

Monitoring care of patients
with Upper GI cancers in
Northern Ireland in 2005



2005 Upper GI



Queen's University
Belfast



**Monitoring care of patients with
Upper GI Cancers in Northern Ireland
in 2005
(with comparisons 1996 & 2001)**

Edited by **Heather Kinnear and Anna Gavin**

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Foreword

This report describes the characteristics of patients with oesophageal and stomach cancer and their care in 2005. It also makes comparisons with the care received by patients with these conditions in 1996 and 2001. The report introduces the third phase of a process, supported by local clinicians, where the care of cancer patients and their survival is documented in detail. In building on the information for patients diagnosed in 1996 and 2001, it demonstrates welcome changes in service organisation.

It is very reassuring to have evidence of improved patient survival which reflects excellent, co-operative working of professionals and the investment in services. We are on a journey and there is still considerable room for improvement. This report provides valuable information which is essential in helping us to track our progress and identify those areas where change is still needed. This series of reports highlights the importance of the Cancer Registry as a valuable public health tool which has grown and developed significantly over the last few years and now plays a leading role in monitoring cancer care within Northern Ireland.



Dr Michael McBride
Chief Medical Officer

Acknowledgements

This report was compiled at the request of the NI Cancer Network (NICaN) Upper GI Group which was keen to monitor progress since the production of the 1996 and 2001 data on the patterns of care for patients with oesophageal and stomach cancers in Northern Ireland. I am grateful to the clinicians who helped with determining the data items to collect, their interpretation and final presentation.

The N. Ireland Cancer Registry is funded by the Department of Health, Social Services & Public Safety Northern Ireland (DHSSPSNI) and this project was possible thanks to a grant from the Regional Multiprofessional Audit Group (RMAG).

The quality of data in this project is a result of the work of the Registry Tumour Verification Officers especially Anita Jones, Julie McConnell, Jackie Kelly, Bernadette Anderson and Carmel Canning who meticulously extracted detailed information from clinical records for analysis and presentation in this report. The analysis of data was undertaken by Heather Kinnear. A special word of gratitude to the Medical Records staff of all the hospitals in Northern Ireland who have facilitated the Registry in this work.

The work of the N. Ireland Cancer Registry including the production of this report is the result of the work of the Registry team. I wish also to record my thanks to the Management Group and Council of the Registry who guide that work.



A Gavin
Director, NICR
2007

Upper GI (NICaN) Group (Meeting 13 June 2007)



Included in photo:

Back row (left to right) – Gerard Daly, Geoff Hill, Inder Mainie, Mark Taylor, Gary Spence, Manus Epanomeritakis, Graeme Crawford

Middle row (left to right) – Tim Harding, Liz Henderson, Sandra McKillop, Sarah Jayne Faloon, Anna Gavin

Front row (left to right) – Lesley Dent, Jim McGuigan, Andrew Kennedy, Roy McMullen, Julie Hanna

Core members not included in photograph:

William Dickie, Declan Carey, Michael Mitchell, Abraham Varghese, Lloyd McKie, Essam Ghareeb, John Moorehead, Tony Tham, Colin Rodgers, Louise Collins, Mary Waddell, Alison Porter, Martin Eatock, Sheila Kelly, Richard Davis, Maurice Regan, Dermott Davison, James Clarke.

(Please note: Dermott Davison, NICaN Lead GP was a core member of the Upper GI group at the time of data collection but has since resigned from this post).

Thoughts from a patient's perspective – Mr Roy McMullan

(Chair, N. Ireland Oesophageal Patients Group)

Mr Roy McMullan is the chair of the Oesophageal Cancer Patients Association for Northern Ireland and he himself was successfully treated eight and a half years ago for oesophageal cancer. He is also a member of the NICaN Upper GI Group since it started in June 2005. This group brings together those interested in the planning, development and delivery of oesophageal and stomach cancer services in Northern Ireland.

Roy speaks about his thoughts as a member of this group.

"I have appreciated the opportunity to represent the patient in the NICaN Upper GI Group. Involving patients is crucial to improving care. There should be increased patient involvement at all levels, even perhaps at the multi-disciplinary team meetings. During my time as a member of the Upper GI Group I have witnessed increased co-operation among the clinicians who are working together towards a common goal of improving the service they provide. An important part of this is the multi-professional and multidisciplinary team.

Oesophageal cancer is a serious disease and early diagnosis is very important. Part of this will come as patients become increasingly aware of the danger symptoms including difficulty in swallowing. While I am aware that General Practitioners see many patients with vague symptoms, especially heartburn, I feel that GPs have a key role to play in ensuring the disease is diagnosed at the earliest possible stage. I therefore welcome the introduction of referral guidelines for GPs which will, hopefully, assist these health professionals in this role. Thankfully, my own GP was very alert, this led to an early diagnosis.

Patients trust their doctors and surgeons and want to be treated by the right people in the right place and to the highest possible standards. Once the suspicion of oesophageal cancer has been confirmed patients should be investigated and treated by experts with experience. Such treatment by acknowledged experts brings confidence to patients and their carers. The Centre for Excellence's idea for oesophageal cancer treatment in Northern Ireland, which has been discussed at the NICaN group, should be kept high on the agenda and pursued vigorously. While there is confidence in local hospitals it is difficult for surgeons, who deal with only a few cases per year, to maintain their clinical skills in this area where treatments are complicated. We run the risk of having a postcode lottery for treatment and survival if the goal of centralisation of services for this more frequently occurring cancer is not pursued.

I welcome the cancer waiting times initiative, the treatment pathway must be co-ordinated to avoid delays and ensure the best possible treatment for the patient.

I wish to record my special thanks to Dr Daly from NICaN who chaired the Upper GI Group so effectively and encouraged my participation in the meetings in a full and meaningful way."

The Oesophageal Patients Association provides an opportunity for patients and their carers to meet six-monthly. New patients gain confidence when they meet some longstanding members. In fact one of our members had his oesophageal cancer diagnosed and treated successfully seventeen years ago. In addition to early diagnosis it is important to focus on prevention and I feel further research needs to be undertaken into the prevention of oesophageal carcinoma. Further information on this group is available from the web page www.opani.org

SECTION I – Introduction, Background and Methods

Background to this Report

The Northern Ireland Cancer Network, NICaN, is Northern Ireland's first regional managed clinical network. The Cancer Network is an inclusive partnership of organisations working collaboratively with service user representatives to secure the effective planning, delivery and monitoring of cancer services. The aim of the Cancer Network is to promote equitable provision of high quality, standards driven services that are clinically effective and patient focused. The specific clinical and service improvements were brought about by the establishment of Regional Groups/Clinical Networks. These groups, both 'tumour' and crosscutting 'theme' groups, are responsible for patient pathways, service redesign, quality assurance and the identification of funding. There are a number of tumour specific groups that have been set up:

- Oesophageal & Stomach
- Lung
- Haematology
- Melanoma & Complex Skin
- Colorectal
- Breast
- Gynaecological

The first of these was the Upper GI group which was established at a one day meeting in March 2005. The results of an audit of the process of care for patients diagnosed with oesophageal and stomach cancers in 1996 and 2001 in Northern Ireland were presented by the N. Ireland Cancer Registry.

The key issues raised at that time were:

Key Issues from Oesophagus & Stomach Audit 1996 & 2001¹

- Some patients had serious symptoms for over one year. This points to the need to raise awareness of symptoms among the population.
- The high rate of emergency presentations poses challenges for service providers.
- There is a need to improve recording of stage related information.
- Discussion of patients and the recording of such at multidisciplinary team meetings needs to be improved. This will need additional resources.
- The number of operators and hospitals treating stomach cancer is too high. There needs to be more specialisation.
- Figures demonstrate that by 2001 the process of increased specialisation in oesophageal cancer had progressed but further centralisation is required.

The Upper GI group now meets about three or four times per year. It requested that the N. Ireland Cancer Registry undertake a similar analysis for patients diagnosed in 2005 in Northern Ireland with Upper GI cancers. The proposal was funded by the Regional Multiprofessional Audit Group (RMAG).

Study aim

The aim of the report is to review the process of care for cancer patients diagnosed in Northern Ireland in 2005 and compare changes since 1996 and 2001.

Study methods

Data collection

Registry tumour verification officers (TVOs) collected data by reviewing clinical notes on all patients diagnosed in the calendar year 2005 with cancer of the oesophagus, gastro-oesophageal junction and stomach (ICD codes C15, C16 (excludes lymphoma of stomach)). Data were then entered into an electronic proforma, which had been developed with the guidance of relevant clinicians; copy available at www.qub.ac.uk/nicr

Exclusions

Patients were excluded if they resided outside Northern Ireland, if their records lacked sufficient information or if information was available only from a death certificate. After cleaning and validation, data analysis was carried out in SPSS. Statistics used to test for significance throughout the report include Chi-square and one way Anova. The Kaplan-Meier method was used for survival analysis.

Results

Section II of this report relates to diagnosed oesophageal cancers while Section III relates to stomach cancers. Some of the information in each of the sections was collected only for patients diagnosed in 2005 and so there are no comparisons possible with services provided in 1996 or 2001.

It is recognised there is a difficulty with the classification of tumours of the gastro-oesophageal junction². Following consultation with clinicians it was agreed that for the purposes of this audit report, gastro-oesophageal junction tumours should be included within the oesophageal site (This explains differences in published NICR data for oesophagus and stomach to the numbers reported here)^{3,4}.

In Northern Ireland each year 229 men and 129 women⁴ (2004/5 average figures) are diagnosed with cancer of the oesophagus or stomach and 319 (196 men, 128 women)⁴ (2004/5 average figures) die from these cancers. Cancer of the oesophagus and stomach accounts for 3% of cancer cases in men, 2% in women and 6% of cancer deaths in men and 4% in women⁴ (2004/5 figures).

SECTION II – Oesophageal Cancer

BACKGROUND

Oesophageal cancer is more common with increasing age. Half of all males in Northern Ireland with oesophageal cancer were aged 70 years or more while half of all females were aged 73 years and over³. Recognised risk factors for oesophageal cancer include cigarette smoking, alcohol consumption, obesity, Barrett's oesophagus⁵ and a diet lacking fresh fruit and vegetables. Patients with gastro-oesophageal reflux⁶, including those with Barrett's oesophagus (a condition in which there is an alteration in the lining of the lower oesophagus), are at a higher risk of developing the subtype adenocarcinoma of the oesophagus.

There are two main histological types of oesophageal cancer, namely adenocarcinoma and squamous cell carcinoma. Adenocarcinomas have been rising in incidence in recent times and tend to be found in the oesophago-gastric junction and lower oesophagus and as a consequence of their location are difficult to treat. Adenocarcinomas are thought to develop from malignant changes in Barrett's oesophagus. At present there is ongoing research to further clarify risks associated with Barrett's oesophagus and any benefits likely from regular surveillance. The risk of a patient with Barrett's oesophagus developing adenocarcinoma is reported to be between 30 and 125 times higher than that of the normal population⁷.

Squamous cell carcinomas usually develop in the middle or upper region of the oesophagus and have been reported to be decreasing in incidence in recent times. The major risk factors are smoking and alcohol consumption which increase the risk of getting oesophageal cancer independently and synergistically.

The use of surgery to treat both types is most beneficial when the disease is diagnosed at an early stage⁸. However, most oesophageal cancers are diagnosed at an advanced stage when surgery is unlikely to be an option. Chemotherapy and radiotherapy are known to be more effective when treating squamous cell carcinomas. The utilisation of chemotherapy combined with surgery or radiotherapy is increasing. In addition, patients are increasingly selected for clinical trials which involve the administration of various chemotherapy and radiotherapy regimes. Various forms of palliative treatment are available including chemotherapy, laser treatment and stenting.

Study patients

Patients	Oesophagus			Gastro-oesophageal Junction		
	1996	2001	2005	1996	2001	2005
Total number of patients	125	153	148	84	67	62
Exclusions – Death Certificate	3	1	1	0	0	1
Exclusions – Lack of Information	5	3	8	1	2	2
Total Exclusions	8	4	9	1	2	3
Total reported on – Male	72 (62%)	91 (61%)	95 (68%)	59 (71%)	50 (77%)	40 (68%)
Total reported on – Female	45 (38%)	58 (39%)	44 (32%)	24 (29%)	15 (23%)	19 (32%)
Total	117 (100%)	149 (100%)	139 (100%)	83 (100%)	65 (100%)	59 (100%)
Average age at diagnosis – Male	69	67	67	66	67	69
Average age at diagnosis – Female	73	72	75	64	73	74

- Two thirds of oesophageal cancer patients were male and the disease was diagnosed at an earlier age in males compared with females.
- 5% of patients in 1996, 6% in 2001 and 12% in 2005 had a positive history of Barrett's oesophagus recorded in their notes.

Socio-economic status of patients (NOTE: This table includes 27 patients who for the purposes of the majority of the analyses were excluded due to lack of information)

Deprivation quintile	Number of Patients (%) – All years combined
Quintile 1 (Least Deprived)	103 (16%)
Quintile 2	109 (17%)
Quintile 3	99 (15%)
Quintile 4	108 (17%)
Quintile 5 (Most deprived)	220 (34%)
Total	639

- In the general population it is expected that 20% of all cases of disease would fall in each quintile, however our data indicates that one third of patients resided in the most deprived quintile, confirming the link with socioeconomic deprivation ($p < 0.05$).

Family history

History	Number of Patients (%)		
	1996	2001	2005
Family history of Oesophageal cancer	8 (4%)	19 (9%)	19 (10%)
Family history of other cancer	16 (8%)	28 (13%)	56 (28%)

- It is likely there was better recording of family history in 2005.
- Of those patients in 2005 who had a family history of oesophageal cancer 84% reported oesophageal cancer in a first degree relative. This pattern was similar across the other two years.

Source of referral to specialist care

Source	Number of Patients (%)		
	1996	2001	2005
GP	168 (84%)	173 (81%)	166 (84%)
General Surgeon	8 (4%)	4 (2%)	5 (3%)
Physician	13 (7%)	18 (8%)	6 (3%)
A&E/Self referral	5 (3%)	12 (6%)	13 (7%)
Private sector	–	–	2 (1%)
Medical Outpatients	–	–	1 (<1%)
Not Recorded	5 (3%)	4 (2%)	2 (1%)
Other *	1 (<1%)	3 (1%)	3 (1%)
Total	200	214	198

*One urologist referral in 1996. The 3 referrals in 2001 include 2 from ENT specialists and 1 private patient. The 3 referrals in 2005 were made up of patients referred by gastroenterologists, patients already under review and patients admitted straight to a ward

- The majority of patients (84%) were referred by their GP in all years, of which approximately a quarter were medical or surgical emergencies with twice as many surgical as medical emergency cases.
- There were no emergency operations performed on patients who presented as surgical emergencies.
- 57% of referrals in 2005 were classified as urgent, 7% as semi-urgent and 7% as routine. The majority of referrals were by letter (78%) in 2005.

Patients presenting within their own Board

Board of residence	Number of Patients presenting within own Board (% of total patients living in same Board)		
	1996	2001	2005
NHSSB	37 (93%)	48 (86%)	50 (81%)
EHSSB	95 (100%)	97 (99%)	71 (99%)
SHSSB	39 (93%)	28 (90%)	37 (86%)
WHSSB	23 (100%)	28 (97%)	20 (95%)

- The majority of patients presented to hospitals within their own Health Board of residence, this however, was less marked in 2001 and 2005 compared with 1996 and more so in the Northern and Southern Boards.
- In 2005, 19% of Northern Board residents, 14% of Southern Board residents and 5% of Western Board residents presented to the regional Cancer Centre.

Symptoms/Signs at presentation (NOTE: Patients may present with more than one symptom/sign)

Symptom	Number of Patients (%)		
	1996 (n=200)	2001 (n=214)	2005 (n=198)
Difficulty swallowing	147 (74%)	153 (71%)	158 (80%)
Pain on swallowing	25 (13%)	18 (8%)	24 (12%)
Weight loss	120 (60%)	120 (56%)	134 (68%)
Nausea & vomiting	70 (35%)	83 (39%)	87 (44%)
Loss of appetite	70 (35%)	67 (31%)	85 (43%)
Abdominal pain	68 (34%)	65 (30%)	31 (16%)***
Dyspepsia (indigestion)/ Regurgitation of food	50 (25%)	61 (29%)	48 (24%)
Anaemia*	13 (7%)	32 (15%)	34 (17%)
Haematemesis/melaena**	15 (8%)	27 (13%)	24 (12%)
Lethargy	27 (14%)	27 (13%)	52 (26%)
Pleural effusion	3 (2%)	5 (2%)	–
Sialorrhoea (increased salivation)	NP	NP	6 (3%)
Chest and/or epigastric pain	NP	NP	92 (46%)

NP = Not on proforma *Anaemia is a low level of red blood cells

Haematemesis is vomiting of blood, Melaena is altered blood in stools * This figure appears lower than other years because it was a derived variable and wasn't recorded as a single symptom on its own in 2005

NOTE: Where symptoms have been combined, care has been taken to ensure patients have only been counted once.

Duration of Symptoms

Symptom		≤1M	2M-5M	6M-11M	≥12M	Duration Not recorded	Total Patients
Difficulty/pain on swallowing	1996	29 (19%)	79 (52%)	18 (11%)	8 (5%)	18 (11%)	152
	2001	45 (29%)	74 (48%)	8 (5%)	6 (3%)	20 (13%)	153
	2005	45 (28%)	54 (34%)	8 (5%)	5 (3%)	46 (29%)	158
Weight loss	1996	20 (16%)	53 (44%)	16 (13%)	12 (10%)	19 (15%)	120
	2001	17 (14%)	58 (48%)	15 (12%)	5 (4%)	25 (20%)	120
	2005	20 (15%)	49 (37%)	15 (11%)	9 (7%)	41 (31%)	134
Nausea & vomiting	1996	27 (38%)	31 (44%)	2 (2%)	1 (1%)	9 (12%)	70
	2001	28 (33%)	29 (34%)	5 (6%)	2 (2%)	19 (22%)	83
	2005	24 (28%)	23 (26%)	1 (1%)	1 (1%)	38 (44%)	87
Loss of appetite	1996	13 (18%)	40 (57%)	6 (8%)	2 (2%)	9 (12%)	70
	2001	21 (31%)	21 (31%)	6 (9%)	2 (3%)	17 (25%)	67
	2005	20 (24%)	20 (24%)	3 (4%)	2 (2%)	40 (47%)	85
Dyspepsia/indigestion	1996	9 (18%)	18 (36%)	3 (6%)	8 (16%)	12 (24%)	50
	2001	13 (21%)	16 (26%)	4 (6%)	8 (13%)	20 (32%)	61
	2005	13 (27%)	4 (8%)	1 (2%)	–	30 (62%)	48
Anaemia	1996	2 (15%)	2 (15%)	2 (15%)	2 (15%)	5 (38%)	13
	2001	4 (12%)	7 (21%)	1 (3%)	2 (6%)	18 (56%)	32
	2005	4 (12%)	1 (3%)	1 (3%)	1 (3%)	27 (79%)	34
Haematemesis/melaena	1996	7 (46%)	3 (20%)	0	1 (6%)	4 (26%)	15
	2001	18 (66%)	4 (14%)	0	1 (3%)	4 (14%)	27
	2005	8 (33%)	6 (25%)	–	–	10 (42%)	24
Lethargy	1996	5 (18%)	18 (66%)	2 (7%)	1 (3%)	1 (3%)	27
	2001	9 (33%)	7 (25%)	1 (7%)	0	10 (37%)	27
	2005	6 (12%)	6 (12%)	–	1 (2%)	39 (75%)	52
Chest and/or epigastric pain	1996	Not on proforma					
	2001	Not on proforma					
	2005	23 (25%)	14 (15%)	5 (5%)	2 (2%)	48 (52%)	92

- Recording of symptom duration decreased between 1996 and 2005.
- Difficulty swallowing was the most common presenting symptom across all three years affecting almost four out of five patients.
- In 1996, 17% of patients had experienced difficulty or pain swallowing for more than 5 months compared to only 9% in 2001 and 8% in 2005. Although not statistically significant this may indicate a trend of earlier symptom reporting.

Co-morbidities (NOTE: Patients may present with more than one co-morbidity)

Co-morbidity	Number of Patients (%)		
	1996	2001	2005
Chronic Obstructive Pulmonary Disease (COPD)	28 (14%)	25 (12%)	45 (23%)
Cardiovascular disease	50 (25%)	58 (27%)	75 (38%)
Peripheral Vascular Disease (PVD)	NP	NP	13 (7%)
Learning disability	1 (<1%)	2 (1%)	6 (3%)
Cerebrovascular disease	13 (7%)	12 (6%)	20 (10%)
Psychiatric disorder	5 (3%)	15 (7%)	12 (6%)
Diabetes	18 (9%)	18 (8%)	29 (15%)
Hypertension	32 (16%)	43 (20%)	73 (37%)
Hiatus hernia	NP	NP	61 (31%)
Pernicious anaemia	3 (2%)	11 (5%)	6 (3%)
Peptic/stomach ulcer	19 (10%)	20 (9%)	18 (9%)
Barretts oesophagus	10 (5%)	13 (6%)	24 (12%)

NP = Not on proforma

- Recording of co-morbidities had improved by 2005.
- Co-morbidities were reported by about one third of patients in 2005 with the most common including cardiovascular disease, hypertension and hiatus hernia.
- Of those who reported a peptic/stomach ulcer two thirds were recorded as in the duodenum.
- 33% of those who had Barretts oesophagus had it for between 1 and 5 years, a further 25% between 6 and 10 years and 42% for more than 10 years.

Co-morbidities found to be significant predictors of 1-year mortality for oesophageal cancer patients using the Charlson Index⁸ are presented below:

Co-morbidity	Percentage of Patients with co-morbidity (% not recorded)		
	1996	2001	2005
Chronic Obstructive Pulmonary Disease (COPD)	14 (15%)	12 (7%)	23 (1%)
Cardiovascular disease	25 (15%)	27 (7%)	38 (<1%)
Peripheral Vascular Disease (PVD)	NP	NP	7 (<1%)
Learning disability	<1 (16%)	1 (7%)	3 (2%)
Cerebrovascular disease	7 (16%)	6 (9%)	10 (2%)
Psychiatric disorder	3 (15%)	7 (8%)	6 (2%)
Diabetes	9 (15%)	8 (12%)	15 (<1%)
Hypertension	16 (14%)	20 (6%)	37 (<1%)
Hiatus hernia	NP	NP	31 (1%)
Pernicious anaemia	2 (16%)	5 (7%)	3 (1%)
Peptic/stomach ulcer	10 (13%)	9 (8%)	9 (2%)
Barretts oesophagus	5 (14%)	6 (9%)	12 (0%)

Significant drugs

- 40% of patients in 2005 reported being on aspirin with fewer using warfarin (7%) and plavix (anticoagulant) (6%).

