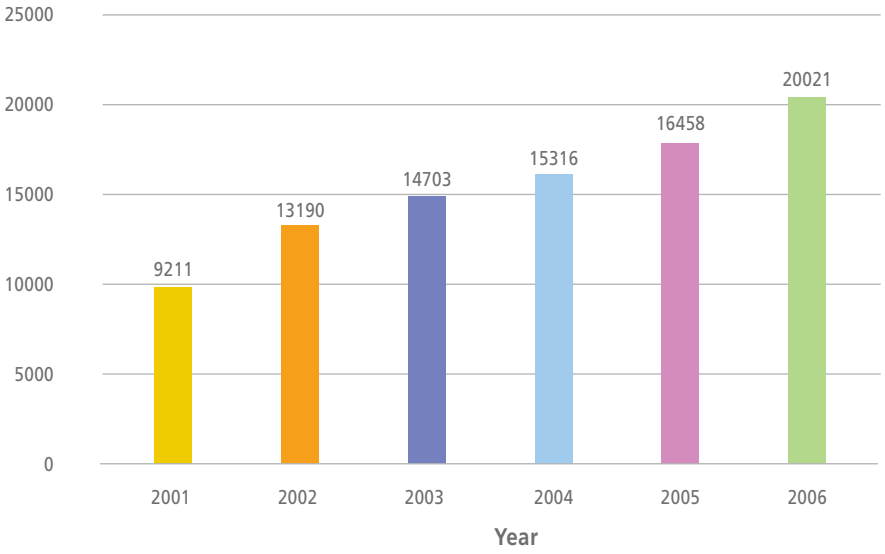
- 87% increase in the number of overall chemotherapy treatments administered in SJH from 2001-2006
- 27% increase in the number of in-patient chemotherapy treatments in SJH from 2001-2006

Medical & Haematology Oncology Pharmacy Services

Increases in the range and demand of cancer services provided in SJH over the last 5 years has been mirrored by a significant expansion of pharmacy services to all areas service, including pharmaceutical care of both in-patients and out-patients, manufacture of sterile products for chemotherapy, clinical trial research, and the education and training of undergraduate and postgraduate pharmacy and medical staff.

The oncology clinical pharmacy service includes a Chief II pharmacist (Oncology Services), four senior pharmacists and one basic grade pharmacist. Pharmaceutical care is provided by the team of pharmacists to oncology and

Figure 1.3 HODC Attendances



haematology in-patients on Private One Ward, Walter Stevenson Unit and Denis Burkitt Ward. Pharmacists are actively involved in the multidisciplinary management of patients through participation in daily consultant-led ward rounds. They are directly involved in the design, implementation, and monitoring of individualised therapeutic plans. Prescriptions are screened using a structured system, designed to ensure the highest standards of safety and efficacy

Patients are counselled on their medicines to ensure that they are used as directed, with an understanding of their uses, benefits and adverse effects.

Clinical Pharmacy services are provided to the HODC by two pharmacists (one full time and one half time). They are responsible for co-ordinating chemotherapy prescription and delivery in a way that ensures safe, effective and timely treatment for each patient. This is an increasingly important role with an increasing number of high-cost, short-expiry (e.g. 4 hours) cancer therapies. Pharmacist-led development of pre-printed prescriptions and treatment protocols for adjuvant therapies, chemotherapies and clinical trials, in liaison with the relevant clinicians, has greatly improved the efficiency and safety of this service. These treatment protocols have been made available on the hospital intranet and are therefore accessible by all staff throughout the hospital.

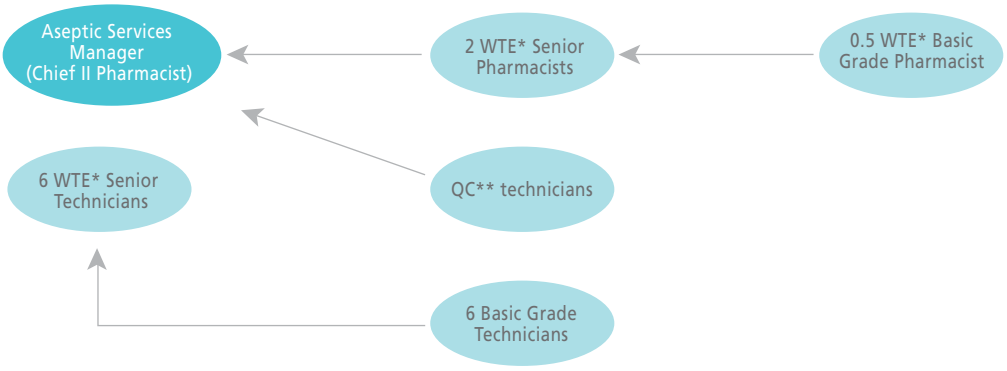
The volume of clinical trial activity in SJH requires a dedicated clinical trials pharmacist, who is involved wholly in the set-up of the trial, from pre-initiation to first patient enrolment. The clinical pharmacy team is involved in the medicines management of the trial products. They must ensure that products are appropriate for use and are procured, handled, stored and used safely and correctly and in accordance with Good Clinical Practice (GCP). The clinical pharmacy team must also maintain all data and documentation associated with a trial, accurately, up-to-date and available for audit or inspection.

The Aseptic Compounding Unit (ACU) prepares and supplies all the chemotherapy to the HOPE patients in SJH. The ACU consists of two clean rooms, one in the environs of the main pharmacy department, and a satellite unit, sited off the haematology ward. Both rooms are commissioned to a Grade D classification.

The two clean rooms house eight isolators, six in the main unit and two in the satellite unit. The isolators operate to a Grade A classification. All the equipment is serviced and validated bi-annually by contractors and are monitored daily by the production staff to ensure compliance with current Good Manufacturing Practice (cGMP).

Over the past number of years the compounding unit facilities have been upgraded on numerous occasions to meet standards as they have evolved and the staffing levels have increased from 2 (1987) to 16 (2007). Figure 1.4 illustrates the organisational chart for the ACU.

Figure 1.4 ACU Organisational Chart (December 2007)

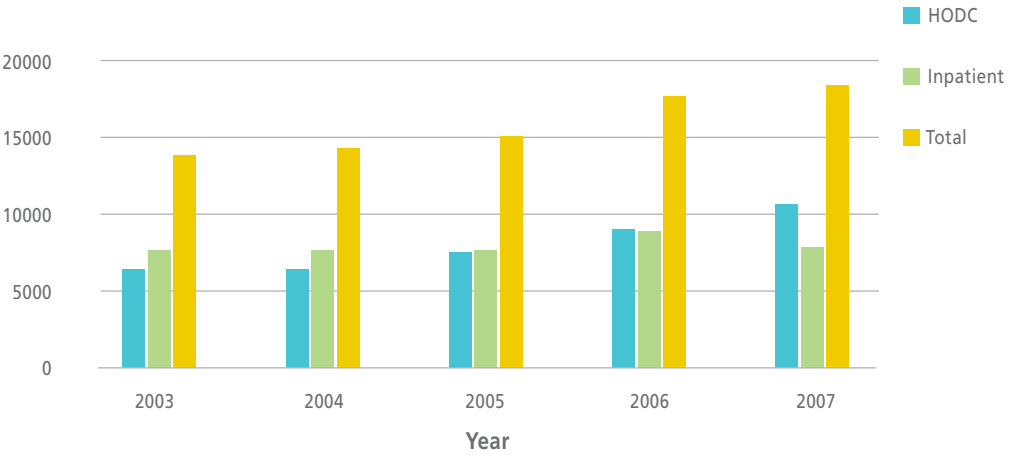


*WTE Whole Time Equivalent **QC Quality Control

The number of products prepared for HOPE patients has increased by 28% from 2003 to 2006. The 2007 figures, to date, demonstrate a continued upward trend. Figure 1.5 illustrates the breakdown of the production figures for the out-patients and in-patients in addition to the totals for respective years.

The ACU in SJH has been in existence since 1987 and held a Manufacturer's Licence since 1989, which it voluntarily surrendered almost 3 years ago. Since then the ACU has maintained its commitment to producing products that meet current EU GMP manufacturing requirements for sterile products.

Figure 1.5 ACU Chemotherapy Production 2003–2007



Ongoing Developments

The HOPE Directorate is in the final stages of the procurement process for a Cancer EPR with an integrated electronic prescribing system. Once implemented this system will be used by all cancer specialties to minimise risk and further enhance the seamless care of the cancer patient in SJH.

The delivery of clinical information by a Cancer EPR will enable wider organisational, national and regional data requirements to be met as are outlined in the recent 'A Strategy for Cancer Control' document produced by the National Cancer Forum in June 2006. Successful implementation of a high quality control system will produce accurate, timely and relevant information that is a central requirement of a strategy for cancer control.

An EPR will provide information available to clinicians in a timely and convenient manner that supports and enables effective and safe service delivery, informed decision making, clinical audit, accreditation and clear communication with health partners in primary and secondary care. Consistent availability and use of health information leads to better-informed patients and a better-informed public, improved service delivery, enhanced quality and efficiency and effective planning.

1.4 Radiotherapy

Radiation Oncology is currently provided to SJH in the form of sessional commitments from two Consultant Radiation Oncologists who are also attached to St. Luke's Hospital (SLH) (Professor Donal Hollywood and Dr Catriona O Sullivan.) Both consultants provide a comprehensive in-patient consultation and out-patient department (OPD) service, and collectively attend all the hospital's MDT oncology meetings. A third consultant, Dr Charles Gillham, will be taking up his position in April 2008.

The Radiation Oncology service at SJH has developed the initial components of tumour site specialisation as recommended in the 2003 Expert Group Report on the *Development of Radiation Oncology Services in Ireland*. The Radiation Oncology service has also pioneered the development of a specialist Nurse Coordinator attached to the service. This post has greatly enhanced the integration of patient care between SJH and SLH. The clinical service developed between SJH and SLH is the largest joint oncology service in the country. Together the two hospitals collectively facilitate the care requirements of a significant percentage of the national caseload of patients with complex cancers.

The clinical department at SJH has very well developed academic structures with established links to the CCTO, and the TCD Division of Radiation Therapy and TCD Academic Unit of Clinical and Molecular Oncology (AUCMO). Both of the latter facilities are located within the Trinity Medical School and IMM on the SJH campus. The Division and AUCMO are the location of the Telesynergy system and National Telesynergy tele-oncology hub with dedicated links to the National Cancer Institute (NCI), Washington. The Telesynergy facility enables regular links with a wide range of regional oncology services, Irish Clinical Oncology Research Group (ICORG), together with the facilitation of active clinical and translational research programmes with the European Organisation for Research and Treatment of Cancer (EORTC), European Society for Therapeutic Radiology and Oncology (ESTRO), and NCI.

In 2005 following an open competition SJH was designated as the future location of the Dublin South Radiation Oncology Facility and Supra-regional Oncology Service as part of the NCCP. This development will enable the hospital to become the largest Comprehensive Cancer Centre in the country and the purpose built facility is due for completion in 2014. This important and strategic development will harness the expertise of the two hospital sites and with the transfer and expansion of the SLH Facility at the SJH campus; the facility will ultimately be among the largest purpose built clinical and academic oncology units in Europe

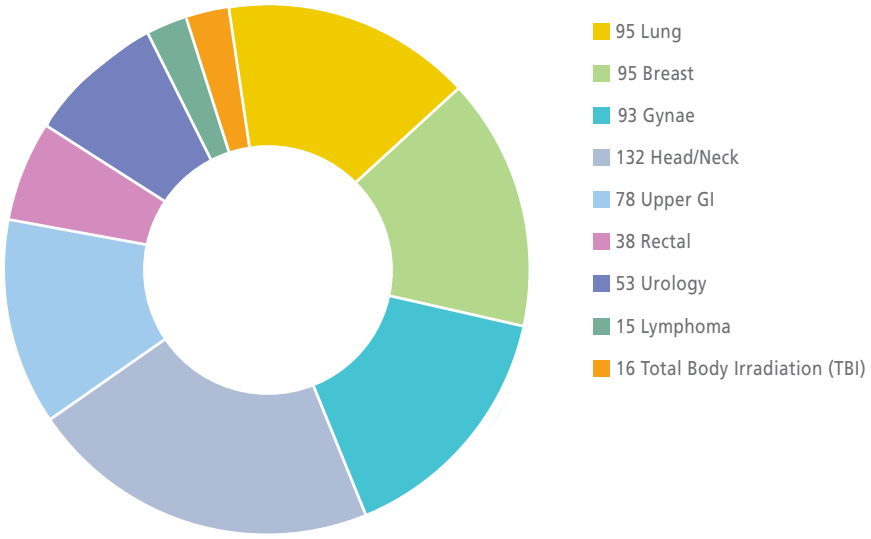
Consultant Staff
Prof Donal Hollywood
Dr Catriona O'Sullivan
Dr Charles Gillham (April 2008)

Specialist Nursing Staff
Radiation Oncology Liaison Nurse x 1

Activity

A total of 615 new (Figure 1.6) and 223 returning patients were referred to and assessed by the Radiation Oncology teams during 2006. The majority of patients are referred through the MDT service. In recent years the number of new patient referrals has significantly increased year on year in parallel with the increases in clinical activity being observed in the surgical oncology, haematological oncology and medical oncology clinical programmes.

Figure 1.6 Radiotherapy Referrals by Tumour Site 2006



1.5 Surgical Oncology

Linkage with overall Cancer Programme

The Cancer Programme at SJH has been built on a multidisciplinary integrated model, and the importance of cancer surgery within this structure is presented in this report for each cancer site. Currently, approximately 27% of all hospital discharges from the hospital are cancer-related. If current trends remain consistent, there may be another 500-600 cancers per year by 2011, and this estimate does not factor in the likely workload relating to the development of radiation therapy facilities on the site, the relocation of SLH, and the development of the cancer centre model within the NCCP.

The key strengths within surgical oncology at SJH are as follows:

- High-volume hospital and high-volume surgeons for oesophageal/gastric, lung, head and neck, maxillofacial, colorectal, breast, gynaecological, urological, and skin cancers.
- National Skin and National Maxillofacial Programmes
- Surgical site sub-specialisation for all cancer types.
- Rapid-access structured clinics for all cancer sites
- Integration with gastroenterologists and respiratory physicians in state of the art diagnostic facility that was opened in 2005.
- 5-surgeon plastic and reconstructive Unit link closely with head and neck, breast and skin programmes.
- Biobanking of all resected oesophageal, lung, colorectal and prostate tissue enables molecular research and translational clinical trials.
- Surgeons involved in cancer clinical trials for all sites.
- Cognate linkage for major surgery across several sites: oesophageal and lung; head and neck/maxillofacial with reconstructive surgery, and thoracic (lung and oesophageal) services; gynaecological, urological and rectal; urological and cardiac/vascular.
- Comprehensive vascular and endovascular programme, with significant input into some complex cancer operations and the management of major oncological emergencies. Specialist anaesthesia, dedicated intensive care specialists, and a pain team enable optimum care pathways during and following major cancer surgery.

1.6 Palliative Care

Palliative Care Medicine is an essential component of cancer care and despite advances in early diagnosis, surgery and oncology treatments, many patients with cancer will die from their disease. Palliative care is often thought to be synonymous with care of the dying; in reality it is synonymous with pain assessment and symptom control, offering psychological, emotional and spiritual support to the patients and their families. It has an important role to play in the care of patients from the time of diagnosis.

The palliative care service in SJH was established in 1995 with the appointment of a consultant in palliative medicine jointly to Our Lady's Hospice (OLH) (8 sessions) and SJH (3 sessions). Over the last decade the team has grown to encompass two consultants (7 sessions in total), a medical registrar, three clinical nurse specialists (CNS), a medical social worker and 0.5 WTE of secretarial support.

The service has two offices adjacent to the acute medical admissions unit. One of the offices also functions as a conference room for family meetings. The offices are equipped with three computers, which are part of the hospital network but also allow modem access to OLH, thereby allowing ease of data transfer for clinical care, audit and research purposes. The palliative medicine consultants and registrar share an office in the Academic Unit of Clinical and Molecular Oncology (AUCMO), which is housed in the Trinity Centre for Health Sciences on the hospital campus. The direct administrative supervision of the palliative care service in SJH is conducted through a clinical directorate model. The palliative care service has recently joined the HOPE directorate, which includes haematology and oncology.

The MDT in collaboration with medical, nursing and paramedical colleagues in SJH delivers care on a consultation referral basis. There is a particularly strong link with the oncology and psycho-oncology services. Two weekly multidisciplinary psychosocial meetings take place in SJH, and one of these is attended by a medical or nursing representative from the home care team at OLH.

The CNS in conjunction with the Centre for Learning and Development (CLD) run a bi-annual 'Introduction to Palliative Care' course for nursing staff in SJH. This was launched in 2005 and has been very successful to date. The CNS are also involved in education & training of staff both formally and informally at ward level.

Activity Level in SJH

Approximately 90% of referrals have a cancer diagnosis and the largest referral service is Oncology. Approximately 50% of referrals to the SJH palliative care service are directly from Oncology. There is a substantive degree of shared care between consultants in Oncology and Palliative Medicine. In effect this means that the palliative medicine consultants are using inpatient beds already, albeit in an indirect manner. Our estimates suggest that at least 50 % of oncology referrals are followed in this manner, as opposed to a single consultation. At any one time during the year, we estimate that 15-20 patients receiving input from our palliative care service are in fact under shared care, largely between the oncology team and ourselves. In conjunction with the in-patient service provided, there are two out-patient clinics run by each of the palliative

care consultants and registrar. Since the advent of this new initiative, demand for the service has grown considerably.

The demand for this service is increasing steadily. (Figure 1.7) Referrals to the service have almost doubled since 2000. It is important to note that the number of patients referred to the palliative care service in SJH, and who subsequently die in SJH is approximately the same as the total number of hospice inpatient deaths in OLH.

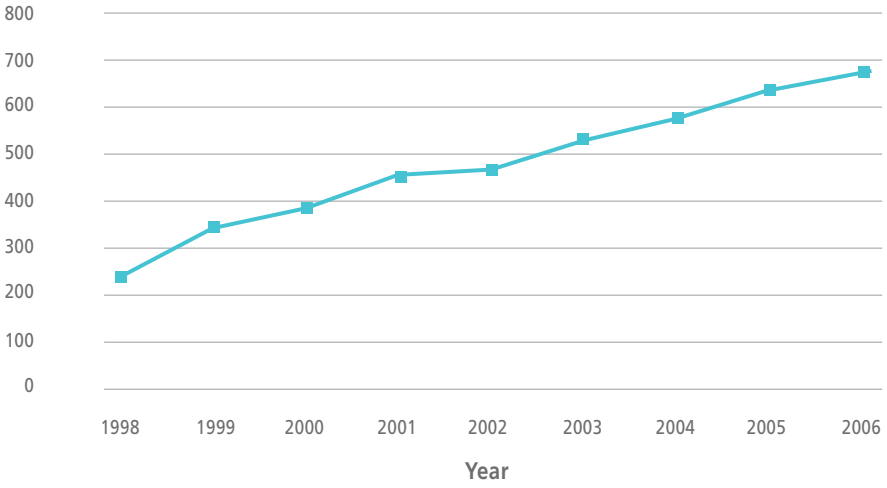
Future Developments

Research is currently being carried out by the palliative care nursing team in conjunction with the School of Nursing in TCD. The study hopes to examine the experience of patient's relatives on the care they receive during a patient's terminal illness in SJH.

Proposals have been submitted to have a dedicated palliative care unit on site focusing predominantly on symptom control.

In 2006, there was an appointment of a joint appointment of a Professor of Hospice Studies between the Faculty of Health Sciences at TCD and the School of Medicine and Health Sciences at University College Dublin (UCD).

Figure 1.7 Total No. of Palliative Care Referrals (SJH)



1.7 Cancer Clinical Trials

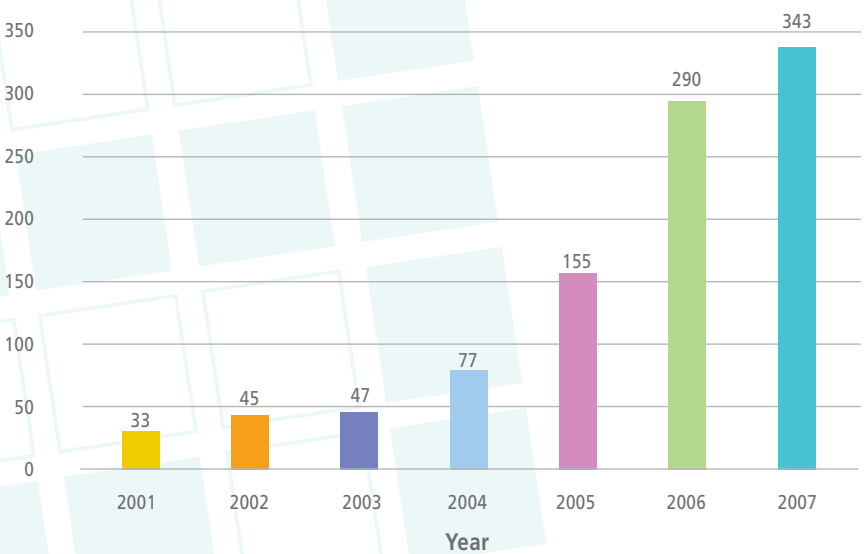
In 2002 a consortium of hospitals, under the leadership of SJH, applied for funding from the Health Research Board (HRB) to strengthen infrastructure for cancer clinical trials within the participating institutions. The application was successful and funding in excess of €1.7 million was received for 3 years. Funding of €1million and €750,000 was secured for 2006 and 2007 respectively. Dr John Kennedy is the Clinical Director, Professor John Reynolds is the Scientific Director and Ms Ingrid Kiernan is the Clinical Trials Manager.

The Cancer Clinical Trials Office (CCTO) opened at SJH in 2003. Staffing numbers have increased considerably since our inception; we currently employ 7 research nurses, 3 data managers, a clinical trials pharmacist, a pharmacy technician, 2 research fellows and an office administrator.

Recruitment to trials has increased 9-fold since 2001. This is due to a number of factors; the opening of the CCTO in 2003 and our affiliation with the Irish Clinical Oncology Research Group (ICORG), who's remit is to source high quality oncology and haematology clinical trials.

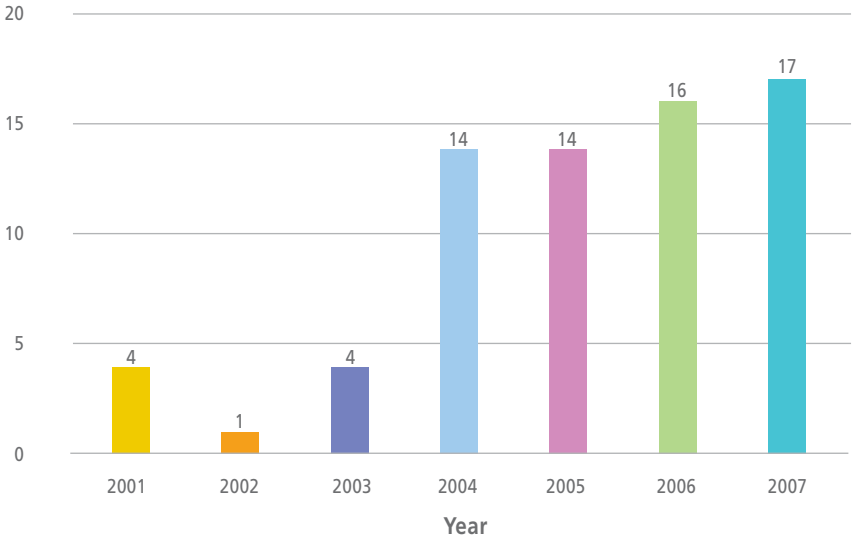
SJH is fortunate in having on-site cancer research infrastructure, with real proximity between the patient, the CCTO, and the molecular laboratories. This has facilitated the development of a translational research programme. Two research fellows are employed by the CCTO to conduct novel cancer research. Since 2003, research has been conducted into a) neo-adjuvant therapy for rectal cancer, b) the effects of chemoradiation and surgery on the coagulation cascade in oesophageal and rectal cancer and c) investigating the link between obesity and cancer.

Figure 1.8 Patient Recruitment for Clinical Trials



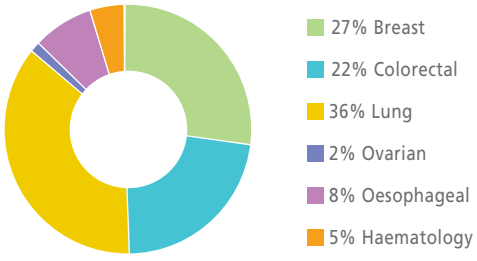
The number of trials opening per year has increased steadily, with 17 new trials opening in 2007.

Figure 1.9 No. of Trials Initated in trials in CCTO



Since 2001, 990 patients have been recruited to 68 different research trials at SJH in the areas of breast, colorectal, lung, oesophageal, melanoma, renal, pancreatic, ovarian, multiple myeloma and chronic myeloid leukaemia.

Figure 1.10 Recruitment to CCTO by Tumour Site



Over the past few years we have conducted trials with most of the major pharmaceutical companies and international co-operative groups, such as European Organisation for Research & Treatment of Cancer (EORTC), National Surgical Adjuvant Breast & Bowel Project (NSABP), Eastern Cooperative Oncology Group (ECOG) and Cancer International Research Group (CIRG).

Since 2003, 66 SJH staff members have received GCP training, including consultants, registrars, pharmacy staff, laboratory staff, and nurses and data managers. This training is provided by ICORG.

Clinical trials are an integral part of cancer services at SJH. It is only through such research that newer and better therapies for cancer will become available. In our experience patients are happy to participate in trials. They feel reassured by the close contact that they have with the research nurse and that they have access to the best therapies available.

1.8 Cancer Genetic Clinic

Clinical Service

Referrals to the Cancer Genetics Programme are accepted both from within the hospital, from General Practitioners (GP) and consultants from various hospitals throughout the country although the vast majority of referrals come from within SJH.

Nurse-led Cancer Genetic Clinics are held every Thursday morning in the HODC.

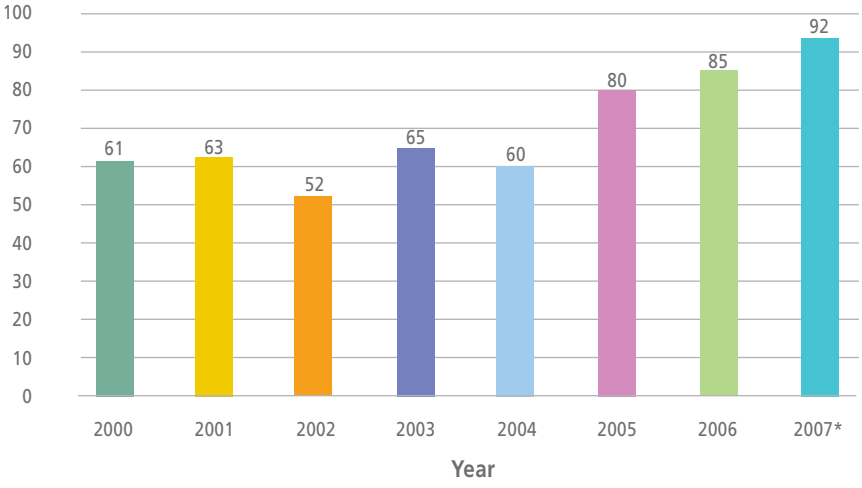
The Cancer Genetics Department is staffed by a Clinical Nurse Specialist (CNS) II post, 2 CNM I posts and a secretary.

All patients referred are contacted, a 3-generation family tree is drafted and either a pathology report or a copy of a death certificate verifies all incidences of cancer. All verified pedigrees are reviewed with Professor Andrew Green, Consultant Geneticist in the National Centre for Medical Genetics (NCMG).

Using a scoring system that has been developed in Manchester, patients at risk of harbouring a deleterious mutation are counselled regarding the risks and benefits of genetic testing. BRCA1/2 gene sequencing is undertaken under the supervision of Professor Green.

In all cases where a mutation has been identified, genetic counselling/predictive testing is offered to their at-risk family members and a structured surveillance programme is established for female mutation carriers and this is co-ordinated through the Breast Care services and Gynaecology services in SJH.

Figure 1.11 Referrals to Genetic Service 2000–2007



* Referrals received up to November 30th 2007

Deleterious mutations in BRCA1/2 genes

Since 1992, 24 different mutations have been identified in the BRCA 1 gene in 33 families, and 19 mutations have been identified in the BRCA 2 gene in 24 families, giving a total of 57 families known to harbour a deleterious mutation in these genes.

(3 of the families with BRCA 1 mutations harbour Ashkenazi Jewish founder mutations)

Five variants of uncertain significance have been observed in the BRCA 2 gene and 1 variant of uncertain significance has been observed in the BRCA 1 gene.

Among the 57 families where a deleterious mutation was identified, 175 individuals (131 women and 44 men) have undergone predictive testing for the identified mutation.

57 women and 32 men have been found to carry the mutation and 28 of the women have undergone surgical procedures aimed at cancer prevention and all of the women are undergoing structured screening.

BRCA1/2 Research

Within our cohort of BRCA1/2 families, 88 patients are participating in an International collaborative study (EMBRACE- Epidemiology Study of Familial Breast Cancer) coordinated by colleagues in the University of Cambridge investigating modifying genes and lifestyle factors that may modify the risk of cancer.

In conjunction with Professor Elaine Kay, Consultant Histopathologist in Beaumont Hospital, a research study is underway evaluating levels of the basal phenotype in breast cancers from patients who are known to harbour BRCA1 mutations.