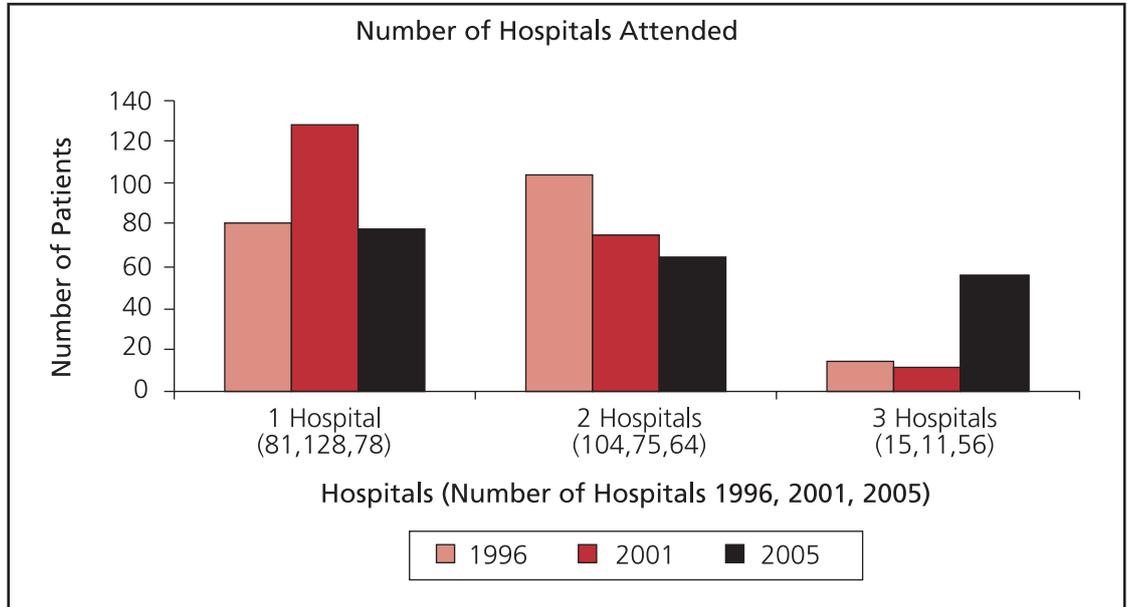
Hospital of presentation

Hospital	Number of Patients (%)					
	Including Emergencies			Excluding Emergencies		
	1996	2001	2005	1996	2001	2005
Royal Victoria (RVH)	22 (11%)	30 (14%)	21 (11%)	17 (11%)	24 (15%)	14 (20%)
Ulster (UH)	35 (18%)	30 (14%)	24 (12%)	29 (19%)	19 (12%)	5 (7%)
Craigavon Area (CAH)	18 (9%)	19 (9%)	22 (11%)	13 (8%)	15 (10%)	6 (8%)
Antrim (ANT)	13 (7%)	18 (8%)	26 (13%)	8 (5%)	10 (6%)	8 (11%)
Altnagelvin (AH)	17 (9%)	15 (7%)	8 (4%)	12 (8%)	10 (6%)	5 (7%)
Belfast City (BCH)	20 (10%)	18 (8%)	15 (8%)	18 (12%)	11 (7%)	6 (8%)
Coleraine (COL)/Causeway (CAU)	4 (2%)	15 (7%)	14 (7%)	3 (2%)	10 (6%)	7 (10%)
Mater (MIH)	10 (5%)	13 (6%)	15 (8%)	5 (3%)	9 (6%)	4 (6%)
Lagan Valley (LVH)	8 (4%)	11 (5%)	3 (1%)	5 (3%)	10 (6%)	–
Erne (ERN)	6 (3%)	10 (5%)	9 (5%)	6 (4%)	9 (6%)	2 (3%)
Whiteabbey (WHA)	19 (10%)	9 (4%)	8 (4%)	17 (11%)	9 (6%)	3 (4%)
South Tyrone (STH)	7 (4%)	8 (4%)	2 (1%)	2 (1%)	8 (5%)	1 (1%)
Mid Ulster (MUH)	1 (<1%)	7 (3%)	2 (1%)	1 (<1%)	4 (3%)	–
Downe (DH)	4 (2%)	5 (2%)	5 (3%)	2 (1%)	3 (2%)	1 (1%)
Tyrone County (TCH)	1 (<1%)	3 (1%)	4 (2%)	1 (<1%)	2 (1%)	–
Daisy Hill (DHH)	14 (7%)	2 (1%)	14 (7%)	13 (8%)	2 (1%)	3 (4%)
Ulster Independent Clinic (UIC)*	1 (<1%)	1 (<1%)	4 (2%)	1 (<1%)	1 (<1%)	4 (6%)
Hillsborough Private Clinic (HPC)*	–	–	1 (<1%)	–	–	1 (1%)
North West Clinic (NWC)*	–	–	1 (<1%)	–	–	1 (1%)
Total	200	214	198	153	156	71

*Ulster Independent Clinic, Hillsborough Private Clinic and North West Clinic are private hospitals

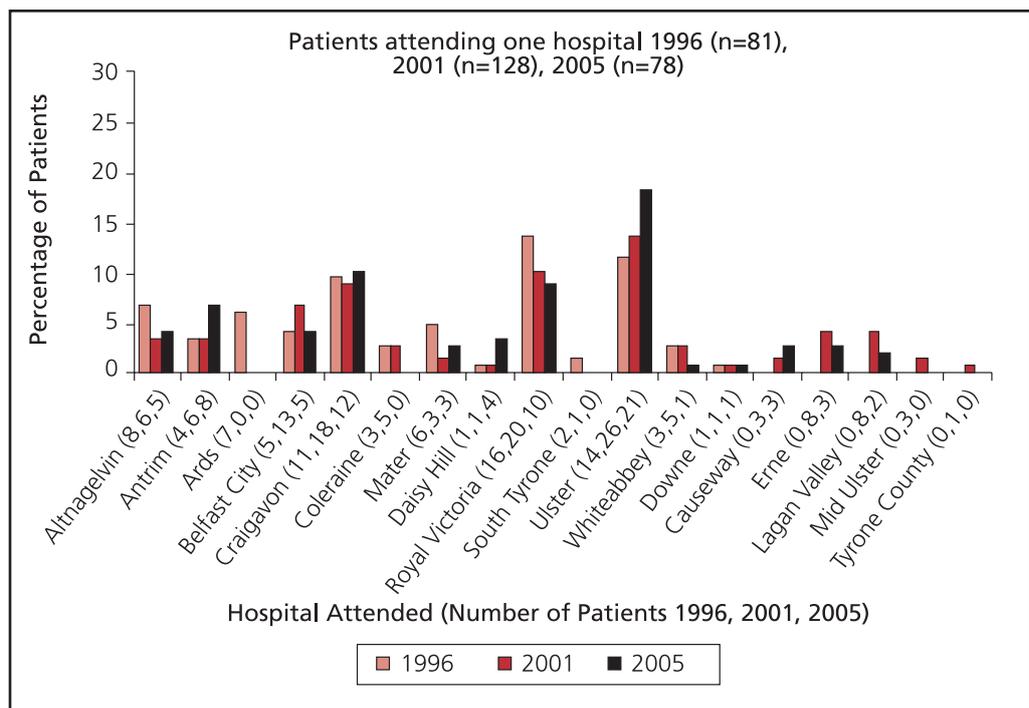
- In 2005, 64% of patients presented as emergencies compared with approximately 25% in 1996 and 2001.
- 198 patients presented to 19 hospitals in 2005. Excluding emergencies, the pattern was the same in 1996 and 2001 while 16 hospitals/clinics were attended in 2005.

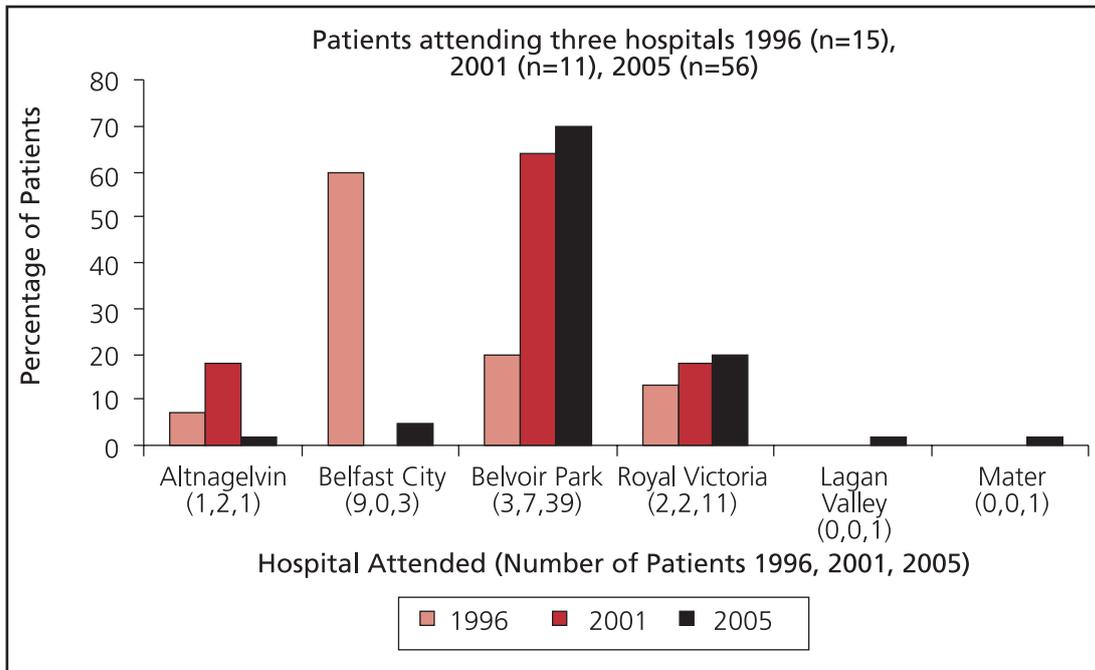
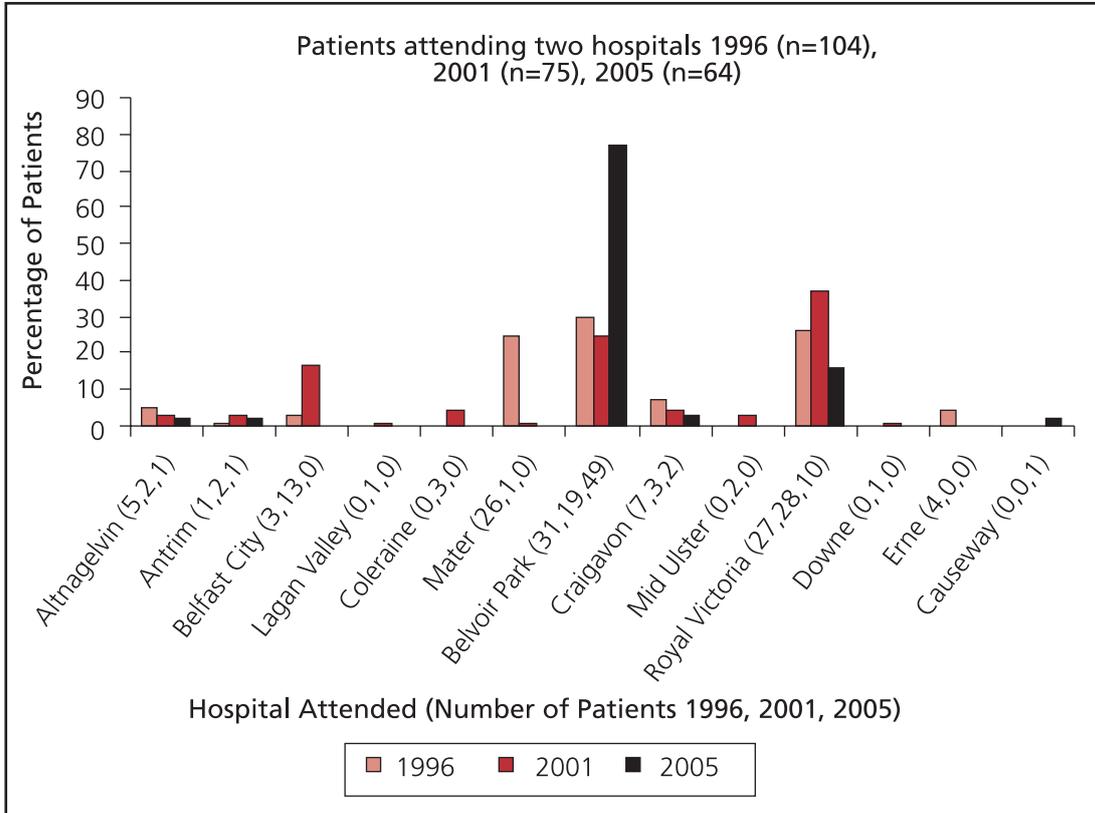
Hospitals attended



- Between 1996 and 2005 there were more patients attending three hospitals for their treatment indicating that by 2005 patients were more likely to be referred to Cancer Unit/Cancer Centre hospitals after initial presentation.
- By 2005, there were more patients attending either the Cancer Centre or Cancer Units for their treatment compared to the other two years.

Number of hospitals attended





Total Patients ever attending each hospital (NOTE: Patients are counted more than once)

Hospital	1996	2001	2005
Altnagelvin	16	14	14
Antrim	13	20	30
Ards	14	0	0
Banbridge	1	0	0
Belfast City	22	33	21
Belvoir Park	34	26	98
Craigavon	25	24	30
Coleraine/Causeway	5	15	14
Daisy Hill	16	2	13
Downe	4	4	4
Erne	4	10	9
Lagan Valley	8	12	5
Mater	32	13	15
Mid Ulster	1	7	1
Royal Victoria	100	73	81
South Tyrone	6	8	2
Tyrone County	1	4	4
Ulster	26	29	24
Ulster Independent Clinic*	0	0	2
Whiteabbey	16	9	7

* The Ulster Independent Clinic is a private hospital

- The hospitals which treated most oesophageal cancer patients were the Royal Victoria and Belvoir Park hospitals.
- There were more patients who attended Belvoir Park Hospital for some part of their treatment in 2005 compared to any other year.

Investigations (NOTE: Patients may have received more than one type of investigation)

Investigation	Number of Patients (%)							
	All Patients				Surgery* Patients			
	1996 (n=200)	2001 (n=214)	2005 (n=198)	% change 1996-2005	1996 (n=89)	2001 (n=73)	2005 (n=75)	% change 1996-2005
Endoscopy	191 (96%)	208 (97%)	196 (99%)	+3%	89 (100%)	71 (97%)	75 (100%)	Same
CT Chest /Abdomen	133 (67%)	173 (81%)	181 (91%)	+24%	64 (72%)	60 (82%)	71 (95%)	+23%
Barium Meal	144 (72%)	128 (60%)	68 (34%)	-38%	75 (84%)	41 (56%)	24 (32%)	-52%
USS Abdomen	72 (36%)	53 (25%)	46 (23%)	-13%	33 (37%)	11 (15%)	12 (16%)	-21%
Chest X-Ray	92 (46%)	93 (43%)	120 (61%)	+15%	45 (51%)	19 (26%)	54 (72%)	+21%
Bronchoscopy	55 (28%)	23 (11%)	11 (6%)	-22%	33 (37%)	6 (8%)	7 (9%)	-28%
Endoscopic USS**	NP	NP	75 (38%)	NA	NP	NP	38 (51%)	NA
MRI Scan	NP	NP	6 (3%)	NA	NP	NP	2 (3%)	NA
PET Scan**	NP	NP	110 (56%)	NA	NP	NP	52 (69%)	NA
H Pylori***	12 (6%)	12 (6%)	32 (16%)	+10%	7 (8%)	9 (12%)	15 (20%)	+12%

NP= Not on proforma NA = Not applicable *Surgery includes curative resection, bypass procedures and laparotomy ** Staging investigation *** H Pylori is a test for infection with a bacteria, Helicobacter Pylori

- In the past 10 years almost all patients have had endoscopy. The use of CT scans has increased while the use of barium meals, ultrasound abdomen and bronchoscopy have declined reflecting increased use of newer technology.
- New investigations were being used by 2005 that hadn't been used previously, namely endoscopic ultrasound, MRI Scan and PET Scan.
- By 2005, the recording of Chest X-Rays had improved.
- By 2005, 51% of surgical patients (38% of all patients) had endoscopic ultrasound.
- While only a few patients had MRI scans, 69% of surgical patients (56% of all patients) had PET scans.
- In addition to the above investigations in 2005, 32 (16%) patients had a record of a H Pylori test carried out of which 53% proved to be positive.

PET scan and Endoscopic Ultrasound investigations by Board of Residence (All Patients 2005)

Board of residence	Number of Patients (% residing in each Board)	
	Endoscopic Ultrasound	PET Scan
Northern	23 (37%)	39 (63%)
Eastern	29 (40%)	38 (53%)
Southern	15 (35%)	21 (49%)
Western	8 (38%)	12 (57%)
Total	75	110

- There were minor variations in staging investigations by Board of residence.

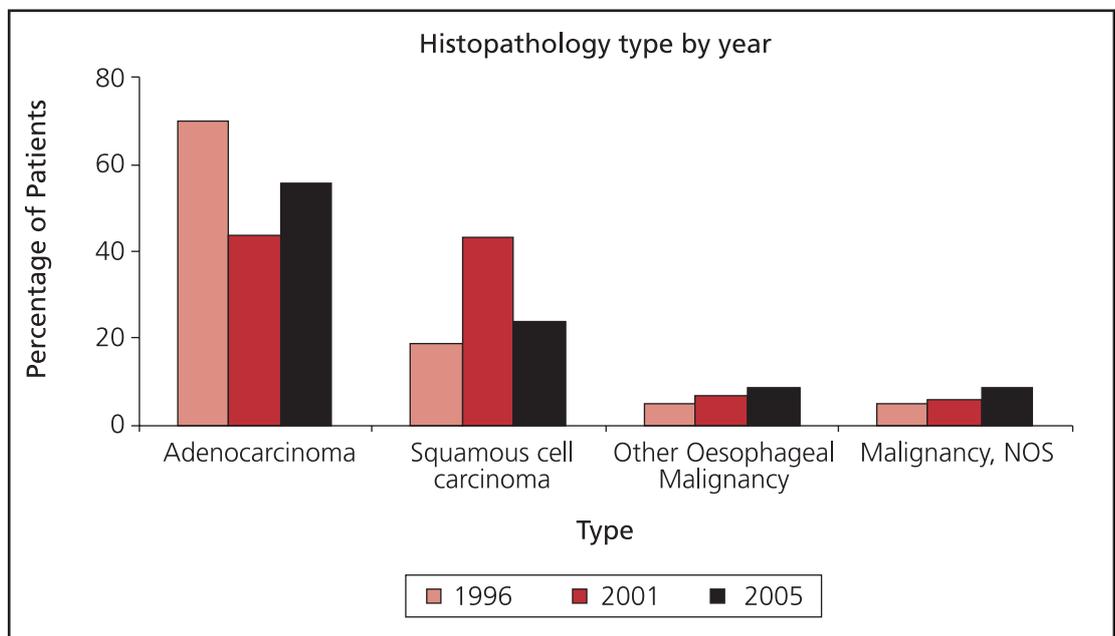
Investigations (Endoscopic Ultrasound and PET Scan) by Hospital (2005 surgery* only patients)

Hospital of surgery	Number of Patients (% of surgery patients receiving each investigation)		
	Endoscopic Ultrasound	PET Scan	Number of Surgery Patients
Altnagelvin	0	1 (20%)	5
Antrim	1 (25%)	1 (25%)	4
Belfast City	8 (67%)	6 (50%)	12
Craigavon	4 (50%)	6 (75%)	8
Daisy Hill	2 (33%)	3 (50%)	6
Lagan Valley	1 (50%)	1 (50%)	2
Mater	0	0	3
Royal Victoria	21 (78%)	27 (100%)	27
Ulster	0	6 (86%)	7
Whiteabbey	1 (100%)	1 (100%)	1
Total	38	52	75

- Use of PET Scan and Endoscopic Ultrasound investigations for surgery patients varied by hospital.

Histopathology

- Adenocarcinoma (ACA) accounted for 56% in 2005 while squamous cell (SCC) accounted for 24% in 2005.



Staging (see Appendix A)

The following table reflects patients who had stage recorded in their clinical notes or where they had sufficient information available in the notes to enable TVOs to assign a stage. The UICC TNM staging classification was applied¹⁰.

TNM Stage

Stage	Number of Patients (%)					
	All Patients			Surgery* Patients		
	1996**	2001**	2005***	1996**	2001**	2005***
I	12 (6%)	19 (9%)	14 (7%)	11 (9%)	10 (9%)	9 (8%)
II (A&B)	20 (10%)	17 (8%)	19 (10%)	20 (17%)	17 (15%)	14 (13%)
III	18 (9%)	23 (11%)	21 (11%)	17 (15%)	29 (25%)	4 (4%)
IV	32 (16%)	46 (21%)	100 (51%)	28 (24%)	28 (25%)	60 (56%)
Insufficient data for staging	118 (59%)	109 (51%)	44 (22%)	41 (35%)	30 (26%)	20 (19%)
Total patients	200	214	198	117	114	107

*Surgery includes curative resection, bypass procedures, laparotomy and laparoscopy ** Staging for 1996 and 2001 patients was available in the clinical notes or assigned independently by NICR TVOs *** Staging for 2005 patients was available either in the clinical notes, at MDM, at surgery, at oncology or assigned independently by NICR TVOs

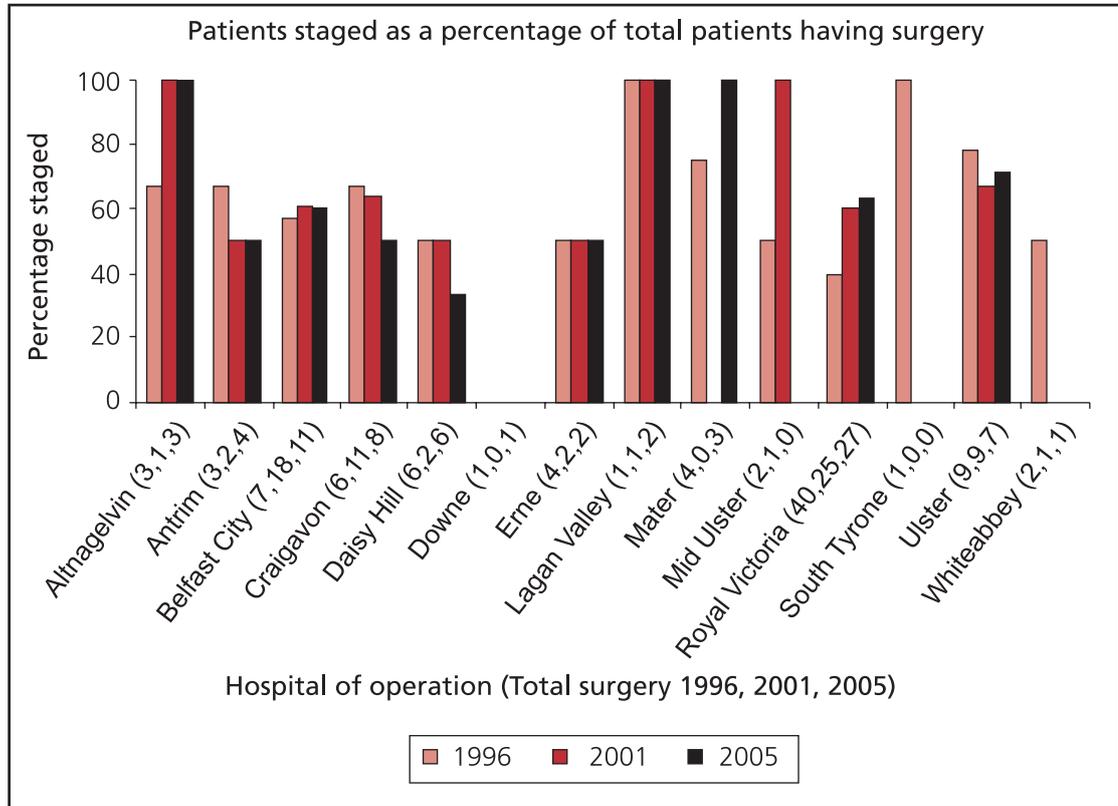
- Using all information available in the patients notes and using the TVO independent staging it was possible to derive information on stage on 78% of patients using the TNM classification⁹.
- For patients undergoing surgery however, the percentage of patients that were or could be staged increased from 65% to 74% by 2001 and to 81% by 2005.