Colorectal Research

Patients referred with a personal or family history of colorectal cancer also have a 3- generation family tree drafted, all cancer diagnoses are verified and pedigrees with results of immunohistochemical analysis for evidence of expression of mismatch repair (MMR) protein expression and/or microsatellite instability testing are discussed with Professor Andrew Green. Genetic counselling is provided for patients at risk of an inherited predisposition to colorectal cancer prior to attending the NCMG for sequencing of one of the MMR genes or predictive testing.

Structured screening for MMR mutation carriers is arranged in conjunction with Delia Flannery, Colorectal Cancer Nurse Specialist and Mr Stephens/Mr Mehigan.

To date 5 families have been identified with Lynch Syndrome (Hereditary Non Polyposis Colorectal Cancer – HNPCC) harbouring a deleterious mutation in the MMR gene MSH2. Two genetic variants of uncertain significance have been found and efforts continue to determine whether this particular variant co-segregates with cancer within these families

1.9 PsychoOncology

The Psychological Medicine Service at SJH provides integrated multidisciplinary Psycho-Oncology care. The team includes a Consultant Psychiatrist, Principal Clinical Psychologist, a registrar, a CNM and a secretary. The Psychological Medicine Service provides care at all stages of the patient's illness from diagnosis through to end-stage disease. Referrals are accepted from all specialities, medical and surgical. Our members of the team liaise closely with hospital staff taking part in MDT meetings. Patients are seen on the wards, in outpatient clinics and in integrated clinics with oncology teams. The service provides a range of interventions and both structured psychological treatment and drug treatment where appropriate. The service also undertakes significant education and further training in psychological aspects of cancer care including communication, assessment and brief interventions.

1.10 Nursing Service in Haematology/Oncology

The years 2006-2007 have continued to see a substantial expansion in the activity of the HOPE Directorate at SJH in terms of delivery of cancer services to patients with both solid tumours and haematological malignancies.

The delivery of the HODC service continues to be the main growth area. Along with sustained development in the therapeutic options available to patients with malignant disease, a corresponding increase continues in palliative medicine. With the overall increase in patient numbers through HODC space remains an issue; figures are being monitored and management strategy moving into 2008 is being discussed.

To address both the overall increase in patient throughput and the fact that many of our clients are being nursed in other directorates due to lack of space, funding was identified to obtain an extra 0.5WTE member for the chemotherapy team. Our HODC is now supporting 33% of the countries day care cytotoxic therapies administration. Over the past year the chemotherapy team has reviewed their hours of availability and now provide a service Mon-Fri from 0800-2000hrs three days and to 1830hrs on the remaining two days. With the extra staff the team has also be able to facilitate training sessions for hospital nursing staff to obtain either their level 1 or level 2 certificates in cytotoxic administration.

The NABMTP has also seen a continuing increase in bone marrow transplantations with the indications for such management in patients with haematological malignancies, lymphomas and germ cell tumours expanding. There is also a need for more space to support the in-patient needs for all of our haematological patients.

To support the needs of the post transplant group, primarily in HODC, a new BMT Transitional Care CNM2 post has received funding for 3 years from the Bone Marrow for Leukaemia Trust. The post commenced April 2007.

Funding is being finalised to support a CNM1 grade Education Team Leader in the NABMTP. The National Council for the Professional Development of Nursing and Midwifery had provided temporary support for this initiative over a two-year period. It proved most successful with a reduction in both absenteeism and leavers. The principle purpose of this role is to provide clinical support, direction and guidance for all nurses in Dennis Burkitt Unit. The support available to both new nursing staff and our visiting nurses undertaking various courses proved to be of great benefit and retention issues reduced noticeably. It is hoped to have this post finalised early 2008.

In conjunction with the NABMTP our Aphaeresis unit, based in HODC, is working in conjunction with LABMED/Cryobiology to ensure continued compliance with the EU Directive 2004/23/EC on setting standards of quality and safety for the donation, procurement, testing, processing, preservation, storage and distribution of human tissues and cells.

The Hygiene Services Assessment Scheme inspection took place on 11th & 12th July, 2007. The NABMTP was identified at the meeting with auditors as areas of excellence in relation to hygiene standards and our nursing team continue to work closely with Housekeeping services in SJH to ensure our standards continue at the highest level.

Currently our medical oncology in-patients are managed on the Walter Stevenson Ward. This unit accommodates 12 beds, including 2 isolation rooms and 1 two-bedded room that are available for patients requiring chemotherapy or other treatment and palliative care. The ward also serves the in-patient haemophilia/coagulation disorder population and provides an emergency service for both medical oncology and NCHCD patients out of hours. Again space is an issue with up to 50% of our patients being housed elsewhere in the hospital.

To support the CNS group Team Based Performance Management sessions were held in October. Strengths and weaknesses were clearly identified, the team has met up again and a strategy is now in place to move forward into 2008.

To further promote the use of nurse led assessment and care contact has been established with Dr Eilis McCaughan, Lecturer in Cancer Nursing, University of Ulster to discuss nurse led assessment and care both in HODC and our Cancer Genetics Services.

1.11 Allied Health Services

Speech & Language Therapy, Medical Social Work, Clinical Nutrition, Occupational Therapy and Physiotherapy work together in SJH to provide a quality and holistic service to all patients of the hospital. The management of these services in a directorate-like structure (SCOPe Management Unit) facilitates the efficient and effective delivery of therapy services. SCOPe staff work together and form an integral part of the MDT to provide evidence based and patient centred service.

All of these services ran a National Oncology Study Day in November 2005.

Clinical Nutrition

Service development

- A staffing increase of 150% in Medical Oncology has led to significantly improved service provision, particularly in day care (370% increase)
- In response to increased activity levels in Haematology Day Care, outpatient services have been restructured within existing resources.

Complexity of caseload

- Due to a range of treatment options and increased survival rates, nutritional problems are far more complex such as increased numbers of patients now being discharged on home Total Parental Nutrition.
- All transplant patients require complex nutritional support and follow up.
- 70% of patients with head and neck cancer attending are referred to Clinical Nutrition. 26% of patients in 2002 were discharged with feeding tubes in situ.
- Oesophageal cancer patients require intensive nutritional input.

Research

Significant research on nutritional aspects of oesophageal cancer was carried out between the years 2001 – 2006. These included;

- Immuno-inflammatory response and morbidity and mortality
- Jejunostomy
- Randomised trials of immunonutrition on outcomes post oesophagectomy
- Obesity and baseline quality of life as predictors of postoperative complications.

Medical Social Work

The Role of Medical Social Work with Cancer Patients

The social workers focus on the psychosocial aspects of patient care, incorporating both emotional and practical support to patients and their families. Specifically, they provide comprehensive assessment of patient's psychological and social needs; assessment of coping skills; counselling for patients and families; practical advice and information; advocacy; and liaison work with community services to facilitate effective discharge planning and aftercare. Staff who work with oncology patients have additional training in family therapy, work with children, and bereavement counselling.

Current Medical Social Work Staff Allocation

- Oncology 2.75wte, haematology 1wte and palliative care 1wte.

Medical Social Work Activity 2002 – 2006

- Table 1.9 shows a continued increase in activity of medical social worker across all cancer specialities.

Table 1.9 No of patients referred to Medical Social Work by Cancer Speciality

	Oncology	Haematology	Palliative care
2002	198	153	N/A*
2003	273	235	N/A*
2004	587	248	98
2005	502	187	158
2006	675	144	145

* N/A = Not Available

Occupational Therapy

The role of the Occupational Therapy (OT) is to enable patients and carers achieve their optimum level of functional independence regardless of the stage of their disease. Working as an essential part of the multidisciplinary team OT incorporates adapting the physical and social environment to optimise independence and comfort, according to the patients changing abilities, needs and choices. All patients should have access to OT services throughout the disease process, from diagnosis through to palliative care.

Although many people would prefer to die at home only approximately 25% of people with cancer do so. Through early intervention, discharge planning and anticipating future functional decline, OT can ensure the home environment is assessable and appropriate at the time of discharge. Approximately 20% of all patients referred from the medical and haematology oncology service have received home assessments. The OT also completes wheelchair & complex seating assessment and prescriptions, works with the MDT to manage tissue viability issues particularly whilst seated or completing activities of daily living & psychosocial interventions and education (relaxation, energy conservation etc) to improve the physical and emotional well being & improve coping techniques with daily activities.

In 2005 an OT cancer service commenced its funded dedicated service to oncology patients with a 0.5 WTE senior OT.

Activity

Since the OT cancer service commenced in Jan 2005 the referral rate has increased by 70%, creating a mismatch between capacity to deliver the service & the demand for the service. Occupational Therapy is currently receiving 10% of all new referrals for head & neck oncology patients, 8% of urology patients and 9% of breast patients. Surgical oncology and lung cancer patients are also referred to OT due to the significant functional deterioration that may be associated with these conditions. One in four discharges from SJH is a cancer related discharge

Quality Achievements

The OT department recorded a CD on relaxation techniques for patients. The OT delivered the Living with Cancer Programme in April 2006 for patients & carers. In-services were given on the role of Occupational Therapy in HOPE to nursing and occupational therapy staff from SJH and Adelaide, Meath and National Children's Hospital (AMNCH). There is now regular participation in monthly MDT clinic and improved participation in accordance with National Cancer Strategy recommendations (1996).

Physiotherapy

The role of the physiotherapist, as an essential member of the MDT is key to the successful rehabilitation and management of patients with cancer and palliative care needs. People with cancer may present with a wide range of needs, including respiratory, neurological, lymphatic, orthopaedic, musculoskeletal and pain that may benefit from physiotherapeutic intervention.

Activity

Physiotherapy endeavours to provide a comprehensive physiotherapy service to oncology patients within limited resources. Physiotherapy cancer activity continues to increase with an 81% rise in physiotherapy treatments from 2007 to 2007 (Table 1.10). Cancer related surgery accounts for 17% of our total in-patient physiotherapy activity. (Table 1.11.)

Table 1.10 Total Activity for Physiotherapy - New and Return Treatments

Year	Head and Neck	Breast	Lung	Gynae	Upper GI
2007 Jan- Oct	1540	1300	1548	876	1867
2006	1063	1440	1788	767	1563
2005	1192	1329	1085	746	1963

Table 1.11 Physiotherapy Surgical Oncology In-patient Activity

Year	New Referrals	Return Treatments	Total Treatments	% of Total Physio Activity
2007 Jan-Oct	977	8696	9673	17%
2006	1032	7655	8687	13%
2005	963	7314	8277	12%

Physiotherapy Oncology Service

In 2007 we re-structured our breast cancer surgery service. In-patients are educated about shoulder movement/ pain and lymphoedema signs. They are provided with a musculo-skeletal physiotherapy appointment on discharge so range of movement, pain and arm swelling can be assessed and treated to prevent long term disability. All breast cancer patients referred with lymphoedema receive comprehensive outpatient treatment that includes daily lymphatic Manual Drainage, bandaging, pressotherapy and exercises. A pilot lung cancer breathlessness clinic was run in 2005. Results showed significant improvement in symptoms through one to one physiotherapy patient treatment.

Education and Research

A number of staff were awarded Oncology Scholars Travel Award in 2004-2006. Staff graduated from Dublin City University (DCU) with certificates in PyschoOncology. A staff member is undertaking a postgraduate diploma in cancer care for allied health professionals (Royal Marsden Hospital, London).

The relationship of the ECOG Performance Status score to objective measures of physical activity level in patients being considered for chemotherapy is being researched by TCD School of physiotherapy and SJH. A physiotherapist as part of her MSc in TCD (2007) is investigating the effect of preoperative Inspiratory Muscle Training (IMT) on physical function and postoperative pulmonary complications following cardio-thoracic surgery including lung cancer patients. In 2005 a study to improve musculo-skeletal pain and movement in Head and Neck cancer patients showed that physiotherapy can significantly decreased pain.

Speech and Language Therapy (SLT)

Role of the Speech and Language Therapist in Cancer Care

SLT play a crucial role within the cancer care MDT's, from the pre intervention assessment period, through the pre and post surgery, radiotherapy/chemotherapy phases, subsequent rehabilitation (inpatient/outpatient) and palliative care phase. Therapists work with patients presenting with communication and/or swallow impairment as a result of a variety of cancer types, most commonly head and neck cancer, upper gi cancer, lung cancer and palliative care.

Current Service Provision

- Assessment/management of oropharyngeal swallow impairment secondary to presenting complaint or its treatment including videofluoroscopy.
- Assessment/management of voice and communication impairment secondary to presenting complaint or its treatment, including surgical voice restoration.
- Participation in combined head and neck cancer clinics allowing follow up, continued treatment and management of communication and swallow deficits.
- Provision of support and training to families and carers, including a laryngectomy support group.
- Attendance at weekly head and neck MDT and case conference meetings.
- Liaison with and provision of information/ support to community services nationally.
- Education and training at undergraduate, postgraduate to a wide spectrum of disciplines.

Activity Levels

Head and Neck Cancer

There have been significant increases in both new referrals and overall patient activity over that time for both in-patient and out-patient caseloads. Referrals to SLT from this patient group have increased by 152% since the service was established in 1995. Overall activity has increased by 57% for in-patients in the period 2004-2007. The increase in activity for out-patients is even more marked in the same period, showing a 138% increase.

Services to other cancer specialities have not developed due to staffing limitations. Activity continues to grow.

- Oesophageal surgery: in-patient referrals up 51% and in-patient activity up 182% in 2006-2007.
- Medical oncology, including palliative care: in patient referrals up 93% in 2005-2006.

1.12 Translational and Experimental Cancer Medicine Research

Cancer is a key research theme of the SJH Research Strategy, reflected in the structured approach to an understanding of malignancy, underpinned by significant core infrastructure and the availability of clinical annotated biorepositories. SJH's vision for research aligns strongly with the TCD research strategy. This "value-added" relationship not only strengthens research in clinical/translational research at SJH but also impacts on the capacity of basic scientists within TCD to visibly translate their research into clinical application.

Cancer Research is focused on the molecular mechanisms of malignancy. A molecular understanding of cancer is fuelling research programmes in GI cancers (Prof Dermot Kelleher, Prof John Reynolds, Dr John Kennedy, Prof Donal Hollywood), haematological malignancy (Prof Mark Lawler, Prof Shaun McCann, Prof Owen Smith, Dr Elizabeth Vandenberghe), prostate cancer (Prof Donal Hollywood, Prof Lawler, Mr Tom Lynch), thoracic cancer (Dr Ken O Byrne, Dr Joe Keane), cervical cancer (Prof John O Leary), and breast cancer (Dr John Kennedy). These research programs (i) aim to identify biomarkers of disease and disease response (ii) allow dissection of key signalling pathways involved in cell proliferation, apoptosis and cell cycle regulation in order to identify potential therapeutic targets (iii) aim to develop cellular and molecular approaches including dendritic cell therapy, novel drug discovery, gene therapy and siRNA to kill cancer cells. Key outputs include publications in high quality international peer review journals, proven ability to attract significant research funding and the development of patents and "spin off" campus companies.

Fundamental infrastructural components of SJH's capacity to deliver excellence in clinical and translational cancer research include the IMM, the Radiotherapy Centre, the CCTO, the National Centre for Advanced Medical Imaging, the HRB Welcome Clinical Trials Centre, the Cancer Molecular Diagnostics Laboratory, the Irish Blood Transfusion Service (IBTS) and the Centre of Excellence for Successful Ageing

The IMM, a 4,000sqm building on the SJH campus, with a physical linkage to the Trinity Centre for Health Sciences is the fulcrum for cancer research at the hospital. The IMM is a key component of the Dublin Molecular Medicine Centre (DMMC), a unique partnership between TCD, UCD and Royal College of Surgeons in Ireland (RCSI) and their affiliated hospitals. A unique feature of the IMM is the integration of a significant Research Institute on a hospital site, providing a closer link between research and healthcare and providing the impetus for the translation of research discoveries to patient benefit. The IMM has been strategically configured and developed for cellular and molecular research, focussing in the key areas of (i) cancer, (ii) infection, inflammation and immunity, (iii) genetics of common disorders. The IMM provides the fulcrum for co-ordination of interdisciplinary research between traditional disciplines, giving added value to research initiatives. Housed within the IMM, the Genome Resource Unit (GRU) and

Tissue Biorepository provide the infrastructure and specialist staffing for prospective collection of tissue biopsy specimens, blood/serum samples and other biological materials. It operates as a 'core facility' for the Institutes bio-molecular research themes. Within the IMM, the John Durkan Leukaemia Laboratories are focussed on the study of leukaemia and other haematological malignancies. They represent the only dedicated facility for research in haematological malignancies in this country and have permitted the undertaking of significant research initiatives with a number of international research partners (NCI Washington, USA, CNIO Madrid). A High Content Screening Facility (HCSF) incorporating the Cellomics™ KineticScan and the InCell Analyser™ (GE Healthcare). is the only one of its type in an academic centre in Europe, providing a significant capacity in functional genomics, permiting multi-parametric analysis of crucial cellular events including cell death, cell migration and cell signalling in a high throughput format. The recent establishment of a Bio-incubator Unit within the IMM, funded by Enterprise Ireland under the National Development Plan (NDP) provides a unique opportunity for the development of 'spin-out' companies based on technologies developed at a teaching hospital research centre.

Cancer Biorepositories: Critical to the success of the translational component of the Cancer Research Programme at SJH is the availability of clinically annotated biorepositories, providing the relevant patient material to test new diagnostic, prognostic and pre clinical therapeutic approaches:

GI Cancers: A biorepository with stored tissue and serum samples for oesophageal cancer and Barrett's oesophagus has been established at SJH. Approximately 150-160 cases present each year and there are currently samples over 500 patients in the biorepository. This has proved a rich source of material for a succession of translational based projects.

Haematological Malignancy: SJH has the largest haematology department in the country. Given it's research intensive profile, a biorepository for haematological malignancies has been in existence for a number of years, fuelling the translational research projects based at the Durkan Research laboratories in the IMM. Currently nearly 400 cases of Multiple Myeloma (MM) have been collected together with 263 matched controls with full epidemiological data as part of the European Epilymph consortium for genomic and functional evaluaton of the role of DNA repair in MM. In Chronic Lymphocytic Leukemia, material from treatment naïve patients (n =120) and treatment resistant patients (n =20) have been collected with full clinical information allowing testing of prognostic markers and experimental cancer medicine compounds in material from these patient cohorts.

Prostate Cancer: The Prostate Cancer Research Consortium (PCRC), led by Prof Lawler, is a DMMC trans-institutional and interdisciplinary program (funded by Cancer Research Ireland) with a biorepository for tissue, blood serum and urine samples with standardized collection, processing, and storage across the 5 Dublin based hospital sites. Currently over 300 biopsy samples with detailed clinical annotation have been collected, fuelling translational research programs on novel biomarker discovery and experimental therapeutics.

Thoracic Cancer: Collection of biopsy samples from lung cancer patients (n = ~300) have permitted dissection of molecular signatures of lung cancer

Postgraduate training and education: Crucial to the development of a significant research ethos is the provision of a structured postgraduate research programme. The School of Medicine at TCD has striven to be competitive in postgraduate education and training at international level. This is exemplified by the commitment that has been made

to education and training in Molecular Medicine. There is a significant need to produce graduates with the necessary skill set to understand the science associated with clinical medicine and implement it for better patient outcomes in this country. This is achieved by providing scientists and doctors with high quality integrated training that allows them to develop in unison to become the future leaders of Irish Biomedicine. Recognising this need, the MSc in Molecular Medicine was founded in 1997 when it was the first of its type in Europe. It is a unique course on the Irish biomedical landscape, attracting medical doctors and scientists from around the world. It is part of an integrated program at diploma, MSc and PhD level, which produces graduates with the key skills to become future leaders in medicine and medical research. The major advantage of the MSc is that it provides focused education in molecular medicine at a critical time in the training of doctors for careers in hospital medicine. The integrated structure of this program also provides an exciting opportunity for training of doctors and scientists engaged in cancer research. In 2005, the IMM was awarded a HRB PhD training programme in Molecular Medicine, then one of only 2 HRB programmes awarded in Ireland. This provides for a formal training program for PhD students, involving dedicated course work, laboratory rotations and a research project. Currently an Experimental Cancer Medicine PhD programme is being developed between SJH/TCD and Belfast City Hospital (BCH)/ Queens University, Belfast (QUB), reflecting the significant commitment to cancer research at both these institutions

Part of the success of this approach to postgraduate education and training relies on co-ordination with scientists and doctors being trained together, providing added value in the educational experience. It produces a cadre of like-minded scientists and clinicians who speak the same language and will work together to consolidate and develop this speciality in all relevant parts of medicine. The rate of development of molecular medicine and its integral role in current and future delivery of clinical care means that it is essential doctors receive adequate training in this area. At the scientific level, it provides scientists with the key cross-over skills to translate their knowledge base into tangible benefits for health care and to develop their future career.

Integrating postgraduate training at the European level: SJH and TCD are active participants in EUROLIFE, a network of seven prestigious European universities (TCD, Leiden University, University of Edinburgh, the Karolinska Institute, University of Strasbourg, Universitat de Barcelona and the University of Göttingen) that aims to facilitate collaborative research, postgraduate education with the exchange of researchers and research students and the creation of new research opportunities.. This network has been extremely successful in securing funding through the European Commission's Framework Programmes. Programmes in which IMM SJH researchers are currently engaged in include ONCODEATH, a research training network in Oncology, EUROGENDIS, a postgraduate training programme on the Genetic Basis of Disease and EUROSTERONE, a research programme on Steroids in Health and Disease. The IMM and the Medical School is taking a lead in co-ordinating the development of harmonised Joint Biomedical Programmes with the development of an integrated MSc for medical students and a Masters/PhD Programme in Translational Medicine.

1.13 Anaesthesia Services

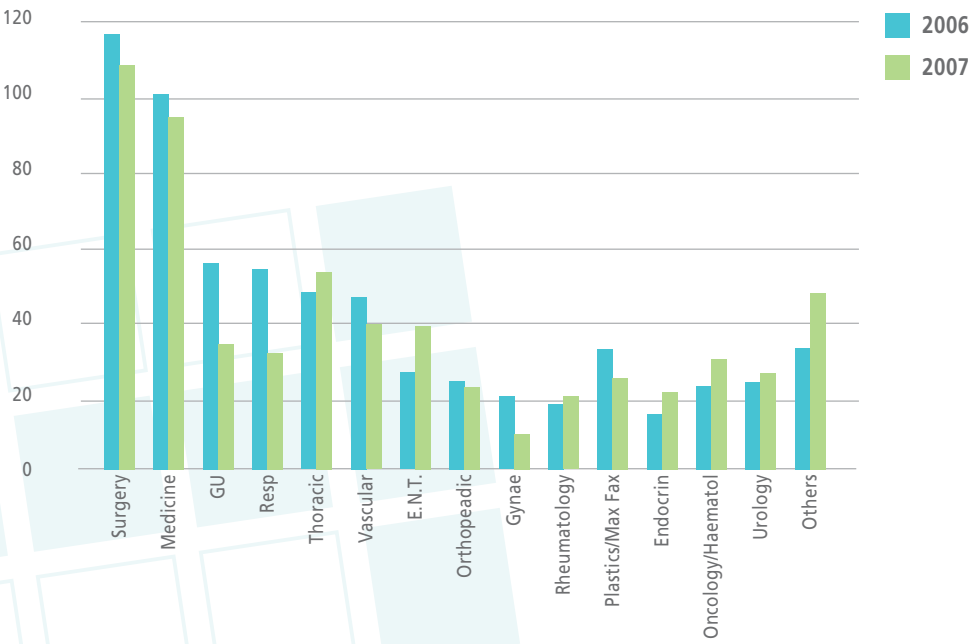
Intensive Care and High Dependency Services

A number of cancer specialties are dependent on support from ICU and HDU for care of elective post-operative patients following complex cancer surgeries. In addition, ICU may be required to support cancer patients who develop life-threatening complications as a result of their primary cancer or during treatment. SJH currently has 14 ICU beds and 4 HDU beds. A high percentage of the workload is generated by the surgical specialities (Fig 1.12).

oncological surgery of the oesophagus, lung, major head and neck resections, and pancreatic resections. An increasing percentage of patients requiring resections for rectal, gynaecological, and urological malignancy also required HDU support to optimise the care pathway. Referrals for these tertiary services are rising year on year, and this is putting significant strain on the existing complement of ICU and HDU beds.

Between 2005 and 2006 there was a 25% increase in the number of cases in theatre.

Figure 1.12 ICU Referrals by Speciality for 2006 & 2007



The increased throughput of complex cancer surgery at SJH is presented in other sections of this report. The support of ICU/HDU is an absolute requirement for patients requiring

This is against a background of over 100% bed occupancy in ICU and HDU. This greatly exceeds the international recommendation of 75% bed occupancy and has resulted in cancellations

of elective cases. Every month, approximately 15-20 elective cases have had surgery deferred because of lack of an ICU or HDU bed, and the majority are cancer cases. An additional factor in cancellations was the number of emergent ventilated patients in both theatre recovery and HDU, which had to be used as overflow areas in the last quarter of 2006 and the first quarter of 2007. 41 patients were ventilated in HDU and 46 in recovery to date in 2007. Neither of these areas is equipped or staffed to deal with this.

The relative lack of critical care facilities for the increased requirements for cancer surgery represents an important gap in structure within the cancer programme that has impacted on the process of care for many patients over the last two years. A number of proposals are currently with the HSE to resolve these capacity issues in the short-term. Additional bed capacity in ICU (6) and HDU (8) has been sought and a proposal to develop a new-build critical care area, which will match the increasing needs of patients is to be submitted to the HSE. To progress development of cancer services at SJH there must be an expansion of both ICU and HDU capacity to allow surgeries to be done in a timely manner, meeting the benchmarks of international best-practice.

The Department of Pain Medicine also falls under the remit of anaesthesia services within the ORIAN Directorate. The effective management of cancer pain results in increased survival, prevention of chronic pain, an increase in return to work and a greater sense of work satisfaction for hospital staff. Presently, 75% of in-patient referrals to the Department of Pain Medicine are related to the treatment of cancer related pain. Some of the treatments offered in the management of cancer pain include; patient controlled analgesia, epidural therapy, oral medications, intrathecal therapy and interventional pain management. The epidural service has developed well over the last three years and this needs further expansion into all the surgical wards so that optimal care pathways for cancer surgery postoperatively can be implemented across the full spectrum of surgical oncology.

Section 2: Site Specific Cancer Audit

2.1 Lung Cancer

Summary Points

- Approx 25% of lung cancer patients in the Republic of Ireland (RoI) attend this service for diagnosis and/or treatment, and 50% of surgical resections (the principal curative treatment) for lung cancer in the RoI are carried out at SJH
- **Thoracic surgery** – quality indicators –
  - mediastinal lymph node dissection as standard of care (>95% of resections include ≥3 lymph node stations)
  - lung-preserving surgery ("sleeve") rate of 15% (compared with 1.7% UK average)
  - chest wall resection rate 10% (compared with UK average 2%)
  - anterior approach to superior sulcus tumours
- **Diagnostic bronchoscopy** – supra-regional service, utilising 3 state-of-the-art endoscopy rooms (2 with fluoroscopy), offering –
  - rapid access, all procedures on a "next-list" basis, with no waiting list
  - the only centre in Ireland to provide complex diagnostic procedures under fluoroscopy with on-the-spot cytologic diagnosis
  - the only centre in Ireland to provide endobronchial ultrasound guided transbronchial needle aspirate (EBUS-guided TBNA) for mediastinal staging at initial (or follow-up) bronchoscopy
  - in combination with same day CT imaging, this service offers potential "one-stop" diagnosis and staging for lung cancer, with avoidance of the need for PET scan and mediastinoscopy in significant numbers of patients.
- **Multi-disciplinary team (MDT)** – long established weekly multidisciplinary lung cancer conference, with MDT approach to management of all patients. This includes regular tele-link with Mullingar, Tullamore and Letterkenny. The MDT meeting is organised by a full-time dedicated MDT coordinator.
- **Radiology** – dedicated pulmonary radiologists with on-site 64-slice CT, nuclear medicine, magnetic resonance imaging and access to PET scanning (PET scanner in commissioning, scheduled for opening Q2 2008). Both radiologists provide a percutaneous imaging guided lung biopsy service, with throughput of approximately 150 cases/yr.
- **Cytohistopathology** – dedicated pulmonary cytohistopathologists
- **Medical Oncology** – dedicated medical oncologist for lung cancer, who is chair of the British Thoracic Oncology Group (BTOG) and an international opinion leader in lung cancer.
- **Strong linkage to cancer clinical trials**, and links to lung cancer biobank and translational studies.
- **Access to the 3T HRB funded research MRI system**, scheduled for opening Q2 2008. Initial studies will focus on whole body MRI and whole body diffusion MRI compared to PET scanning for cancer staging and follow-up, and tumour response to chemoradiation.

- **Nurse Coordinator** – Senior specialist liaison nursing staff in respiratory oncology
- **Data** – Lung cancer database with full time data manager since 2003
- **Research** – Direct linkage to the IMM at SJH within the Dublin Molecular Medicine Centre (DMMC), providing state-of-the-art facilities for an extensive bench-to-bedside lung cancer research programme in parallel with the large clinical lung cancer caseload.

Structure

The MDT conference is held weekly, and the composition of the MDT is as follows:

Specialty	Core Staff
Respiratory Medicine	Dr Finbarr O'Connell* Dr Ruairi Fahy Dr Joseph Keane Dr Rory O'Donnell Dr Deirdre O'Riordan
Cardiothoracic Surgery	Ms Eilis McGovern Mr Vincent Young
Medical Oncology	Dr Ken O'Byrne Dr Andreas Polychronis
Radiation Oncology	Prof Donal Hollywood Dr Caitriona O'Sullivan
Radiology	Dr James F Meaney Dr Ronan McDermott
Cytohistopathology	Dr Siobhan Nicholson Dr Mairead Griffin Dr Barbara Dunne
Palliative Care	Dr Liam O'Siorain Dr Peter Lawlor
PsychoOncology	Dr Ann Marie O'Dwyer
Senior Nurse Coordinator	Ms Rita Luddy
Data Manager	Ms Mary Devlin
MDT Conference Coordinator	Mr Karl Doyle

*Dr. O' Connell has in addition a sessional commitment to SLH

Process: The Lung Cancer Care Pathway

From the point of initial contact with the patient, the service aims to complete diagnosis and staging, and be in a position to determine appropriate primary therapy within 4-6 weeks. Where CT and bronchoscopy are the only investigations required to achieve tissue diagnosis and complete staging, this is usually achieved within 2 weeks. Where additional investigations such as percutaneous biopsy, PET, MRI or mediastinoscopy are required, the aim is completion within 6 weeks of initial contact.

Multidisciplinary Assessment: The Lung Cancer MDT Conference

All patients with possible lung cancer are discussed at the weekly MDT conference, attended by all core MDT members. Cases discussed include –

- all patients from the previous week's bronchoscopy lists where cancer is likely or possible
- all patients referred to the thoracic surgeons where lung cancer is likely/possible
- all patients who have just undergone thoracic surgery for cancer, including
  - thoracotomy
  - staging procedures such as mediastinoscopy or mediastinotomy
  - pleural procedures

Each case is discussed in full as follows –

- the clinical team responsible for the patient present the clinical findings in brief
- all imaging studies are reviewed in detail by the radiologist(s) in advance of the meeting . Relevant images are reviewed on screen and salient points discussed.

- the cytology/histology of all samples is reviewed on screen, described in detail by the pathologist(s) and discussed
- the overall findings are summarised by the clinical team and further action planned as follows –
  - where diagnosis and staging is complete, appropriate primary therapy is discussed and planned
  - where further diagnostic or staging procedures are required, the most appropriate procedure(s) are discussed and planned. These cases are brought back to the conference on completion of these procedures for further discussion
  - where surgery has been performed as primary therapy, pathological staging is discussed in detail and adjuvant therapy planned where appropriate

This conference provides a real focus for lung cancer care for the service –

- a weekly schedule ensures prompt progression of patient care
- the discussion is genuinely multidisciplinary to determine the most appropriate way forward in timely fashion for the individual patient
- access is relatively broad or open, allowing discussion of any case where cancer is a possibility

Activity at the MDT conference has grown steadily in recent years. In the first 10 months of 2007, there were 916 case discussions (compared to 821 for the entire year 2006), giving projected activity for 2007 of 1,100 case discussions. 90% of patients are discussed at 1-2 meetings with 10% requiring repeat discussion at greater numbers of meetings.

Figure 2.1 No. of patients discussed at MDT

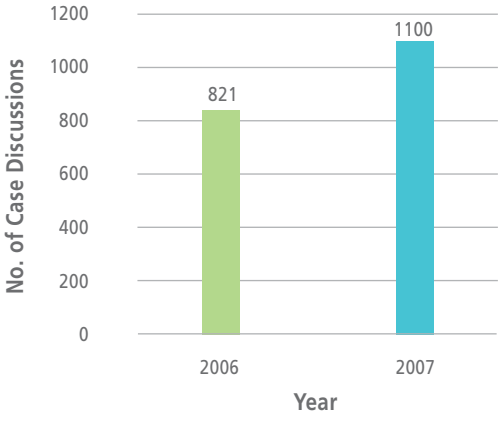
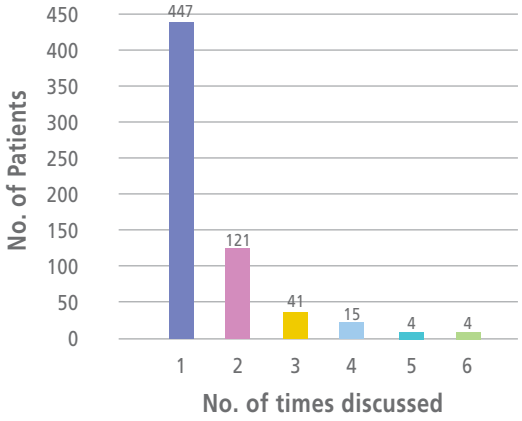


Figure 2.2 No. of times patients discussed at MDT



Integration with Other Hospitals

- Radiotherapy is provided at SLH. Seamless integration is facilitated by consultant clinics at SJH and by the Respiratory Oncology and Radiation Oncology Liaison nursing staff.
- Within this region, bronchoscopy is also carried out at both AMNCH and Naas hospitals. Patients with possible, probable or definite lung cancer are rapidly integrated into the appropriate components of the lung cancer service at SJH for further diagnostic procedures, staging procedures and primary therapy.
- The Thoracic Surgery Service at SJH receives nationwide referrals for lung cancer surgery and now carries out over 50% of lung cancer resections in Ireland.
- The regional diagnostic bronchoscopy services at SJH provide rapid access for many referral hospitals across the RoI. St James's Hospital is the only hospital in Ireland providing diagnostic bronchoscopy under fluoroscopy and EBUS guided TBNA for mediastinal staging.

A Seamless Service: The Lung Cancer Coordinator

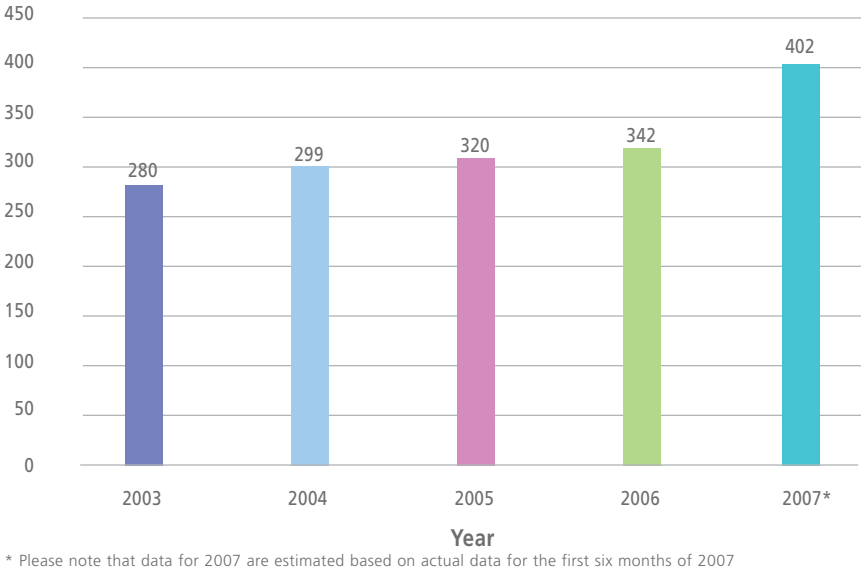
Lung cancer requires real multidisciplinary care. Co-ordination of the various components of lung cancer care within and beyond the region has been hugely improved by various initiatives, but in particular by the appointment of a Senior Nursing Oncology Coordinator for lung cancer. The co-ordinator focuses on individual patients in order to guide them through the various aspects of lung cancer care in as seamless a fashion as possible.

Lung Cancer Trends in SJH

This report looks at all lung cancer patients diagnosed and treated in SJH from 2003 to 2006. In some analysis, 2007 patients are included.

The number of lung cancer cases diagnosed +/- treated in SJH has risen by about 7% every year. The numbers for 2007 is estimated from actual data for the first six months from January to June 2007. This will represent an increase of almost 15% when comparing 2007 data to 2006. SJH will then be diagnosing +/- treating almost one-quarter (25%) of the national workload in lung cancer.

Figure 2.3 Lung Cancer 2003–2007



* Please note that data for 2007 are estimated based on actual data for the first six months of 2007

Table 2.1 National Workload Comparison by Year

	2003	2004	2005	2006	2007
% National Workload Diagnosed+/ Treated in SJH	17%	18%	19%	21%	24%*

* Please note that data for 2007 are estimated based on actual data for the first six months of 2007

Curative surgery was the primary treatment for almost 30% per year of lung patients in SJH over the last 3 years. It is estimated that in 2007, the SJH cardio thoracic team will perform almost 53% of the national workload in curative surgery for lung cancer. (NCRI)

Gender & Age Analysis

The ratio of women to men being diagnosed with lung cancer is decreasing nationally. In the latest summary report from the NCRI the ratio is 1:1.7. The ratio has been decreasing over the last number of years in SJH and in the first 6 months of 2007 the ratio was 1:1.05.

Referral Information

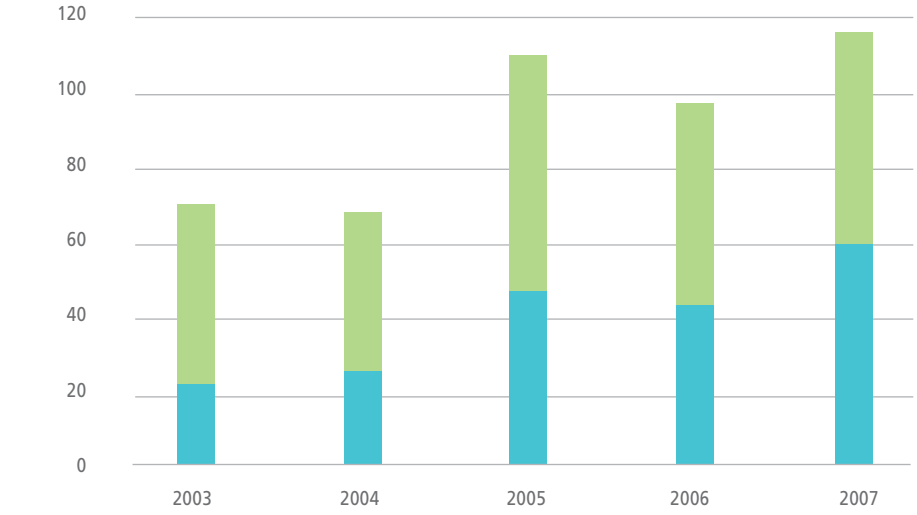
Table 2.2

Referral Source	All Patients (%)	Surgical Patients (%)
Local Referral	669 (54)	145 (42)
Tertiary Referral	568 (46)	200 (58)
Unknown	4 (<1)	

Almost 46% of patients in the total group were tertiary referrals. (Table 2.2) 58% of patients in this group 2003 – 2006 who had curative surgery are tertiary referrals to the lung cancer MDT.

Figure 2.4 Lung Cancer Gender Analysis 2003–2007

Figure 2.5 Curative Surgery SJH 2003–2007



Tumour Morphology 2003-2006

Table 2.3 Tumour Morphology

Morphology	Occurrences	Percent
Squamous	390	31
Adenocarcinoma	374	30
SCLC	197	16
NSCLC	160	13
Mesothelioma	41	3
Typical Carcinoid	26	2
Adenosquamous	10	1
Mixed Cell	10	1
Br/Alve	6	1
Large Cell	6	1
Atypical Carcinoid	4	<1
Other	10	1
Unknown	8	1

Clinical Staging 2003-2006

Table 2.4 below illustrates that over 32% of patients in this group presented with stage 1 and stage 2 disease.

Table 2.4 Clinical Stage (NSCLC patients)

	Occurrences	Percent
Stage IA	95	10
Stage IB	151	16
Stage IIA	4	<1
Stage IIB	61	6
Stage IIIA	87	9
Stage IIIB	126	13
Stage IV	205	21
Unknown*	236	25

* Many patients remain without a completed stage because they return to their local hospital services post diagnosis to have treatment locally

Table 2.5 Clinical stage (SCLC patients)

	Occurrences	Percent
Limited Stage Disease	86	44
Extended Stage Disease	95	48
Unknown*	16	8

* Many patients remain without a completed stage because they return to their local hospital services post diagnosis to have treatment locally.

Treatment Options

Table 2.6 Treatments Given 2003 - 2006

	SJH Percent	National* Treatment Percent
Best Support Care Only	22	48
Surgery Only	16	10
Chemotherapy Only	17	6
Radiotherapy Only	14	23
Chemotherapy & Radiotherapy	18	8
Surgery & Chemotherapy & Radiotherapy	3	1
Surgery & Chemotherapy	7	<1
Surgery & Radiotherapy	1	4
Unknown	2	0

* Source NCRI

Lead Times [Figures are for 2006 patients only]

The lead times that were recorded for lung cancer patients, which are used as clinical indicators of quality of service offered by the lung cancer MDT to their patients, are:

- 86% of patients are seen within one month of referral.
- 86% are diagnosed within one month of first date seen.
- 67% of patients receive their first treatment within six weeks of their date of diagnosis*.

(*The lead times from date of diagnosis to date of first treatment must take account of the fact that many of the surgical patients (who make up almost 30% of this group) have all their staging investigations in their referring hospital post diagnosis in order to prevent delays when they are admitted to SJH for their surgery.)

Analysis of Curative Surgery 2003-2007 SJH

Table 2.7 Curative Resections by Year	2003	2004	2005	2006	2007*
No. Of Curative Surgery Cases done annually in SJH	70	68	110	97	116
% Of SJH Lung Cancer Annual Workload	**25**	**23**	**34**	**28**	**29**

* 2007 data estimated from actual data for the first 6 months of 2007

Survival Analysis

Figure 2.6 Overall Survival of Lung Cancer patients 2003–2006

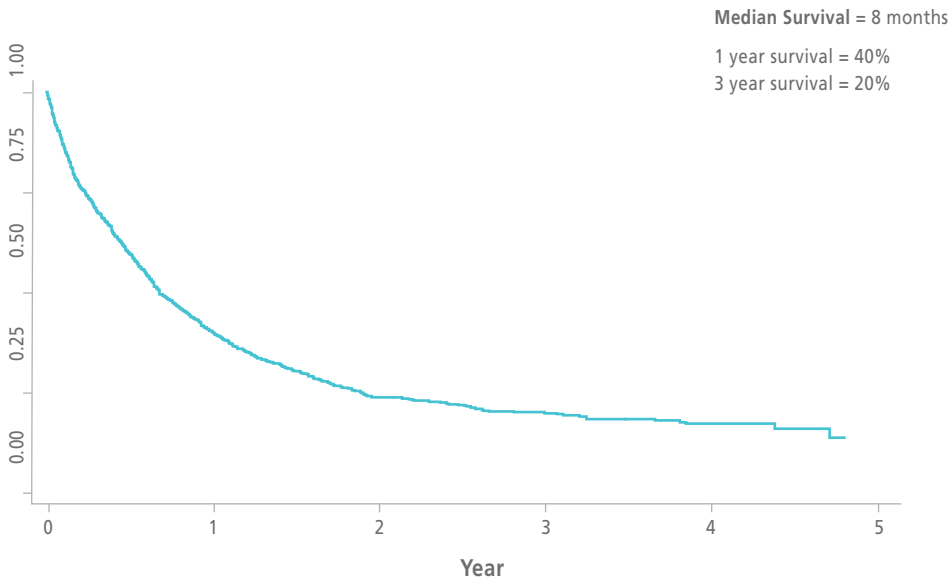
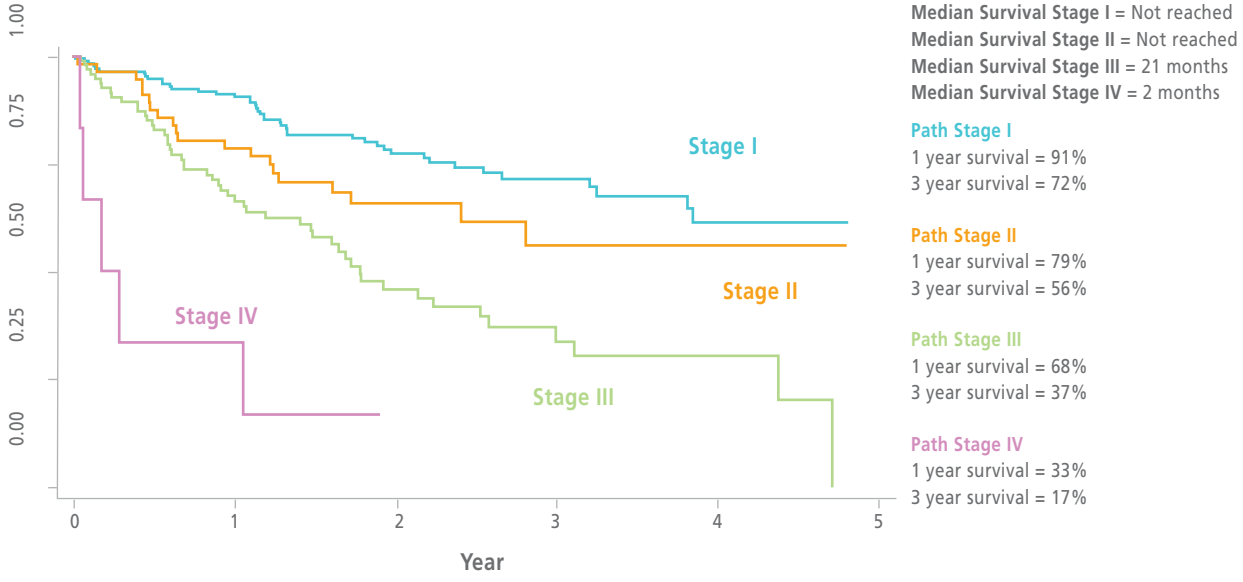


Figure 2.7 Overall Survival of Surgery patients by Path Stage 2003-2006



Overall survival compares with international figures.

2.2 Upper Gastrointestinal Cancer

2.2.1 Oesophageal and Oesophago-gastric Junction

Summary Points

- Based on NCRI figures, approximately 35% of surgical resections for oesophageal cancer in Ireland are undertaken at SJH.
- Multidisciplinary model well established, in particular for clinical trials of multimodality therapy and related molecular and scientific research.
- 50% of patients with localised disease are enrolled in cancer clinical trials.
- All oesophageal tumours biobanked for DNA and RNA research.
- High volume centre for all complex surgeries, including 2- and 3-stage resections, transhiatal oesophagectomy, and minimally invasive approaches.
- TCD Departments of Surgery and Medicine have a long-established major focus on oesophageal disease, including oesophageal cancer and Barrett's oesophagus, with grant income currently of over 2 million euro through the HRB and Cancer Research Ireland.
- Between 10 and 20 publications per annum on pre-malignant and malignant oesophageal disease.
- Rapid access oesophageal clinic. All patients referred are seen within one week.
- Integrated perioperative care pathway defined and implemented
- The standards and performance indicators for oesophageal cancer are well inside internationally-accepted benchmarks in high volume centres: an in-hospital post-operative mortality of 3.5%, 1% in the last 100 cases (5-10% are international figures); a 3-year survival rate of 40%; integrated care pathways operational; and patients linked to the cancer clinical trials programme.
- Programme strengths include cognate tertiary services in thoracic and head and neck cancer surgery, vascular and endovascular surgery, interventional radiology, critical care and medical gastroenterology.
- Best outcome survival data reported from Ireland for localised oesophageal cancer, consistent with benchmark data from centres in Europe and North America.
- Defined linkage with St.Lukes's Hospital (SLH), where Professor Reynolds has a sessional commitment.

Structure of Upper Gastrointestinal Cancer Service

The following is the composition of the MDT.

- **Specialist Surgeons:** Professor John Reynolds, Mr Narayamasamy Ravi. A specialist oesophageal surgical position (8 clinical; 3 academic) is approved.
- **Medical Oncologist:** Dr Ken O' Byrne
- **Radiation Oncologist:** Professor Donal Hollywood
- **Medical Gastroenterologist:** Dr Napoleon. Keeling, Professor Dermot Kelleher, Dr Suzanne Norris, Dr Nasar Mahmood, Dr Susan Mc Kiernan, Dr Dermot O'Toole

- **Specialist Pathologist:** Dr Cian Muldoon
- **Specialist Radiologist:** Dr Graham Wilson, Dr Jim Meaney, Dr Mary Keogan, Dr Patrick Freyne, Dr Mark Ryan, Dr Niall Mc Eniff.
- **Specialist Nurse:** Ms Jennifer Moore
- **Data-Manager:** Ms Sarah Young
- **Senior Audit Officer:** Ms Suzanne Rowley
- **(Regional) Integrated Care Pathways Officer:** Ms Eileen Nolan
- **Physiology Senior Lecturer:** Dr Patrick Byrne
- **Scientific Senior Lecturer:** Dr Graham Pidgeon
- **Post-doctorate Scientists:** Dr Stephen Maher, Dr Mohammed Abdel-Laetif.

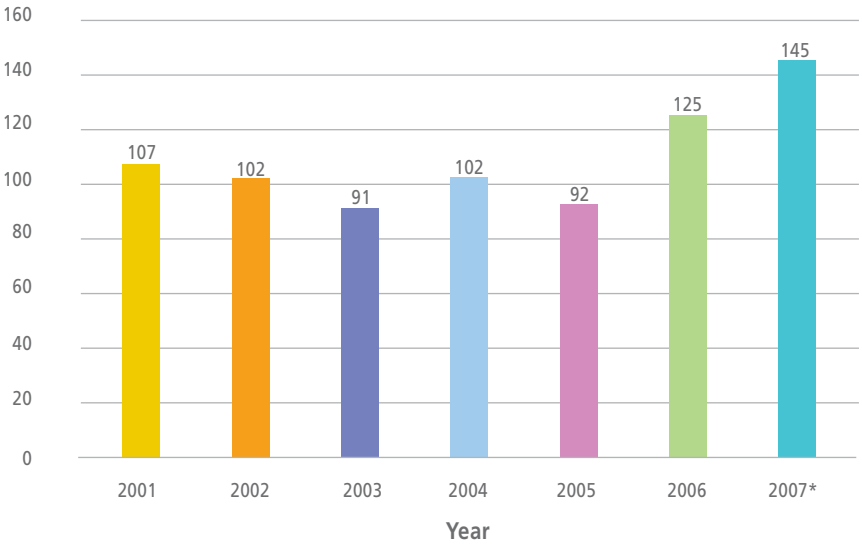
Oesophageal Cancers Cancer Trends

This report looks at 619 oesophageal cancers patients diagnosed and treated in SJH from 2001-2006. To show the upward trend in newly diagnosed patients, numbers for 2007 are included but all other audit analysis is 2001-2006 only.

Multidisciplinary Conference: A weekly meeting is held at 7.30 am on Thursday mornings in the Telesynergy Conference Centre in the Academic Department of Clinical and Medical Oncology. All oesophageal cancer cases are discussed by the team and a management plan agreed and formally documented. This conference links through Telesynergy with surgical and oncology colleagues in the Midlands Hospitals.

A Rapid–Access Oesophageal Clinic providing rapid access for all new referrals, and follow-up for all patients who have been managed with oesophageal cancer takes place on Thursday morning from 09.00 to 13.00hrs.

Figure 2.8 Oesophageal and Junctional Cancers 2001–2007



* Please note that data for 2007 are estimated based on actual data for the first six months of 2007

Referral Information by Health Board Area

Table 2.8

Referral* Pattern	Occurrences	Percent
ERHA	237	38
SEHB	99	16
MWHB	74	12
WHB	52	8
MHB	50	8
NEHB	48	8
NWHB	47	8
SHB	8	1
UK	2	<1
Other	1	<1

* Please note referrals to the end of 2006 were analysed by the old health boards

75% of patient referrals are from outside Dublin.

Table 2.9(a) Clinical Staging

Clinical Stage	Occurrences	Percent
Stage 0/High grade dysplasia	20	3
Stage 1	19	3
Stage 2	245	40
Stage 3	150	24
Stage 4	151	24
Unable to assess	33	5

64% of all oesophageal cancer patients were Stage 3 or less when they were clinically staged. 58% who had treatment in SJH for oesophageal cancer underwent treatment with a curative intent.

Table 2.9(b) Pathological Staging (n=253)

Pathological Stage	Occurrences	Percent
Stage 0/HGD	16	6
Stage 1	35	14
Stage 2	72	29
Stage 3	90	36
Stage 4	21	8
Unable to assess	19	8

Treatment Options

The MDT conference aims to discuss oesophageal cancer patients in the presence of the members of the MDT, the purpose of this is to co-ordinate the sequence of treatment modalities. 81% of patients were discussed at the conference in 2006.

Table 2.10 Treatment Options for Oesophageal and Junctional Cancer

Treatment Options	Occurrences*	Percent
Stenting	158	26
Endoscopic Dilatation	152	25
SURGERY only	151	24
MULTI-MODAL (neo-adjuvant Chemoradiation & Surgery)	116	19
Palliative Radiotherapy	109	18
Palliative Chemotherapy	101	16
Palliative Care	96	16
Radical Radiotherapy/ Chemotherapy (Herskovic)	59	10
Psychiatric Consult	47	8
Adjuvant Chemotherapy/ Radiotherapy	14	2
No Treatment	8	1
Laser Treatment (Argon)	8	1
Other (please specify)	5	1
Radical Chemotherapy	3	1
Radical Radiotherapy	3	1
Unknown	2	0

* Treatments are not mutually exclusive

Types of Surgery

Table 2.11 Types of Surgery

Type of Surgery	Occurrences*	Percent
2 Stage Oesophagectomy	156	52.2
3 Stage Oesophagectomy	61	20.2
Total Gastrectomy	33	13
Other	16	6.3
Distal Oesophagectomy	11	4.3
Pharyngolaryngo-osophagectomy (PLO)	9	3.6
Transhiatal Oesophagectomy	7	2.8
Thorocoabdominal Oesophagectomy	1	0.4

* Some patients have more than one type of surgery

Lead Times [Figures are for 2005/2006 patients]

The lead times that were recorded for oesophageal cancer patients, which are used as clinical indicators of quality of service offered, are:

- 95% of patients were seen within two weeks of referral
- 97% of patients were diagnosed within one month of initial referral (95% within 2 weeks).
- 75% of patients started their treatment within one month of referral

Survival

Figure 2.9 Overall Oesophageal Cancer Survival 2001-2006

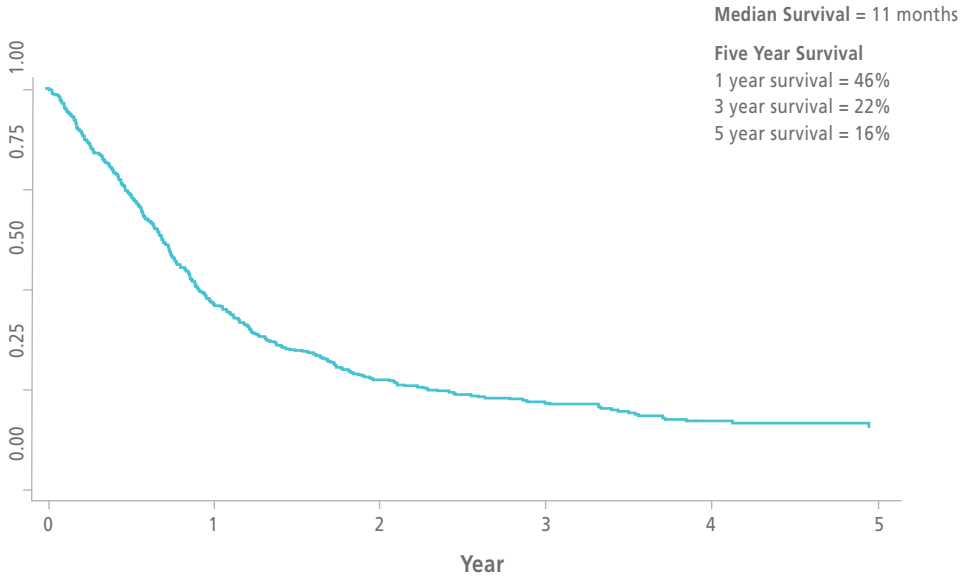
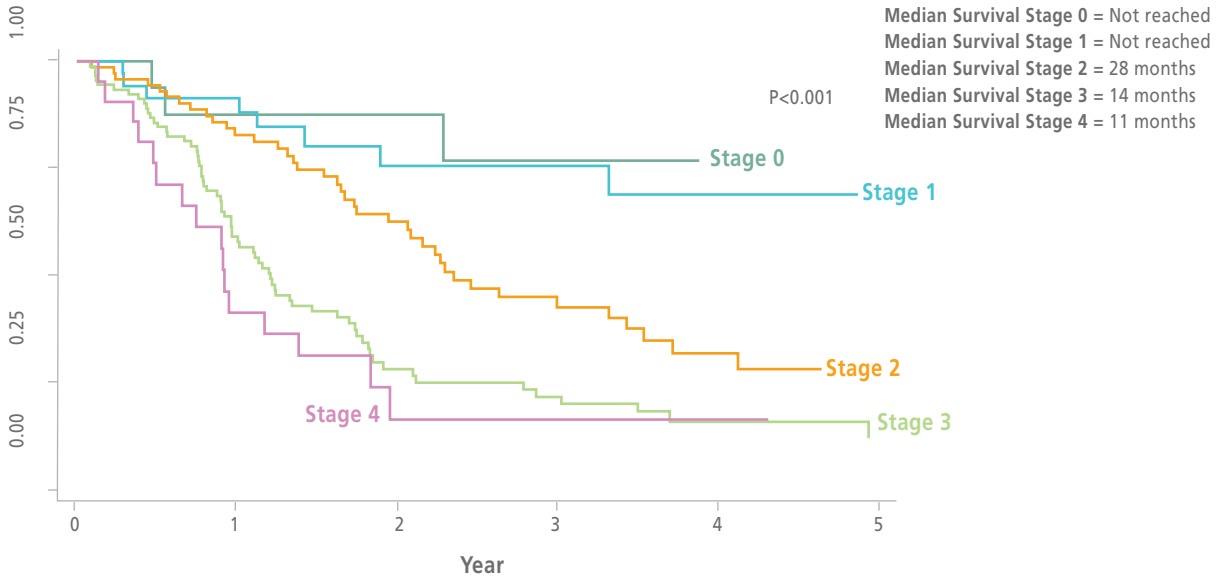
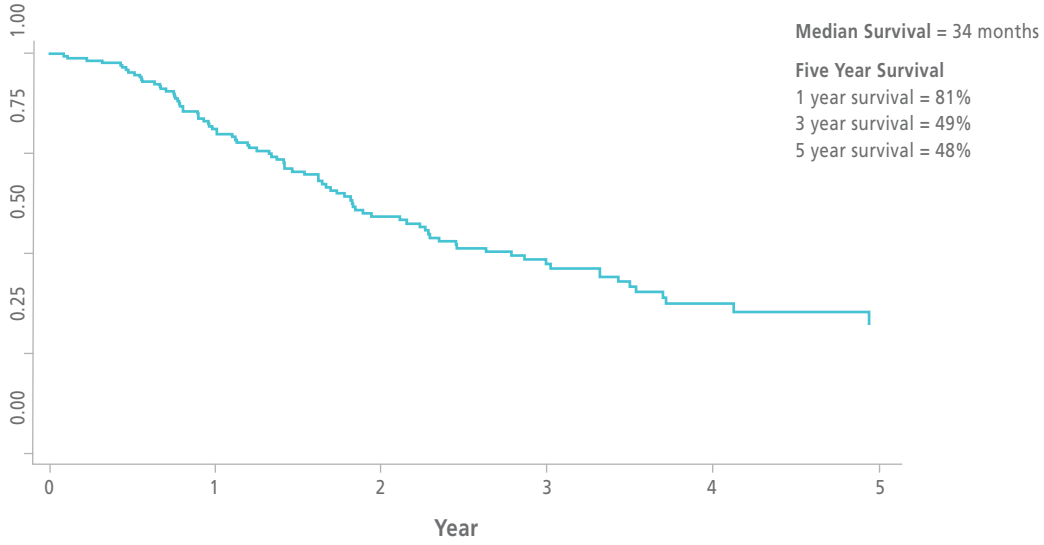


Figure 2.10 Overall Oesophageal Cancer survival by Pathological Stage



The overall 3-year survival in patients treated with multimodality therapy is 40%. In patients achieving a complete or near complete pathological complete response, the 5-year survival is 50 per cent.