Patients with insufficient data for staging

Board of residence	Number of Patients (% unstaged of total in each area)		
	1996	2001	2005
NHSSB	24 (60%)	26 (46%)	19 (31%)
EHSSB	58 (61%)	47 (48%)	21 (29%)
SHSSB	26 (62%)	13 (42%)	3 (7%)
WHSSB	10 (43%)	23 (79%)	1 (5%)
N. Ireland	118 (59%)	109 (51%)	44 (22%)

- The percentage of patients for whom it was not possible to determine stage decreased between 1996 and 2005 in all Boards.

Staging by hospital for patients having surgery (curative resection, additional surgical procedures and laparotomy)



- In all years there were a low number of procedures in many hospitals.

Numbers of lymph nodes examined, resection patients only

Nodes	Number of Patients (%)		
	1996	2001	2005
None	8 (14%)	8 (14%)	0
Under 5	13 (22%)	7 (12%)	1 (2%)
5-9	22 (37%)	12 (20%)	9 (18%)
10-14	11 (19%)	8 (14%)	13 (27%)
15 or more	2 (3%)	16 (27%)	20 (41%)
Not Recorded	3 (5%)	8 (14%)	6 (12%)
Total Patients	59	59	49

- For patients undergoing resection there was a notable change in lymphadenectomy practice between 1996 and 2005, with a substantial (9-fold) increase in the number of patients having 15 or more nodes examined, reflecting improved intra-operative staging practices. The low recording of stage previously noted could be a recording problem.

Multidisciplinary Team Meetings

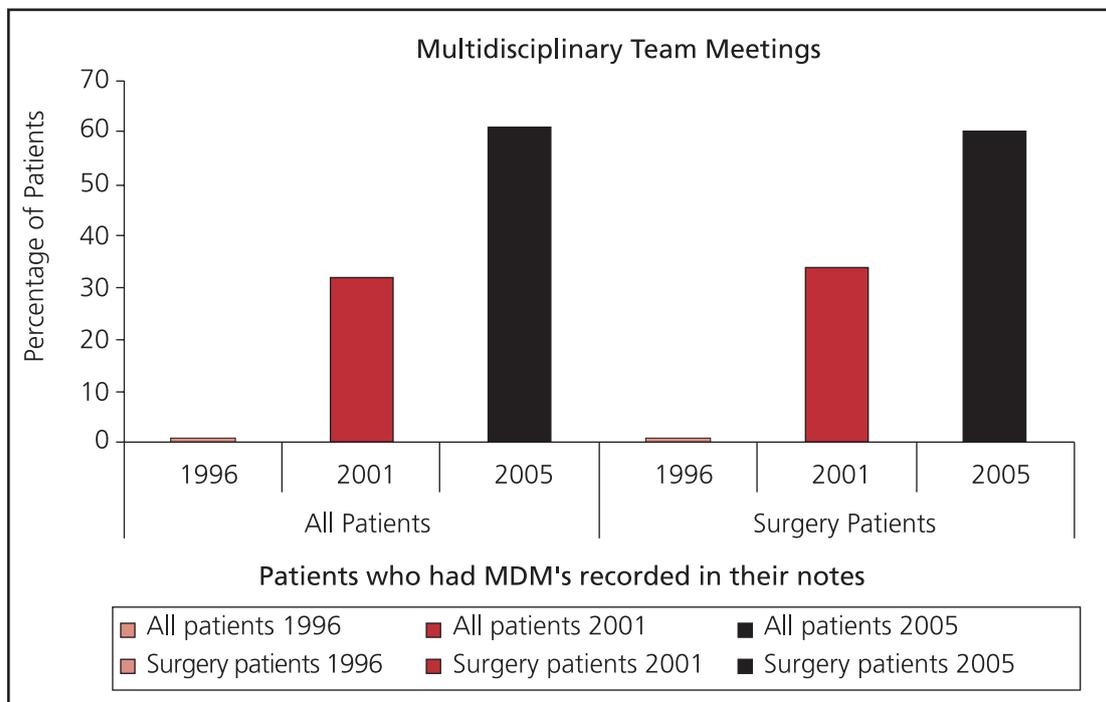
The effective management of oesophageal cancer patients requires input from a range of experts. Multidisciplinary team meetings (MDMs) involve a group of healthcare professionals meeting to discuss the diagnosis and treatment of patients. As there are a range of potential treatments that could be carried out, multidisciplinary discussions are of great importance. We recognise that multidisciplinary team meetings may have taken place but evidence of such was not always apparent in the clinical notes.

Multidisciplinary Team Meetings recorded in the notes

MDM	Number of Patients (%)					
	1996		2001		2005	
	All Patients	Surgery* Patients	All Patients	Surgery* Patients	All Patients	Surgery* Patients
Yes	2 (1%)	1 (1%)	68 (32%)	25 (34%)	120 (61%)	45 (60%)
No	198 (99%)	88 (99%)	146 (68%)	48 (66%)	78 (39%)	30 (40%)
Total patients	200	89	214	73	198	75

*Surgery includes resection, bypass and laparotomy

- Recording in the clinical notes that an MDM had taken place improved substantially by 2005 with almost two thirds of patients being discussed at an MDM.



Multidisciplinary Team Meetings by Hospital

Hospital	Number of Patients (% of total receiving MDM)
Altnagelvin	16 (13%)
Antrim	8 (7%)
Belfast City	16 (13%)
Belvoir Park	1 (<1%)
Craigavon	3 (3%)
Erne	2 (2%)
Royal Victoria	53 (44%)
Tyrone County	4 (3%)
Ulster	11 (9%)
Whiteabbey	1 (<1%)
Hospital of MDM Not recorded	5 (4%)
Total	120

- More MDM discussions took place in the Royal Victoria Hospital in 2005.

Surgical Procedures

- Between 1996 and 2005 the percentage of patients undergoing curative resections decreased from 30% to 25% which may reflect improved patient selection.
- This pattern was mirrored when all surgery was taken into account (curative resections, bypass procedures and laparotomy) in that 48% of patients in 1996 underwent surgery compared to 38% in 2005.
- 17% of those patients who underwent some form of surgery in 2005 experienced a delay due in the most part (69%) unavailability of ICU/HDU beds. These patients all had their surgical procedures carried out in the Royal Victoria Hospital.
- Resections took place in 5 hospitals in each of the three years.

Oesophageal resections performed by hospital

Hospital	1996		2001		2005	
	No of Procedures	No of Surgeons	No of Procedures	No of Surgeons	No of Procedures	No of Surgeons
Royal Victoria	38 (64%)	4	24 (41%)	5	25 (51%)	6*
Belfast City	4 (7%)	1	16 (27%)	3	10 (20%)	2*
Craigavon	6 (10%)	1	10 (17%)	1	7 (14%)	2
Ulster	9 (15%)	2	8 (14%)	2	6 (12%)	1
Mater	2 (3%)	1	–	–	1 (2%)	1
Lagan Valley	–	–	1 (2%)	1	–	–
Total Procedures/ Surgeons	59	9	59	12	49	12

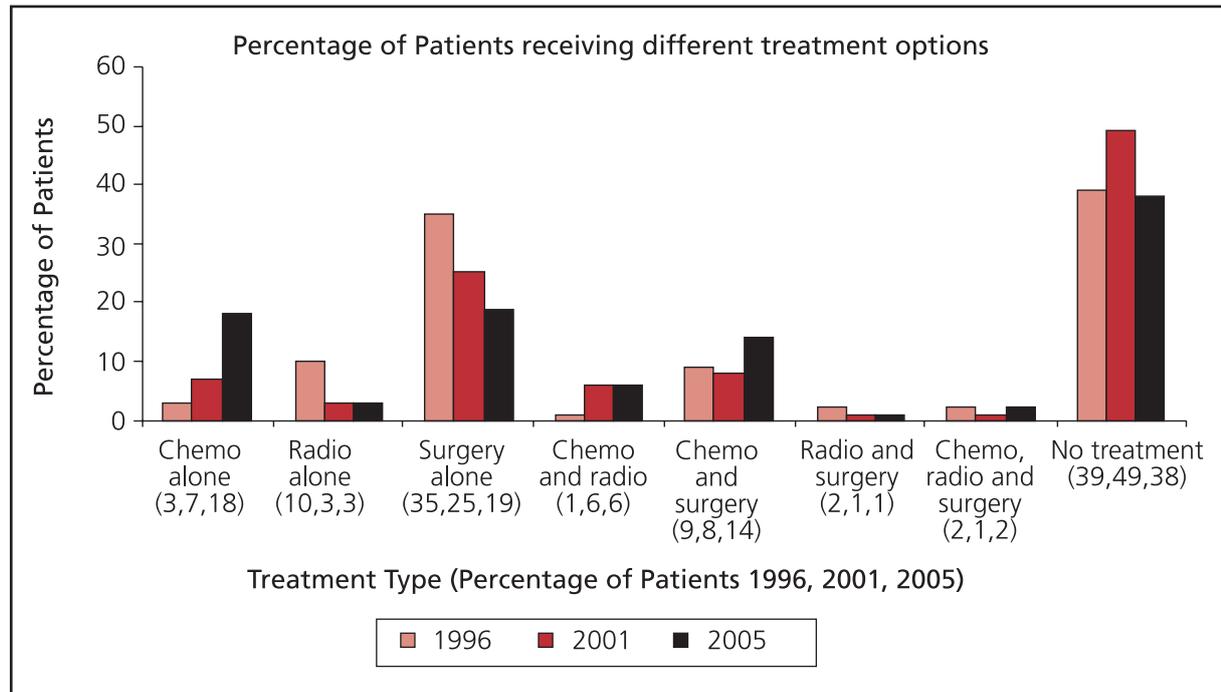
* One consultant from the Royal Victoria Hospital also performed one resection in Belfast City Hospital.

- The number of surgeons carrying out curative resections between 1996 and 2005 has risen by one third although the number of procedures has fallen.
- The majority of resections in each year were performed in the Royal Victoria Hospital.

Treatment Types by Year

Treatment	Number of Patients (%)		
	1996	2001	2005
Surgery – Resection	59 (30%)	59 (28%)	49 (25%)
Surgery – Laparotomy	26 (18%)	9 (4%)	10 (5%)
Surgery – Additional procedures	4 (2%)	5 (2%)	16 (8%)
Total surgery	89 (45%)	73 (34%)	75 (38%)
Any chemotherapy	30 (15%)	47 (22%)	78 (39%)
Any radiotherapy	30 (15%)	24 (11%)	21 (11%)

- There has been a decrease in the number of resections and laparotomies carried out between 1996 and 2005. The same pattern was evident for radiotherapy services although more patients did have chemotherapy in 2005 compared to any other year.



Treatment types for patients with Oesophageal cancer

Treatment Type	Number of Patients (%)		
	1996	2001	2005
Chemotherapy alone	6 (3%)	15 (7%)	36 (18%)
Radiotherapy alone	20 (10%)	6 (3%)	6 (3%)
Surgery alone	70 (35%)	53 (25%)	38 (19%)
Chemotherapy & Radiotherapy	2 (1%)	13 (6%)	12 (6%)
Chemotherapy & Surgery	18 (9%)	17 (8%)	28 (14%)
Radiotherapy & Surgery	4 (2%)	2 (1%)	2 (1%)
Chemotherapy, Radiotherapy & Surgery	4 (2%)	2 (1%)	4 (2%)
No Treatment	78 (39%)	10 (49%)	75 (38%)

- Overall use of chemotherapy (alone or as part of combined modality therapy) increased from 15% in 1996 to 22% in 2001 to 40% in 2005.
- Use of radiotherapy (alone or as part of combined modality therapy) decreased from 15% in 1996 to 12% in 2005.
- There were fewer patients in 2005 that had no record of having surgery, radiotherapy or chemotherapy compared to figures for 1996 and 2001.
- By 2005, only 10% of patients had no treatment recorded during the period of follow up when palliative interventions are taken into account.
- Rates were similar across Health Board of residence for those who had no treatment recorded.

Oesophageal cancer – frequency of oesophageal cancer operations (resections and additional surgical procedures) by surgeon*

Procedures	Number of Surgeons (% of procedures)		
	1996	2001	2005
10 or more procedures	2 (40%)	3 (38%)	1 (15%)
5-9 procedures	4 (41%)	5 (47%)	5 (54%)
2-4 procedures	4 (11%)	2 (11%)	5 (28%)
1 procedure	5 (8%)	3 (5%)	2 (3%)
Total Named Surgeons	13	13	13
Total Procedures	63	64	65

*Surgeon = Consultant in charge

- The number of surgeons performing oesophageal resections and additional surgical procedures decreased by 13% between 1996 and 2005.
- 69% of patients in 2005 were operated on by surgeons undertaking 5 or more procedures per year, a reduction compared with 1996 (81%) and 2001 (85%)
- The maximum number of patients operated on by any one surgeon across all three years was 13.

Palliative Procedures (NOTE: Patients who have had any of the following treatments have not had a curative resection and have availed of palliative care only)

Type	Number of Patients (%) in 2005 (n=149)
Stent	73 (49%)
Laser	10 (7%)
Enteral feeding	30 (20%)

- Of those patients in 2005 who had a stent, 59% were performed in Eastern Board hospitals. Other hospitals providing stents include Altnagelvin, Antrim, Craigavon, Causeway and Erne. All patients who received laser treatment received it in Eastern Board hospitals. Over half of patients who needed enteral feeding received it in the Eastern Board (54%). Other hospitals providing enteral feeding include Antrim, Belvoir Park, Craigavon and Causeway.

Palliative procedures by Board of Residence (2005 only)

Board of residence	Number of Patients (%)			Total in each Board
	Stent	Laser	Enteral feeding	
Northern	23 (37%)	6 (10%)	13 (21%)	62
Eastern	26 (36%)	4 (6%)	8 (11%)	72
Southern	15 (35%)	–	8 (19%)	43
Western	9 (43%)	–	1 (5%)	21
Total	73	10	30	

- There was a higher percentage of patients residing in the Western Board who received a stent than any other Board. There was a lot of variation for those who received enteral feeding with the majority living in the Northern Board.

Hospital of oncology* referral (NOTE: This is only the referral hospital and patients may have received actual oncology treatment in other hospitals)

Hospital	Number of Patients (%)		
	1996	2001	2005
Belfast City	2 (4%)	38 (67%)	92 (70%)
Belvoir Park	51 (94%)	14 (25%)	20 (15%)**
Craigavon	–	2 (4%)	14 (11%)
Altnagelvin	–	1 (2%)	–
Antrim	–	–	1 (<1%)
Royal Victoria	–	–	1 (<1%)
Ulster	–	–	3 (2%)
Hospital Not Recorded	1 (2%)	2 (4%)	–
No record of referral to Oncology	146 (73% of all patients)	157 (73% of all patients)	67 (34% of all patients)
Total	54	57	131

*Chemotherapy, radiotherapy or a combination of both ** This figure appears low but 20% of patients referred to Belfast City actually received chemotherapy in Belvoir Park Hospital

- By 2005 two thirds of patients (66%) had some form of oncology referral – an increase from one quarter in previous years.
- There was a marked shift towards referral to Belfast City Hospital for oncology services since 2001 in keeping with the recommendations of the Campbell Report¹¹. (See Appendix B).

Stage of patients who had no record of having received treatment

Stage	Number of Patients (%)		
	1996	2001	2005
Stage I	2 (3%)	7 (7%)	–
Stage IIA & IIB	1 (1%)	–	–
Stage III	–	1 (1%)	1 (1%)
Stage IV	13 (17%)	30 (29%)	27 (36%)
Insufficient data for staging	61 (79%)	66 (63%)	47 (63%)
Total	77	104	75

Of the three patients, who were either Stage I or Stage IIA in 1996, two refused treatment and one patient was not suitable for treatment. Of the seven untreated patients who were Stage I in 2001, four were aged over 75 years, one died within six months of being diagnosed, one patient refused treatment and there was no additional information available on the other patient.

- By 2005 all patients with early stage disease (I or IIA) received some form of treatment.
- In 2005, the majority of patients who had no record of receiving treatment (excludes palliative care) presented with late stage disease.

Timelines

Timelines were examined in line with the current standards regarding waiting times. The two targets examined are that of the delay between referral and the date of first treatment (62 days) and also for diagnosis to the date of first treatment (31 days). The delay between referral and diagnosis was also examined for all patients as was the delay between being referred for a PET scan and one being conducted.

The following tables show percentages based on all patients in that year.

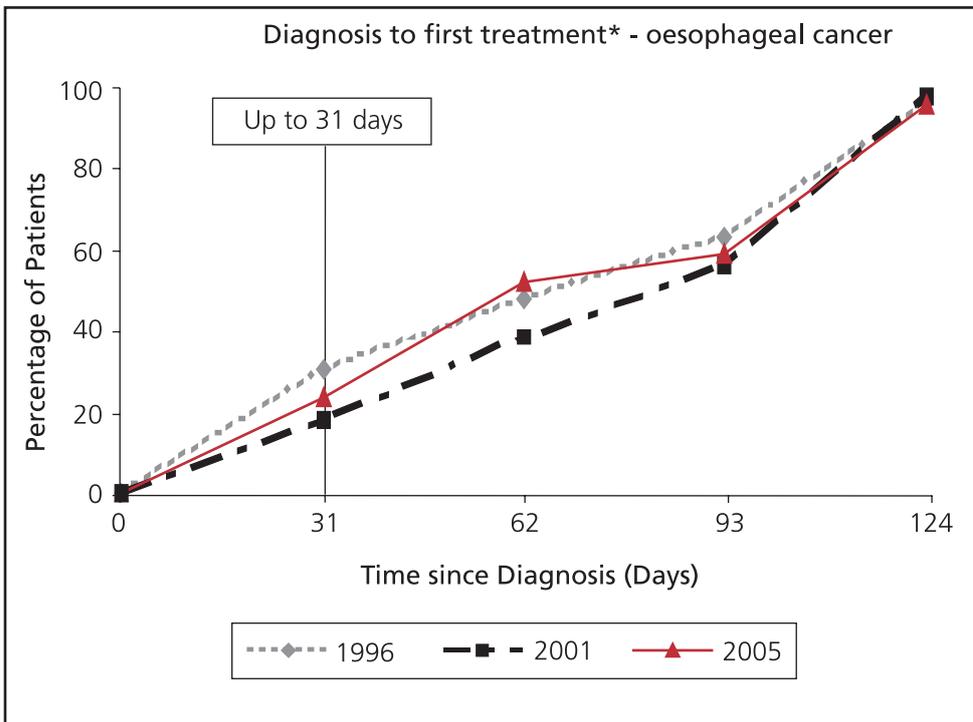
Summary timeline

Time	Date Referral Received * – Date of First Treatment** (62 days)			Date of Diagnosis – Date of First Treatment** (31 days)		
	1996	2001	2005	1996	2001	2005
Same day	0	0	0	7 (4%)	4 (2%)	2 (1%)
1 day – 31 days	25 (13%)	9 (4%)	20 (10%)	55 (27%)	35 (16%)	46 (23%)
32 days – 62 days	36 (18%)	34 (16%)	27 (14%)	35 (18%)	46 (21%)	58 (29%)
More than 62 days	85 (43%)	112 (52%)	68 (34%)	8 (4%)	65 (30%)	59 (30%)
Minus values***	2 (1%)	17 (8%)	6 (3%)	24 (12%)	18 (8%)	14 (7%)
No treatment	36 (18%)	29 (14%)	19 (10%)	36 (18%)	29 (13%)	19 (10%)
Date referral received/first treatment not recorded	16 (8%)	13 (6%)	58 (29%)	35 (18%)	17 (8%)	NA
Total Patients	200	214	198	200	214	198

* Date of referral is used for 1996 and 2001 but date referral received by the hospital is used for 2005 ** First treatment includes patients who have had surgery or oncology treatment or if this is not the case, palliative interventions are used ie. stent, laser and enteral feeding. If a patient has had a palliative intervention and then went on to have surgery or oncology then the date of palliative intervention is not used and the date of surgery or oncology is taken *** These patients were being monitored for pre-existing conditions before their cancer was diagnosed. They all had palliative interventions and did not receive surgery or oncology treatment

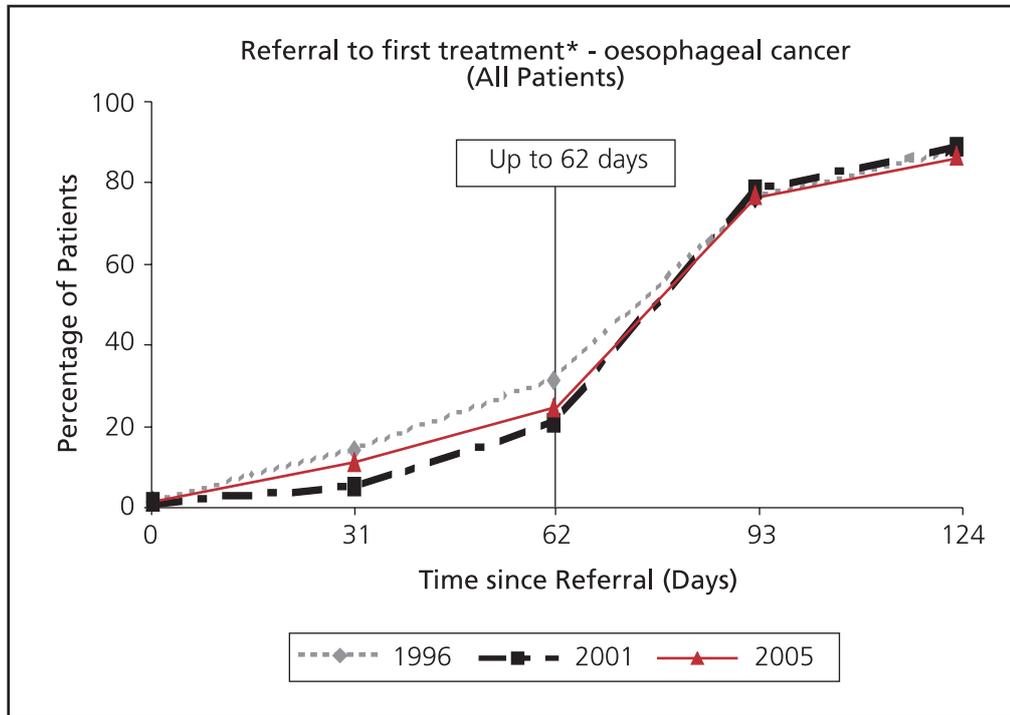
- In 2005 at least a third, possibly over half of patients, fell outside the standard for referral to first treatment of 62 days.
- At least 30% of patients fell outside the 31 day standard for diagnosis to first treatment.
- There were significantly more patients from the Southern Board who waited more than 62 days from referral to first treatment compared to any other Board ($p < 0.05$) in 2005.
- There was no variation by Board of residence for those patients who waited more than 62 days from diagnosis to receiving their first treatment in 2005.

Waiting times for oesophageal cancer patients 1996, 2001 & 2005 (All Patients)



*NOTE: Graph includes only patients who received treatment and excludes 4 patients in 1996, 3 in 2001 and 6 in 2005 whose waiting times were classified as outliers (32-79 weeks)

- 31% in 1996, 18% in 2001 and 24% in 2005 were being treated within the target.



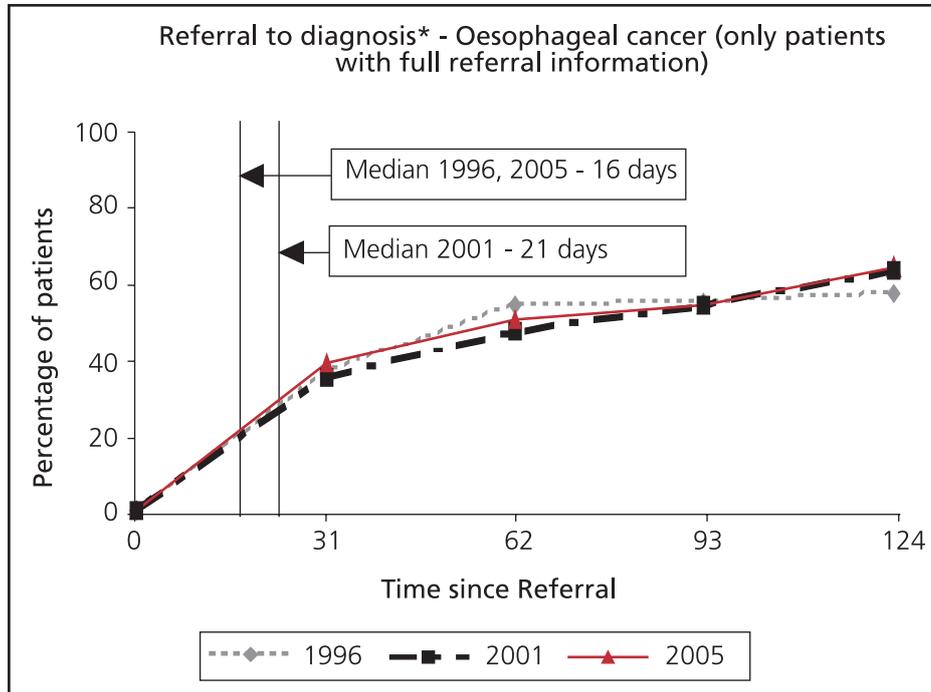
*NOTE: Graph includes only patients who received treatment and excludes 17 patients in 1996, 17 in 2001 and 20 in 2005 whose waiting times were classified as outliers (42-81 weeks)

- 31% in 1996, 20% in 2001 and 24% in 2005 were being treated within the target.

Summary timeline

Time	Date Referral Received* – Date of Diagnosis		
	1996	2001	2005
Same day	3 (2%)	5 (2%)	–
1 day – 31 days	73 (37%)	78 (36%)	84 (42%)
32 days – 62 days	41 (20%)	29 (14%)	25 (13%)
More than 62 days	–	30 (14%)	27 (14%)
Minus values***	8 (4%)	5 (2%)	3 (2%)
Date referral received not recorded	75 (23%)	67 (31%)	59 (30%)
Total Patients	200	214	198

* Date of referral is used for 1996 and 2001 but date of referral received by the hospital is used for 2005



*NOTE: Graph includes only patients who had a date of referral recorded in their notes and excludes 75 patients in 1996, 67 in 2001 and 59 in 2005 whose waiting times were classified as outliers (30-54 weeks)

- 59% in 1996, 52% in 2001 and 55% in 2005 were being diagnosed within 62 days of referral.

Investigation delays – PET scan

- Of the 110 patients who received a PET scan in 2005 25% waited up to one week from time of referral. A further 36% waited between 8-14 days, 20% waited between 15-36 days and the remaining 19% did not have sufficient dates recorded to calculate a delay.
- There was no significant difference in the delays by patients Board of residence.

Information recorded in notes

Information	Number of Patients (%)		
	1996	2001	2005
Diagnosis discussed with patient	135 (68%)	172 (80%)	120 (61%)
Treatment plan discussed with patient	132 (66%)	176 (82%)	158 (80%)
Written information given	2 (1%)	6 (3%)	NP
Referred to oncology centre	82 (41%)	99 (46%)	131 (66%)
Management discussed with oncologist	94 (47%)	123 (57%)	116 (59%)
Referred for counselling	37 (19%)	82 (38%)	NP
Clinical trial discussed with patient	14 (7%)	16 (7%)	7 (4%)
Clinical trial participation recorded in notes	13 (7%)	15 (7%)	7 (4%)
Multidisciplinary team meeting	2 (1%)	68 (32%)	120 (61%)
Treatment plan recorded	1 (1%)	57 (27%)	111 (56%)
Total patients	200	214	198

NP = Not on proforma

- Since 1996, recording of information in the clinical records has improved. They are more likely to contain a written treatment plan and that patients' management has been discussed with an oncologist and/or a record of oncology referral.
- Recording that a multidisciplinary team meeting had taken place improved substantially by 2005.
- By 2005 there was a decrease in the recording of diagnoses being discussed with the patient.
- Although the recording of treatment plans greatly improved they were only available for half of patients by 2005.
- In 1996 and 2001, 7% of patients were entered into clinical trials but only 4% in 2005. This may reflect the availability of trials.

Follow-up Care Details

This relates to information recorded anywhere in the patients notes including the discharge letter from hospital to GP. (Patients may have had more than one referral)

After care

After care	Number of Patients (%)		
	1996 (n=200)	2001 (n=214)	2005 (n=198)
GP (General Practice)	173 (87%)	169 (79%)	31 (16%)*
Community/District nurse	48 (24%)	58 (27%)	94 (47%)
Macmillan/Marie Curie nurse	35 (18%)	73 (34%)	92 (46%)
Hospice	34 (17%)	32 (15%)	27 (14%)
Palliative care specialist	23 (12%)	62 (29%)	88 (44%)
Psychologist	3 (2%)	0	3 (2%)
Information on support groups education supplied	7 (4%)	2 (1%)	47 (24%)
Dietician Referral	95 (48%)	119 (56%)	158 (80%)
Social Worker	NP	NP	108 (55%)
No onward referral recorded	16 (8%)	1 (<1%)	–

NP = Not on proforma *This appears lower in 2005 due to differences in the proforma between all 3 years

- Rates of referral to Macmillan/Marie Curie nurses and Palliative care specialists increased substantially over the study period reflecting improved availability of these services.
- Over the past 10 years there has been an increase in the number of patients referred to Community/District nurses reflecting an increasing demand for this service.
- Referral to the Dietetic service improved so that over three quarters were referred in 2005.
- The increase in referral to palliative care specialists reflects a service that is used increasingly by patients with late stage disease. By 2005 almost half of referrals to palliative care presented with Stage IV disease (30% in 1996, 34% in 2001 and 47% in 2005).

Dietician referrals by Board of residence

Board of residence	1996	2001	2005
Northern	20 (50%)	27 (47%)	51 (82%)
Eastern	48 (51%)	61 (61%)	60 (83%)
Southern	18 (43%)	16 (53%)	32 (74%)
Western	9 (38%)	15 (56%)	15 (71%)
Total referrals	95 (48% of all patients)	119 (56% of all patients)	158 (80% of all patients)

- There were great improvements in the number of referrals to dieticians from each of the Board areas by 2005.

Route to Palliative care

Route to palliative care	Number of Patients (%) in 2005 who were referred to palliative care (n=88)
Hospital physician	22 (25%)
Hospital surgeon	21 (24%)
Via Multidisciplinary Team Meeting	1 (1%)
Ward nurse	17 (19%)
Other	27 (31%)

Reason for referral to palliative care

Reason	Number of Patients (%) in 2005 who were referred to palliative care (n=88)
Symptom relief	51 (58%)
Nutritional support	24 (27%)
Social needs	16 (18%)

- About half of all patients in 2005 who were referred to palliative care were referred by either a hospital physician or hospital surgeon.
- Over half of those referred to palliative care sought to obtain symptom relief with other reasons including nutritional support and social needs.

Information recorded in discharge letter to General Practitioner

Information	Number of Patients (%)		
	1996	2001	2005
Management Plan	188 (94%)	197 (92%)	175 (88%)
Prognosis	85 (43%)	76 (36%)	53 (27%)
Diagnosis discussed with patient	100 (50%)	123 (57%)	178 (90%)

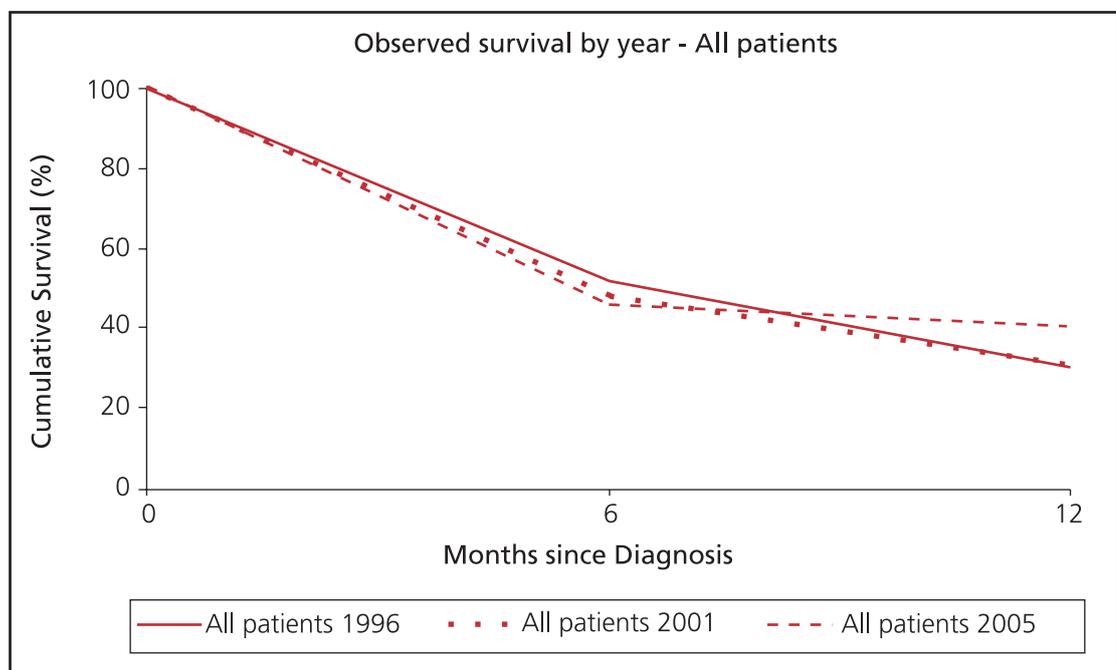
- There was a change in the information included in discharge letters to GPs between the three time periods; increased recording of discussion of diagnosis with the patient, reduced recording of prognosis or management plans.

Patient Outcomes

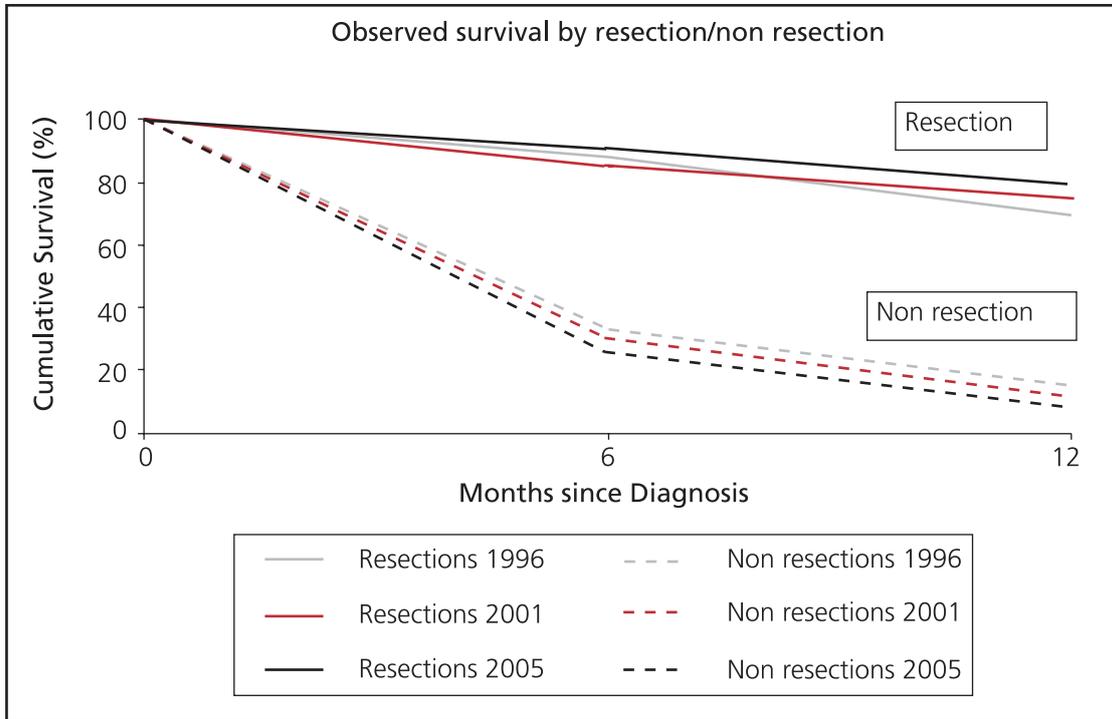
Survival analysis was performed on patients diagnosed in 1996, 2001 and 2005 with subgroup analysis for resection patients and non-resection patients for each year and for stage (all years combined).

Percentage of patients alive at various times after diagnosis (NOTE: At time of analysis 2005 diagnosed patients only had one year of follow up)

Time	Resection Patients			Non Surgery Patients			All Patients		
	1996	2001	2005	1996	2001	2005	1996	2001	2005
30 days	100%	100%	97%	84%	83%	90%	91%	89%	92%
60 days	97%	98%	96%	64%	69%	79%	76%	79%	86%
6 months	88%	85%	91%	33%	30%	25%	52%	48%	46%
1 year	69%	75%	79%	15%	12%	8%	30%	31%	41%
2 years	49%	49%	–	9%	5%	–	20%	17%	–
3 years	21%	31%	–	8%	3%	–	12%	13%	–
4 years	18%	28%	–	7%	2%	–	10%	11%	–
5 years	10%	23%	–	1%	0%	–	6%	2%	–
Total patients	59	59	49	141	155	149	200	214	198



- There was a significant difference in observed survival for the category 'all patients' diagnosed in 1996 compared to 2005, with 1-year survival of 30% in 1996 and 41% in 2005 ($p < 0.05$). This however was driven by the improved survival in resection patients in 2005 than 2001 or 1996.

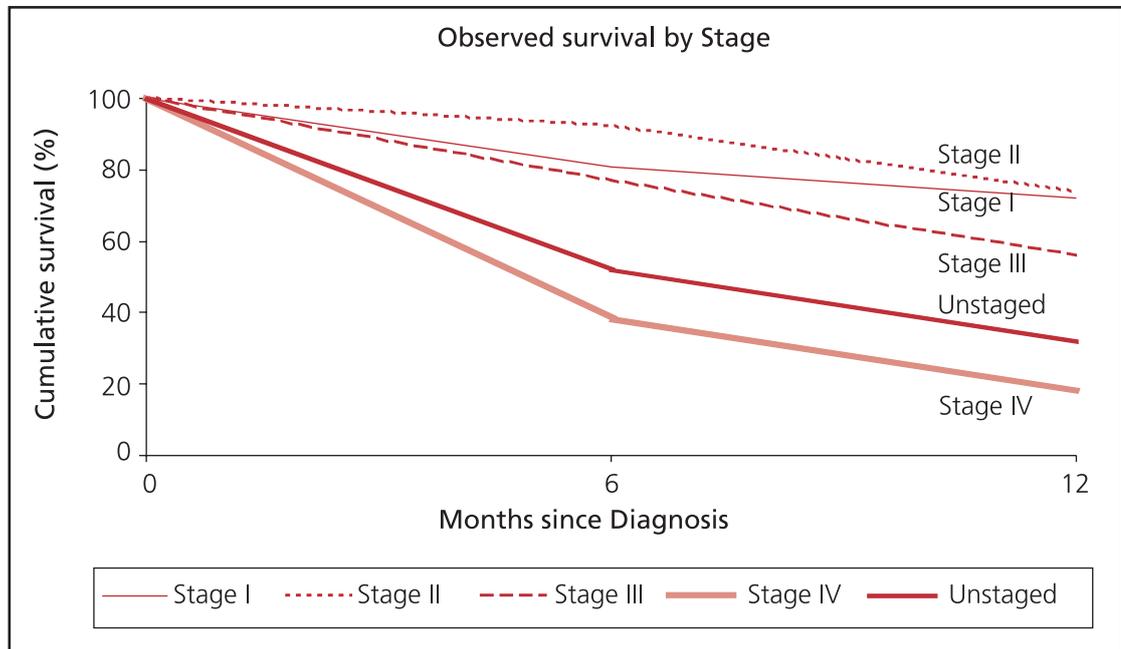


- Survival for resection patients overall was significantly better than non surgery patients for each of the three years ($p < 0.05$) reflecting patient selection.
- There was a significant difference in survival for resection patients between 1996 and 2005 (69% vs 79%) ($p < 0.05$) and between 1996 and 2001, with 5-year survival of 23% for 2001 patients compared to 10% in 1996. There was no significant difference in survival of resection patients between 2001 and 2005.
- Survival at 30 days and 60 days for oesophageal cancer patients was similar across all hospitals performing resections in 2005.

Percentage of patients alive at various times after diagnosis by stage (three years combined – all patients)

Time	Stage I	Stage II	Stage III	Stage IV	Not recorded
30 days	97%	100%	100%	91%	88%
60 days	91%	97%	97%	78%	78%
6 months	81%	92%	77%	38%	52%
1 year	72%	74%	56%	18%	32%
2 years*	48%	57%	27%	3%	11%
5 years*	11%	9%	1%	0%	3%
Total patients	34	43	46	131	355

*Only available for patients diagnosed in 1996 and 2001



- As expected there was a highly significant survival difference for stage at diagnosis ($p < 0.001$) with patients with earlier disease generally having better survival.

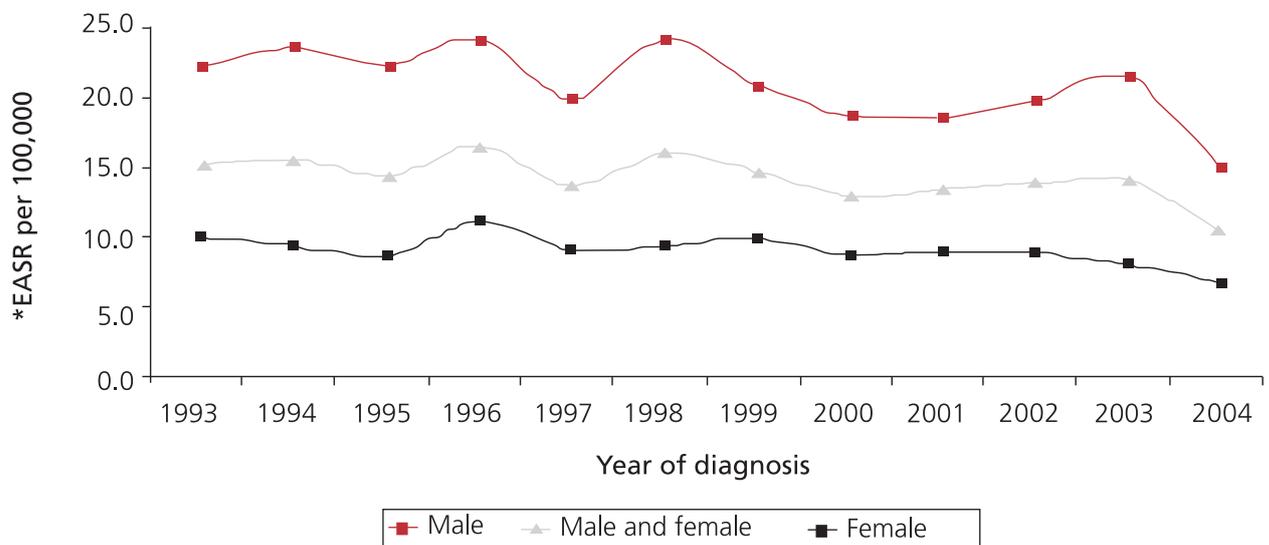
SECTION III – Stomach Cancer

BACKGROUND

Stomach cancer (excluding lymphoma) is a malignant epithelial tumour of the stomach mucosa with glandular differentiation. Stomach cancer is extremely rare below the age of 30; thereafter it increases rapidly and steadily to reach the highest rates in the oldest age groups with half of the cases diagnosed in Northern Ireland in males aged over 71 and in females aged over 75. Stomach cancer remains one of the most common forms of cancer worldwide with an estimated 870,000 new cases and 650,000 deaths per year; 60% of them occurring in developed countries¹². The areas with the highest incidence rates (>40/100,000) are in Eastern Asia, the Andean regions of South America and Eastern Europe. Low rates (<15/100,000) are found in North America, Northern Europe and most countries in Africa and in South-East Asia¹³. In Northern Ireland stomach cancer accounts for 1 in 25 cancers diagnosed in males and 1 in 50 cancers diagnosed in females³. A steady decline in the age standardised incidence and mortality rates of stomach cancer has been observed worldwide over the past several decades, but the absolute number of new cases per year is increasing mainly because of the ageing of the population¹³. This decline in rates is also happening in Northern Ireland.

This dramatic fall in rates suggests a major role for environmental factors in causation, particularly improvements in diet and food preservation¹⁴. Deprivation was shown to have a marked effect on both incidence and mortality, with a significant trend of higher levels in more deprived areas³.