Figure 2.11 Overall survival of Oesophageal Curative Surgical Resections 2001-2006



Surgical Performance Indicators

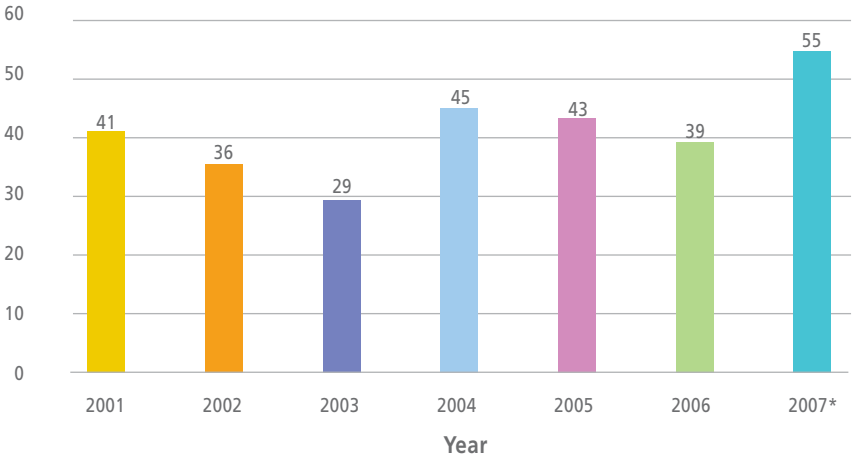
- During this period 267 patients had a radical oesophagectomy. The overall in-hospital postoperative mortality was 3.5%. There has been one in-hospital postoperative mortality (1%) in the last 100 cases.
- The anastomotic leak rate is 3%.

2.2.2 Gastric Cancer (excluding junctional)

Gastric Cancer Trends

The following report looks at 233 new gastric cancer patients diagnosed and treated in SJH from 2001-2006. Activity for 2007 is included in table 2.12, but in all other analysis 2001-2006 data is included.

Figure 2.12 Gastric Cancer 2001–2007



* Please note that data for 2007 are estimated based on actual data for the first six months of 2007

Tumour Site & Morphology

Table 2.12

Tumour Site	Occurrences*	Percent
Stomach (NOS)	76	33
Fundus Stomach	37	16
Antrum Stomach	31	13
Pylorus Stomach	27	12
Lesser Curve of stomach	20	9
Body of Stomach	14	6
Proximal Stomach	14	6
Distal Stomach	8	3
Greater Curve of Stomach	7	3

* Please note three patients had more than one primary site

Table 2.13

Tumour Morphology	Occurrences*	Percent
Adenocarcinoma	177	76
Lymphoma	20	9
GIST	14	6
Undifferentiated/Not specified	12	5
Intramucosal carcinoma/ HGD	5	2
Neuroendocrine	3	1
Other	3	1

* Please note that some tumour sites have more than one histology

Clinical Staging

Table 2.14

Clinical Stage	Occurrences	Percent
Stage 0/HGD	6	3
Stage 1	21	9
Stage 2	30	13
Stage 3	59	25
Stage 4	65	28
Unable to assess	52	22

Treatment Options

Table 2.15

Treatment Options for Gastric Cancer	Occurrences*	Percent
Surgery	83	36
Palliative Care/Best Supportive Care	82	35
Palliative Chemotherapy	61	26
Adjuvant Chemotherapy/ Radiotherapy	12	5
Palliative Resection	11	5
Endoscopic Dilatation +/- stent insertion	11	5
Psychiatric Consult	11	5
Radical Chemotherapy	9	4
No Treatment	7	3
Other (not specified)	7	3
Adjuvant Chemotherapy	6	3
Palliative Radiotherapy	4	3
Unknown	4	2

* Treatments are not mutually exclusive

Pathological Staging (n=87)

Table 2.16

Pathological Stage	Occurrences	Percent
Stage 0/HGD	5	6
Stage 1	16	18
Stage 2	13	15
Stage 3	26	30
Stage 4	14	16
Unable to assess	13	15

Lead Times [Figures are for 2005/2006 patients]

The lead times that were recorded for gastric cancer patients, which are used as clinical indicators of quality of service offered, are:

- 95% of patients were seen within one month of referral (85% within 2 weeks).
- 98% of patients were diagnosed within one month of initial referral.
- 77% of patients started their treatment within one month of diagnosis.

Survival

Figure 2.13 Overall Gastric Cancer survival 2001-2006

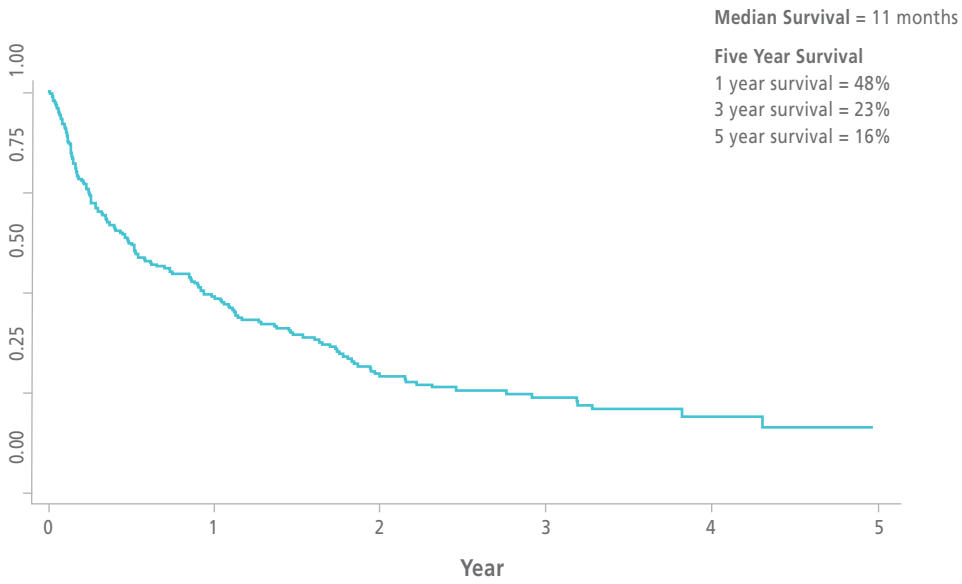


Figure 2.14 Overall Gastric Cancer survival of patients with Curative Intent

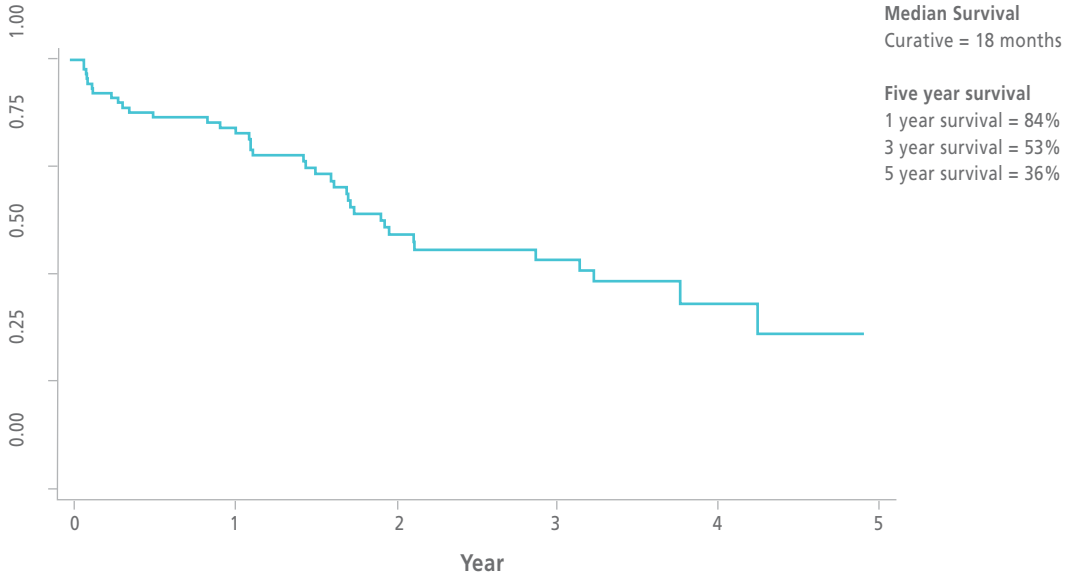
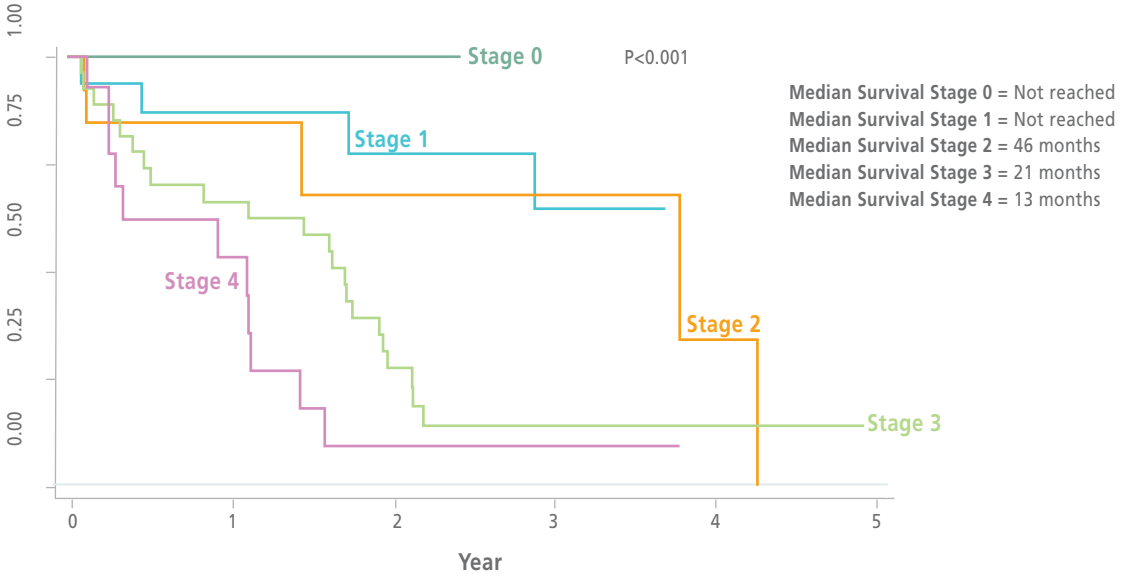


Figure 2.15 Overall Gastric Cancer survival by Pathological Stage



2.3 Skin Cancer

Summary Points

- Commonest cancer, over 500 NMSC managed at SJH in 2006, and close to 100 new patients with melanoma.
- Well-developed MDT model, with 4 dermatologists and 5 plastic and reconstructive surgeons, and skin cancer MDT since April 2005 is run every second week.
- The first public hospital Mohs microsurgical Unit (MMS) was established in mid-2006, with Dr. Patrick Ormond appointed as dermatological surgeon, and 105 patients treated with Mohs surgery to date.
- Specialist consultant dermatopathologist (Dr Mairin Mc Menamin)
- Weekly rapid access clinic for all suspected cancers.
- Skin cancers in immunosuppressed patients, in particular renal transplant patients, are managed in this Unit, as well as cutaneous T-cell lymphoma, and squamous cell cancers (SCC) developing in patients with Epidermolysis Bullosa
- Sentinel node technology and capacity for vascular/endovascular perfusion for melanoma are well developed on the site.
- Defined linkage with SLH, where Ms Patricia Eadie and Mr David Orr have sessional commitments.

Structure

- Dermatologic surgeon with training in MMS and reconstructive surgery (Dr Ormond)
- Dermatologists [Dr Louise Barnes, Dr Rosemary Watson, Professor Alan Irvine, Dr Maureen Connolly, and Dr Ormond (lead)]
- Dermatohistopathologist (Dr Mc Menamin)
- Plastic & Reconstructive surgeons [Ms P Eadie, Mr D O'Donovan, Mr D Orr, Mr E Beausang (lead)]
- Consultant medical oncologist (Dr Ken O'Byrne)
- Consultant Radiation/Oncologist (Professor Donal Hollywood)
- Skin cancer CNS's
- MDT co-ordinator, part time
- Surgical day ward sessions for Mohs microsurgery for complicated basal cell carcinoma (BCC), including (a) difficult sites - eyes, ears, lips, nose, nasolabial folds; (b) morphoeic, infiltrative, micronodular subtypes; (c) recurrences; (d) > 2cms especially in high risk areas; and (e) perineural spread
- Weekly rapid access clinic

Skin Cancer Trends

This report examines both NMSC and melanomas from 2001-2006. Figures for 2007 are included in the activity table but all other analysis is data for 2001-2006 inclusive.

There were 2605 patients diagnosed or treated in SJH for NMSC between 2001-2006. There were 416 newly diagnosed melanoma patients in the same time period with 97 new patients diagnosed in 2006. (See Figure 2.17) This represents an 80% increase in the numbers of melanoma patients over this period since 2001. Based on actual figures for the first six months of 2007, the projected numbers for 2007 include 540 new NMSC patients and 115 melanomas. This will result in a minimum 7% increase in NMSC workload when compared to 2006 and 19% increase in the melanoma caseload.

Tumour Site & Morphology

The head & neck sites (75%) are the upper limbs (6%) are the most common sites for NMSC. BCC (69%) and SCC (24%) are the most common NMSC morphologies. Bowen's disease has been recorded for 2006 only.

Figure 2.16 NMSC 2001–2007

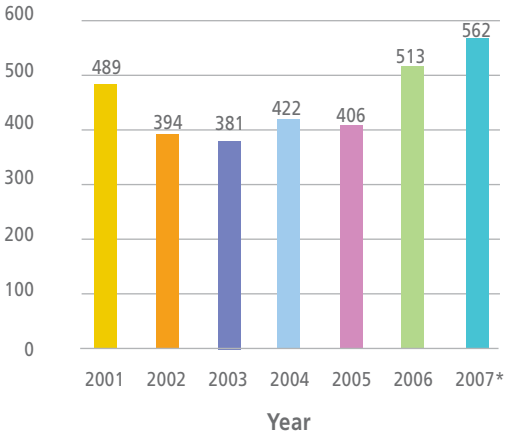
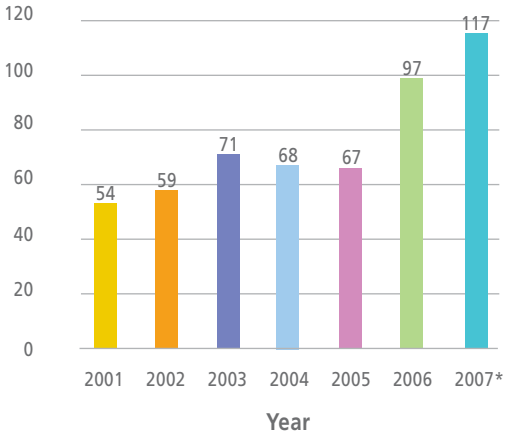


Figure 2.17 Melanomas 2001–2007



* Please note that data for 2007 are estimated based on actual data for the first six months of 2007

Melanoma

Skin Cancer MDT

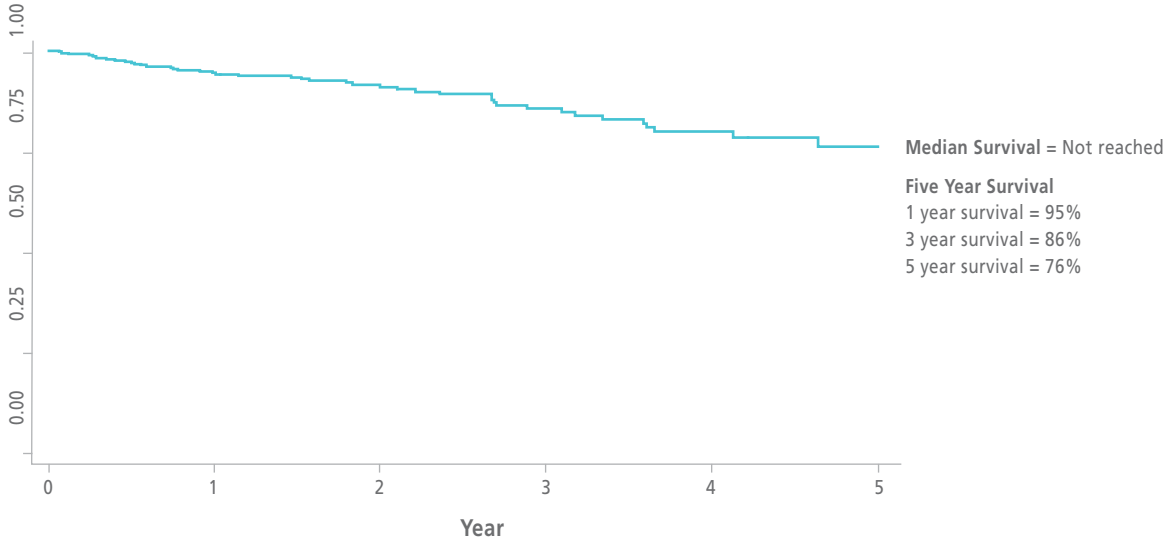
91% and 97% of melanoma patients were discussed at MDT in 2005 and 2006 respectively. The first skin cancer MDT in Ireland was established in April 2005. The team consists of a lead clinician, a plastic surgeon, a dermatopathologist, oncologist and a radiotherapist. There is a 0.5 WTE MDT co-ordinator. Minutes were documented, as is an attendance record. At present there are two MDT meetings per month. All cases of skin cancer are logged but only selected complex or inadequately excised cases of NMSC and all melanoma cases are fully discussed.

Treatment Details [For 2005 and 2006 patients]

98% of melanoma patients underwent treatment with a curative intent. 98% of patients had a surgical excision as part of their primary treatment.

The increasing incidence of melanoma is in keeping with figures worldwide. Comparison with Scotland is reasonable, where an increase of 300% in males and of 187% in females has been observed over the last 30 years. Furthermore the NCRI show an increased annual percentage change in age standardised mortality rate of 4.2% in Ireland over the 1994 to 2005 period, a worrisome trend and one that is not in keeping with other national registries. In Scotland, there has been an improved 5-year survival, 80% compared to 30% thirty years ago, and a similar encouraging survival outcome is reported in the SJH experience.

Figure 2.18 Survival 2001-2006 patients (Melanomas)



2.4 Head & Neck Cancer

Summary Points

- According to HIPE figures, between 30 to 50% of cases managed nationally are treated at SJH.
- Combined surgical strength of Department of Otolaryngology & Head and Neck and National Centre for Maxillofacial Surgery
- Combined academic strength of two Trinity College Professors of Surgery (Professor Leo Stassen, Professor Conrad Timon) and academic focus of the Department of Pathology in TCD (Professor John O'Leary, Professor Orla Shiels, Dr. Mary Toner).
- Linkage with AMNCH through single department structure, and agreement that all complex major cancer surgery is performed at SJH.
- Linkage with Dublin Dental School (DDS) and SJH for the management of oral cancers. All major surgery is undertaken at SJH and is managed by Prof Flint/Dr Healy (Oral Medicine) who work closely with Dr Toner (Oral Pathology) who is a joint appointment between DDS and SJH.
- Cancer centre model of combined multi-surgeon operations for the most complex cases, with close interface with the plastic and reconstructive team, the oesophageal team, and the thoracic service.
- Defined linkage with SLH, where Professor Timon has a sessional commitment.

Head and Neck Cancer Trends

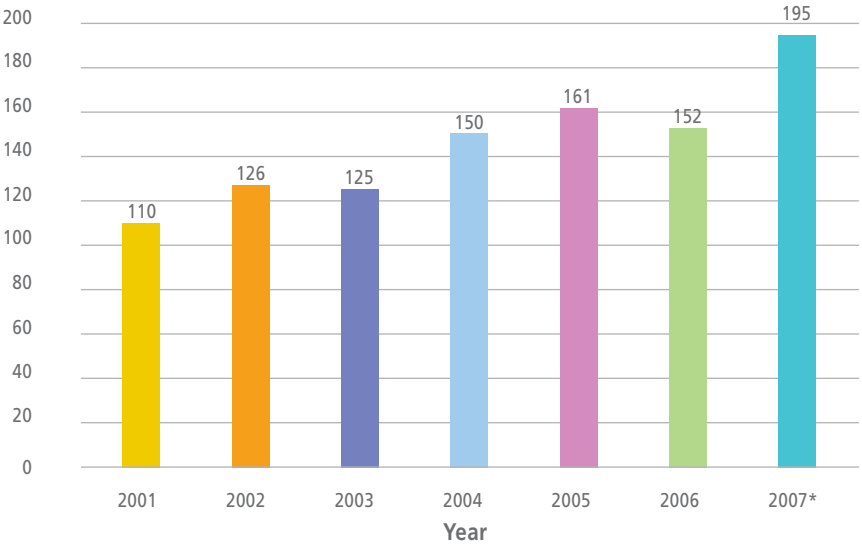
There were 824 new cancer cases diagnosed or treated in SJH between 2001 and 2006, with an average of 137 new patients a year. A total of 152 head and neck cancer patients were diagnosed or treated in 2006. The latest available national figures (NCRI) show that there were 266 head and neck cancers diagnosed nationally in 2002, and 353 diagnosed in 2003, this suggests that SJH treated 47% of the cancers recorded nationally in 2002 and 2003.

Head and neck cancer patients within SJH are taken care of by two main teams – the Maxillofacial and Otolaryngology-Head & Neck Surgery. Other tumour sites within this group can also be linked to the endocrine, skin and lymphoma cancer group registries.

Multidisciplinary team meetings

The head and neck weekly MDT meetings commenced in March 2006. In 2007 317 cases (62 patients were discussed on more than one occasion) have been discussed at MDT.

Figure 2.19 Head & Neck Cancers



* Please note figures for 2007 are based on actual data until the end of June 2007

The following audit of clinical data is **for 2006 patients only**, unless otherwise specified.

Tumour Sites

Table 2.17

Tumour Site	Occurrences
Oral Cavity	45
Thyroid	29
Larynx	15
Lymph Node/Lymphoma	14
Naso/Oro/Hypopharynx	11
Salivary Gland	10
Cheek/Ear/Lip	7
Sinus/Nose	6
Skin	4
Cervical Oesophagus	2
Other	11
Cervical oesophagus	2

Treatment Options

Table 2.18

Treatment Options	Percent
Surgery and Chemotherapy/Radiotherapy	69
Surgery only	5
Chemotherapy, Radiotherapy	4
Chemotherapy Only	8
Palliative Care	6
Surgery and Radio-Iodine Therapy	8

69% of head & neck cancers were treated with both combined Surgery and Chemotherapy/ Radiotherapy.

Patterns of Referral

Table 2.19

Referral Details	Percent
Tertiary Referral	44
GP/Dental Referral	36
Dublin Dental Hospital (DDH) or Royal Victoria Eye and Ear	19
SJH A&E	1

Overall Survival

Figure 2.20 Head & Neck Cancer survival 2002–2006

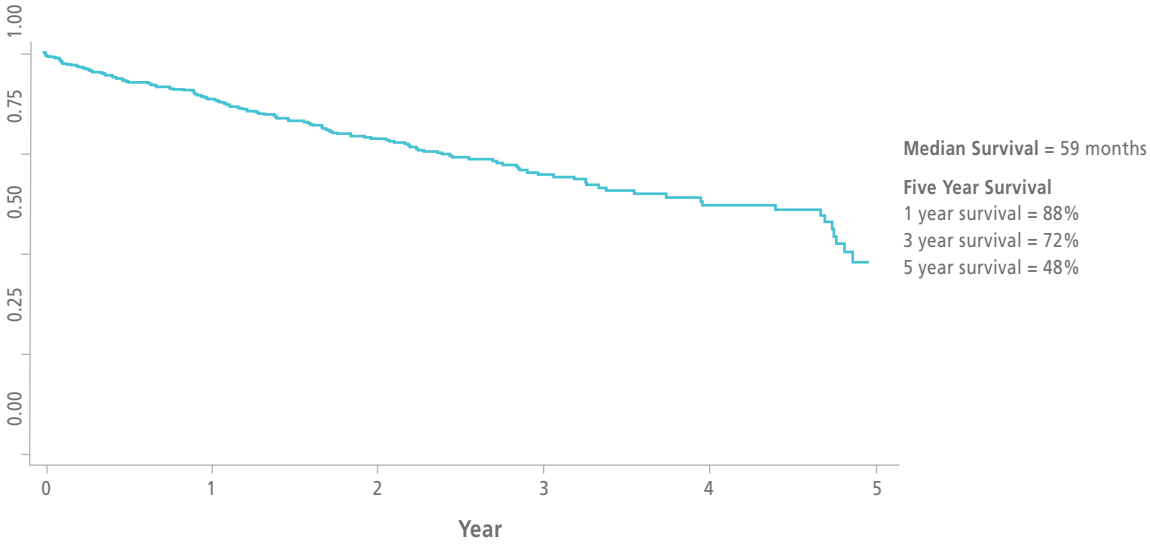
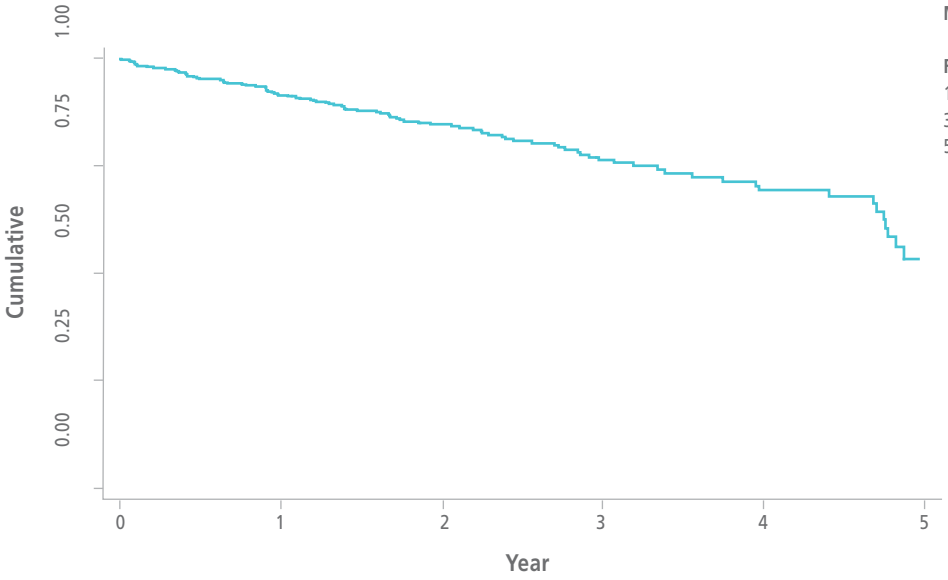


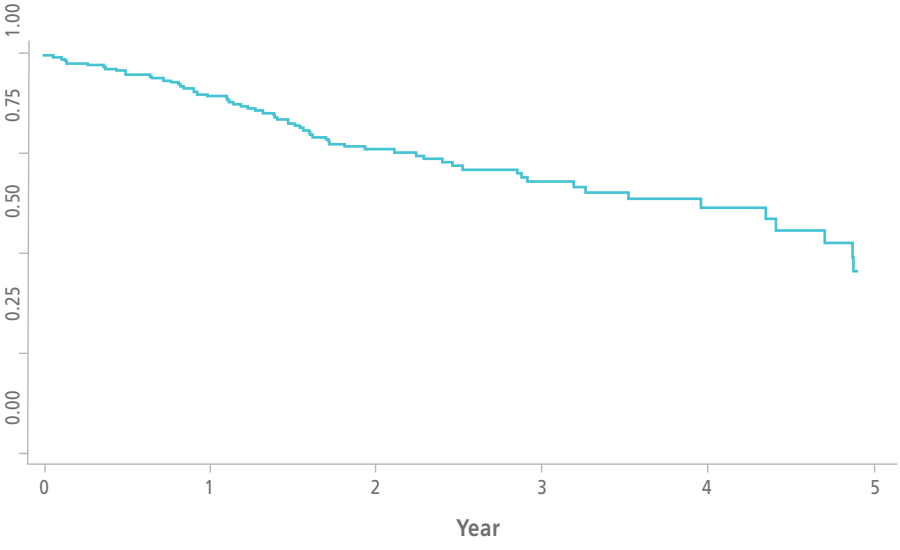
Figure 2.21 Head & Neck Cancer survival by Curative Intent 2002–2006



Median Survival = 64 months

Five Year Survival
1 year survival = 91%
3 year survival = 76%
5 year survival = Not reached

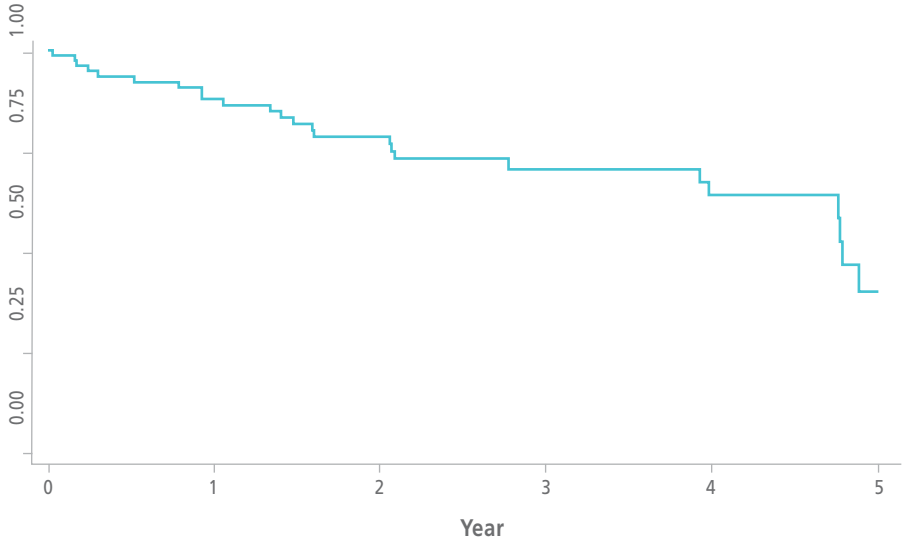
Figure 2.22 Survival estimate of Lip & Oral Cavity Cancers



Median Survival = 64 months

Five Year Survival
1 year survival = 90%
3 year survival = 68%
5 year survival = Not reached

Figure 2.23 Survival estimate of Laryngeal Cancers



Median Survival = 58 months

Five Year Survival
1 year survival = 88%
3 year survival = 70%
5 year survival = Not reached

2.4.1 Endocrine Cancer

Endocrine cancers are considered at this point since thyroid cancer is the commonest site and these cases are managed by the Head and Neck service.