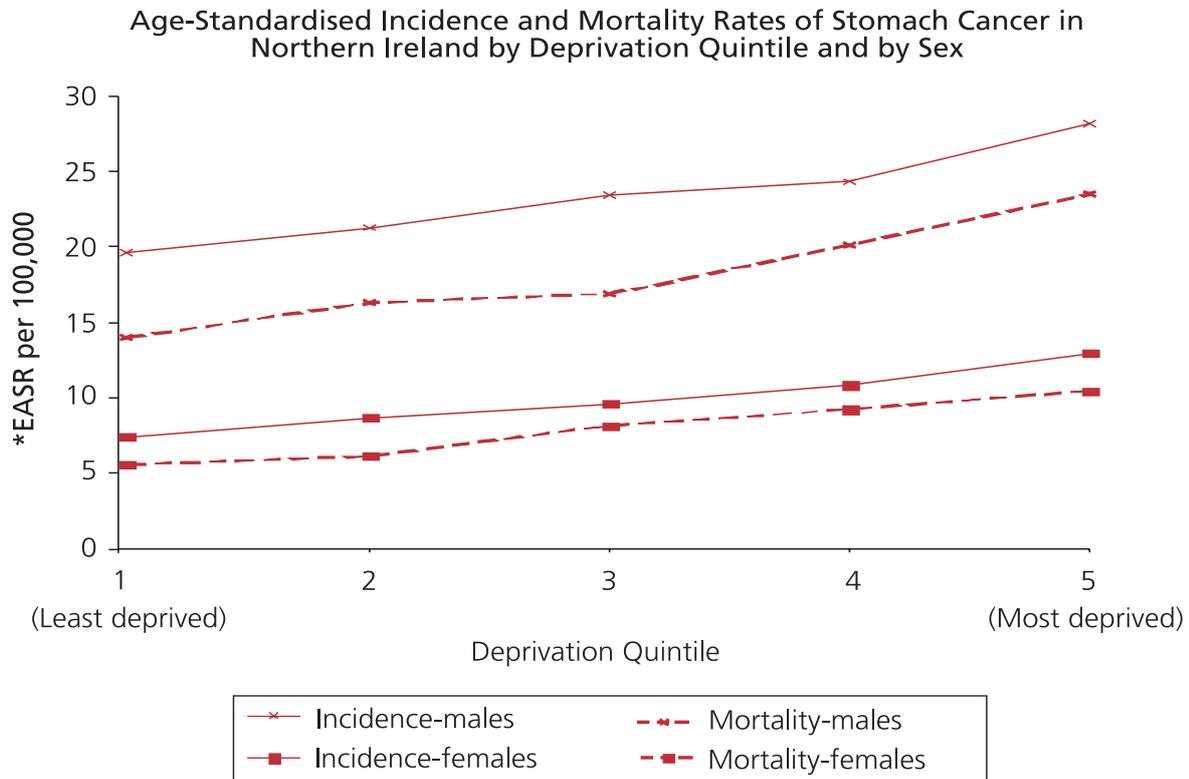
Incidence of Stomach Cancer (ICD10 C16)



* EASR = European Age Standardised Rates

Stomach cancer (also called gastric cancer) can develop in any part of the stomach. It begins in the inner lining and can spread throughout the stomach, penetrate the wall and progress to the adjacent lymph nodes.

Age-Standardised Incidence and Mortality Rates of Stomach Cancer in Northern Ireland by Deprivation Quintile and by Sex



* EASR = European Age Standardised Rates

Aetiology

Epidemiological studies in different populations show that the most consistent association is diet (salt, smoked and cured foods which contain N-nitroso compounds, nitrates and nitrites in preserved foods), helicobacter pylori infection, smoking and alcohol consumption¹⁵. Helicobacter pylori (H Pylori) are gram-negative spiral bacteria that are associated with chronic gastritis, a known precursor of gastric cancer. Persons at high risk for gastric cancer have been shown to have a high prevalence of H Pylori infection¹⁶. Much work is ongoing to determine the molecular genetics of this cancer which may shed light in the future on prevention and early detection. An adequate intake of fresh fruit and vegetables lowers the risk¹⁷.

The diagnosis of stomach cancer is often delayed as non-specific symptoms ie. vague abdominal pain, indigestion or black stools (from bleeding) are often attributed to peptic ulcer disease or other more common benign problems. A significant proportion of patients with early stomach cancer experience symptoms and in most cases these are typical dyspeptic (indigestion) symptoms. For this reason referral for endoscopy is recommended for all patients aged over 45 with new onset dyspepsia, who comprise the group at risk for gastric malignancy. The diagnosis of stomach cancer is made by biopsy using flexible fiberoptic endoscopy – a lighted tube is introduced through the mouth and the oesophagus, the stomach and the first part of the small intestine are examined. Suspicious areas are sampled by biopsy and the sample examined under a microscope by a pathologist. Anyone who has a suspicion of stomach cancer should undergo this type of investigative procedure.

Surgical resection is the mainstay of curative therapy for stomach cancer. If the disease is confined locally, an operation is recommended which typically involves removal of most of, and occasionally all of, the stomach in order to achieve wide excision margins. Chemotherapy and radiotherapy are also used to treat stomach cancer.

Survival is poor for stomach cancer at around 16% for 5 years³.

Study patients

Patients	1996	2001	2005
Total number of patients	196	199	155
Exclusions – Death Certificate only	12	5	1
Exclusions – Lack of information	5	18	15
Total Exclusions	17	23	16
Total reported – Male	98 (55%)	91 (52%)	79 (57%)
Total reported – Female	81 (45%)	85 (48%)	60 (43%)
Total	179 (100%)	176 (100%)	139 (100%)
Average age at diagnosis – Male	71	72	72
Average age at diagnosis – Female	72	74	75

- Data were available on 196 individuals in 1996, 199 individuals in 2001 and 155 individuals in 2005.
- Just over half of patients were male in all years.

Family history

History	Number of Patients (%)		
	1996	2001	2005
Family history of Stomach cancer	5 (3%)	13 (7%)	7 (5%)
Family history of other cancer	9 (5%)	26 (15%)	34 (24%)

- About one in 20 patients had a family history of stomach cancer and among these 86% reported stomach cancer in a first degree relative.

Socio-economic status of patients (NOTE: This table includes 56 patients who for the purposes of the majority of the analyses are excluded as they lacked information or information was available only from a death certificate)

Deprivation quintile	Number of Patients (%) – All years combined
Quintile 1 (Least Deprived)	96 (17%)
Quintile 2	107 (19%)
Quintile 3	108 (20%)
Quintile 4	109 (20%)
Quintile 5 (Most deprived)	130 (24%)
Total	550

- In the general population it is expected that 20% of all cases of disease would fall in each quintile. Our data shows that there were more stomach cancer cases in deprived quintiles than expected ($p < 0.05$), confirming the link with socioeconomic deprivation.

Source of referral to specialist care

Source	Number of Patients (%)		
	1996	2001	2005
GP	140 (78%)	142 (80%)	107 (77%)
General Surgeon	2 (1%)	1 (1%)	–
Physician	11 (6%)	4 (2%)	3 (2%)
A&E/Self referral	13 (7%)	16 (9%)	18 (13%)
Private sector	–	–	1 (<1%)
Medical Outpatients	–	–	8 (6%)
Surgical Outpatients	–	–	1 (<1%)
Other*	3 (2%)	8 (5%)	1 (<1%)
Total	179 (100%)	176 (100%)	139 (100%)

* These were made up of patients referred by gastroenterologists and patients already under review for stomach complaints

- The majority of patients were referred by their GP in all years, of which approximately one fifth were surgical or medical emergencies with no difference in the number of surgical or medical emergencies.
- 62% of referrals in 2005 were classified as urgent, 1% as semi-urgent and 5% as routine. The majority of referrals were done by letter (72%) in 2005.
- No patients were recorded as coming from Direct Access Endoscopy for any year, although this may be a recording issue which requires further scrutiny.

Symptoms at presentation (NOTE: Patients may present with more than one symptom)

Symptom	Number of Patients (%)		
	1996 (n=179)	2001 (n=176)	2005 (n=139)
Nausea & vomiting	79 (44%)	91 (52%)	71 (51%)
Abdominal pain	87 (49%)	85 (48%)	***26 (19%)
Dysphagia (Difficulty swallowing)	29 (16%)	27 (15%)	29 (21%)
Odynophagia (Pain swallowing)	6 (3%)	8 (5%)	1 (<1%)
Weight loss	89 (50%)	104 (59%)	78 (56%)
Loss of appetite	68 (38%)	70 (40%)	76 (55%)
Anaemia*	55 (31%)	47 (27%)	67 (48%)
Dyspepsia (Indigestion)/Regurgitation of food	46 (26%)	56 (32%)	37 (27%)
Lethargy	29 (16%)	44 (25%)	44 (32%)
Haematemesis/Melaena**	44 (25%)	39 (22%)	59 (42%)
Sialorrhoea (Increased salivation)	NP	NP	2 (1%)
Chest and/or epigastric pain	NP	NP	60 (43%)

NP= Not on proforma

*Anaemia is a low level of red blood cells **Haematemesis is vomiting of blood, Melaena is altered blood in stools *** Abdominal pain appears lower for patients in 2005 but this was reported only as an "other" symptom on the proforma. Where symptoms have been combined, care has been taken to ensure patients have only been counted once

- The most common symptoms were nausea and vomiting, abdominal pain and weight loss associated with loss of appetite.

Symptoms and Duration

Symptom		<1M	2M – 5M	6M – 11M	>12M	Not recorded	Total
Weight loss	1996	16 (18%)	33 (37%)	9 (10%)	12 (13%)	19 (21%)	89
	2001	20 (19%)	36 (34%)	14 (13%)	10 (9%)	24 (23%)	104
	2005	14 (18%)	25 (32%)	7 (9%)	11 (14%)	21 (27%)	78
Anaemia	1996	12 (21%)	5 (9%)	3 (5%)	3 (5%)	32 (58%)	55
	2001	7 (14%)	4 (8%)	2 (4%)	4 (8%)	30 (63%)	47
	2005	6 (9%)	5 (7%)	1 (1%)	5 (7%)	50 (75%)	67
Dyspepsia/ indigestion	1996	6 (13%)	17 (37%)	3 (6%)	8 (17%)	12 (26%)	46
	2001	11 (19%)	16 (28%)	4 (7%)	10 (17%)	15 (26%)	56
	2005	2 (5%)	10 (27%)	–	3 (8%)	22 (59%)	37
Loss of appetite	1996	23 (33%)	25 (36%)	4 (5%)	2 (2%)	14 (20%)	68
	2001	26 (37%)	22 (31%)	7 (10%)	3 (4%)	12 (17%)	70
	2005	20 (26%)	18 (24%)	3 (4%)	4 (5%)	31 (41%)	76
Lethargy	1996	12 (41%)	7 (24%)	5 (17%)	–	5 (17%)	29
	2001	18 (40%)	9 (20%)	6 (13%)	2 (4%)	7 (15%)	44
	2005	16 (36%)	8 (18%)	1 (2%)	–	19 (43%)	44
Haematemesis/ melaena	1996	31 (68%)	4 (9%)	–	–	9 (20%)	44
	2001	23 (64%)	4 (10%)	–	–	12 (31%)	39
	2005	25 (42%)	9 (15%)	1 (2%)	–	24 (41%)	59
Dysphagia/ odynophagia	1996	12 (41%)	8 (27%)	2 (6%)	1 (3%)	6 (20%)	29
	2001	5 (18%)	12 (44%)	–	1 (3%)	9 (33%)	27
	2005	6 (21%)	9 (31%)	2 (7%)	1 (3%)	11 (38%)	29
Nausea & vomiting	1996	42 (53%)	20 (25%)	4 (5%)	5 (6%)	8 (10%)	79
	2001	46 (50%)	20 (22%)	3 (3%)	–	22 (24%)	91
	2005	34 (48%)	10 (14%)	2 (3%)	3 (4%)	22 (31%)	71
Chest and/or epigastric pain	1996	Not on proforma					
	2001	Not on proforma					
	2005	19 (32%)	12 (20%)	–	–	29 (48%)	60

- There was no statistical difference in the recording of the duration of symptoms between the years reviewed.

Patients presenting within their own Board

Board of residence	Number of Patients presenting within own Board (% of total patients living in same Board)		
	1996	2001	2005
NHSSB	39 (85%)	34 (83%)	26 (81%)
EHSSB	78 (98%)	78 (99%)	71 (100%)
SHSSB	23 (92%)	23 (92%)	16 (89%)
WHSSB	28 (97%)	30 (97%)	17 (94%)

- As expected the majority of patients presented to hospitals within their own Health Board of residence although the figures for the Northern Board are lower in 2005 compared to the other two years.

Co-morbidities (NOTE: Patients may present with more than one co-morbidity)

Co-morbidity	Number of Patients (%)		
	1996	2001	2005
Chronic Obstructive Pulmonary Disease (COPD)	23 (13%)	20 (11%)	27 (19%)
Cardiovascular disease	54 (30%)	58 (33%)	55 (40%)
Peripheral Vascular Disease (PVD)	NP	NP	9 (6%)
Learning disability	–	–	5 (4%)
Cerebrovascular disease	10 (6%)	17 (10%)	20 (14%)
Psychiatric disorder	5 (3%)	3 (2%)	6 (4%)
Diabetes	9 (5%)	20 (11%)	18 (13%)
Hypertension	25 (14%)	43 (25%)	45 (32%)
Hiatus hernia	NP	NP	29 (21%)
Pernicious anaemia	18 (10%)	17 (10%)	13 (9%)
Peptic/stomach ulcer	33 (18%)	25 (14%)	30 (22%)
Barretts oesophagus	–	3 (2%)	2 (1%)

NP = Not on proforma

- Comorbidities were reported by about one third of patients in 2005 with the most common ones including cardiovascular disease, hypertension and peptic ulcer.
- Of those with a record of a peptic ulcer, about half had it recorded in the duodenum, for the other half it was gastric.

Frequency of co-morbidities found to be significant predictors of 1-year mortality for patients with stomach cancer using the Charlson Index⁹

Co-morbidity	Percentage of Patients with co-morbidity (% not recorded)		
	1996	2001	2005
Chronic Obstructive Pulmonary Disease (COPD)	13 (12%)	11 (8%)	19 (1%)
Cardiovascular disease	30 (11%)	33 (4%)	40 (1%)
Cerebrovascular disease	6 (13%)	10 (6%)	14 (2%)
Psychiatric disorder	3 (12%)	2 (5%)	4 (2%)
Diabetes	5 (12%)	11 (8%)	13 (1%)
Hypertension	25 (13%)	25 (7%)	32 (1%)
Pernicious anaemia	10 (15%)	10 (5%)	9 (1%)
Peptic/stomach ulcer	18 (11%)	14 (4%)	22 (2%)

- Recording of co-morbidities was better by 2005.

Significant drugs

- 30% of patients in 2005 reported being on aspirin with fewer using warfarin (9%) and plavix (anticoagulant) (9%).

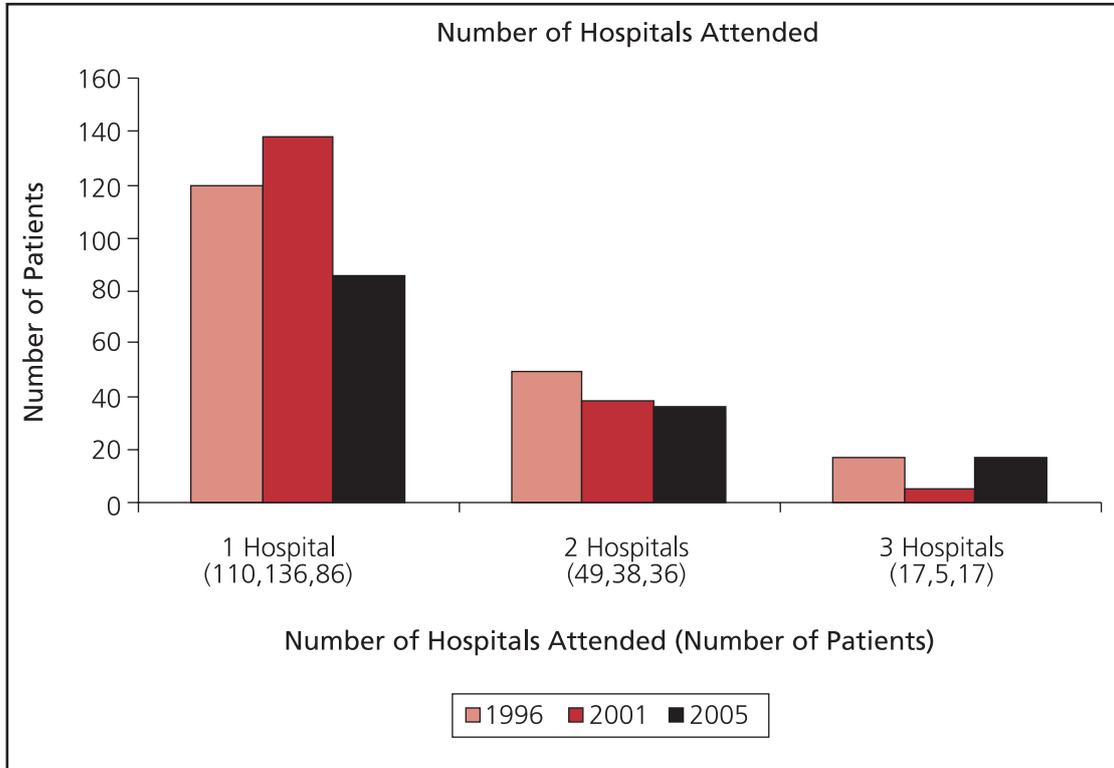
Hospital of presentation

Hospital	Number of Patients (%)					
	Including Emergencies			Excluding Emergencies		
	1996	2001	2005	1996	2001	2005
Belfast City (BCH)	22 (12%)	15 (9%)	15 (11%)	15 (14%)	7 (8%)	6 (12%)
Ulster (UH)	22 (12%)	20 (11%)	24 (17%)	12 (11%)	11 (13%)	12 (24%)
Altnagelvin (AH)	15 (8%)	19 (11%)	9 (6%)	8 (7%)	9 (10%)	3 (6%)
Craigavon Area (CAH)	12 (7%)	17 (10%)	7 (5%)	5 (5%)	9 (10%)	2 (4%)
Antrim (ANT)	20 (11%)	14 (8%)	12 (9%)	11 (10%)	3 (3%)	3 (6%)
Royal Victoria (RVH)	21 (12%)	23 (13%)	18 (13%)	15 (14%)	10 (11%)	7 (14%)
Mater (MIH)	10 (6%)	18 (10%)	16 (12%)	7 (6%)	6 (7%)	5 (10%)
Coleraine (COL)/ Causeway (CAU)	5 (3%)	8 (5%)	7 (5%)	4 (4%)	7 (8%)	2 (4%)
Mid Ulster (MUH)	9 (5%)	7 (4%)	4 (3%)	4 (4%)	5 (6%)	1 (2%)
Tyrone County (TCH)	7 (4%)	6 (3%)	4 (3%)	2 (2%)	4 (5%)	–
Whiteabbey (WHA)	5 (3%)	6 (3%)	3 (2%)	5 (5%)	3 (3%)	1 (2%)
Daisy Hill (DHH)	11 (6%)	6 (3%)	9 (6%)	6 (6%)	4 (5%)	5 (10%)
Erne (ERN)	7 (4%)	4 (2%)	4 (3%)	6 (6%)	3 (3%)	–
Downe (DH)	5 (3%)	4 (2%)	3 (2%)	3 (3%)	2 (2%)	–
Lagan Valley (LVH)	6 (3%)	3 (2%)	2 (1%)	2 (2%)	–	2 (4%)
Ulster Independent (UIC)*	–	2 (1%)	1 (<1%)	–	2 (2%)	1 (2%)
South Tyrone (STH)	1 (<1%)	1 (<1%)	–	1 (1%)	1 (1%)	–
North West Independent (NWC)*	1 (<1%)	–	1 (<1%)	–	–	1 (2%)
Not Recorded	–	3 (2%)	–	–	3 (3%)	–
Total	179 (100%)	176 (100%)	139 (100%)	106 (100%)	89 (100%)	51 (100%)

*The Ulster Independent Clinic and the North West Independent Clinic are private hospitals

- 179 patients presented to 17 hospitals in 1996 (16 if emergencies are excluded), 176 patients presented to 17 hospitals in 2001 (16 if emergencies are excluded) and 139 patients presented to 17 hospitals in 2005 (14 if emergencies are excluded).
- By 2005, 61% of patients presented to a Cancer Unit/Cancer Centre.
- In each year 1996, 2001 and 2005 17 hospitals received patients with stomach cancer.

Hospitals attended



- There was an increase in the number of patients who attended either the Cancer Centre or Cancer Units for treatment in 2005 compared to the other two years.
- Between 1996 and 2005 there was a reduction in the number of patients attending only one hospital indicating possibly that patients were being referred to specialist care after diagnosis.

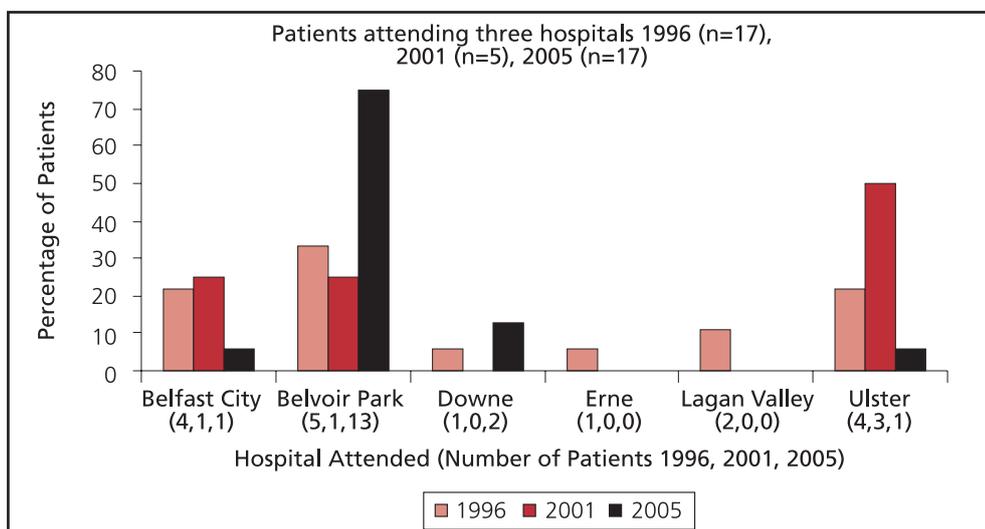
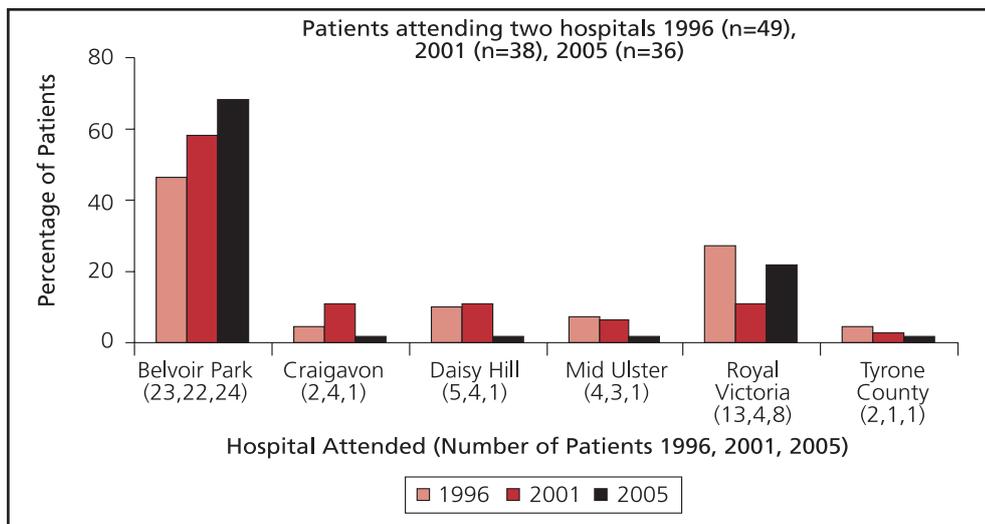
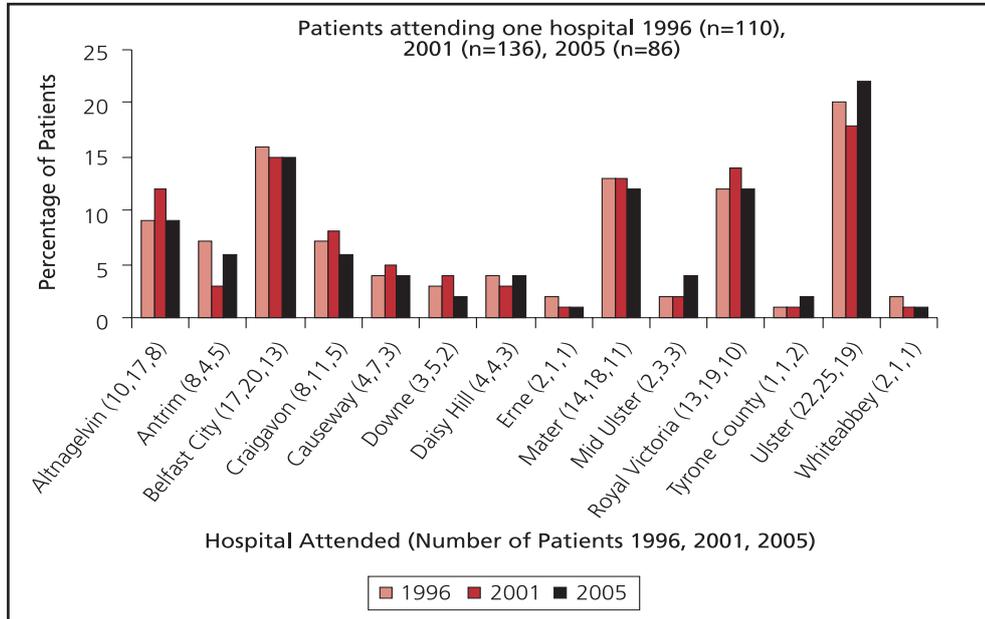
Total Patients ever attending each hospital (NOTE: Patients are counted more than once)

Hospital	1996	2001	2005
Altnagelvin	25	19	11
Antrim	14	16	13
Banbridge	1	0	0
Belfast City	21	21	22
Belvoir Park	28	37	43
Craigavon	16	15	10
Coleraine/Causeway	8	7	7
Daisy Hill	12	16	8
Downe	4	7	5
Erne	12	9	5
Lagan Valley	19	16	3
Mater	14	18	17
Mid Ulster	6	6	5
Royal Victoria	47	61	26
South Tyrone	4	2	0
Tyrone County	3	6	5
Ulster	37	43	24
Ulster Independent Clinic*	1	4	0
Whiteabbey	8	6	3

* The Ulster Independent Clinic is a private hospital

- The hospitals which treated most stomach cancer patients in 2005 were the Royal Victoria and Belvoir Park hospitals.
- There were more patients who attended Belvoir Park Hospital (regional radiotherapy unit) for some part of their treatment in 2005 compared to 1996 and 2001.

Number of hospitals attended



Investigations (NOTE: Patients may have received more than one type of investigation)

Investigation	Number of Patients (%)							
	All Patients				Surgery* Patients			
	1996 (n=179)	2001 (n=176)	2005 (n=139)	% change 1996- 2005	1996 (n=94)	2001 (n=88)	2005 (n=63)	% change 1996- 2005
Endoscopy	149 (83%)	160 (91%)	135 (97%)	+14%	87 (93%)	82 (93%)	60 (95%)	+2%
USS Abdomen	84 (47%)	77 (44%)	55 (40%)	-40%	49 (49%)	31 (35%)	21 (33%)	-16%
CT Chest/ Abdomen	64 (36%)	115 (65%)	122 (88%)	+52%	42 (47%)	64 (67%)	59 (94%)	+47%
Barium Meal	86 (48%)	53 (30%)	33 (24%)	-24%	57 (61%)	33 (38%)	16 (25%)	-36%
Chest X-Ray	94 (53%)	87 (49%)	97 (70%)	+17%	63 (67%)	56 (64%)	44 (70%)	+3%
Bronchoscopy	2 (1%)	2 (1%)	3 (2%)	+1%	–	1 (2%)	2 (3%)	+3%
Endoscopic USS**	NP	NP	10 (7%)	NA	NP	NP	7 (11%)	NA
MRI Scan	NP	1 (<1%)	5 (4%)	NA	NP	1 (2%)	3 (4%)	NA
PET Scan**	NP	NP	15 (11%)	NA	NP	NP	10 (16%)	NA
H Pylori	31 (17%)	41 (23%)	46 (33%)	+16%	24 (26%)	26 (30%)	24 (38%)	+12%

NP = Not on proforma *Surgery includes curative resection, bypass procedures and laparotomy

** Staging investigation

- Between 1996 and 2005 use of CT scanning increased from 36% to 88% (all patients) and 47% to 94% (patients undergoing surgery) while there was a shift away from use of barium meal and USS abdomen.
- Over the past 10 years almost all patients received an endoscopy investigation while use of newer investigations increased eg. endoscopic ultrasound and PET Scan.
- In addition to the above investigations in 2005, 46 (33%) of patients had a record of having had a H Pylori test carried out of which 50% were positive.

Histopathology

Type	Number of Patients (%)		
	1996	2001	2005
Adenocarcinoma	135 (75%)	143 (81%)	110 (79%)
Carcinoid, NOS *	11 (6%)	9 (5%)	7 (5%)
Leiomyosarcoma, NOS *	1 (<1%)	1 (<1%)	1 (<1%)
Malignancy, NOS *	21 (12%)	21 (12%)	20 (14%)
Small Cell Carcinoma	1 (<1%)	1 (<1%)	1 (<1%)
Stromal Tumour	–	1 (<1%)	–
Not Recorded	10 (6%)	–	–
Total	179 (100%)	176 (100%)	139 (100%)

* NOS = Not Otherwise Specified

- As expected the majority of stomach cancers were adenocarcinomas.
- In 2001 all cases of stomach cancer were histologically confirmed. This remained high in 2005 with 97% of cases being verified histologically (remaining 3% were verified by clinical opinion and ultrasound scan of the abdomen). Pathological stage for 2% was not recorded in the notes and the remaining 1% were stage IV.

Staging (see also Appendix C)

The following table reflects patients who had stage recorded in their clinical notes or where they had sufficient information available in the notes to enable TVOs to assign a stage. The UICC TNM staging classification was applied¹⁰.

TNM Stage (recorded in notes or assigned by TVOs)

Stage	Number of Patients (%)					
	All Patients			Surgery* Patients		
	1996**	2001**	2005***	1996**	2001**	2005***
IA	16 (9%)	4 (2%)	8 (6%)	15 (11%)	8 (6%)	8 (7%)
IB	7 (4%)	15 (9%)	4 (3%)	12 (9%)	21 (15%)	3 (3%)
II	15 (8%)	9 (5%)	4 (3%)	21 (15%)	19 (14%)	11 (9%)
III (A & B)	13 (7%)	22 (13%)	10 (7%)	16 (12%)	31 (22%)	8 (7%)
IV	44 (25%)	59 (33%)	94 (68%)	19 (14%)	14 (10%)	80 (67%)
Insufficient data for staging	84 (47%)	67 (38%)	19 (14%)	54 (39%)	47 (34%)	10 (8%)
Total patients	179	176	139	137	140	120

*Surgery includes curative resection, bypass procedures, laparotomy and laparoscopy ** Staging for 1996 and 2001 patients was available in the clinical notes or assigned independently by NICR TVOs *** Staging for 2005 patients was available either in the clinical notes, at MDM, at surgery, at oncology or assigned independently by NICR TVOs

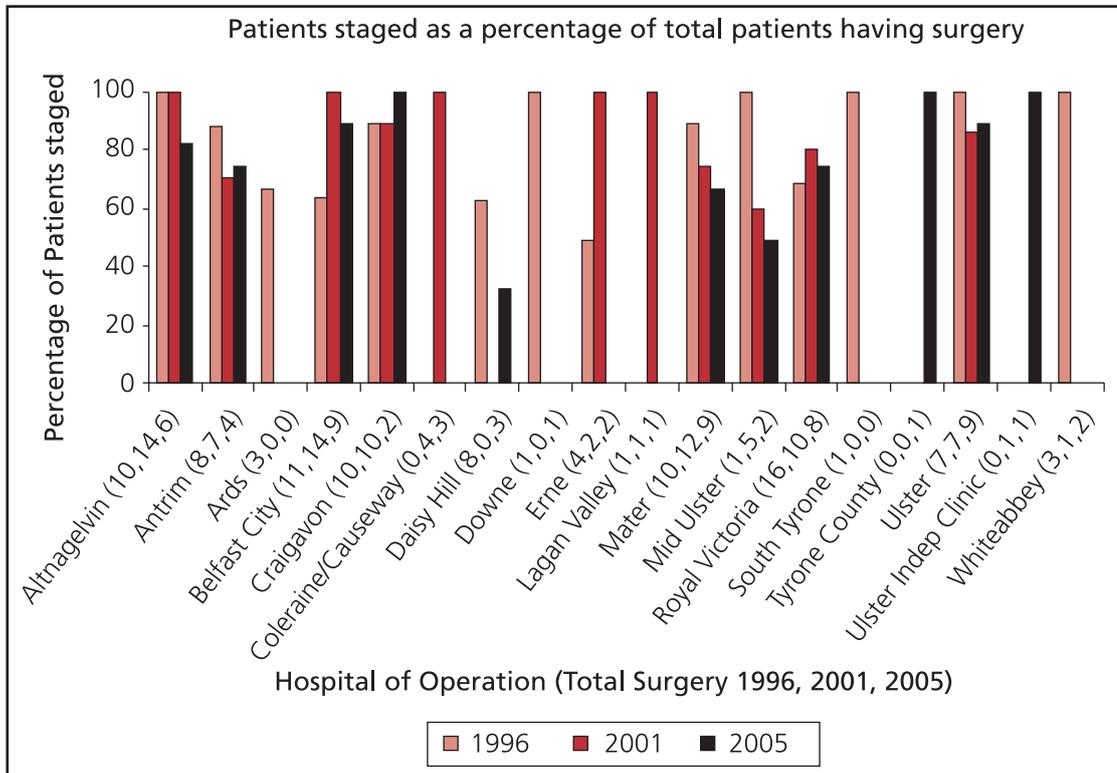
- Using all information available in the patients notes and using the TVO independent staging it was possible to derive information on stage on 86% of patients using the TNM classification¹⁰.
- For patients undergoing surgery however, the percentage of patients that were or could be staged increased from 61% to 66% by 2001 and then to 92% by 2005.

Patients with insufficient data for staging

Board of residence	Number of Patients (% unstaged of total in each area)		
	1996	2001	2005
NHSSB	20 (43%)	20 (49%)	6 (19%)
EHSSB	34 (43%)	25 (32%)	9 (13%)
SHSSB	14 (56%)	12 (48%)	2 (11%)
WHSSB	16 (55%)	10 (32%)	2 (11%)
N. Ireland	84 (47%)	67 (38%)	19 (14%)

- The percentage of patients for whom it was not possible to determine stage decreased between 1996 and 2005 in all Boards.

Staging by hospital for patients having surgery (includes curative resection, bypass procedures and laparotomy)



(NOTE: Ards, South Tyrone and Whiteabbey hospitals did not perform any surgery in either 2001 or 2005. Coleraine did not perform any surgery in 1996 or 2005 but did in 2001)

- Even in 2005 some surgery patients including resection patients had insufficient information recorded to allocate a stage.

Nodal Involvement

Numbers of lymph nodes examined, resection patients only

Nodes	Number of Patients (%)		
	1996	2001	2005
None	14 (19%)	6 (10%)	–
1-5	19 (26%)	9 (15%)	1 (2%)
6-9	17 (23%)	13 (21%)	5 (10%)
10-14	9 (12%)	9 (15%)	11 (22%)
15 or more	0	22 (35%)	23 (47%)
Not Recorded	15 (20%)	3 (5%)	9 (18%)
Total Patients	74	62	49

- By 2005 lymphadenectomy practice improved considerably with 47% of patients having 15 or more nodes examined and 69% having 10 or more nodes examined, in keeping with current recommendations¹⁸.

Multidisciplinary Team Meetings

The effective management of stomach cancer patients requires input from a range of experts. Multidisciplinary team meetings (MDMs) involve a group of healthcare professionals meeting to discuss the diagnosis and treatment of patients. As there is a range of potential treatments that could be carried out, multidisciplinary discussions are of great importance. We recognise that multidisciplinary team meetings may have taken place but evidence of such was not always apparent in the clinical notes.

Multidisciplinary Team Meetings recorded in the notes

MDM	Number of Patients (%)					
	1996		2001		2005	
	All patients	Surgery* patients	All patients	Surgery* patients	All patients	Surgery* patients
Yes	4 (2%)	2 (2%)	28 (16%)	14 (16%)	58 (42%)	32 (51%)
No	175 (98%)	92 (98%)	148 (84%)	74 (84%)	81 (58%)	31 (49%)
Total patients	179	94	176	88	139	63

*Surgery includes resection, bypass and laparotomy

- Recording in the clinical notes that discussion at an MDM had taken place improved from 2% in 1996 to 16% in 2001 to 42% in 2005 (51% for surgery patients in 2005).
- All hospitals that performed surgery in 2005 had MDMs recorded in the notes for patients. For patients operated on in the Mater and Mid Ulster discussion at MDM took place in either the Cancer Centre or Cancer Unit hospitals.
- Only half of stomach cancer surgery patients had a record of discussion at MDM.

Multidisciplinary Team Meetings by Hospital

Hospital	Number of Patients (% of total receiving MDM)
Altnagelvin	14 (24%)
Antrim	3 (5%)
Belfast City	16 (28%)
Belvoir Park	1 (2%)
Craigavon	1 (2%)
Royal Victoria	10 (17%)
Ulster	8 (14%)
Whiteabbey	1 (2%)
Hospital of MDM Not recorded	4 (7%)
Total	58

- Most MDM discussions took place in Altnagelvin and Belfast City hospitals.

Surgical Procedures

- In 1996, 74 surgical resections were carried out in 14 hospitals, while in 2001 62 resections were performed in 11 hospitals. By 2005 there were 49 resections carried out in 10 hospitals.

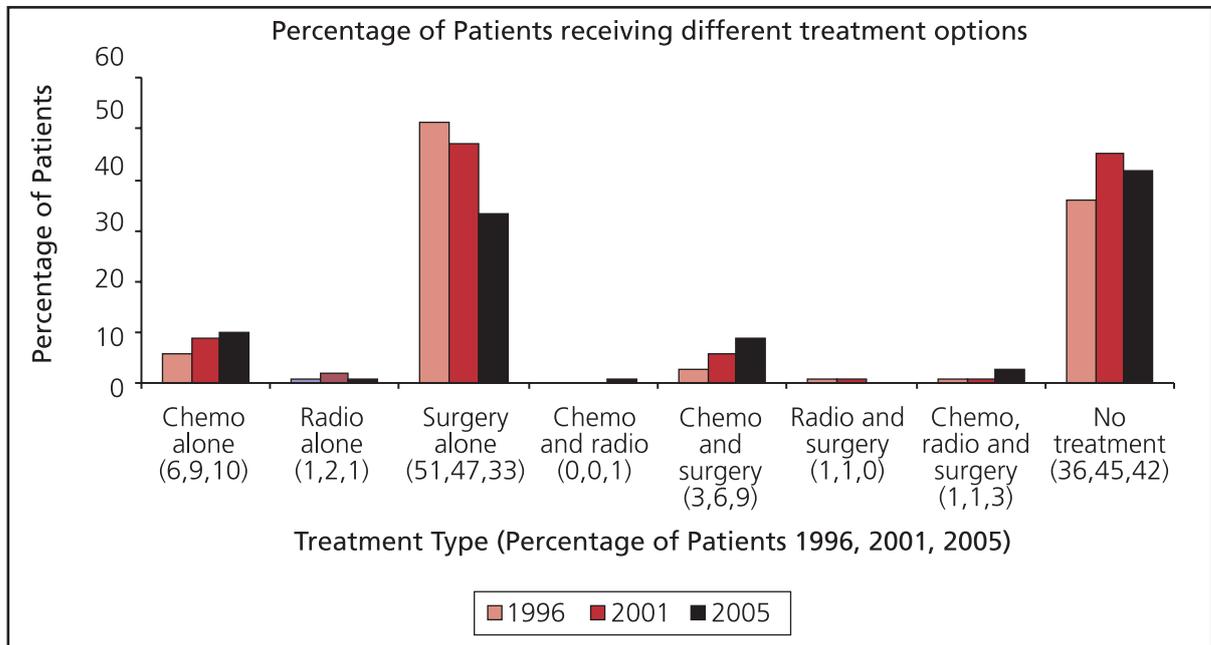
Treatment types by year

Treatment	1996	2001	2005
Surgery – Resection	74	62	49
Surgery – Laparotomy	10	15	9
Surgery – Bypass procedure	10	11	5
Total surgery	94	88	63
Any chemotherapy	11	17	32
Any radiotherapy	2	3	7

Stomach resections carried out by hospital

Hospital	1996		2001		2005	
	No of Procedures	No of Consultant Surgeons	No of Procedures	No of Consultant Surgeons	No of Procedures	No of Consultant Surgeons
Altnagelvin	8	2	9	2	6	2
Antrim	6	3	4	2	1	1
Ards	3	1	0	–	0	–
Belfast City	8	3	9	2	7	1
Craigavon	8	3	6	2	3	1
Coleraine	0	–	3	1	0	–
Daisy Hill	6	2	0	–	1	1
Downe	1	1	0	–	0	–
Erne	4	2	2	1	1	1
Lagan Valley	0	–	1	1	2	1
Mater	8	2	7	2	7	2
Mid Ulster	1	1	5	2	0	–
Royal Victoria	13	5	9	2	14	5
South Tyrone	1	1	0	–	0	–
Ulster	4	2	7	3	7	3
Whiteabbey	3	1	0	–	0	–
Total Procedures/ Surgeons	74	29	62	20	49	18

- The number of Consultant Surgeons carrying out curative resections for stomach cancer between 1996 and 2005 decreased by 38% yet by 2005 18 Consultant Surgeons performed 49 resections in 10 hospitals with 14 single operators.



Treatment types for patients with stomach cancer

Treatment Type	Number of Patients (%)		
	1996	2001	2005
Chemotherapy alone	11 (6%)	16 (9%)	14 (10%)
Radiotherapy alone	2 (1%)	4 (2%)	2 (1%)
Surgery alone	91 (51%)	83 (47%)	46 (33%)
Chemotherapy & Radiotherapy	–	–	2 (1%)
Chemotherapy & Surgery	5 (3%)	11 (6%)	13 (9%)
Radiotherapy & Surgery	2 (1%)	2 (1%)	–
Chemotherapy, Radiotherapy & Surgery	2 (1%)	2 (1%)	4 (3%)
No Treatment	64 (36%)	79 (45%)	58 (42%)

- Overall use of chemotherapy (alone or as part of combined modality therapy) increased from 10% in 1996 to 16% in 2001 to 23% in 2005.
- Use of radiotherapy (alone or as part of combined modality therapy) increased from 2% in 1996 to 4% in 2001 to 5% in 2005.
- By 2005 there was a small increase in the number of patients having combined modality therapy (surgery & chemotherapy) and a corresponding decrease in the number of patients having surgery alone.
- A third of patients in 1996 and 2001 and almost half in 2005 did not have surgery, chemotherapy or radiotherapy, which most likely reflects a significant proportion of patients presenting with advanced disease.
- Between 1996 and 2005 the percentage of patients having surgery decreased from 53% to 45% reflecting improved patient selection for radical intervention.
- By 2005, only 18% of patients had no treatment when palliative interventions are taken into account as well as surgery and oncology treatment.
- There was no variation across Health Board of residence in treatment patterns.

Stage of patients who did not receive any treatment

Stage	Number of Patients (%)		
	1996	2001	2005
Stage I	3 (5%)	4 (7%)	–
Stage II	–	–	–
Stage III	–	–	1 (2%)
Stage IV	10 (17%)	19 (33%)	20 (34%)
Stage Not Recorded	47 (78%)	35 (60%)	38 (64%)
Total	60	58	59

The 3 patients who had Stage I recorded disease in 1996 were aged over 80 years at the time of diagnosis. Of the 4 patients with Stage I recorded disease in 2001, 2 were over 80 years at the time of diagnosis, one had a carcinoid tumour and the other died shortly after admission to hospital. The patient in 2005 with Stage III disease was over 80 years at the time of diagnosis.

Centre Workload

- More resections were performed in the Royal Victoria than any other hospital and the numbers were highest in 2005 (n=14).
- In other hospitals numbers were very small eg. the number of resections performed at the Ulster increased from 4 to 7, Altnagelvin numbers decreased slightly from 8 to 6, Antrim fell from 6 to 1 between 1996 and 2005 and the same pattern was evident in Craigavon where the numbers fell from 8 to 3.
- About two thirds of resections (64%, n=47) were performed in the hospitals now designated as the Cancer Centre or cancer units in 1996. This improved by 2001 when 71% (n=44) of resections took place in these hospitals and by 2005 almost 80% (n=38) of resections took place in these 6 hospitals.
- The Association of Upper Gastrointestinal Surgeons of Great Britain and Ireland (AUGIS) 2002¹⁹ reported that Centres in the UK performing more than 10 stomach cancer resections per year all had mortality rates below 8% at one year. Only the Royal Victoria Hospital achieved the AUGIS recommended level in 2005 of 10 or more stomach cancer operations, however this workload was shared among 5 consultants.

Percentage of patients in each Board who receive resections in their own Health Board of residence

Board of residence	Percentage of Patients		
	1996	2001	2005
NHSSB	75%	61%	11%
EHSSB	100%	92%	100%
SHSSB	100%	96%	80%
WHSSB	86%	80%	100%

- The majority of patients received surgery within their local Health Board in all three years except for residents of the Northern Board in 2005 (only 1 patient received a resection in Antrim, 6 went to the Royal Victoria and 2 went to Belfast City). Patients from the Southern Board treated outside of the Southern Board went to Belfast City Hospital.