Endocrine cancer includes malignant tumours of the thyroid, lung, and adrenal. Since 2001, the number of new patients has increased 4-fold coming through the cancer service in SJH.

The following report on endocrine cancers examines all endocrine tumours from 2001-2006. Activity for 2007 is included in figure 2.24 but all other analysis reports on data from 2001-2006 inclusive.

Table 2.20

Tumour Site	Occurrences*	Percent
Thyroid	105	71
Lung	30	20
Pancreas	6	4
Liver	4	3
Adrenal	3	2
Thymus	1	<1

* Please note each patient may have more than one primary site

The most common tumour sites for tumour occurrence are the thyroid (70.5%), and lung (20%).

Treatment Options

Table 2.21

Endocrine Cancer Treatment Combinations		SJH	National*
	No of Patients	Percent	Percent
Surgery	119	81	49
Chemotherapy	16	11	31
Radiotherapy	22	15	19
Hormone Therapy	86	58	1

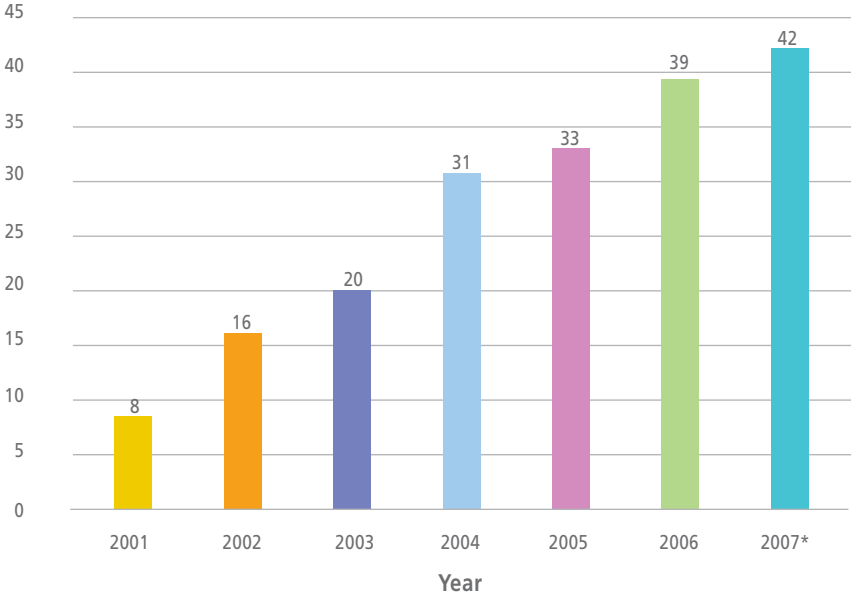
81% of patients who had an endocrine cancer underwent surgery, in SJH.

Lead Times (Figures are for 2001 – 2006)

Lead times are recorded for use as a clinical indicator of a quality service:

- 73% of patients were seen within 1 month of referral
- 48% of patients were diagnosed within a month of initial referral
- 98% of patients started their treatment within a month of diagnosis

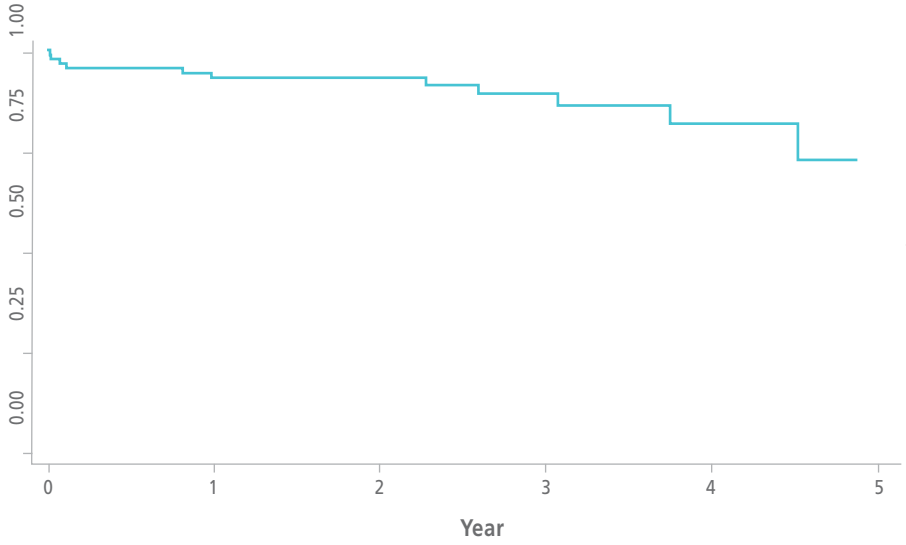
Figure 2.24 Endocrine Cancers 2001–2007



* Please note that data for 2007 are estimated based on actual data for the first six months of 2007

Survival

Figure 2.25 Overall survival of Thyroid Cancers



Median Survival = Not reached

Five Year Survival
1 year survival = 93%
3 year survival = 89%
5 year survival = 73%

2.5 Colorectal Cancer

Summary Points

- According to HIPE figures, the colorectal service manages approximately 8% of national workload.
- Well-developed multimodal treatment model for rectal cancer, with integrated staging, treatment planning, audit, follow-up, and related clinical and translational clinical trials and research.
- High volume centre for colorectal diseases, with laparoscopic approaches now established within the Unit.
- All cases discussed and considered for adjuvant or neoadjuvant therapy at weekly MDT conference.
- Sphincter preservation, anastomotic leak rate, in hospital morbidity and mortality, and stage for stage survival consistent with international benchmarks.
- Standards defined and linked with the Association of Coloproctology of Great Britain and Ireland (ACPGBI), and audit shared with this Association.
- Only Unit in Ireland accredited by the ACPGBI
- Close alignment with gynaecology oncology and urological oncology services.

Structure

- Colorectal Consultant Surgeons, Mr R B Stephens and Mr B J Mehigan provide specialised joint care to all inpatients, working as an integrated team with a senior and junior registrar in the GEMS Directorate as envisaged by The Quality and Fairness Health Strategy (2001). This team based care includes ward rounds and operating lists and flexible outpatient clinics.
- The senior specialist registrar works in a level 3 colorectal training post as approved by the ACPGBI.
- Consultant oncologist, Dr J Kennedy, provides specialised oncology care for patients with colorectal cancer including partaking in new chemotherapy trials.
- Specialist GI Cancer Consultant Pathologist, Dr C Muldoon reviews all colorectal specimens and histology.
- Consultant Radiologists, Dr M Keoghan, Dr J Meaney and Dr G Wilson have expertise in colorectal cancer staging providing scanning and endoscopic ultrasound.
- Consultant Gastroenterologists, Dr PWN keeling, Prof Kelleher, Dr Mahmud, Dr S McKiernan, Dr S Norris and Dr D O Toole, provides diagnostic and therapeutic endoscopic services, including endoscopic ultrasound, to colorectal cancer patients.
- Palliative Care Consultants, Dr O' Siorain and Dr O Lawlor provide inpatient and outpatient palliative care services to colorectal cancer patients.
- Liaison Psychiatry Consultants Dr A O' Dwyer and Dr J Cooney provide psychiatric services and access to psychological support services.
- Department Head of GI Function Lab, Dr P Byrne, provides rectal manometry to appropriate colorectal cancer patients.

- Full time colorectal nurse co-ordinator, Ms D Flannery, facilitates the continuity and quality of care for patients diagnosed with colorectal cancer, providing information, education and addressing the concerns of patients and their families.
- Full time Stoma care clinical nurse specialists, Ms A Fearon and Ms S McGovern provide inpatient and out patient education and counselling for colorectal cancer patients who have a stoma.
- Genetics research nurse Mr M Farrell, provides a genetic counselling service to patients with personal or family histories suggestive of an underlying inherited predisposition to colorectal cancer.
- Full time colorectal data manager, Ms C Stuart, ensures full prospective collection of all patient parameters.

Process

- 3 weekly colorectal clinics with access for sigmoidoscopies at the clinic.
- Specialised colorectal endoscopy services available from Monday to Friday in a 9-room endoscopy unit, which includes 2 x-ray rooms for colonic stenting facilities and 1 endoscopic ultrasound room.
- 8 GA theatre sessions weekly which includes one day-surgery general anaesthetic session.
- Access to regular inpatient and outpatient x-ray facilities, for example: MR scan, CT scan, rectal ultrasound, barium studies and PET scans are available for colorectal cancer patients.
- Access to once weekly sessions on rectal manometry

Services and quality assurance

- Once weekly MDT, which is organised by experienced MDT co-ordinators, provide a structured and co-ordinated approach to the delivery of cancer care as envisaged by the Strategy for Cancer Control in Ireland (2006),
- A full range of open, laparoscopic and transanal resectional surgery with, where necessary, pouch reconstruction, is practiced in the colorectal unit.
- A colorectal cancer care pathway was developed using evidence based research and guidelines from the ACPGBI and is regularly updated
- A nurse-led follow up clinic for patients who have curative surgery for colorectal cancer is held fortnightly and provides a more complete and accurate patient follow up in a patient focused environment.
- A patient satisfaction survey is currently underway to assess the service being provided by the Colorectal Cancer Follow-Up Clinic.
- An electronic colorectal cancer database, in place since 2001, captures all information relating to the patient journey, including referral, diagnosis, treatments and follow-up ensuring QA as recommended by the Strategy for Cancer Control in Ireland (2006).
- This dataset is extensive and incorporates various minimum datasets including that of the NCRI and the ACPGBI, which enables comparison of SJH colorectal cancer data with these established organisations.
- Colorectal cancer data have been submitted for inclusion in reports prepared on behalf of ACPGBI for the past four years. Until 2005, SJH was the only hospital in the RoI to do so. The most recent being 'Report of The National Bowel Cancer Audit project "Assessing Quality" June 2006'. This report includes data from 56 units throughout Great Britain and Ireland and can be used to compare our outcomes with those of our peers to ensure a high standard of care is provided.

- An example of the comparisons that are carried out can be seen in Table 2.22. Lymph node yield is a marker of quality in colorectal cancer surgery. Ideally the lymph node harvest should be twelve; however this may vary from case to case when variables such as operative procedures and radiotherapy for rectal cancer are taken into account.

Table 2.22

Median and Range of Lymph Node Harvest 2005*	SJH	ACPGBI
Median	10	11
Range	0-33	

* Note data for 2006 are not available from the ACPGBI at time of print

Colorectal Cancer Trends

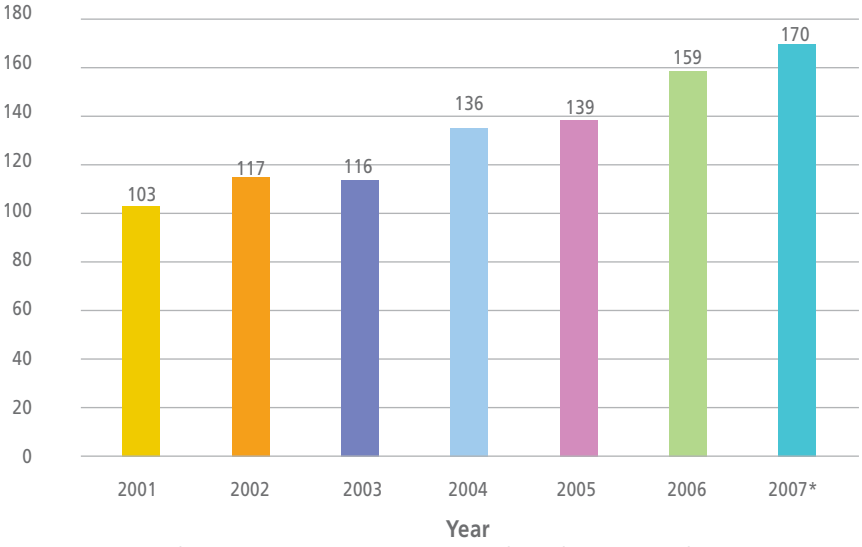
Introduction

This report looks at 770 patients diagnosed or treated in SJH with colorectal cancer from 2001 to 2006. Data for 2007 is included in activity analysis in figure 2.26. The rest of the analysis is for 2001-2006 inclusive. Colorectal cancer includes malignant tumours of the appendix, colon, rectum and anus. Three new cases of colorectal cancers are diagnosed or referred to SJH weekly. This accounts for over 7% of the total SJH cancer workload and 8% of the national colon cancer workload. (NCRI)

Trends

Since 2001, there has been a 54% increase in the number of new patients to the colorectal cancer service in SJH.

Figure 2.26 Colorectal Cancer 2001–2007



* Please note that data for 2007 are estimated based on actual data for the first six months of 2007

Gender & Age Analysis

Gender analysis revealed colorectal cancer incidence was 44% female and 56% male. Colorectal cancer incidence is more common in the over 50's and almost 90% of patients fell within this category. The average age of patients at time of diagnosis was 68 years. Ages ranged from 26 to 92 years and the median age was 70. Approximately 60% of patients were aged between 61 and 80 years.

Cancer History

In the case of 39% of patients there was a family history of cancer. 13.5% had a family history of colorectal cancer.

Table 2.23

History of Cancer	Occurrences	Percent
Family History of Colorectal Cancer	104	13
Family History of Any Cancer	302	39
Family History Cancer excluding Colorectal Cancer	237	31
History of Previous Malignancy	108	14

Referral Information

Table 2.24

Referral Source to Colorectal Service	Occurrences	Percent
GP Referral	376	49
Via A&E (GP or Self Referral)	193	25
Tertiary Referral (outside Dublin)	76	10
Other Dublin Hospital	45	6
Internal - From another SJH Consultant	50	7
Already known to colorectal service	16	2
Guinness Medical Department	15	2

Tumour Site

The vast majority of colorectal cancers are moderately differentiated (75%) adenocarcinomas (84%), with the most common site for tumour occurrence being the rectum (30%) and sigmoid colon (20%).

Table 2.25

Tumour Site	Occurrences*	Percent
Rectum	240	30
Sigmoid Colon	157	20
Caecum	108	14
Ascending Colon	53	7
Rectosigmoid	51	7
Hepatic Flexure	47	6
Transverse Colon	33	4
Descending Colon	23	3
Splenic Flexure	23	3
Anus	19	2
Appendix	17	2
Site not specified	14	2
Small Bowel	3	<1%
Terminal Ileum	1	<1%

* Each patient may have more than one primary colorectal site

Clinical Stage

Table 2.26 shows the TNM stage of the patients who had clinical staging of their tumour carried out. Most patients were T3 (46%), with the majority of patients having node negative disease (56%). Metastatic disease was present in 24% of patients at time of diagnosis. The most common site for metastatic spread is the liver.

Table 2.26

Colorectal Cancer Clinical Stage					
T Stage	**Percent**	**N Stage**	**Percent**	**M Stage**	**Percent**
Tx	28	Nx	13	Mx	8
T0	<1	N0	56	M0	65
T1	5	N1	25	M1	24
T2	11	N2	2	Unknown	3
T3	46	Unknown	4		
T4	5				
Tis	1				
Unknown	4				

* Many colon cancers are not possible to stage in relation to T stage on CT scans or are not identified on imaging so this would account for many of the missing data. Some patients may not have any imaging done at all - so this figure is correct and would be typical of annual data.

Treatment Options

The focus on multidisciplinary approach to patient care has seen patients discussed at the weekly MDT conference increase from 59% of patients in 2002 to 87% patients in 2007. Patients were treated with a curative intent in 70% of cases. Treatment options for colorectal surgery are outlined in Table 2.27.

Table 2.27

Treatment Options	Occurrences	Percent
Surgery (of any type)*	627	81
Resection of Primary Tumour	560	73
Non resection surgery	179	23
Chemotherapy	367	48
Radiotherapy	166	21
No treatment	48	6
Endoscopic treatment	43	6
Colonic stent	13	2

Note: Treatments are not mutually exclusive
* Some patients may have multiple surgeries including stoma formation/stoma reversal

- 554 patients had resection surgery
- 86% of ACPGBI are reported as having any surgery (April 2003-March 2005)
- 496 patients had resection surgery in SJH.
- 80 patients had neoadjuvant therapy prior to rectal cancer resection
- 30-day post operative mortality for SJH is 5.1% compared with the ACPGBI rate of 5.9%

Pathological Stage (n=502 patients)

Table 2.28 shows the TNM stage of the patients who had pathological staging of their tumour carried out. Most patients were T3 (56%), with the majority of patients having node negative disease (58%). Metastatic disease was present in 14% of patients at time of diagnosis, 18% of ACPGBI patients are reported as having metastatic disease.

Table 2.28

Colorectal Cancer Pathological Stage					
T Stage	**Percent**	**N Stage**	**Percent**	**M Stage**	**Percent**
Tx	1	Nx	1	Mx	1
T0	1	N0	58	M0	84
T1	7	N1	26	M1	14
T2	13	N2	15	Unknown	1
T3	56	Unknown	<1		
T4	20				
Tis	1				
Unknown	1				

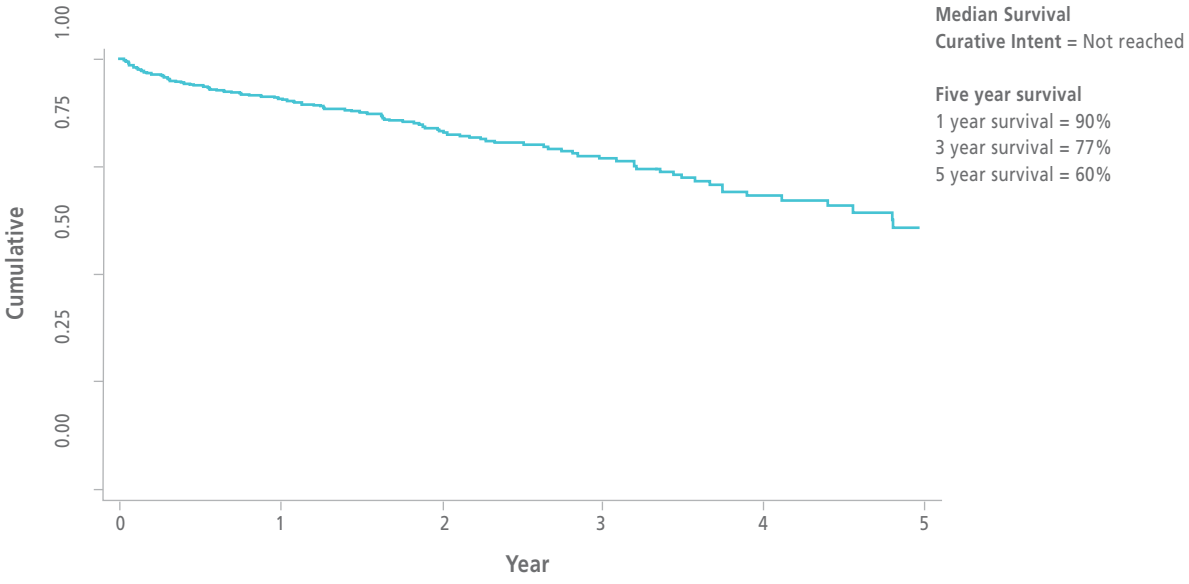
Lead Times

Lead times are recorded for use as a clinical indicator of a quality service:

- 75% of patients were seen within 1 month of referral
- 63% of patients were diagnosed within a month of initial referral
- 67% of patients started their treatment within a month of diagnosis

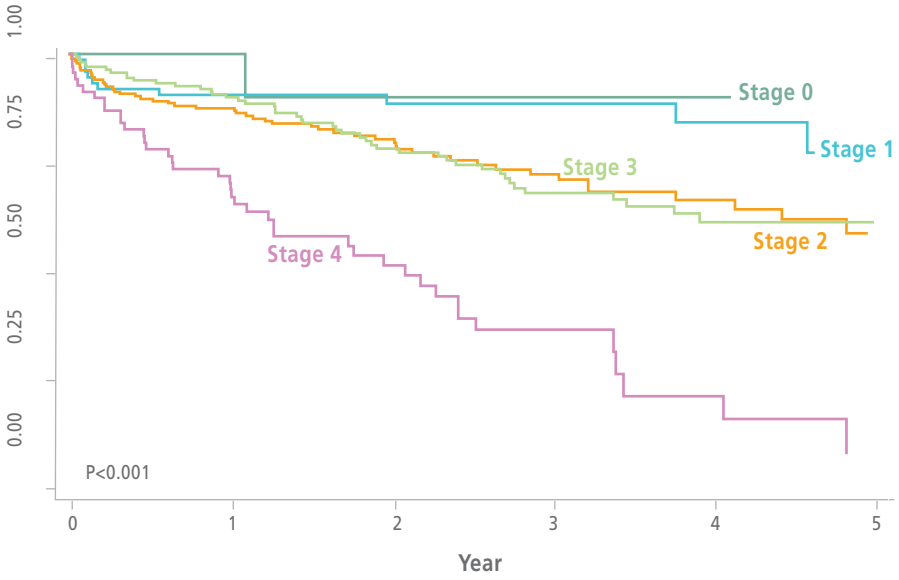
Survival

Figure 2.27 Overall Colorectal Cancer survival with Curative Intent*



* Note: 5-year survival has not been reached by a large numbers of patients. The majority have however reached 3-year survival.

Figure 2.28 Overall Colorectal Cancer survival by Pathological Stage 2001-2006*



Median Survival
Stage 0 = Not reached
Stage 1 = Not reached
Stage 2 = 65 months
Stage 3 = Not reached
Stage 4 = 25 months

Stage 0
1 year survival = 100%
3 year survival = 90%
5 year survival = 90%

Stage 1
1 year survival = 91%
3 year survival = 88%
5 year survival = 77%

Stage 2
1 year survival = 87%
3 year survival = 72%
5 year survival = 58%

Stage 3
1 year survival = 90%
3 year survival = 68%
5 year survival = 61%

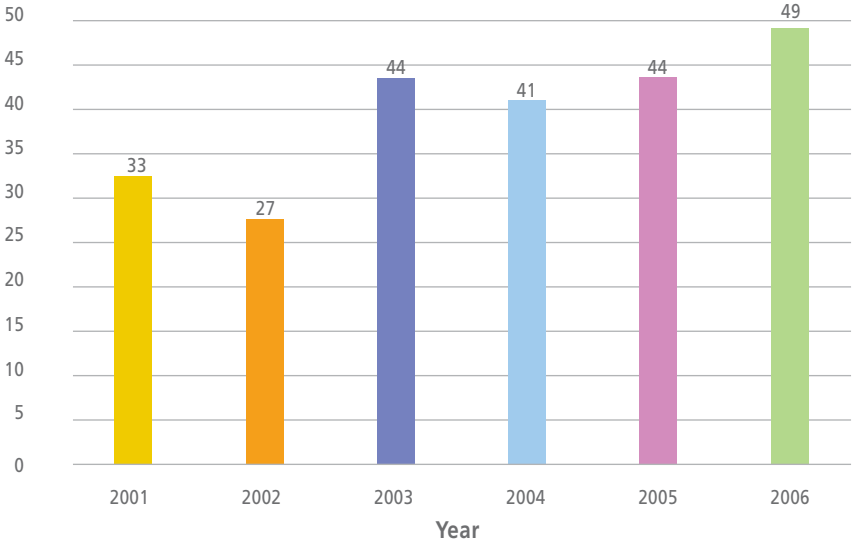
Stage 4
1 year survival = 70%
3 year survival = 36%
5 year survival = 8%

* Note: 5-year survival has not yet been reached by a large number of patients, the majority of patients have however reached 3-year survival.

Rectal Cancers Trends 2001-2006 (n=238)

The remaining section of colorectal cancer examines rectal cancers from 2001-2006.

Figure 2.29 Rectal Cancers 2001–2006



Treatment Options

Table 2.29 Treatment Options for Rectal Cancer

Treatment Options	Occurrences	Percent
Surgery (of any type)*	193	80%
Resection of Primary Tumour	170	71%
Non resection surgery	23	10%
Chemotherapy	140	58%
Radiotherapy	128	53%
No treatment	13	5%
Endoscopic treatment	14	6%
Colonic stent	3	1%

* Note patients may have more than one treatment type
Some patients may have multiple surgeries including stoma formation/stoma reversal
Post operative mortality rate (30-day) = 1.3%
Post operative anastomotic leak rate = 1.3%
Rate of abdominoperineal excision of rectum (APER) to anterior resection -> 0.62:1

2.6 Gynaecological Cancer

Summary Points

- Integrated Department with Coombe Women & Infants University Hospital (CWIUH)
- Two specialist trained gynaecological oncology surgeons (Ms Noreen Gleeson and Dr Tom D'Arcy)
- Specialist medical oncologist for gynaecological and urological cancers (Dr Dearbhaile O'Donnell)
- Specialist radiation oncologist for gynaecological cancers (Professor Donal Hollywood)
- High volume centre for gynaecological malignancy, with laparoscopic approaches now established within the Unit.
- Colposcopic assessment of pre invasive cervical disease in conjunction with the CWIUH
- Academic interface with the Department of Pathology at TCD. Professor John O'Leary is head of the Department of Pathology and leads molecular research into gynaecological malignancy with laboratories at both the IMM at SJH and on the CWIUH site.
- In 2005 RCOG (the Royal College of Obstetricians and Gynaecologists) approved the first ever Irish Subspecialty training post in Gynaecology Oncology in SJH. Previous to this post being created all gynaecology cancer specialists had to train abroad.
- The formal subspecialty programme in SJH follows the RCOG curriculum for Subspecialty Training in Gynaecological Oncology. It comprises of 17 modules from multidisciplinary areas such as Specialist Surgery, Oncology and Radiology to Urological, Colorectal and Plastic surgery.

Structure

The structure is based around a weekly multidisciplinary conference that is attended by all relevant specialists. In 2006, 344 (206 new) patients were referral for discussion on at least one occasion. Of the 344 patients discussed 60% were newly diagnosed cancers, 14% were established cancer patients requiring discussion, 5% were referred by other teams for advice and 21% of cases were suspected cancers with definitive histology being benign.

In 2006 The Gynaecological Oncology Division at SJH and the CWIUH diagnosed and treated 207 new patients with gynaecological cancers in 2006. 42 newly diagnosed cancers were treated mainly in the CWIUH in 2006 and 165 patients were diagnosed and treated mainly in SJH. An additional 23 patients in the CWIUH had gestational trophoblastic disease, four of whom required chemotherapy in SJH for persistent disease.