Frequency of stomach cancer operations (resections and bypass procedures) carried out by surgeon*

	Number of Surgeons (% of procedures)		
	1996	2001	2005
6 or more procedures	3 (22%)	4 (28%)	3 (44%)
2-5 procedures	15 (58%)	17 (64%)	5 (30%)
1 procedure	17 (20%)	6 (8%)	14 (26%)
Total surgeons	35	27	23
Total procedures	84	73	54

* Surgeon = Consultant in charge

- The number of surgeons performing resections and bypass procedures decreased by one third from 35 in 1996 to 23 in 2005.
- The number of surgeons performing more than 6 resections remained similar across the years. The most resections and bypass procedures carried out by any one surgeon across all three years was 9.
- There was a higher percentage of procedures carried out in 2005 by surgeons who performed 6 or more procedures.
- By 2005 there were 14 single operators representing 14 out of 54 patients, over half of all operators, a situation which had worsened since 2001.

Palliative Procedures (NOTE: Patients who have had any of the following treatments have not had a curative resection and have availed of palliative care only)

Type	Number of Patients (%) in 2005 (n=90*)
Stent	7 (8%)
Laser	1 (1%)
Enteral feeding	18 (20%)

* Number of patients excluding those who had a curative resection

- Of those patients in 2005 who had a stent, 71% were performed in the Eastern Board. The one patient who received laser treatment received it in the Eastern Board. The same pattern was evident for those who needed enteral feeding (67% in the Eastern Board).

Palliative procedures by Board of residence (2005 only)

Board of residence	Number of Patients (%)			Total in each Board
	Stent	Laser	Enteral feeding	
Northern	1 (3%)	–	8 (25%)	32
Eastern	4 (6%)	1 (1%)	7 (10%)	71
Southern	1 (6%)	–	2 (11%)	18
Western	1 (6%)	–	1 (6%)	18
Total	7 (8%)*	1 (1%)*	18 (20%)*	

* This figure represents patients who availed of palliative care only and did not have a curative resection

- There were more patients who resided in the Eastern Board that received a stent than any other Board. The rates of enteral feeding recorded varied by Health Board of residence and was fewest in Southern and Western Board patients.

Hospital of oncology* referral

Hospital	Number of Patients (%)		
	1996	2001	2005
Altnagelvin	–	7 (10%)	–
Antrim	–	4 (6%)	–
Belfast City	1 (4%)	30 (44%)	58 (73%)
Belvoir Park	22 (96%)	20 (29%)	16 (20%)
Craigavon	–	7 (10%)	2 (3%)
Royal Victoria	–	–	1 (1%)
Ulster	–	–	2 (3%)
Total	23	68	79
Not Referred to Oncology	156 (87% of all patients)	108 (61% of all patients)	60 (43% of all patients)

*Chemotherapy, radiotherapy or a combination of both

- By 2005 almost two thirds of patients (57%) had some form of oncology referral – an increase from only 13% in 1996 and 39% in 2001.

Timelines

Timelines were examined in line with the current standards regarding waiting times. The two targets examined are that of the delay between referral and the date of first treatment (62 days) and also for diagnosis to the date of first treatment (31 days). The delay between referral and diagnosis was also examined for all patients.

The following tables show percentages based on all patients in that year.

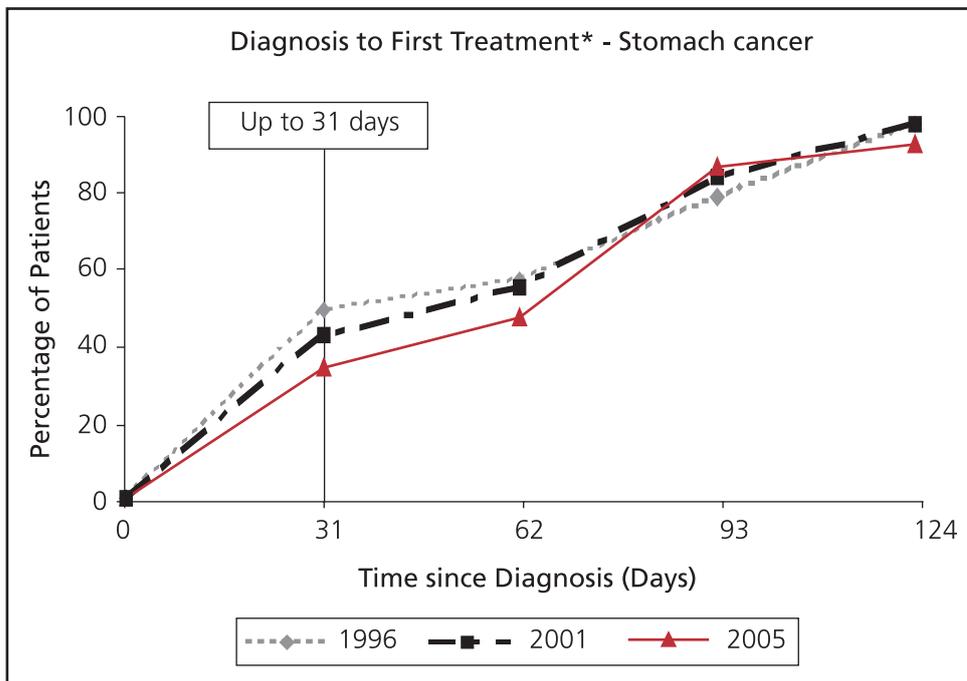
Summary timeline

Time	Date Referral Received *– Date of First Treatment** (62 days)			Date of Diagnosis – Date of First Treatment** (31 days)		
	1996	2001	2005	1996	2001	2005
Same day	1 (<1%)	–	–	27 (15%)	14 (8%)	6 (4%)
1 day – 31 days	45 (25%)	42 (24%)	11 (8%)	65 (36%)	63 (36%)	43 (31%)
32 days – 62 days	27 (15%)	24 (14%)	16 (12%)	15 (8%)	22 (13%)	19 (14%)
More than 62 days	28 (16%)	35 (20%)	42 (30%)	2 (1%)	6 (3%)	25 (18%)
Minus values***	–	1 (<1%)	2 (1%)	1 (<1%)	5 (3%)	5 (4%)
No treatment	36 (20%)	24 (14%)	15 (11%)	36 (20%)	24 (14%)	15 (11%)
Date referral received/ first treatment not recorded	42 (23%)	50 (28%)	53 (38%)	33 (18%)	42 (24%)	26 (19%)
Total Patients	179	176	139	179	176	139

* Date of referral is used for 1996 and 2001 but date of referral received by the hospital is used for 2005 ** First treatment includes patients who have had surgery or oncology treatment or if this is not the case, palliative interventions eg. stent, laser and enteral feeding. If a patient has had a palliative intervention and then went on to have surgery or oncology then the date of palliative intervention is not used and the date of surgery or oncology is taken *** These patients were being monitored for pre-existing conditions before their cancer was diagnosed. They all had palliative interventions and did not receive surgery or oncology treatment

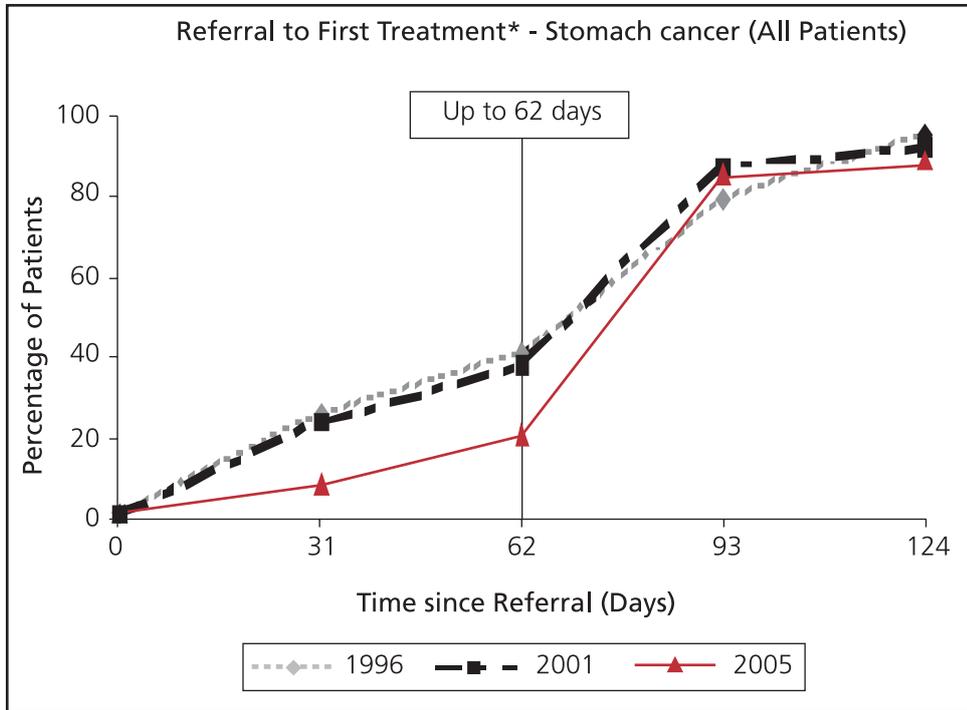
- In 2005 over three quarters of patients fell outside the standard for referral to first treatment of 62 days.
- At least 60% of patients fell outside the 31 day standard for diagnosis to first treatment.
- There were significantly more patients who resided in the Eastern Board who waited more than 62 days from referral to receiving their first treatment compared to residents of any other Board ($p < 0.05$).
- There were significantly more patients who reside in the Eastern Board who waited more than 31 days from diagnosis to receiving their first treatment compared to patients residing in other Board areas ($p < 0.05$).

Waiting times for stomach cancer patients 1996, 2001 & 2005 (All patients)



*NOTE: Graph includes only patients who received treatment and excludes 7 patients in 2005 whose waiting times were classified as outliers (26-56 weeks)

- There was a decrease in the number of patients being treated within 31 days of diagnosis (51% in 1996, 44% in 2001, 35% in 2005).



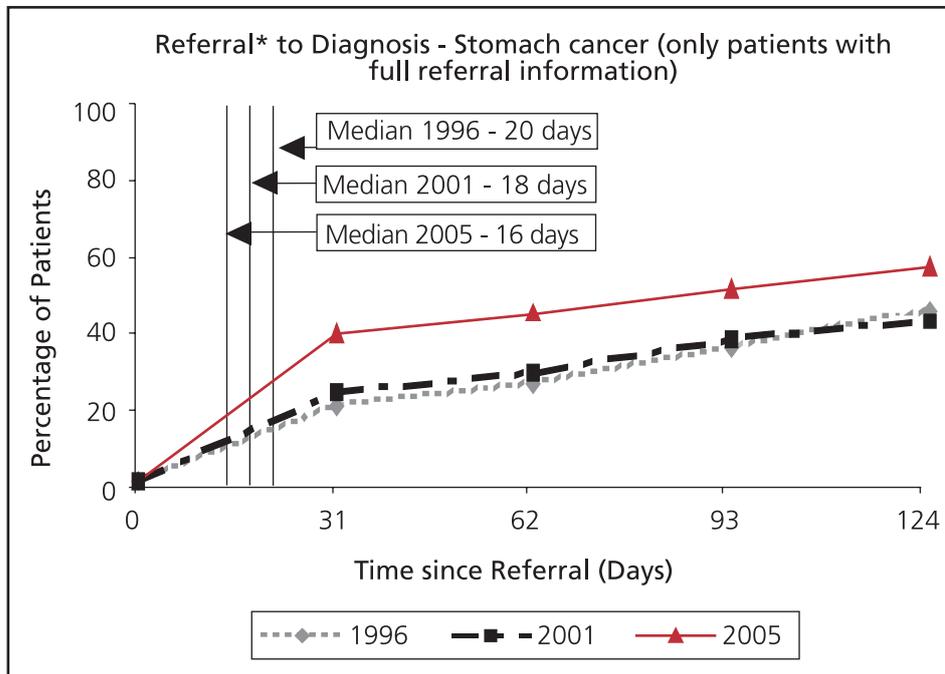
*NOTE: Graph includes only patients who received treatment and excludes 4 patients in 1996, 8 in 2001 and 13 in 2005 whose waiting times were classified as outliers (21-103 weeks)

- 41% in 1996, 38% in 2001 and 20% in 2005 were being treated within the target.

Summary timeline

Time	Date Referral Received* – Date of Diagnosis		
	1996	2001	2005
Same day	5 (3%)	1 (<1%)	–
1 day – 31 days	32 (18%)	43 (24%)	57 (41%)
32 days – 62 days	11 (6%)	9 (5%)	8 (6%)
More than 62 days	24 (13%)	20 (11%)	17 (12%)
Minus values***	14 (8%)	8 (5%)	2 (1%)
Date referral received not recorded	93 (52%)	95 (54%)	55 (40%)
Total Patients	179	176	139

* Date of referral is used for 1996 and 2001 but date of referral received by the hospital is used for 2005



*NOTE: Graph includes only patients who had a date of referral recorded in their notes and excludes 93 patients in 1996, 95 in 2001 and 55 in 2005 whose waiting times were classified as outliers (30-56 weeks)

- 27% in 1996, 30% in 2001 and 47% in 2005 were being diagnosed within 62 days of referral.

Information recorded in notes

Information	Number of Patients (%)		
	1996 (n=179)	2001 (n=176)	2005 (n=139)
Diagnosis discussed with patient	108 (60%)	133 (76%)	63 (45%)
Treatment plan discussed with patient	108 (60%)	128 (73%)	96 (69%)
Written information given	1 (<1%)	3 (2%)	NP
Referred to oncology centre	23 (13%)	67 (38%)	79 (57%)
Management discussed with oncologist	35 (20%)	83 (47%)	57 (41%)
Referred for counselling	25 (14%)	56 (32%)	NP
Clinical trial discussed with patient	6 (3%)	13 (7%)	–
Clinical trial participation recorded in notes	3 (2%)	8 (5%)	–
Multidisciplinary team meeting	4 (2%)	28 (16%)	58 (42%)
Treatment plan recorded	3 (2%)	29 (17%)	54 (39%)

NP = Not on proforma

- Since 1996 recording of information in the clinical records has changed. Notes are more likely to contain a treatment plan and evidence that the patient has been discussed at a multidisciplinary team meeting. There is more evidence of referral to an oncology centre by 2005.
- Recording that a multidisciplinary team meeting had taken place had greatly improved by 2005.
- There were no patients entered into a clinical trial in 2005.

Follow-Up Care Details

This relates to information recorded anywhere in the patients' notes including the discharge letter from hospital to GP. (Patients may have had more than one referral)

After care	Number of Patients (%)		
	1996 (n=179)	2001 (n=176)	2005 (n=139)
GP (General Practitioner)	125 (70%)	112 (64%)	25 (18%)*
Community/District nurse	25 (14%)	31 (18%)	64 (46%)
Macmillan nurse	17 (10%)	58 (33%)	66 (47%)
Hospice	20 (11%)	21 (12%)	24 (17%)
Marie curie nurse	1 (1%)	4 (2%)	3 (2%)
Palliative care specialist	10 (6%)	42 (24%)	51 (37%)
Psychologist referral	2 (1%)	1 (1%)	3 (2%)
Info on support groups/education supplied	1 (1%)	1 (1%)	16 (12%)
Dietician referral	45 (25%)	81 (46%)	97 (70%)
Social Worker	NP	NP	74 (53%)
No onward referral recorded	7 (39%)	4 (23%)	–

NP = Not on proforma * This appears lower in 2005 due to differences in the proforma between the years

- There has been a sharp increase in the number of patients referred to Community/District nurses reflecting an increased demand for this service.
- There were increases in referral to Macmillan nurses, Hospice, Palliative care specialists and Support groups reflecting increased availability of these services.
- Referrals to Marie Curie nurses and Psychologists remained steady across all three years while referral to the Dietetic service almost trebled between 1996 and 2005.

Dietician referrals by Patient's Board of residence

Board of residence	1996	2001	2005
Northern	8 (17%)	14 (34%)	22 (69%)
Eastern	27 (34%)	42 (53%)	50 (70%)
Southern	5 (20%)	10 (40%)	13 (72%)
Western	5 (17%)	17 (55%)	12 (67%)
Total referrals	45 (25% of all patients)	81 (46% of all patients)	97 (70% of all patients)

- There were great improvements in the number of referrals to dieticians with no variation by Board of residence.

Route to Palliative care

Route to palliative care	Number of Patients (%) in 2005 (n=51)
Hospital physician	20 (39%)
Hospital surgeon	12 (24%)
Via Multidisciplinary Team Meeting	2 (4%)
GP	1 (2%)
Ward nurse	16 (31%)
Other	4 (8%)

Reason for referral to palliative care

Reason	Number of Patients (%) in 2005 (n=51)
Symptom relief	32 (63%)
Nutritional support	7 (14%)
Social needs	14 (27%)

- About two thirds of all patients in 2005 who were referred to palliative care were referred by either a hospital physician or hospital surgeon.
- Almost two thirds of those referred to palliative care sought to obtain symptom relief with other reasons including nutritional support and social needs.

Information in GP letter

Information	Number of Patients (%)		
	1996 (n=179)	2001 (n=176)	2005 (n=139)
Management plan	142 (79%)	140 (80%)	57 (41%)
Prognosis	69 (39%)	62 (35%)	25 (18%)
Diagnosis discussed with patient	87 (49%)	88 (50%)	130 (94%)

- The recording of management plans and prognosis in GP letters declined between 1996 and 2005.
- Management plans were included in 80% of letters to GPs by 2001 but by 2005 this had almost halved to 41%.
- Recording that diagnosis had been discussed with patients improved between 1996, 2001 and 2005.

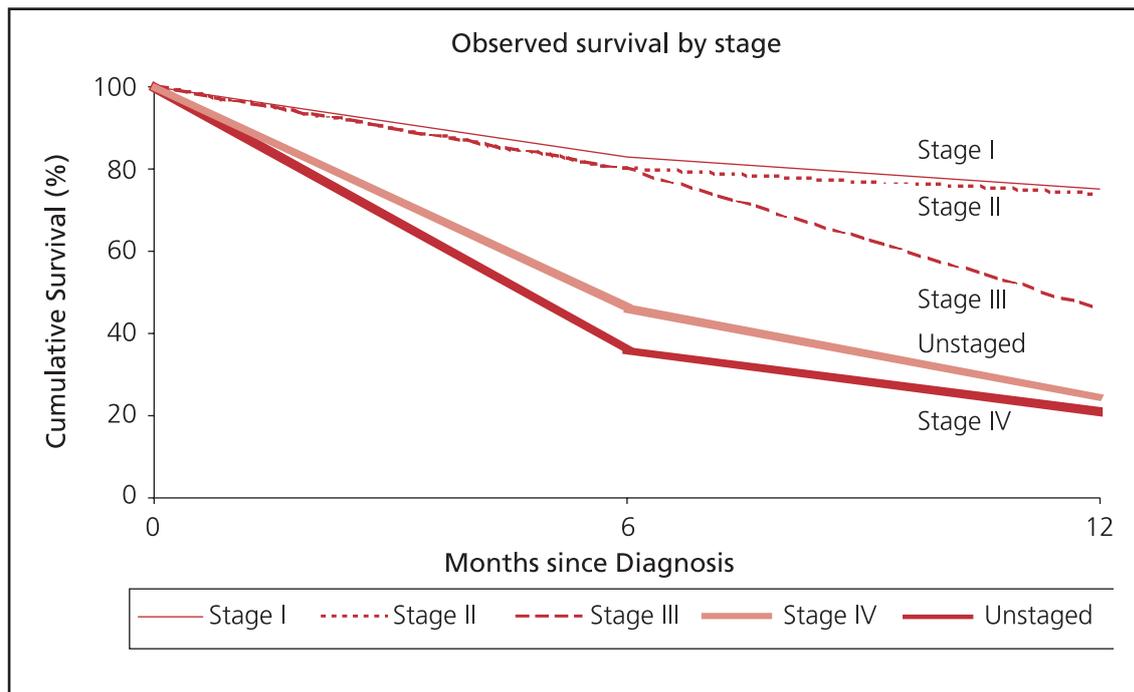
Patient Outcomes

Survival analysis was performed on patients diagnosed in 1996, 2001 and 2005 with subgroup analysis for resection and non-resection patients (which also includes patients that had no surgery) and for stage.

Percentage of patients alive at various times after diagnosis by Stage (all years combined – all patients)

Time	Stage I	Stage II	Stage III	Stage IV	Unstaged
30 days	94%	92%	87%	78%	74%
60 days	90%	87%	86%	68%	63%
6 months	83%	80%	80%	36%	46%
1 year	75%	74%	46%	21%	24%
2 years*	57%	67%	33%	10%	13%
5 years*	6%	4%	3%	1%	0%
Total patients	46	25	42	141	240

* Only available for patients diagnosed in 1996 and 2001.

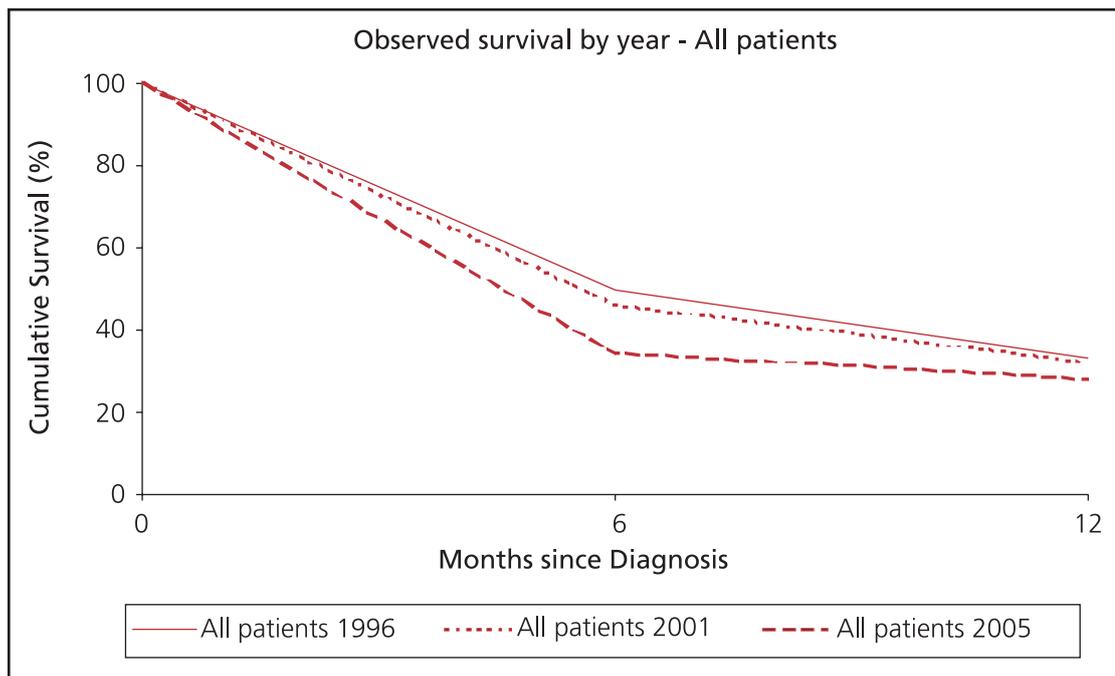


- As expected there was a highly significant survival difference for stage at diagnosis ($p < 0.001$), with patients with earlier stage disease generally having better survival.
- Stage I categorised patients including some older patients who had minimal investigations and who may have had more extensive disease than detected. This could explain the poorer survival for Stage I patients compared with Stage II patients.