Gynaecological Cancer Trends

Figure 2.30 Gynaecological Cancer 2003–2007 (SJH & CWIUH)

* Please note that data for 2007 are estimated based on actual data for the first six months of 2007

The following is a breakdown of patients diagnosed and treated in SJH in 2006. The 165 newly diagnosed patient's tumour sites are divided as follows as in table 2.30.

Tumour Site

Table 2.30

Tumour Site	Occurrences
Cervix Uteri	53
Ovary	51
Corpus Uteri	42
Vulva	12
Peritoneum/other	7

Cervix Uteri

There were 53 new patients diagnosed in SJH with cervical cancer. The median age was 50, range 25 - 83 years. The national figure for 2005 was 253

Morphology

Cervical cancer

Table 2.31

Morphology Type	Percent
Squamous Cell Carcinoma	83
Adenocarcinoma	14
Clear	2
Glassy/Small	1

Uterine Cancer

There were 42 new patients diagnosed in SJH with uterine cancer. The median age was 60, range 30-85 years.

Table 2.32

Morphology Type	Percent
Adenocarcinoma	75
Sarcoma	20
Clear Cell	4
Adenosquamous carcinoma	1

Ovarian Cancer

There were 51 new patients diagnosed in SJH with ovarian cancer. The median age was 57, range 19-84 years. The national figure for 2005 was 367.

Table 2.33

Morphology Type	Percent
Papillary Serous	57
Adenocarcinoma	20
Borderline	11.5
Clear Cell	11.5

Vulva Cancer

There were 12 new patients diagnosed with vulva cancer in SJH in 2006. Ages ranges from 34-87 years.

Table 2.34

Morphology Type	Percent
Squamous Cell Carcinoma	83
Melanoma	17

Treatment

The primary treatment given in gynaecology cancers varies greatly depending on tumour site.

Table 2.35

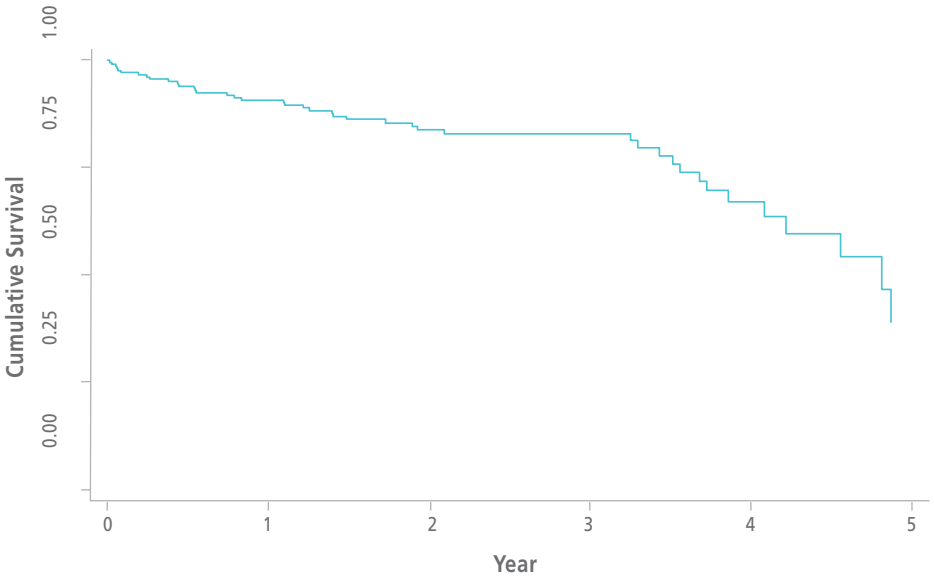
Treatment for Uterine cancer	Percent
Surgery, Chemotherapy & Radiotherapy	43
Surgery & Radiotherapy	21
Other treatment	19
Surgery only	17

Table 2.36

Treatment for Ovarian cancer	Percent
Surgery & Chemotherapy	65
Surgery only	17.5
Palliative treatment/Other	17.5

Survival

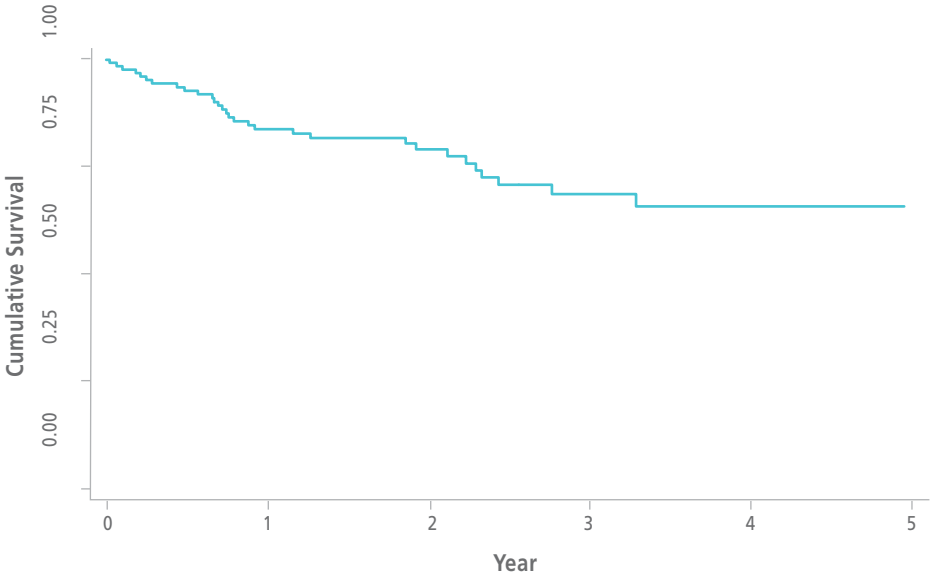
Figure 2.31 Overall survival of Cervical Cancer 2002-2006



Median survival
Cervical Cancer = 59 months

Five year survival
1 year survival = 91%
3 year survival = 83%
5 year survival = 66%

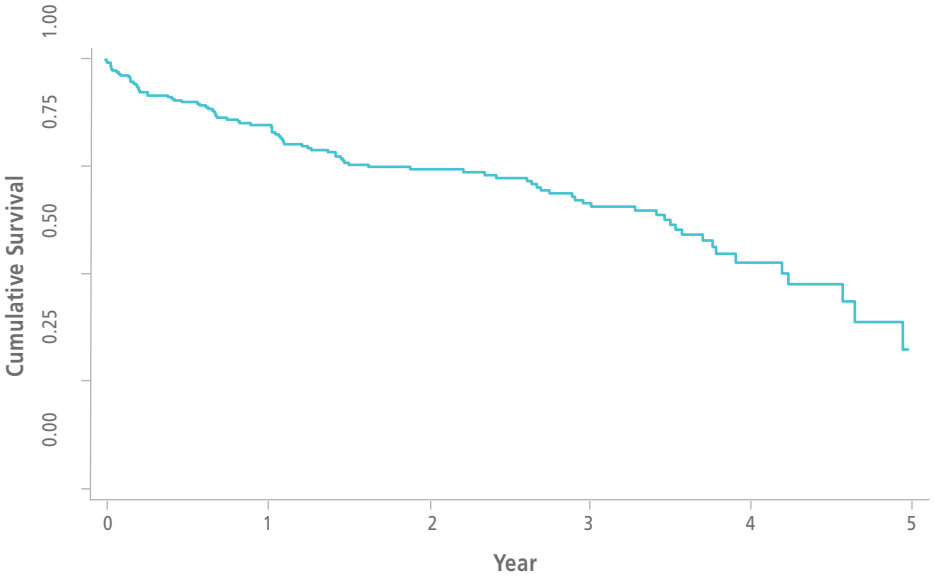
Figure 2.32 Overall survival of Uterine Cancer 2002-20066



Median survival
Uterine Cancer = Not reached

Five year survival
1 year survival = 84%
3 year survival = 69%
5 year survival = Not reached

Figure 2.33 Overall survival of Ovarian Cancer 2002-2006



Median survival
Ovarian Cancer = 50 months

Five year survival
1 year survival = 85%
3 year survival = 66%
5 year survival = 33%

2.7 Urological Cancer

Summary Points

- Integrated Department with AMNCH
- Exponential increase in cancer workload on the SJH site with the appointment of Mr Thomas Lynch who has specialist interest in prostate cancer and minimally invasive cancer surgery.
- Specialist medical oncologist for urological (and gynaecological) cancers (Dr Dearbhaile O'Donnell).
- High volume centre for urological malignancy, with laparoscopic approaches now established within the Unit.
- Academic interface with Professor Mark Lawler and Professor Donal Hollywood at the IMM, and with Professor Bill Watson at the Conway Institute.
- Funding (over 2 million euro) designated for the development of a purpose-build rapid access prostate cancer clinic and development of robotic-assisted prostate surgery.

Structure

A weekly MDT meeting takes place where patients are discussed. In 2006, 71% of all patients were discussed and this increased to 82% in 2007.

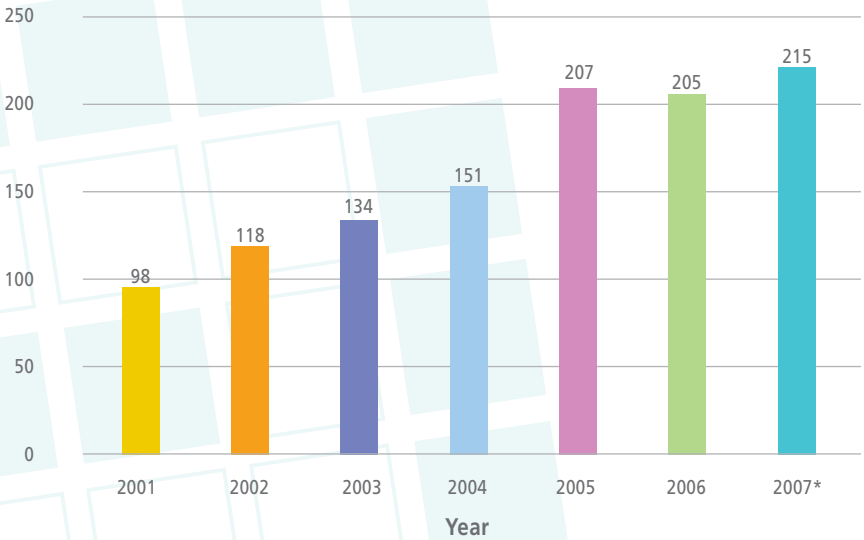
There is currently no dedicated urology cancer data manager in place; therefore urology cancers in SJH are anywhere from 10% to 30% under-estimated.

Urology Cancer Trends

The following reports on 905 patients diagnosed or treated in SJH with urological cancer from 2001 to 2006. Activity for 2007 is included in figure 2.34 but all other analysis included data from 2001-2006 inclusive. The Urology service accounts for 9% of all cancers (exc. NMSC) diagnosed and treated in SJH during 2006. Since 2001, there has been a 109% increase in the numbers of new patients coming through the urology cancer service in SJH to the end of 2006.

Urology Cancer Trends

Figure 2.34 Urology Cancers 2001–2007



* Please note that data for 2007 are estimated based on actual data for the first six months of 2007

Tumour Site & Morphology

Table 2.37

Tumour Site	Occurrences*	Percent
Prostate	415	46
Bladder	208	26
Kidney	184	20
Testis	88	10
Other	23	3

* Please note three patients had more than one primary site

Table 2.38

Tumour Morphology	Occurrences*	Percent
Adenocarcinoma	386	43
Transitional Cell Carcinoma	200	22
Renal Cell Carcinoma	155	17
Not specified/Unable to assess	66	7
Other morphology	41	5
NSGCT	39	4
Seminoma	33	4
Squamous Cell Carcinoma	14	2

* Please note that some tumour sites have more than one histology

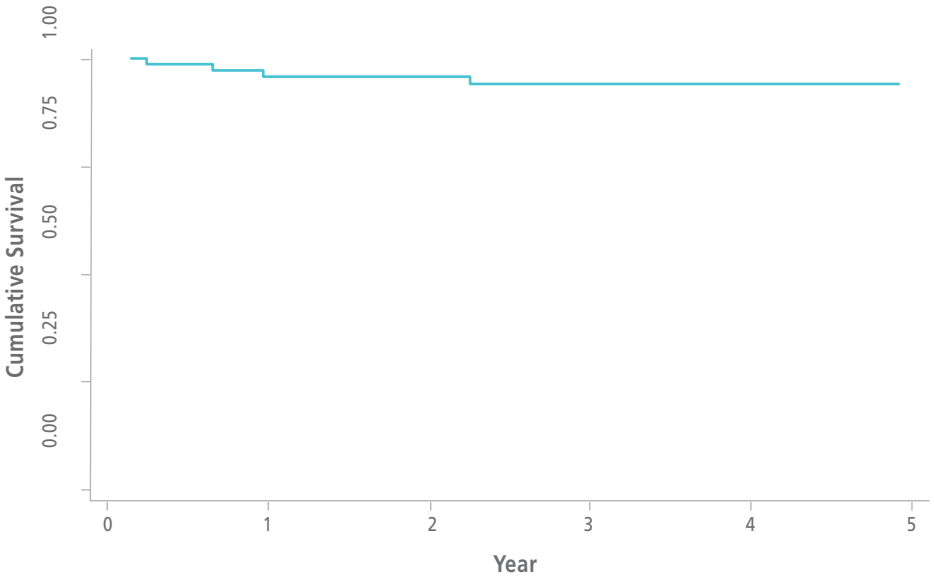
Treatment Intent

Table 2.39

Treatment Intent	Occurrences	Percent
Curative	591	65
Palliative	132	15
No Active Cancer Treatment	25	3
Referred back to referring hospital for treatment	4	0
Not documented/ Unknown	153	17

Survival

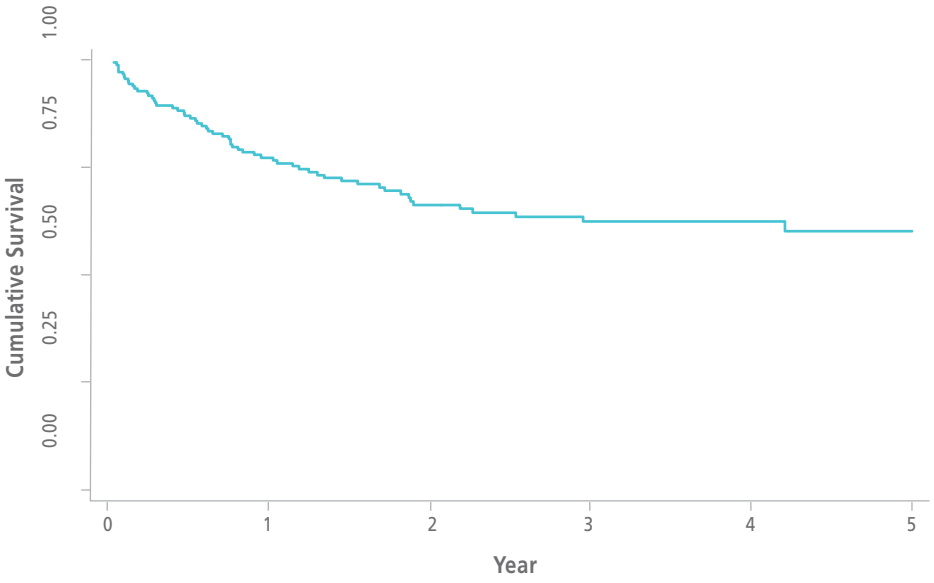
Figure 2.35 Overall survival of Testicular Cancer 2001-2006



Median survival
Testicular Cancer = Not reached

Five year survival
1 year survival = 96%
3 year survival = 94%
5 year survival = 94%

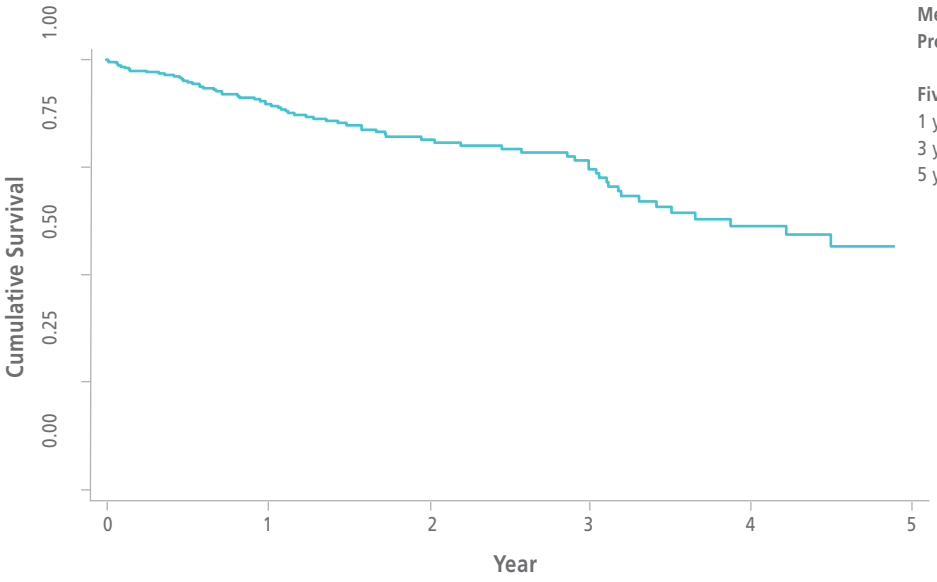
Figure 2.36 Overall survival of Bladder Cancer 2001-2006



Median survival
Bladder Cancer = Not reached

Five year survival
1 year survival = 78%
3 year survival = 64%
5 year survival = 62%

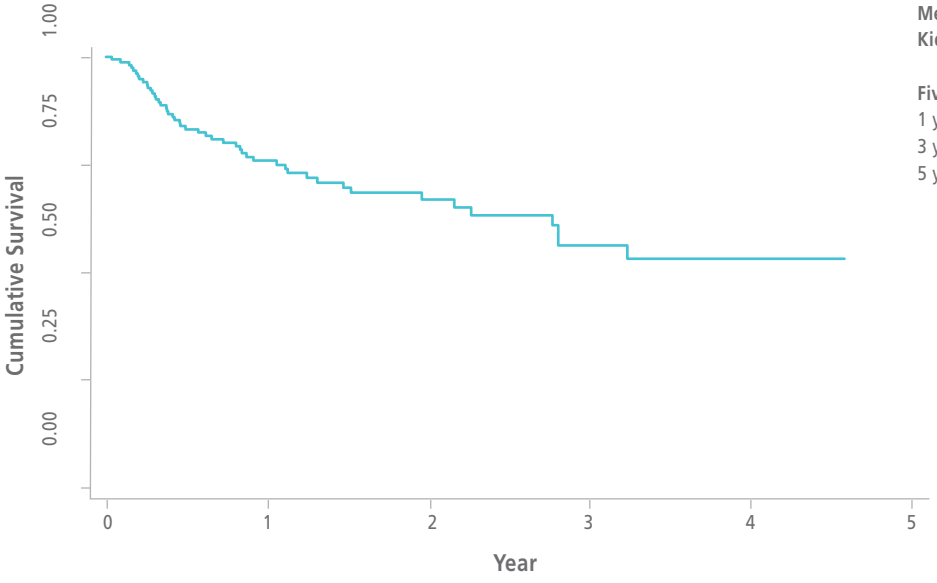
Figure 2.37 Overall survival of Prostate Cancer 2001-2006



Median survival
Prostate Cancer = Not reached

Five year survival
1 year survival = 90%
3 year survival = 75%
5 year survival = 57%

Figure 2.38 Overall survival of Kidney Cancer 2001-2006



Median survival
Kidney Cancer = Not reached

Five year survival
1 year survival = 76%
3 year survival = 56%
5 year survival = Not reached

2.8 Breast Cancer

Summary Points

- Structured programme, with stand-alone breast clinic and well established MDT structure and process
- Dedicated plastic (Mr D O'Donovan) and reconstructive surgery
- Specialist medical oncology (Dr John Kennedy) with up to 50% of patients entered into cancer clinical trials.
- According to HIPE figures, the breast service manages approximately 9% of national workload.
- Well-developed multimodality treatment model for breast cancer.
- All cases discussed and considered for adjuvant or neoadjuvant therapy at weekly MDT conference, and the majority of patients receive multimodality therapy.
- Outcomes benchmarked against international data, with 5-year survival of 87% for node-negative disease, and 66% for node positive disease.

Symptomatic Breast Services

SJH has a long tradition in the provision of care to women with breast complaints. The Rapid Access Triple Assessment Breast Clinic at SJH was established in early 1997. That clinic formalised structures for the provision of services for Symptomatic Breast Disease in the hospital. In that clinic setting, women with worrying breast complaints are seen in timely fashion, suspicious breast findings are investigated immediately with clinical and radiological assessment, and fine needle aspiration cytology where indicated. 78% of breast cancers managed at SJH are diagnosed at the breast clinic.

Breast Clinic Trends

Following implementation of the O'Higgins Report (Development of Services for Symptomatic Breast Disease - 2000/2001), SJH was designated as a specialist breast unit. That report commented, 'SJH has a newly established well-audited breast clinic. Most of the key personnel are available, as are the back-up facilities. Its catchment area and the services it provides to the inner city population justify a breast unit in this hospital.'

As indicated in the O'Higgins report, audit has from the outset been a key component of the service at SJH. With the allocation in 2001 of funding for the development of services for Symptomatic Breast Disease at the hospital, key personnel and structures were put in place to ensure the accurate and comprehensive accrual and management of data. The current practice of 'real-time' data entry and management ensures the immediate provision of details of practice in the unit. Furthermore, prospective audit since 2000 is now generating outcome data on women treated for breast cancer in out unit, which is facilitating benchmarking of our management against international best practice standards.

The past decade has seen a dramatic expansion in the services provided by breast care at SJH. That expansion has applied, not just to the assessment and comprehensive management of women with breast cancer, but also to the assessment,

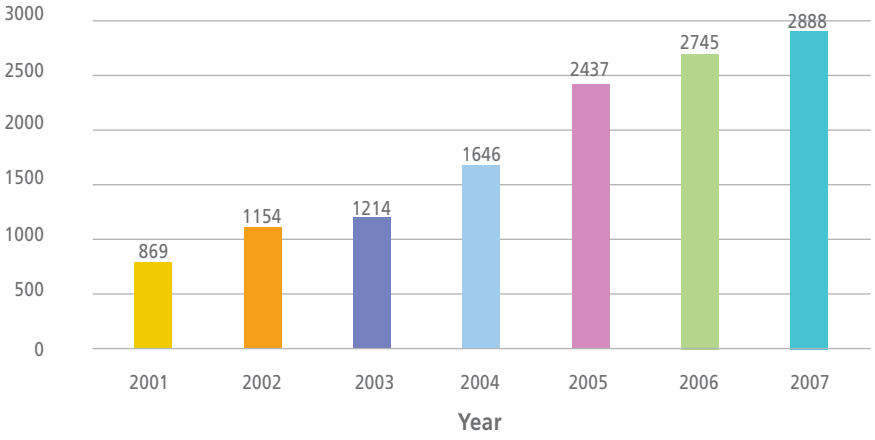
management and reassurance of women with benign breast disease, and to the assessment, surveillance and preventative management of women considered at high risk for the development of breast cancer.

The breast care MDT at SJH comprises of a range of specialists with expertise in Breast Surgery, Radiology, Cytology/Histopathology, Medical and Radiation Oncology, Plastic Surgery, Psychological Medicine, Specialist Breast Care Nursing, Physiotherapy and Genetic Counselling. The team is supported by a dedicated administrative structure, including a full time Breast Services Business Manager, Data Manager and Data Entry Officer. The breast care MDT conference is conducted weekly. All patients with a diagnosis of breast cancer, patients who have had breast interventions or procedures, or those with discordant investigations are discussed in this multidisciplinary setting. 20% of breast care patients are discussed at the conference and 100% of breast cancer patients are discussed at the conference.

Our Mission Statement in breast care at SJH is to ensure that our patients with breast cancer gain access to the best possible treatment available for their disease anywhere in the world, and therefore to offer them the best possible chance of being cured.

Specialist breast clinic activity since 2001 is illustrated in figure 2.40.

Figure 2.40 Breast Clinic Activity 2001–2007

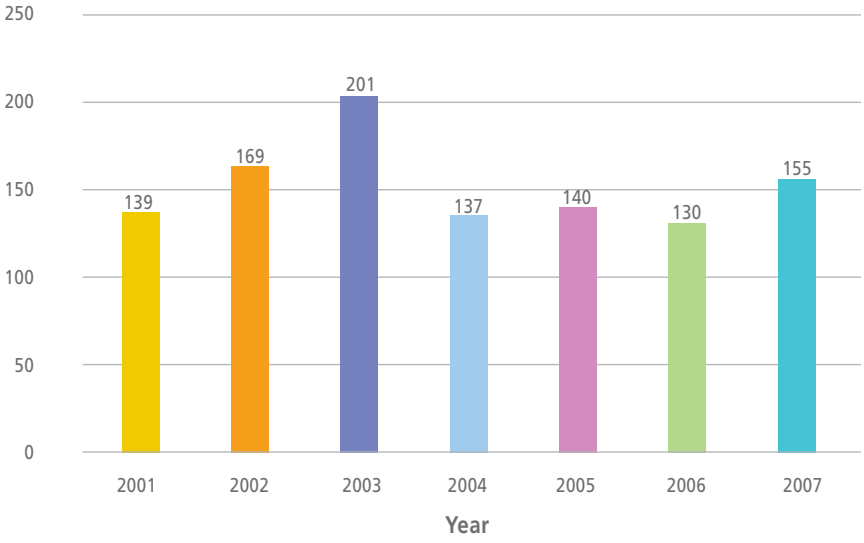


Breast Cancer Trends

This report examines the details of at 916 patients managed at SJH with breast cancer from 2001 to 2006. On average, 2,700 women are diagnosed with breast cancer annually. SJH manages over 5% of the national breast cancer workload.

Figure 2.41 illustrates breast cancer activity by year at SJH over the time period in question. 2007 data is included in the graph for comparative purposes, but those patients do not form part of the audit report. As can be seen from the graph, the number of breast cancers treated in SJH fell in 2004, this is most likely due to an expansion in breast services that occurred in our sister hospital, AMNCH.

Figure 2.41 Breast Cancer 2001–2007



Rapid Triple Assessment Clinic

As can be seen from table 2.40 approximately 90% of all breast cancer patients who were diagnosed through our triple assessment clinic had same day clinical, radiological and pathological assessment. On average 77% of patients had a same day diagnosis of breast cancer (table 2.41).

Table 2.40 Same Day Triple Assessment

Year	Percent
2001	91
2002	91
2003	90
2004	89
2005	91
2006	93

Table 2.41 Same Day Diagnosis

Year	Percent
2001	69.6
2002	75.3
2003	76.8
2004	84.7
2005	73.3
2006	79.8

This high rate of same day diagnosis is made possible by same day access to breast imaging and in particular to same day fine needle aspirate cytology (FNAC). In our service FNAC is performed in the breast clinic by a senior cytopathologist and an immediate result is given. As can be seen from table 2.42 our figures for FNAC are well above the recommendations of the National Health Service (NHS) breast screening programme*, whose guidelines have been adopted by the National Quality Assurance standards for symptomatic breast disease services document from 2007.

**NHS BSP publication no. 50. "Guidelines for non-operative diagnostic procedures and reporting in breast cancer screening."*

Table 2.42 Same Day Diagnosis by Fine Needle Aspirate Cytology (FNAC)

	SJH%	Guideline %*
Absolute Sensitivity	87.2	>70
Complete Sensitivity	97	>90
Specificity	96	>65
PPV C5	99.6	>99
PPV C4	80.5	
PPV C3	77.5	
NPV C2	98.5	

Gender & Age Analysis

Gender analysis of our patients revealed the breast cancer incidence to be 99.3% female (0.7% male). The average patient age at diagnosis was 57.29 years. Age at diagnosis ranged from 22 to 92 years and the median age was 56. Over 60% of patients were aged between 35 and 65 years. A breakdown of breast cancer incidence by age is illustrated in table 2.43.

Table 2.43 Age of Diagnosis

Age range	Occurrences	Percent
21-30	17	1.9
31-40	99	10.8
41-50	238	26
51-60	194	21.2
61-70	175	19.1
71-80	121	13.2
>80	72	7.9

Tumour Site & Morphology

The most common tumour site was the upper outer quadrant of the breast, accounting for 46% of breast cancer sites. Invasive Ductal Carcinoma is the most common morphology, accounting for 76.4% of all breast cancers.

Family History

54% of patients with a breast cancer diagnosis had a family history of cancer. 39% had a family history of breast cancer. Details are provided in table 2.44.

Table 2.44 History of Cancer

	Occurrences	Percent
Family History of Breast Cancer	331	38.9%
Family History of Any Cancer	459	54%
Family History of ovarian, cervical or Uterine Cancer	55	6.5%

Treatment Options

The most common primary treatment option for breast cancer was surgery. Details of primary therapies are shown in figure 2.42.

Annualised operative surgical details are illustrated in table 2.45.

Figure 2.42 Treatment Options

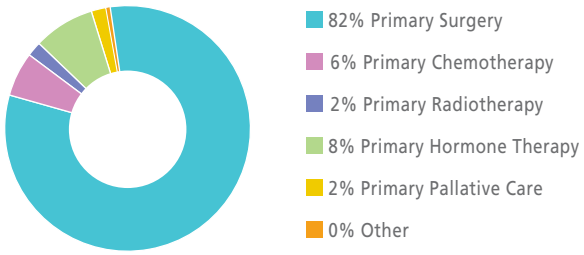


Table 2.45

Breast Cancer Surgery Trends (%)	2001	2002	2003	2004	2005	2006	2007	Total
Breast Conserving Surgery	35	40	38	35	44	49	55	42
Mastectomy	60	59	61	65	56	46	37	55
Both	1		1			5	7	2
Other	4	1	<1				4	1

Reflecting the symptomatic nature of our service, the majority (60%) of our patients cancers were T2 or larger at diagnosis, despite this there is a trend towards breast conserving surgery, and away from mastectomy (table 2.45). Since 2005 we have been increasingly employing sentinel lymph node biopsy to stage the axilla (table 2.46) Overall 52% of patients where lymph node positive.

Table 2.46 Sentinel Lymph Node Biopsy

Year	Percent
2005	7.7
2006	43
2007	60.6

Breast cancer treatment combinations are illustrated in table 2.47. 22% of breast cancer patients were part of a clinical trial.

Pathological Staging

Table 2.48

Breast Cancer Pathological Stage 2001- 2006					
T Stage	Percent	N Stage	Percent	M Stage	Percent
T0	<1				
Tis	5	N0	46	Mx	1
T1	34	N1	36	M0	85
T2	46	N2	10	M1	14
T3	10	N3	8		
T4	4				

Table 2.48 illustrates the breakdown by pathological stage for all breast cancers.

Table 2.47

Treatment Combinations	Occurrences	Percent
Surgery & Radiotherapy & Chemotherapy & Hormone Therapy	309	33.7
Surgery & Radiotherapy & Hormone Therapy	147	16
Surgery & Chemotherapy & Radiotherapy	111	12.1
Surgery & Hormone Therapy	75	8.2
Hormone Therapy	65	7.1
Palliative Care	46	5
Surgery & Chemotherapy & Hormone Therapy	44	4.8
Surgery	44	4.8
Surgery & Radiotherapy	42	4.6
Radiation & Hormone Therapy	21	2.3
Chemotherapy	15	1.6
Surgery & Chemotherapy	14	1.5
Radiotherapy	8	0.9
Chemotherapy & Hormone Therapy	4	0.4
Chemotherapy & Radiotherapy	3	0.3
Chemotherapy & Radiotherapy & Palliative Therapy	2	0.2
Chemotherapy & Radiotherapy & Hormone Therapy	1	0.1
None	2	0.2

Lead Times

Lead times are recorded for use as a clinical indicator of a quality service:

- 93% of patients were seen within 1 month of referral
- 94% of patients were diagnosed within a month of their 1st consultation
- 88% of patients started their treatment within a month of diagnosis

Survival Analysis by Breast Cancer group

Survival analysis is illustrated in figures 2.43, 2.44, 2.45 and table 2.49. The overall median 5-year survival is 74%. This compares well to the Eurocare-4 study where the mean age adjusted relative 5 year survival for all symptomatic and screen detected breast cancers was 78.9%.

Figure 2.43 Overall Breast Cancer Survival

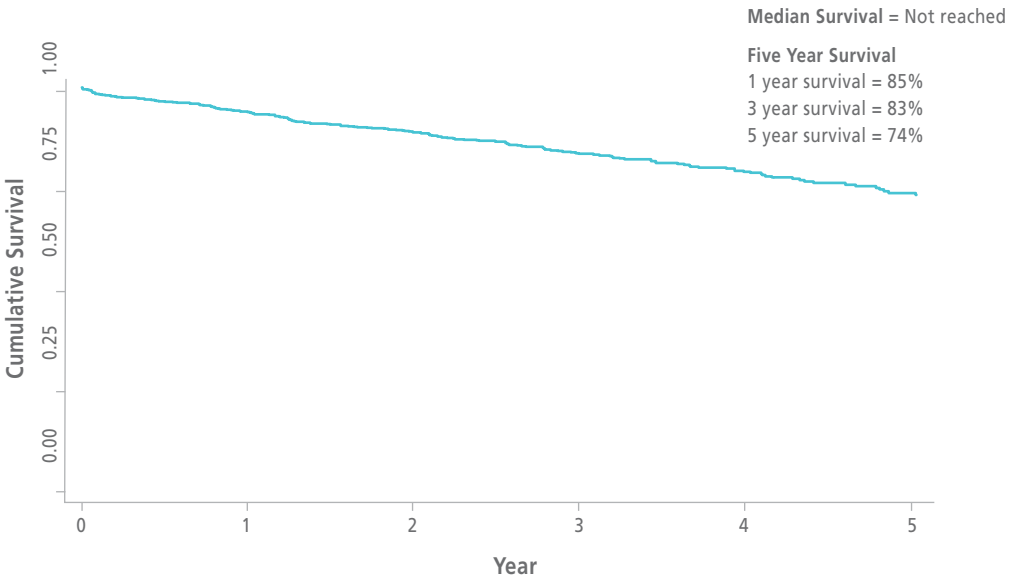


Figure 2.44 Survival of Breast Cancers with Curative Intent

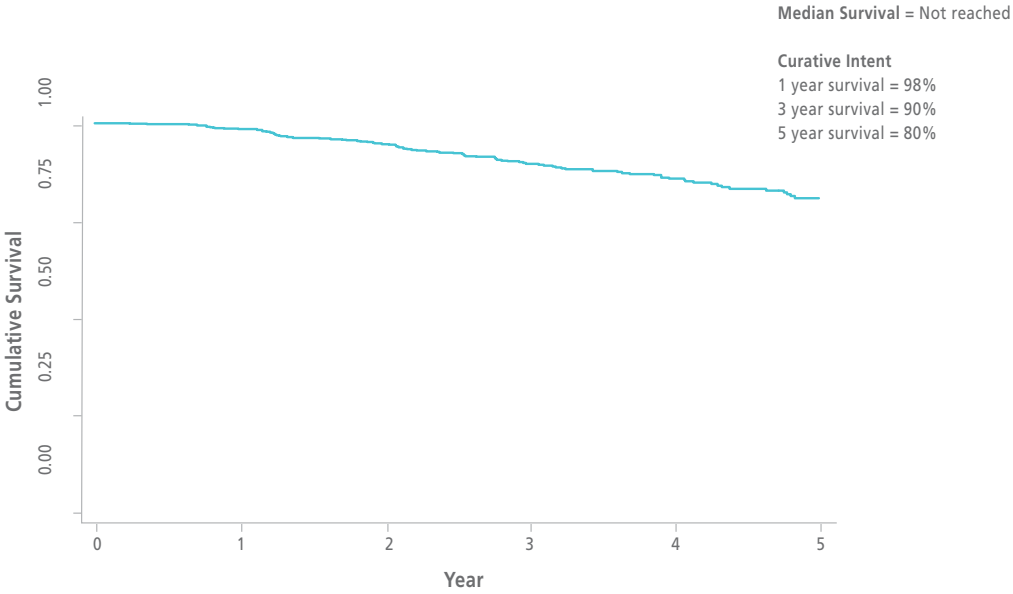


Figure 2.45 Breast Cancer survival by Pathological Stage

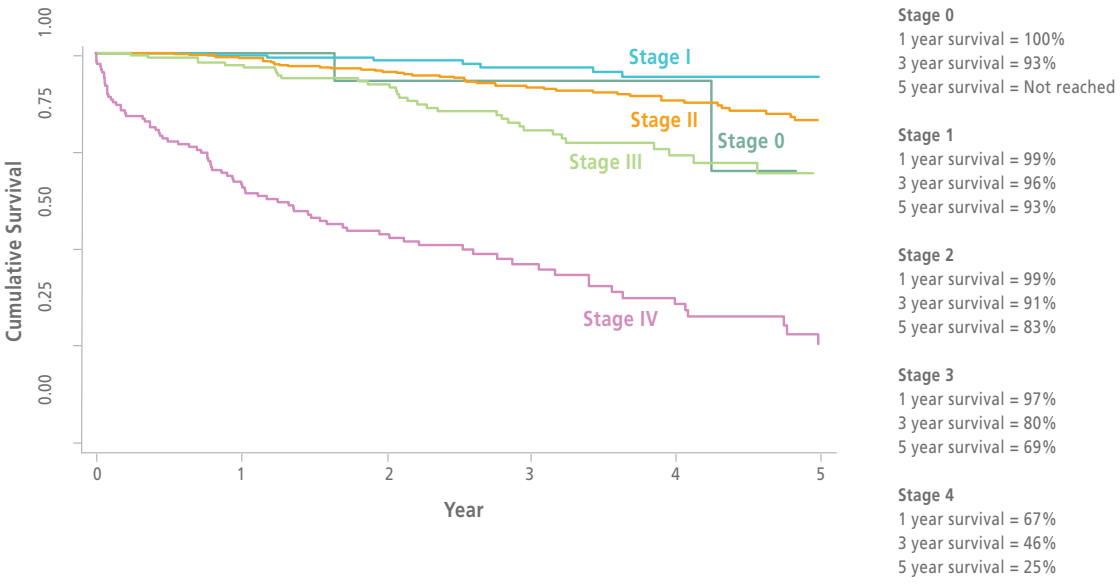


Table 2.49 Survival Analysis by Breast Cancer Group

Group	No of patients	Median Survival	1 year (%)	3 year (%)	5 year (%)
Node negative	392	Not reached	99	93	87
Node positive	435	Not reached	96	84	66
T1 N0	189	Not reached	99	95	89
T2/3 N0	171	Not reached	98	90	86
Any T0 N1 M0	269	Not reached	97	89	71
All N1 patients	273	Not reached	97	87	70
All N2 patients	109	Not reached	96	75	63
All N3 patients	62	49 months	88	74	44
All M1 patients	121	23 months	65	38	13

2.9 Liver, Pancreas and Bile Duct Cancers

Liver, Pancreas and Bile Duct Cancer Trends

This report examines 357 patients diagnosed or treated in SJH with primary liver, biliary or pancreatic cancer from 2001 to 2006. Please note that this only includes patients who had a histological diagnosis established, there are in addition approximately 30 further cases estimated per year who have a stent inserted for advanced pancreatic head tumours with no pathology, or present with inoperable or metastatic cancer of the body or tail of the pancreas.

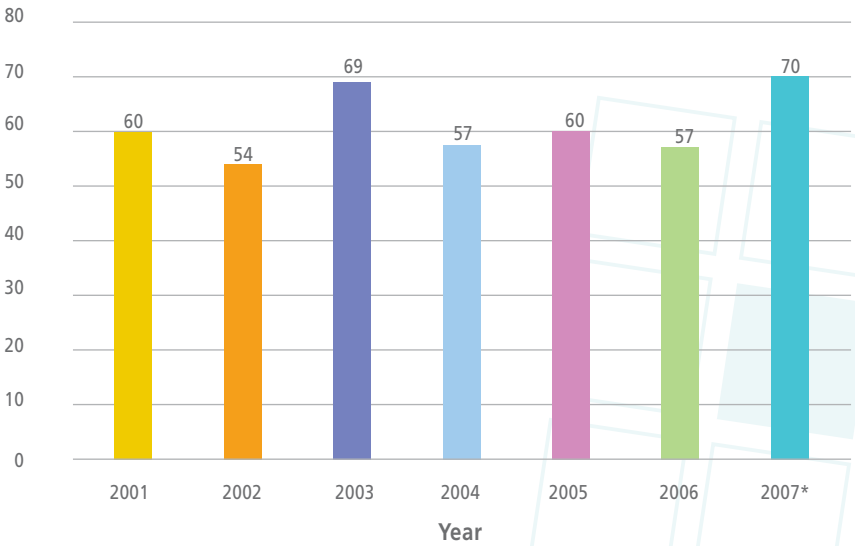
A weekly MDT in GI cancers takes place in SJH and a patient's treatment is discussed by the various disciplines are the MDT meeting.

Tumour Site & Morphology

Table 2.50

Tumour Site	Occurrences	Percent
Head of Pancreas	84	24
Liver & Intrahepatic Bile Ducts	68	19
Common Bile Duct	48	13
Gall Bladder	29	8
Ampulla of Vater	27	8
Extrahepatic bile ducts	26	7
Pancreas, NOS	22	6
Body of Pancreas	19	5
Tail of Pancreas	13	4
Hilar	11	3
Duodenal	8	2
Other	2	1

Figure 2.46 Liver and Pancreas Cancers 2001–2007



* Please note that data for 2007 are estimated based on actual data for the first six months of 2007

Table 2.51

Morphology	Occurrences	Percent
Adenocarcinoma (NOS)	142	40
Undifferentiated carcinoma	50	14
Hepatocellular carcinoma	54	15
Cholangiocarcinoma	34	10
Ductal Adenocarcinoma (infiltrating duct carcinoma)	21	6
Other	19	5
Mucinous adenocarcinoma	17	5
Dysplasia High Grade	4	<1
Papillary adenocarcinoma	4	<1
Dysplasia Low Grade	4	<1
Carcinoid	3	<1
Adenosquamous	2	<1
Unknown	12	3

* Please note some patients may have more than one morphology

Clinical Staging

Table 2.52

Clinical Stage Pancreaticobilary Cancer	Occurrences	Percent
Stage 0	6	2
Stage 1	31	11
Stage 2	52	18
Stage 3	18	6
Stage 4	106	37
Unknown/Unable to assess	76	26
Total	289	

Table 2.53

Clinical Stage Liver Cancer 2001-2006	Occurrences	Percent
Stage 1	2	3
Stage 2	17	25
Stage 3	19	28
Stage 4	17	25
Unknown/Unable to assess	13	19
Total	68	

Treatment Options

Table 2.54

Treatment Options	Occurrences*	Percent
Endoprosthesis – temporary	147	41
Endoprosthesis - metal	53	15
Palliative Care/Best Supportive Care	87	24
Surgery	71	20
Best supportive Care	52	15
Palliative Chemotherapy	46	13
TACE (Trans Arterial Chemo Embolisation)	28	8
Palliative Endoscopic Treatment	23	6
Palliative Radiotherapy	12	3
Adjuvant Chemotherapy	6	2
No Treatment	4	1
Curative Endoscopic Treatment	3	1
Unknown	32	10

* Please note treatments are not mutually exclusive

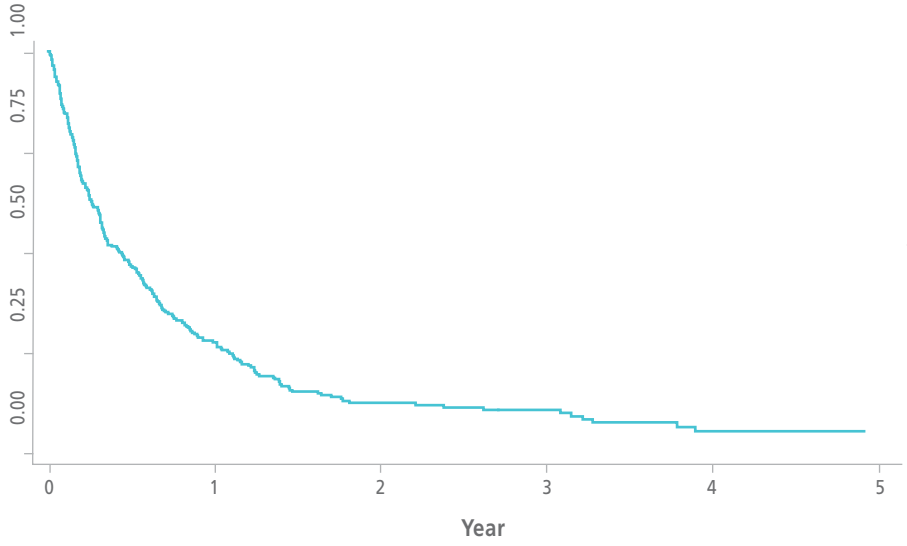
Lead Times [Figures are for 2005 and 2006]

The lead times that were recorded for liver, pancreas and bile duct cancer patients, which are used as clinical indicators of quality of service offered, are:

- 100% of patients were seen within one month of referral (94% within 2 weeks)
- 94% of patients were diagnosed within one month of initial referral (91% within 2 weeks, 6% between 1-3 months)
- 86% of patients started their treatment within one month of diagnosis (72% within 2 weeks, 9% between 1-3 months).

Survival

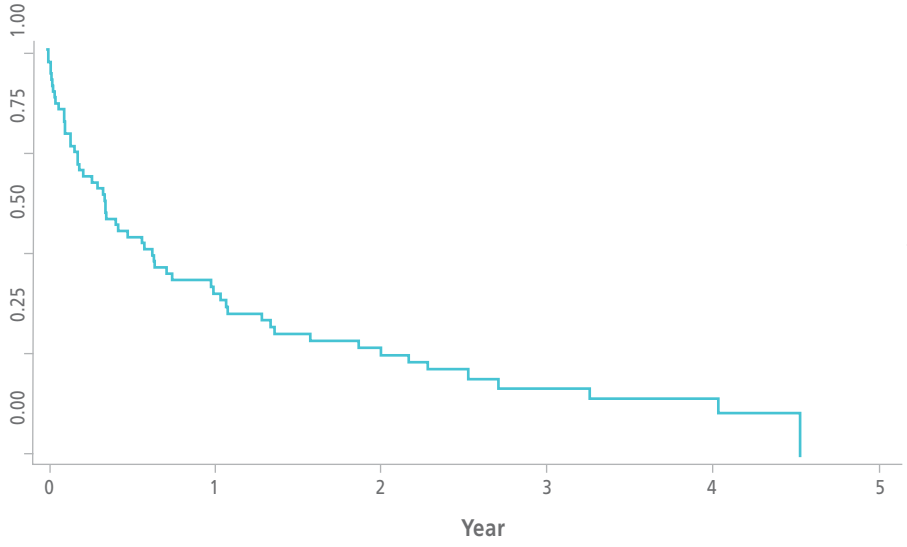
Figure 2.47 Pancreobilary Cancer survival 2001-2006



Median Survival = 5 months

Five Year Survival
1 year survival = 29%
3 year survival = 11%
5 year survival = 6%

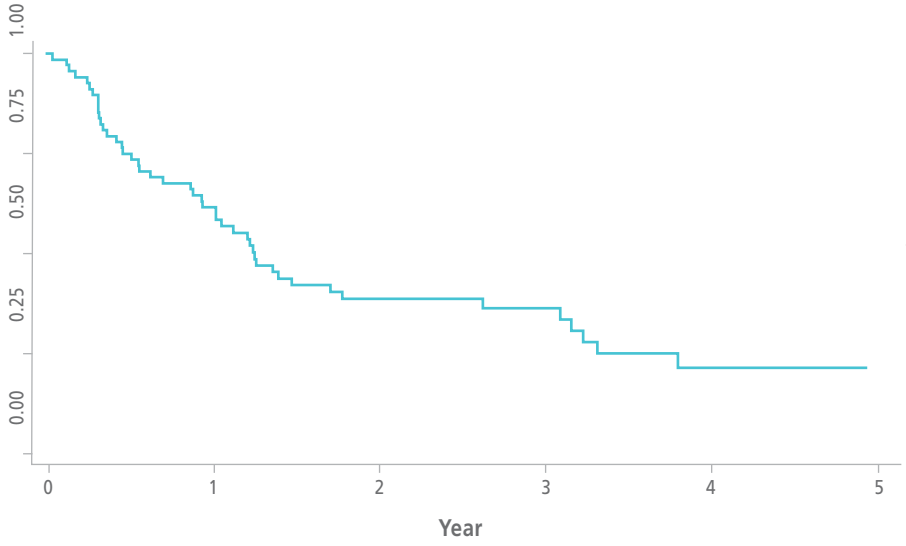
Figure 2.48 Primary Liver Cancer survival 2001-2006



Median Survival = 8 months

Five Year Survival
1 year survival = 42%
3 year survival = 17%
5 year survival = 15%

Figure 2.49 Survival of patients treated by Whipples resection (n=71)



Median Survival = 15 months

Five Year Survival Rates
1 year survival = 62%
3 year survival = 37%
5 year survival = 22%

Audit of In-Hospital Complications following Whipples Resection (n=71)

Table 2.55

Post operative complications for Pancreobilary Cancer surgery	Percent
None	58.2
Pleural Effusion	19.4
Atelactasis	13.4
Other	13.4
Intra-abdominal abscess	10.4
Sepsis	7.5
Respiratory Tract Infection (RTI)	6
MRSA	3
Central line sepsis	3
Bile Leak	3
Organ Failure-Liver	3
Organ Failure-Renal	3
Myocardial Infarction (MI)	3
Pneumonia	3

Post operative complications for Pancreobilary Cancer surgery	Percent
Unknown	1.5
Multi-Organ Failure (MOF)	1.5
Gastric Outlet Obstruction	8.5
Wound Infection	1.5
Pancreatic Fistula	1.5
Wound Abscess	1.5
Depression	1.5
Organ Failure-Respiratory	1.5
Stroke	1.5
Pulmonary Embolism (PE)	1.5
In-hospital mortality post Whipples (n = 71)	**2.9**

2.10 Lymphoma and Haematological malignancies

Structure

The joint Haematology Oncology Lymphoma Service in SJH was first formed in 2002 with the combination of the previously separate haematology and oncology lymphoma services. Patients are referred to the service from within the hospital by surgical or medical colleagues, local GPs and from other hospitals throughout Ireland for diagnostic / management advice and salvage therapy including both autologous and allogeneic transplantation or radio-immunotherapy treatment. Two hospital based referral services that have been particularly active and provide a nationally unique service include the cutaneous lymphoma service providing joint treatment with the dermatologists and the HIV service providing joint care for this patient group who are at increased risk of lymphomas.

Since 2003 patients referred to the Lymphoma Service have been discussed at a weekly MDT meeting, with histopathology, cytology, radiology, haematology, oncology and radiotherapy specialists reviewing each patient case and making a joint management plan. A Telesynergy conference occurs regularly with colleagues from Letterkenny Regional Hospital and Tullamore General Hospital. In 2007 a data manager was appointed to monitor and record patient numbers and treatment activity of the Lymphoma Service, so that complete patient numbers will be accurate from July 2007 onwards, allowing for planned service development.

Late Effects Clinic

The late effects clinic has been in operation in SJH for the past 15 years. It follows up the long term care and screening for life, of patients who have undergone bone marrow/stem cell allogeneic transplant for the haematologic conditions; leukaemia, lymphoma and aplastic anaemia. The patients are transferred to the late effects clinic when they are approximately one-year post transplantation.

The majority of our patients who attend the clinic were transplanted in SJH, but we also follow up patients resident in Ireland who were transplanted in the UK and also young adults who were transplanted in Our Lady's Hospital for sick children in Crumlin (OLHSC). Currently there are approximately 350 patients registered to the clinic.

The goal of the late effects clinic is to provide a comprehensive care package for our patients and consequently to improve their quality of life. This is achieved through prevention, early detection, intervention and treatment of late effects post bone marrow/stem cell transplantation. The late effects issues/problems that our patients encounter throughout their lives can be divided into three categories; physical, psychological and psychosocial. Physical after effects of bone marrow/stem cell transplantation arise from the toxicities associated with the chemotherapy and/ or radiation treatment that the patients received prior to transplantation.

Because of the multi-factorial problems facing patients at the late effects clinic a multi disciplinary approach to their care is needed. Currently there are two consultant haematologists running the clinic and a late effects co-ordinator. When a patient attends the clinic an assessment of risk factors based on pre existing disease, original diagnosis, past treatments and acute effects is made. A careful history is taken including psychological issues and full physical examination is undertaken. A specific plan is developed by the consultant haematologist and at this stage any referrals needed to other medical or psychological services are made. The late effects co-ordinator is then responsible for the co-ordination of the follow up care required for the individual patient as outlined in the plan by the haematologist.

The guidelines as to how to follow up on late effects patients are derived from a number of sources including; the working party on late effects for the European group for blood and marrow transplantation, the Centre for International blood and marrow transplant research and the long standing experience of the consultant haematologists running the clinic.

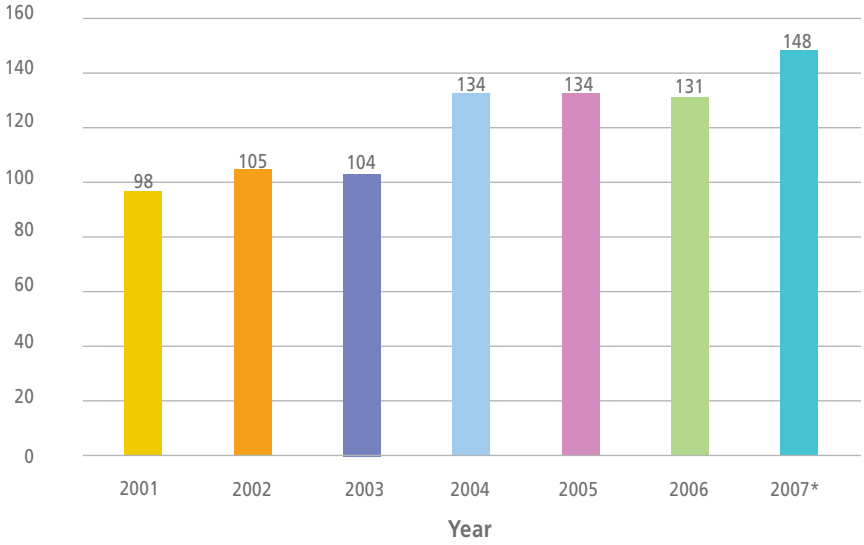
The overall survival after five years for patients who undergo an allogenic bone marrow/stem cell transplant is about 60% and therefore having a specialised clinic for these patients to attend, where their care will be individualised to their needs for life is an essential service.

Lymphoma & Chronic Lymphocytic Leukaemia (CLL) Cancer Trends

This report looks at 706 patients diagnosed or treated in SJH with lymphoma from 2001 to 2006. 2007 patients are only included in activity analysis (figure 2.50). Lymphatic cancer includes malignant tumours of the lymph nodes, bone marrow and extra-nodal sites. We acknowledge the lack of complete case ascertainment before July 2007

Since 2001, there has been approximately a 30% increase in the numbers of new patients coming through the lymphoma cancer service in SJH. 80% of patients were discussed at MDT in 2006.

Figure 2.50 Lymphomas 2001–2007



* Please note that data for 2007 are estimated based on actual data for the first six months of 2007

Gender & Age Analysis

Gender analysis revealed lymphoma incidence of 44% female and 56% male. Age prevalence favours the over 50's with 61% of patients presenting at age 50 or over. The mean average age of patients at time of diagnosis is 54.3 years. Age ranges from 14 to 93 years and the median age is 56.

Cancer History (2005-2006 only)

Table 2.56

History of Cancer (n=266)	Occurrences	Percent
History of Previous Malignancy	32	12
Concomitant & Subsequent Malignancy	31	12
Family History of Cancer	46	17
Family History of Lymphoma	10	4
History of HIV	16	3

Tumour Site & Morphology

Table 2.57

Tumour Site	Number Patients	Overall %
Lymph Nodes	335	40
Bone Marrow	139	17
Mediastinum	35	4
Gastric	28	3
Skin	26	3
Lungs	25	3
Peripheral Blood	25	3
Neck	24	3
Abdomen	24	3
Oral Cavity	17	2
Colorectal	15	2
Liver	14	2
Spleen	14	2
Head	11	1
Bone	10	1
Naso-pharyngeal	8	1
CNS	7	1
Thorax	7	1
Genitourinary	7	1
Pelvis	4	1
Orbital Area	4	1
Breast	4	1
Kidney	2	0
Thyroid	2	0
Other	25	3
Unknown	33	4

Breakdown of Lymphoma by Subtype

Table 2.58

Non Hodgkin's Lymphoma (n=582)	Occurrences	Percent
B cell lymphoma	506	87
T cell lymphoma	63	11
Lymphoma not otherwise specified	13	2

Table 2.59

Hodgkin's Lymphoma (n=124)	Occurrences	Percent
Classical Hodgkin's lymphomas	116	94
Nodular Lymphocyte Predominant Hodgkin's Lymphoma	8	6

Diffuse Large B Cell Lymphoma was the most common subtype of lymphoma with 135 patients diagnosed between 2001 and 2006. Grouped together are all the follicular lymphomas graded between 1-3 (Table 2.60).

HIV positive lymphomas

In the period 2005 – 2006, 16 patients presented with HIV positive lymphomas and 14 of these were treated for their lymphoma with observation for the 2 remaining patients.

Referral Details

From 2001 – 2006 referrals from other hospitals made up 40% of new patients in the SJH Lymphoma service

Table 2.60

Subtype of Disease	Occurrences	Percent
Diffuse large B cell lymphoma	135	19
Follicular lymphoma (Grade 1-3)	113	16
Chronic lymphocytic leukaemia/Small lymphocytic lymphoma	113	16
Hodgkin's Disease nodular sclerosis	72	10
T-cell lymphomas	63	9
Hodgkin's disease all other subtypes	52	7
Mantle cell lymphoma	22	3
Large cell lymphoma n.o.s.	22	3
Burkitt's lymphoma / leukaemia	21	3
Lymphoplasmacytic lymphoma/Waldenstrom's	21	3
MALT lymphoma (extranodal marginal zone lymphoma)	17	2
Other subtypes	55	8

Treatment Options

The MDT conference aims to discuss all lymphoma patients in the presence of the members of the MDT, the purpose of this is to co-ordinate the sequence of treatment modalities. 90% of patients were discussed at the conference in 2005.

Table 2.61

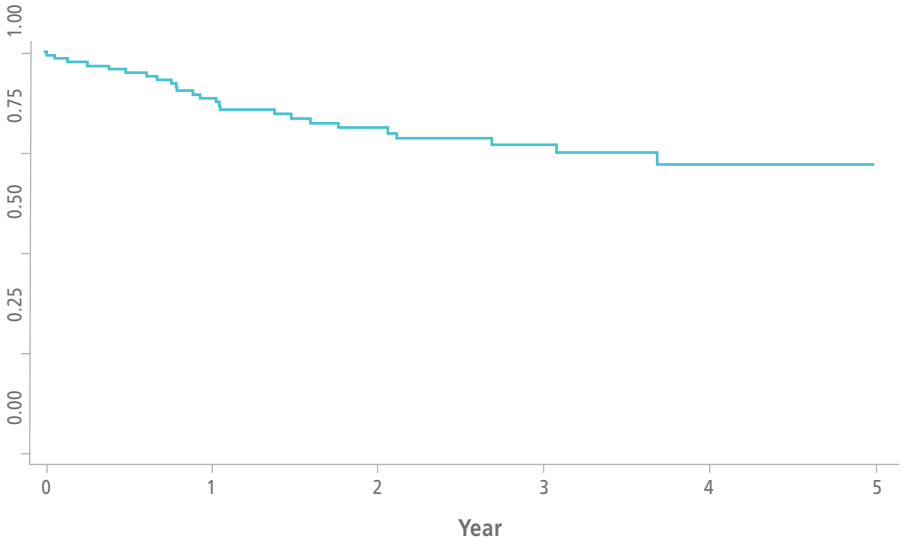
Referral Hospital (n=307)	Occurrences	Percent
Waterford Regional Hospital	32	10
Limerick Regional Hospital	31	10
Tullamore General Hospital	28	9
Beaumont Hospital, Dublin	25	8
AMNCH	25	8
Mater Misericordiae, Dublin	20	7
Galway Regional Hospital	18	6
Letterkenny General Hospital	17	6
Royal Victoria Eye & Ear Hospital, Dublin	11	4
Cork Regional Hospital	10	3
Others	90	29

Table 2.62

Lymphoma Treatment Combinations (n=266) 2005 - 2006 only	Occurrences	Percent
Rituximab & Chemotherapy	91	34
Chemotherapy alone	58	22
Bone Marrow Transplant/ Stem Cell Transplant	42	16
Treatment given at another hospital	21	8
Chemotherapy & Radiotherapy	11	4
Ibritumomab tiuxetan Radioimmunotherapy	9	3
Radiotherapy alone	8	3
Rituximab alone	6	2
Chemotherapy & Surgery	1	1
Unknown	19	7

Survival Analysis

Figure 2.51 Diffuse Large B-Cell Lymphoma (DLBCL) survival 2001-2006 patients



Median Survival = Not reached

Five Year Survival
1 year survival = 96%
3 year survival = 86%
5 year survival = 81%

Table 2.57 DLBCL Survival Rates

	SJH	NCRI
1 year	96%	64.7%
3 year	86%	53.6%
5 year	81%	49.9%

DLBCL survival rates compare favourably with national outcome, which may be a reflection on the site specialised MDT model for diagnosis and treatment used in the lymphoma practise at SJH. The early improved survival may reflects the practise of prompt initiation of treatment after a rapid diagnostic work up and treatment in specialised units. The longer term improved outcome may reflect the practice of risk stratification.

Table 2.58 Follicular Lymphoma (grades 1-3) Survival Rates

	SJH	NCRI
1 year	98%	92.6%
3 year	88%	82.5%
5 year	83%	76.9%

FL survival rates compare favourably with national outcome, which may be a reflection on the site specialised MDT model used in the lymphoma practise at SJH. It may also be due to the early introduction of immunotherapy (with anti CD20 antibody) containing chemotherapy and maintenance to the lymphoma practise.

Figure 2.52 Follicular Lymphoma survival 2001–2006 patients

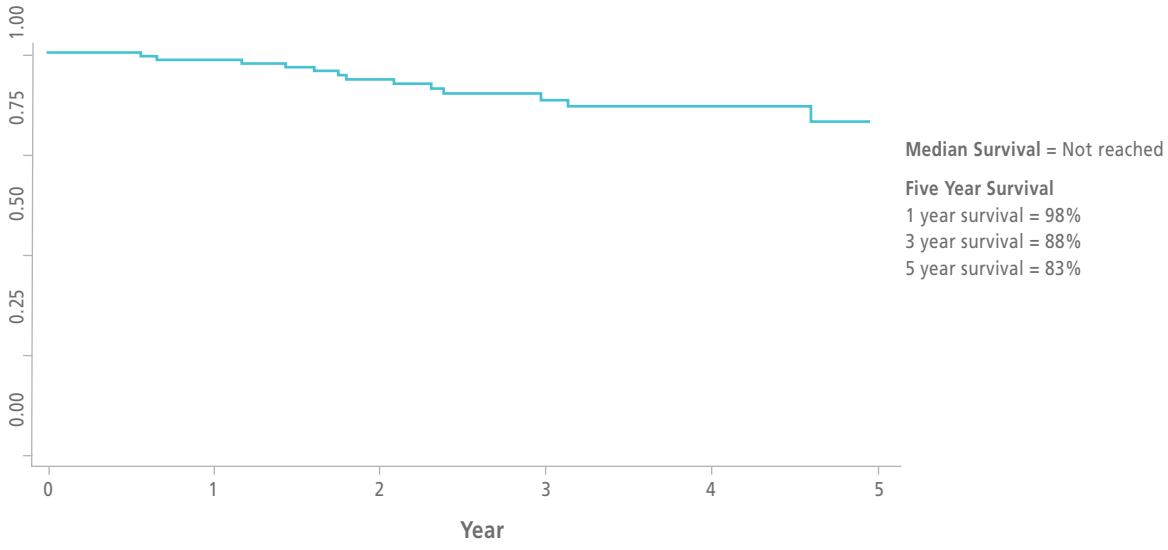
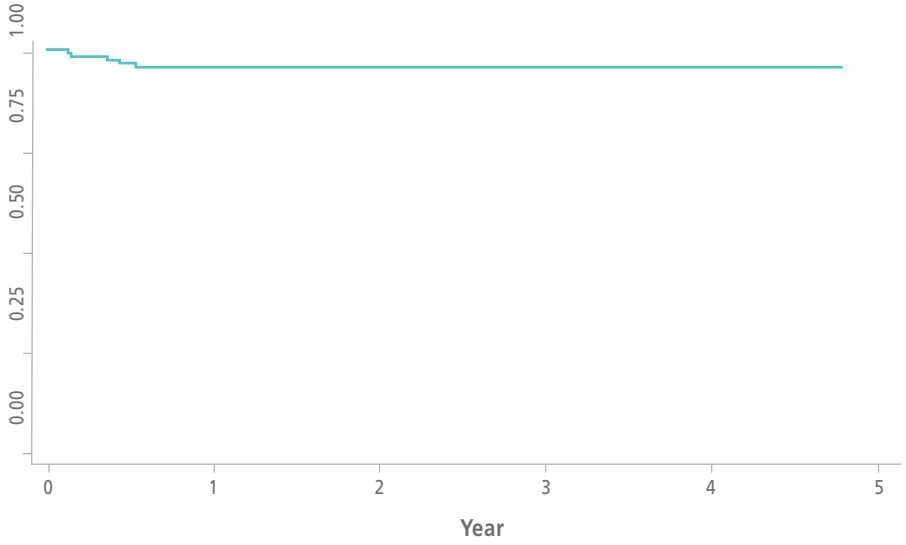


Figure 2.53 Hodgkin's Lymphoma (HL) survival 2001–2006 patients



Leukaemia

SJH has housed the National Adult Bone Marrow Transplant Programme (NABMTP) since 1984. It has been the policy of the BMT programme since its inception that all results of stem cell transplantation are reported to the European Bone Marrow Transplant Group (EBMT) and the International Bone Marrow Transplant Registry (IBMTR) in Milwaukee, USA. This provides continuous benchmarking of unit results against international norms. The IBMTR also carry out site visits, with verification of source clinical data.

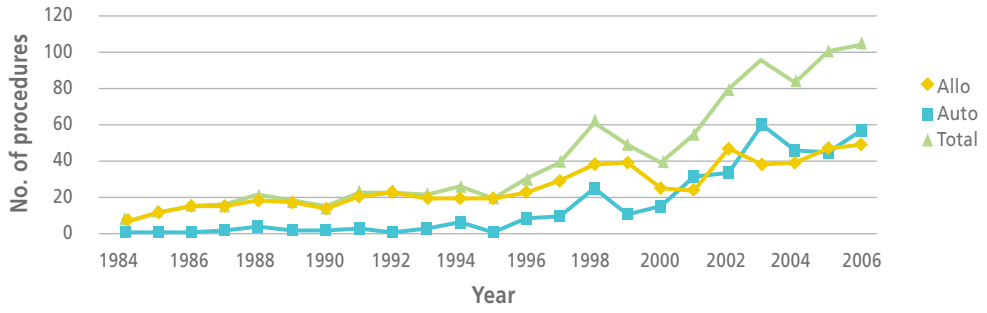
As an approach to treat malignant and non-malignant disorders, Haematopoietic Stem Cell Transplantation (HSCT), has been around for more than 50 years. There are approximately 110 newly diagnosed patients treated in SJH each year and this accounts for approximately 30% of the national leukaemia workload (NCRI).

Activity

Figure 2.54 outlines the activity in HSCT (both allogeneic and autologous) since 1984.

The accompanying externally peer reviewed data (see figures 2.55 and 2.56) confirm the excellent clinical results of transplantation in SJH.

Figure 2.54 Haematopoietic Stem Cell Transplantation (HSCT) 1984–2006



Survival

Figure 2.55 Survival analysis for Acute Myeloid Leukaemia (AML) following allogeneic stem cell transplant

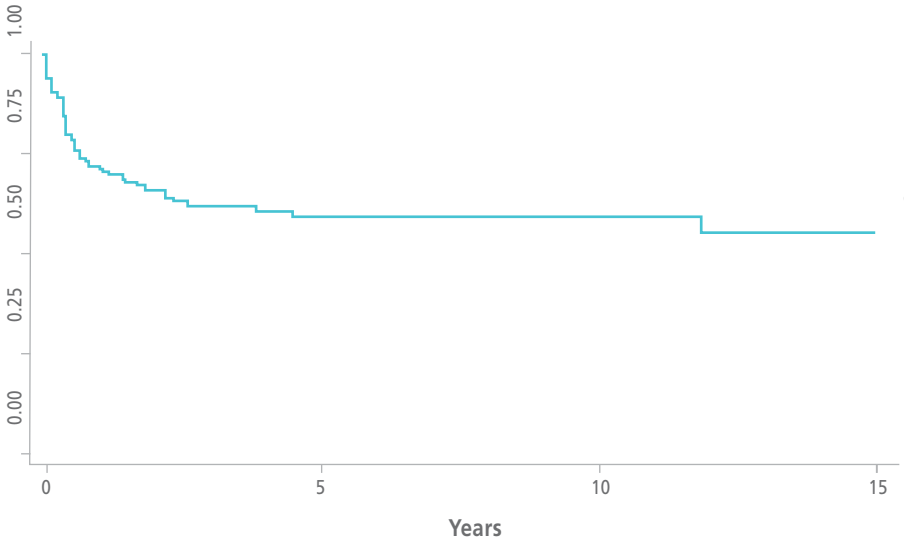
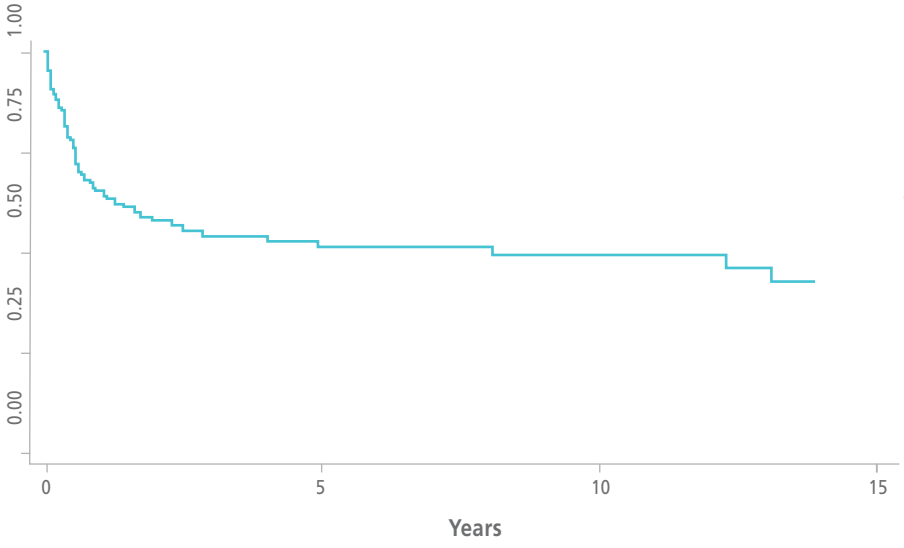


Figure 2.56 Kaplan-Meier survival curve for Acute Lymphoblastic Leukaemia (ALL) following allogeneic stem cell transplant



2.11 Sarcoma

Sarcoma Cancer Trends

This report describes 161* patients diagnosed or treated in SJH with sarcomas (malignant tumours of connective tissues) from 2001 to 2006. Based on the latest available data (2005) from the NCRI, SJH accounts for 17% of the national workload of sarcomas. Sarcomas are rare, amounting to less than 1% of malignant tumours but can be life threatening and pose significant diagnostic and therapeutic challenges because of their diversity and many subtypes, often with unique clinical, pathological, prognostic and therapeutic features.

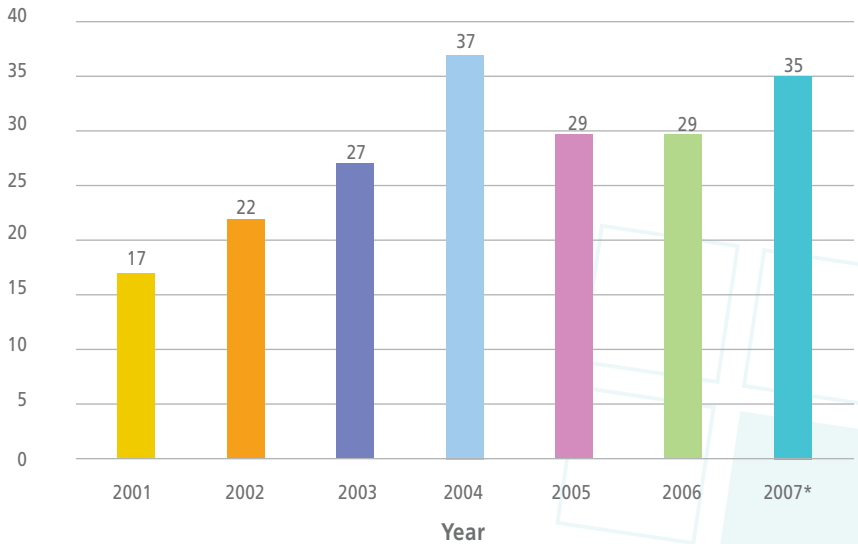
Since 2001, there has been a 71% increase in the numbers of new patients diagnosed and treated in SJH.

(*Please note that mesotheliomas are included in both the lung cancer and sarcoma sections for analysis. However in the overall cancer figures for SJH, mesotheliomas are only included in the lung cancer data. This is due primarily to the fact that all mesotheliomas are discussed at the lung cancer MDT.)

Gender & Age Analysis

Gender analysis revealed the incidence of sarcoma was 40% female and 60% male. The average age of patients at time of diagnosis was 57 years. Ages ranged from 15 to 89 years and the median age was 61.

Figure 2.57 Sarcomas 2001–2007



* Please note that data for 2007 are estimated based on actual data for the first six months of 2007

Tumour Site & Morphology

Table 2.63

Tumour Site	Occurrences	Percent
Pleura	59	36
Soft Tissue	40	25
Abdomen	26	16
Pelvis	13	8
Other	11	7
Extremities	6	4
Skin	4	2
Lymph Node	2	1
Unknown Primary	1	<1

* Please note some patients may have more than one tumour site

Table 2.64

Tumour Morphology	Occurrences	Percent
Mesothelioma	59	36
Gastrointestinal Stromal Tumours (GIST)	25	15
Sarcoma NOS	16	10
Kaposi sarcoma	13	8
Other	10	6
Leiomyosarcoma	8	5
Liposarcoma	7	4
Rhabdomyosarcoma	6	4
Fibroblastic Sarcoma	6	4
Myxofibrosarcoma	5	3
Synovial Sarcoma	4	3
Dermatofibrosarcoma	3	2

Treatment Options

Sarcoma management involves multiple teams, including oncologists, surgeons, plastic surgeons, radiologists and histopathologists with expertise in sarcoma pathology. Although there is no specific Sarcoma MDT meeting, the cases are generally discussed at MDT conferences according to anatomic location of the sarcoma e.g. lung or head and neck cancer MDT meetings.

61% of patients underwent surgery for removal of tumour. 39% of patients had chemotherapy either as a single or combined treatment modality and 23% underwent radiotherapy. 58% of patients underwent treatment with curative intent.

A national registry for GIST (Gastrointestinal Stromal Tumours) was established in 2004 and is based at SJH. This registry was formed at the recommendation of the National GIST Advisory Board, which comprised clinicians and associates from the departments of surgery, oncology, pathology and clinical research of 4 major teaching hospitals around the country. GISTs are a relatively recently defined group of tumours that involve the gastrointestinal tract that can show clinical response to a molecularly targeted therapy imatinib mesylate.

The aims of the national registry for GIST in Ireland are to promote awareness and knowledge about this tumour cohort and potentially to gather epidemiological and clinical data for research purposes and to monitor patient outcomes. Ethical approval for data capture has been gained from the majority of hospitals across the country.

Appendix 1 Methods

Sources of Data

All information is 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 was provided by both staff from the national HIPE office, Dublin and the HIPE coding department in SJH. Patient with ICD 9 codes between 140 and 239.9 were included until December 2005. From January 2006, ICD 10 codes between C00- D48 replaced ICD9 codes.
- MDT meetings.
- REACH services for death registration information. www.reachservices.ie.
- GP
- NCRI

Recording of Data

The cancer audit programme has been in place in SJH for over 10 years. Since 2001, an electronic cancer information system has replaced a paper system. The information system (PATS – software by Dendrite Clinical Systems) is divided into 16 cancer registries that are managed and audited by a data manager.

Each registry 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.

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.

Data Analysis

All basic calculations have been completed by PATS, i.e. tabulation of the data. All survival curves were generated by a statistical software package, Stata, (version 9.1). Survival analysis was generated using the Kaplein Meier method and a log-rank test was used to compare different groups. Also a chi-square analysis test was used to investigate the comparisons between many of the demographical factors in section 1.

Data Quality

The Cancer Audit Programme at SJH underscores the pre-eminence given to continuous quality improvement in cancer service through audit of process and outcome, and benchmarking of performance against international standards.

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

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 to compare our data with national and international comparisons.

Appendix 2 Cancer Audit Programme Team

1	Professor John Reynolds	Project Director	reynoldspa@stjames.ie
2	Ms. Suzanne Rowley	Cancer Audit Manager	srowley@stjames.ie
3	Ms. Charlotte Stuart	Colorectal Cancer Data Manager	cstuart@stjames.ie
4	Vacant	Upper GI and Hepatobilary Cancer Data Manager	
5	Ms. Lorraine Quinn	Breast Care Data Manager	lquinn@stjames.ie
6	Ms. Mary Devlin	Lung Cancer Data Manager	mdevlin@stjames.ie
7	Ms Andrea Duignan	Gynaecology Cancer Data Manager Head & Neck Cancer Data Manager	aduignan@stjames.ie
8	Mr. Nick Chadwick	Lymphoma Data Manager	nchadwick@stjames.ie
9	Ms. Cynthia Mannion	Endocrine & Diabetes Cancer Data Manager	cmannion@stjames.ie
10	Ms. Jane Joyce	Sarcoma Data Manager	jjoyce@stjames.ie
11	Ms. Avril Nolan	Breast Care Data Entry Clerk	anolan@stjames.ie

Left to right. Lorraine Quinn, Cynthia Mannion, Andrea Duignan, Suzanne Rowley, Prof. John Reynolds, Charlotte Stuart, Jane Joyce, Mary Devlin, Nick Chadwick.

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Appendix 5 Abbreviations

ACB	Aseptic Compounding Unit
ACPGBI	Association of Coloproctology of Great Britain & Ireland
APER	Abdominoperineal Excision Resection
ALL	Acute Lymphocytic Leukemia
AML	Acute Myelogenous Leukemia
ANMCH	Adelaide & Meath Hospital, Incorporating the National Children's Hospital (Tallaght)
AUCMO	Academic Unit of Clinical & Molecular Oncology
BCC	Basal Cell Carcinoma
BCH	Belfast City Hospital
BMT	Bone Barrow Transplant
BTOG	British Thoracic Oncology Group
CACT	Centre for Advances in Clinical Therapeutics
CCTO	Cancer Clinical Trials Office
CGMP	Current Good Manufacturing Practice
CIRG	Cancer International Research Group
CLD	Centre for Learning & Development
CLL	Chronic Lymphocytic Leukaemia
CNM	Clinical Nurse Manager
CNS	Clinical Nurse Specialist
CT	Computed Topography
CWH	Coombe Women's Hospital
DCU	Dublin City University
DDH	Dublin Dental Hospital
DLBCL	Diffuse Large B-Cell Lymphoma
DMMC	Dublin Molecular Medicine Centre
EBMT	European Bone Marrow Transplant
EBUS	Endo Bronchial Ultrasound
ECOG	Eastern Cooperative Oncology Group
EMBRACE	Epidemiology Study of Familial Breast Cancer
EORTC	European Organisation for Research & Treatment of Cancer
EPR	Electronic Patient Record

ERHA	Eastern Region Health Authority
ESTRO	European Society for Therapeutic Radiology and Oncology
EU	European Union
FNAC	Fine Needle Aspirate Cytology
GCP	Good Clinical Practice
GEMS Directorate	GI Medicine & Surgery, General Medicine including Hepatology & Urology
GIST	Gastrointestinal Stromal Tumours
GP	General Practitioner
GRU	Genome Resource Unit
HCSF	High Content Screening Facility
HDU	High Dependency Unit
HIPE	Hospital Inpatient Enquiry
HIQA	Health Information and Quality Authority
HL	Hodgkin's Lymphoma
HNPCC	Hereditary Non Polyposis Colorectal Cancer
HODC	Haematology Oncology Day Care
HOPE Directorate	Haematology Oncology, Medical & Radiation Oncology & Palliative Care
HRB	Health Research Board
HSCT	Haematopoietic Stem Cell Transplantation
HSE	Health Service Executive
IBMTR	International Bone Marrow Transplant Registry
IBTS	Irish Blood Transfusion Service
ICD	International Classification of Disease
ICORG	Irish Clinical Oncology Research Group
ICS	Irish Cancer Society
IMM	Institute of Molecular Medicine
IMT	Inspiratory Muscle Training
ICU	Intensive Care Unit
MDT	Multidisciplinary Team
MHB	Midlands Health Board
MMS	Moh's Microsurgical Unit

MRI	Magnetic Resonance Imaging
MWHB	Mid Western Health Board
NABMTP	National Adult Bone Marrow Transplant Programme
NBMTU	National Cancer Bone Marrow Transplant Unit
NCC	National cancer Control Programme
NCMG	National Centre for Medical Genetics
NCI	National Cancer Institute, Washington
NCRI	National Cancer Registry of Ireland
NEHB	North Eastern Health Board
NHS	National Health Service
NICE	National Institute for Health & Clinical Excellence
NMSC	Non Melanoma Skin Cancer
NSAPB	National Surgery Adjuvant Breast & Bowel Group
OLH	Our Lady's Hospice
OLHSC	Our Lady's Hospital for Sick Children
OP	Occupational Therapy
OPD	Out Patient Department
PATS	Patient Analysis & Tracking System
PAS	Patient Administration System
PCRC	Prostate Cancer Research Consortium
PET	Positron Emission Tomography
QAQT	Quality Assurance Quality Control
QC	Quality Control
QUB	Queens University Belfast
RCOG	Royal College of Obstetricians and Gynaecologists
RCSI	Royal College of Surgeons, Ireland
SaMS Directorate	Dermatology, Endocrinology, GUIDE, Gynaecology, Neurology, Opthamology, Rheumatology
SCOPe Directorate	Speech & Language Therapy, Medical Social Work, Clinical Nutrition, Occupational Therapy & Physiotherapy
SEER	Surveillance, Epidemiology, and End Results
SEHB	South Eastern Health Board
SHB	Southern Health Board

SJH	St James's Hospital
SLH	St. Luke's Hospital
SLT	Speech & Language Therapy
TBI	Total Body Irradiation
TBNA	Trans Bronchial Needle Aspirate
TCD	Trinity College Dublin
UCD	University College Dublin
WHB	Western Health Board
WTE	Whole Time Equivalent

Appendix 6
Acknowledgements

Ms. Aisling Collins	Chief II, ACU, SJH
Dr. Anne Marie O Dwyer	Consultant Psychiatrist, SJH
Ms. Anne O'Hara	Radiation Oncology Liaison Nurse, SJH
Mr. Brian Mehigan	Consultant Surgeon, SJH
Prof. Con Timon	Consultant Otolaryngologist/Head & Neck Surgeon, SJH & TCD
Ms. Delia Flannery	Colorectal Cancer Nurse Co-ordinator, SJH
Prof. Donal Hollywood	Marie Curie Professor of Clinical Oncology
Mr. Donnacha Creagh	Information Analyst, IMS, SJH
Ms. Edel Henderson	Breast Care Manager, SJH
Ms. Eilish Hardiman	Deputy CEO, SJH
Ms. Eileen Nolan	Regional Oncology Guidelines and Integrated Care Pathways Officer
Ms. Eileen O' Donovan	Cancer Services Planner, HSE
Dr. Elisabeth Vandenberghe	Consultant Haematologist, SJH
Ms. Emily Begg	Breast Care Nurse, SJH
Prof. Eoin Gaffney	Consultant Histopathologist, SJH & TCD
Dr. Finbarr O Connell	Consultant Respiratory Physician, SJH
Ms. Fionnuala King	Chief II Pharmacist, HOPE Directorate, SJH
Ms. Geraldine Reynolds	Nurse Manager, HOPE Directorate, SJH
Ms. Hilary Craig	Regional Oncology Communications & Health Promotions Officer, SJH
Mr. Ian Carter	CEO, SJH
Ms. Ingrid Kiernan	Clinical Trials Manager, SJH
Ms. Ireneus Shortt	Breast Care Nurse, SJH
Ms. Jacqueline O'Reilly	HIPE Unit, ESRI
Dr. Jeanne Moriarty	Consultant Anaesthetist, SJH
Ms. Jenny Moore	Upper GI Cancer Nurse Co-ordinator, SJH
Dr. John Kennedy	Consultant Medical Oncologist, SJH
Mr. John Kinsella	Head & Neck Surgeon, SJH & AMNCH
Prof. John Nolan	Consultant Endocrinologist, SJH & TCD
Prof. John Reynolds	Cancer Audit Director, SJH & TCD
Dr. Kenneth O'Byrne	Consultant Medical Oncologist, SJH
Mr. Kevin Burke	Business Manager, GEMS Directorate, SJH
Prof. Leo Stassen	Consultant Head & Neck/Oral & Maxillofacial Surgeon, SJH & DDH
Dr. Liam O Siorain	Palliative Care Consultant, OLH & SJH
Ms. Liz Connolly	Consultant Breast Surgeon, SJH
Dr. Louise Barnes	Consultant Dermatologist, SJH
Ms. Maev McLoughlin	Project Manager, IMS, SJH
Dr Mairin McMenamin	Consultant Histopathologist
Dr. Marie Laffoy	Assistant National Director, Strategic Planning & Development, HSE
Ms. Margaret Nicholl	Statistics IMS, SJH
Ms. Marion O'Brien	Urology Clinical Nurse Specialist, SJH
Prof. Mark Lawlor	Chair, Cancer Strategy Group, SJH
Mr. Martin Buckley	Director of IT, IMS Department, SJH
Mr. Michael Farrell	Genetics Nurse, SJH
Dr. Noreen Gleeson	Consultant Gynaecologist, SJH
Dr. Patrick Byrne	Director, GI Function Unit, SJH & Lecturer, TCD
Dr Paul Browne	Consultant Haematologist, SJH
Ms Pauline Murphy	Breast Care Nurse – Co-ordinator, SJH
Dr. Peter Lawlor	Palliative Care Consultant, OLH & SJH
Ms. Philomena Flood	SCOPe Manager, SJH
Dr. PWN Keeling	Consultant Gastroenterologist, SJH
Mr. Richard Stephens	Consultant Surgeon, SJH
Ms. Rita Luddy	Lung Cancer Nurse Co-ordinator, SJH
Mr. Ronan Ward	Chief Medical Scientist, SJH
Ms. Sandra Deady	Data Analyst, NCRI
Ms. Sharon Morrow	SAMS Business Manager, SJH
Ms. Sinead Connors	Head & Neck Cancer Nurse Co-ordinator, SJH
Ms. Sinead Whooley	Communications Manager, SJH
Ms. Suzanne Roy	Business Manager, HOPE Directorate, SJH
Mr. Terry Boyle	Consultant Breast Surgeon, SJH
Mr. Thomas Lynch	Consultant Urologist, SJH
Mr. Tom Darcy	Consultant Gynaecologist, SJH
Ms. Ursula Cullen	Tumour Registration Officer, NCRI
Ms. Veronica Treacy	Acting Director of Pharmacy, SJH

The Hospital's fundamental purpose is the delivery of health treatment, care and diagnosis as well as health promotion and preventative services at catchment, regional, supra-regional and national levels.