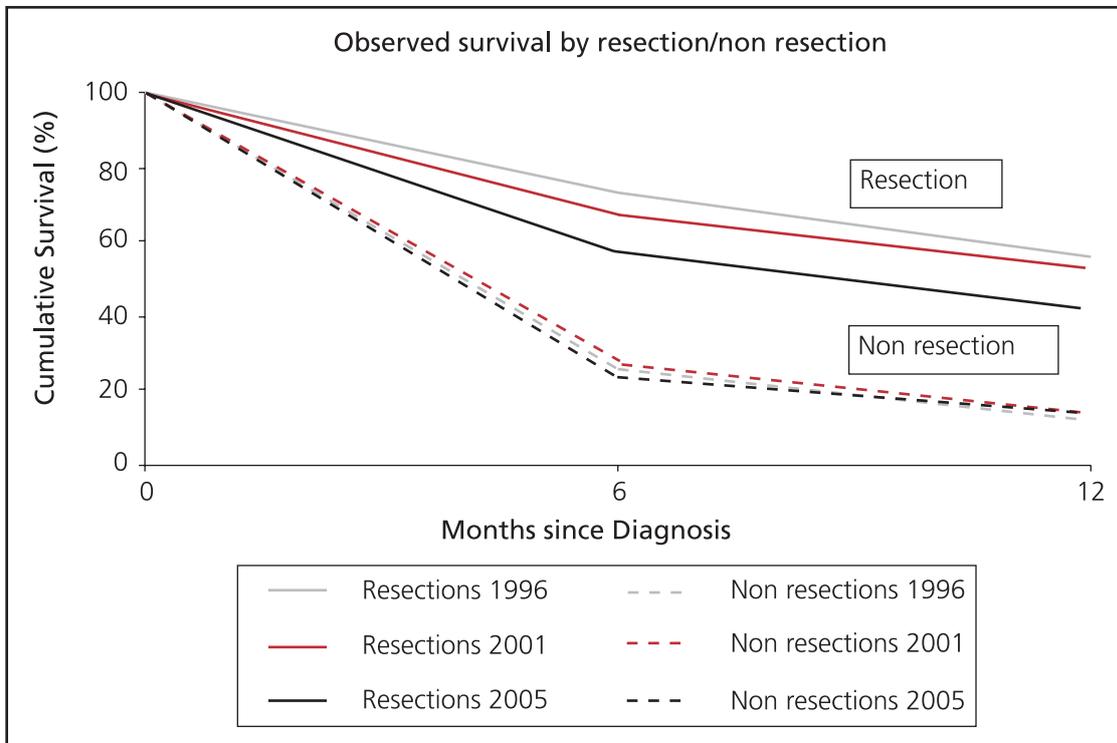
Percentage of patients alive at various times after diagnosis

Time	Resection Patients			Non Surgery Patients			All Patients		
	1996	2001	2005*	1996	2001	2005*	1996	2001	2005*
30 days	89%	88%	83%	68%	66%	72%	79%	77%	78%
60 days	88%	85%	69%	37%	49%	43%	69%	66%	59%
6 months	73%	67%	57%	26%	27%	23%	50%	46%	36%
1 year	56%	53%	42%	12%	14%	14%	33%	32%	28%
2 years	36%	41%	–	5%	8%	–	22%	26%	–
3 years	25%	19%	–	0%	5%	–	13%	11%	–
4 years	21%	13%	–	0%	3%	–	2%	7%	–
5 years	11%	9%	–	0%	0%	–	1%	2%	–
Total patients	74	62	49	105	114	90	179	176	139

* Survival for 2005 diagnosed patients is only available to one year



- Survival from stomach cancer is poor and remained unchanged between 1996 and 2001.



- One-year survival for resection patients overall was better than for non surgery patients for each of the three years, reflecting patient selection.
- Survival at 1-year for resection patients has significantly decreased between 1996 and 2005 (56% vs 42% ($p < 0.05$)).
- There was no significant difference in the 5-year survival for any group of patients (resection, non surgery or all patients) by year of diagnosis.
- Hospitals that carried out only one or two resections in 2005 had better 30 and 60 day survival estimates compared to hospitals that performed more resections with curative intent. This, however, probably reflects patient selection and onward referral of more difficult cases.

SECTION IV – Oesophageal Cancer Summary

Patients

- Two thirds of oesophageal cancer patients were male and the disease was diagnosed at an earlier age in males compared with females.
- In 2005, 12% of patients had a positive history of Barretts Oesophagus with 33% between 1-5 years, 25% 6-10 years and 42% more than 10 years.
- There was a detectable link between oesophageal cancer and social deprivation.
- One third of patients had significant co-morbidities.
- 10% of oesophageal cancer patients in 2005 had a positive family history of oesophageal cancer, of which 84% reported this in a first degree relative.
- 8% of patients had a positive H Pylori test.

Presentation

- There was an increase in the proportion of patients presenting as emergencies (64% in 2005 compared to 25% in 1996 and 2001).
- Difficulty swallowing was the most common presenting symptom across all three years affecting almost four out of five patients.
- In 1996, 17% of patients had experienced difficulty or pain swallowing for more than 5 months compared to only 9% in 2001 and 8% in 2005. Although not statistically significant this may indicate a trend of earlier symptom reporting.
- The majority of patients (84%) were referred by their GP in all years, of which approximately a quarter were medical or surgical emergencies with twice as many surgical as medical emergency cases.
- 198 patients presented to 19 hospitals in 2005. Excluding emergencies, the pattern of presentation was the same in 1996 and 2001 but 16 hospitals/clinics were attended in 2005.
- The majority of patients presented to hospitals within their own Health Board of residence, this however, was less marked in 2001 and 2005 compared with 1996.
- Between 1996 and 2005 there were fewer patients attending one hospital and more patients attending three hospitals for their treatment indicating that by 2005 patients were more likely to be referred to Cancer Unit/Cancer Centre hospitals after initial presentation.

Histology

- Adenocarcinoma accounted for 56% of cases while squamous cell accounted for 24%.

Investigations and Staging

- In the past 10 years almost all patients have had endoscopy. The use of CT scans has increased while the use of barium meals, ultrasound abdomen and bronchoscopy have declined reflecting increased use of newer technology.
- New investigations were being used by 2005 that hadn't been used previously, namely endoscopic ultrasound, MRI Scan and PET Scan.
- By 2005, the recording of Chest X-Rays had improved.
- By 2005, 51% of surgical patients (38% of all patients) had had endoscopic ultrasound.
- There was variation in staging investigations by Board of residence.
- While only a few patients had MRI scans, 69% of surgical patients (56% of all patients) had PET scans although this varied by hospital.
- In addition to the above investigations in 2005, 32 (16%) patients had a record of a H Pylori test carried out of which 53% proved to be positive.
- Using all information available in the patients notes and using the TVO independent staging it was possible to derive information on stage on 78% of patients.

- For patients undergoing surgery however, the percentage of patients that were or could be staged increased from 65% to 74% by 2001 and to 81% by 2005.
- For patients undergoing resection there was a notable change in lymphadenectomy practice between 1996 and 2005, with a substantial (9-fold) increase in the number of patients having 15 or more nodes examined, reflecting improved intra-operative staging practices.

Recording of Multidisciplinary Team Meetings

- Recording in the clinical notes that an MDM had taken place improved substantially by 2005 with almost two thirds of patients being discussed at an MDM.
- More MDM discussions took place in the Royal Victoria Hospital.

Surgery and Oncology

- Between 1996 and 2005 the percentage of patients undergoing curative resections decreased from 30% to 25% which may reflect improved patient selection.
- This pattern was mirrored when all surgery was taken into account (curative resections, additional surgical procedures and laparotomy) in that 48% of patients in 1996 underwent surgery compared to 38% in 2005.
- 17% of those patients who underwent some form of surgery in 2005 experienced a delay in the most part (69%) due to unavailability of ICU/HDU beds. These patients all had their surgical procedures carried out in the Royal Victoria Hospital.
- Resections took place in 5 hospitals in each of the three years.
- The number of surgeons performing oesophageal resections and additional surgical procedures decreased by 13% between 1996 and 2005.
- The number of surgeons carrying out curative resections only between 1996 and 2005 rose by one third from 9 to 12 although the number of procedures has fallen.
- 69% of patients in 2005 were operated on by surgeons undertaking 5 or more procedures per year, a reduction compared with 1996 (81%) and 2001 (85%).
- The maximum number of patients operated on by any one surgeon across all three years was 13.
- Of those patients in 2005 who had a stent, 59% were performed in the Eastern Board. All patients who received laser treatment received it in the Eastern Board. The same pattern was evident for those who needed enteral feeding (54% in the Eastern Board).
- By 2005 two thirds of patients had some form of oncology referral – an increase from one quarter in previous years.
- Overall use of chemotherapy (alone or as part of combined modality therapy) increased from 15% in 1996 to 22% in 2001 to 40% in 2005.
- Use of radiotherapy (alone or as part of combined modality therapy) decreased from 15% in 1996 to 12% in 2005.
- There were fewer patients in 2005 that had no record of having surgery, radiotherapy or chemotherapy compared to figures for 1996 and 2001.
- By 2005, only 10% of patients had no treatment when palliative interventions are taken into account.
- Rates were similar across Health Board of residence for those who had no treatment recorded.

Timelines

- In 2005 at least a third of patients fell outside the standard for referral to first treatment of 62 days.
- At least 30% of patients fell outside the 31 day standard for diagnosis to first treatment.
- There were significantly more patients from the Southern Board who waited more than 62 days from referral to first treatment compared to any other Board ($p < 0.05$).

- There was no variation by Board of residence for those patients who waited more than 62 days from diagnosis to receiving their first treatment in 2005.
- Of the 110 patients who received a PET scan in 2005, 25% waited up to one week from time of referral. A further 36% waited between 8-14 days, 20% waited between 15-36 days and the remaining 19% did not have sufficient dates recorded to calculate a delay.
- There was no significant difference in the delays experienced by Board of residence.

Onward Referral

- Since 1996, recording of information in the clinical records has improved. They are more likely to contain a written treatment plan and that patients' management has been discussed with an oncologist and/or a record of oncology referral.
- Recording that a multidisciplinary team meeting had taken place improved substantially by 2005.
- Although the recording of treatment plans greatly improved they were only recorded for half of patients by 2005.
- In 1996 and 2001, 7% of patients were entered into clinical trials but only 4% in 2005. This may reflect the availability of trials.
- Rates of referral to Macmillan/Marie Curie nurses and Palliative care specialists increased substantially over the study period reflecting improved availability of these services.
- There was an increase in the number of patients referred to Community/District nurses reflecting an increased demand for this service.
- Referral to the Dietetic service improved so that over three quarters were referred in 2005.
- The increase in referral to palliative care specialists reflects a service that is used increasingly by patients with late stage disease. By 2005 almost half of referrals to palliative care presented with stage IV disease.
- About half of all patients in 2005 who were referred to palliative care were referred by either a hospital physician or hospital surgeon.
- Over half of those referred to palliative care sought to obtain symptom relief with other reasons including nutritional support and social needs.
- There was a change in the information included in the discharge letter to the GP's between the three time periods with increased recording of discussion of diagnosis with the patient, reduced recording of prognosis or management plans.

Outcomes

- There was a significant difference in observed survival for all patients in 1996 compared to 2005.
- Survival for resection patients overall was significantly better than non surgery patients for each of the three years ($p < 0.05$) reflecting patient selection.
- There was a significant difference in survival for resection patients between 1996 and 2005 (69% vs 79%) ($p < 0.05$) and between 1996 and 2001, with 5-year survival of 26% for 2001 patients compared to 10% in 1996. This however, was driven by the improved survival in resection patients as survival for non-resection patients was worse in 2005 than 2001 or 1996. There was no significant difference in survival of resection patients between 2001 and 2005.
- Survival at 30 days and 60 days for oesophageal cancer patients was similar across all hospitals performing resections in 2005.
- As expected there was a highly significant survival difference for stage at diagnosis ($p < 0.001$) with patients with earlier disease generally having better survival.

SECTION V – Stomach Cancer Summary

Patients

- Just over half of patients were male.
- There was an association of increased risk of stomach cancer with increasing deprivation.
- One third of patients had a significant co-morbidity recorded.
- About 1 in 5 had a history of peptic ulcer disease.
- 17% had a positive Helicobacter Pylori test.
- About 1 in 20 had a family history of stomach cancer and among these 86% reported it in a first degree relative.

Presentation

- Each year patients presented to 17 hospitals.
- 179 patients presented to 17 hospitals in 1996 (16 if emergencies are excluded), 176 patients presented to 17 hospitals in 2001 (16 if emergencies are excluded) and 139 patients presented to 17 hospitals in 2005 (14 if emergencies are excluded).
- The most common symptoms were nausea and vomiting, abdominal pain and weight loss associated with loss of appetite.
- By 2005, 61% of patients presented to a Cancer Unit/Cancer Centre.
- The majority of patients were referred by their GP in all years, of whom approximately one fifth were surgical or medical emergencies with no difference in the number of surgical or medical emergencies.
- No patients were recorded as coming from Direct Access Endoscopy for any year although this may be recording issue which requires further scrutiny.
- 62% of referrals in 2005 were classified as urgent, 1% as semi-urgent and 5% as routine. The majority of referrals were done by letter (72%) in 2005.
- The majority of patients presented to hospitals within their own Health Board of residence.
- There were more patients who attended Belvoir Park Hospital (regional radiotherapy unit) for some part of their treatment in 2005 compared to 1996 and 2001.
- There was an increase in the number of patients who attended either the Cancer Centre or Cancer Units for treatment in 2005 compared to the other two years.
- Between 1996 and 2005 there was a reduction in the number of patients attending only one hospital indicating that patients were still being referred to specialist care after diagnosis.

Histology

- As expected the majority of stomach cancers were adenocarcinomas in all years.
- In 2001 all cases of stomach cancer were histologically confirmed. This remained high in 2005 with 97% of cases being verified histologically (remaining 3% were verified by clinical opinion and ultrasound scan of the abdomen).

Investigations and Staging

- Between 1996 and 2005 use of CT scanning increased from 36% to 88% (all patients) and 47% to 94% (patients undergoing surgery) while there was a shift away from use of barium meal and USS abdomen.
- Over the past 10 years almost all patients received an endoscopy investigation while use of newer investigations increased eg. endoscopic ultrasound and PET Scan.

- By 2005 lymphadenectomy practice improved considerably with 47% of patients having 15 or more nodes examined, 69% having 10 or more nodes examined, in keeping with current recommendations.
- By 2005 it was possible to derive a stage for 86% of the patients diagnosed in that year (by using all possible information recorded in the patients notes and using the TVO independent staging).
- For patients undergoing surgery however, the percentage of patients that were or could be staged increased from 61% to 66% by 2001 and then to 92% by 2005.
- A variation was also seen in staging practices between hospitals carrying out resections and across the three years as more patients were staged in hospitals that carried out surgery in 2001 compared to both 1996 and 2005.
- Even in 2005 some surgery patients including resection patients had insufficient information recorded to allocate a stage.

Recording of Multidisciplinary Team Meetings

- Recording in the clinical notes that discussion at an MDM had taken place improved from 2% in 1996 to 16% in 2001 to 42% in 2005 (51% for surgery patients in 2005).
- All hospitals that performed surgery in 2005 had MDMs recorded in the notes. For patients operated on in the Mater and Mid Ulster discussion at an MDM took place in either the Cancer Centre or Cancer Unit hospitals.
- Only half of stomach cancer surgery patients had a record of discussion at MDM of which the majority were in Altnagelvin and Belfast City hospitals.

Surgery and Oncology

- In 1996, 74 surgical resections were carried out in 14 hospitals, while in 2001 62 resections were performed in 11 hospitals. By 2005 there were 49 resections carried out in 10 hospitals.
- More resections were performed in the Royal Victoria than any other hospital and the numbers were highest in 2005 (n=14).
- In other hospitals numbers were very small eg. the number of resections performed at the Ulster increased from 4 to 7, Altnagelvin numbers decreased slightly from 8 to 6, Antrim fell from 6 to 1 between 1996 and 2005 and the same pattern was evident in Craigavon where the numbers fell from 8 to 3.
- About two thirds of resections (64%), (n=47) were performed in the hospitals later designated as the Cancer Centre or Cancer Unit in 1996. This improved by 2001 when 71% (n=44) of resections took place in these hospitals and by 2005 almost 80% (n=38) of resections took place in these 6 hospitals.
- The Association of Upper Gastrointestinal Surgeons of Great Britain and Ireland (AUGIS) 2002¹⁸ reported that Centres in the UK performing more than 10 stomach cancer resections per year all had mortality rates below 8% at one year. Only the Royal Victoria hospital achieved the AUGIS recommended level in 2005 of 10 or more stomach cancer operations, however this workload was shared among 5 Consultants.
- While the number of surgeons performing resections and bypass procedures decreased by one third from 35 in 1996 to 23 in 2005 this is still higher than recommended for a population of 1.7 million.
- The number of surgeons carrying out curative resections only between 1996 and 2005 decreased by 38% yet by 2005, 18 Consultant Surgeons performed 49 resections in 10 hospitals.
- The number of surgeons performing more than 6 resections remained similar across the years. The most resections and bypass procedures carried out by any one surgeon across all three years was 9.
- There was a higher percentage of procedures carried out in 2005 by surgeons who performed 6 or more procedures.
- By 2005, there were 14 single operators representing 14 out of 54 patients, over half of all operators, a situation which had worsened since 2001.
- Of those patients in 2005 who had a stent, 71% were performed in the Eastern Board. The one patient who received laser treatment received it in the Eastern Board. The same pattern was evident for those who needed enteral feeding (67% in the Eastern Board).

- By 2005 almost two thirds of patients had some form of oncology referral – an increase from only 13% in 1996 and 39% in 2001.
- Overall use of chemotherapy (alone or as part of combined modality therapy) increased from 10% in 1996 to 16% in 2001 to 23% in 2005.
- Use of radiotherapy (alone or as part of combined modality therapy) increased from 2% in 1996 to 4% in 2001 to 5% in 2005.
- By 2005 there was a small increase in the number of patients having combined modality therapy (surgery & chemotherapy) and a corresponding decrease in the number of patients having surgery alone.
- A third of patients in 1996 and 2001 and almost half in 2005 did not have surgery, chemotherapy or radiotherapy, which most likely reflects a significant proportion of patients presenting with advanced disease.
- Between 1996 and 2005 the percentage of patients having surgery decreased from 53% to 45% reflecting improved patient selection for radical intervention.
- By 2005, only 18% of patients had no treatment when palliative interventions are taken into account as well as surgery and oncology treatment. There was no variation across Health Board of residence.

Timelines

- In 2005 over three quarters of patients fell outside the standard for referral to first treatment of 62 days.
- At least 60% of patients fell outside the 31 day standard for diagnosis to first treatment.
- There were significantly more patients who resided in the Eastern Board who waited more than 62 days from referral to receiving their first treatment compared to residents of any other Board ($p < 0.05$)
- There were significantly more patients who resided in the Eastern Board who waited more than 62 days from diagnosis to receiving their first treatment compared to patients residing in other Board areas ($p < 0.05$).

Onward Referral

- Since 1996 recording of information in the clinical records has changed. Notes are more likely to contain a treatment plan and evidence that the patient has been discussed at a multidisciplinary team meeting. There is more evidence of referral to an oncology centre by 2005.
- Recording that a multidisciplinary team meeting had taken place had greatly improved by 2005.
- There were no patients entered into a clinical trial in 2005.
- There has been a sharp increase in the number of patients referred to Community/District nurses reflecting an increased demand for this service.
- There were increases in referral to Macmillan nurses, Hospice, Palliative care specialists and Support groups reflecting increased availability of these services.
- Referrals to Marie Curie nurses and Psychologists remained steady across all three years while referral to the Dietetic service almost trebled between 1996 and 2005.
- There were great improvements in the number of referrals to dieticians from each of the Board areas by 2005.
- About two thirds of all patients in 2005 who were referred to palliative care were referred by either a hospital physician or hospital surgeon.
- Almost two thirds of those referred to palliative care sought to obtain symptom relief with other reasons including nutritional support and social needs.
- Management plans were included in 80% of letters to GPs by 2001 but by 2005 this had almost halved to 41%.
- Overall, information to the GP has not improved from 1996 to 2005.

Outcomes

- Survival from stomach cancer is poor and there was no significant difference in the 5-year survival for any group of patients (resection, non surgery or all patients) between the three groups.
- One-year survival for resection patients overall was better than for non surgery patients for each of the three years, reflecting patient selection.
- Survival at 1-year for resection patients has significantly decreased between 1996 and 2005 (56% vs 42% ($p < 0.05$)).
- As expected there was a highly significant survival difference for stage at diagnosis ($p < 0.001$), with patients with earlier stage disease generally having better survival.
- Stage I categorised patients including some older patients who had minimal investigations and who may have had more extensive disease than detected. This could explain the poorer survival for Stage I patients compared with Stage II patients.

Conclusion

There have been some remarkable changes in the delivery of cancer services over the ten years to 2005 with:

- Trends of earlier symptom reporting,
- Increased use of new technology e.g PET scanning,
- Improved recording of stage to 78% (oesophageal) 86% (Stomach) all patients 81% (oesophageal) 92% (stomach) surgery patients,
- Increased discussion of patients at Multidisciplinary Team Meetings (MDM),
- Increased referral to dieticians, a very important service for patients whose nutrition has been compromised by the disease,
- Increased oncology referral (66% patients).

Evidence of service centralisation is seen with onward referral of patients to centres of excellence and a reduction in the number of operators.

Yet in all years low numbers of procedures are still performed in many hospitals and there are still too many operators – 13 surgeons operated on 65 oesophageal cancer patients in 2005, 2 of whom did single operations (curative resections and additional surgical procedures). For stomach cancer 23 Consultant Surgeons, 14 of whom did single operations, performed 54 procedures (resections and bypass). In 2005, 69% of oesophageal cancer patients were operated on by surgeons undertaking 5 or more procedures per year, a reduction compared to 81% in 1996 and 85% in 2001. Similarly, 74% of stomach cancer patients were operated on by Surgeons undertaking 5 or more procedures per year, a reduction compared to 80% in 1996 and 92% in 2001.

For curative resections alone, the number of Consultant Surgeons operating on oesophageal cancer patients rose by one third since 1996 with 12 consultant surgeons performing 49 resections in 5 hospitals in 2005. For stomach cancer 18 Consultant Surgeons carried out 49 curative resections in 10 hospitals in 2005, of whom 3 performed single operations in 2005. These figures and the low levels of multidisciplinary team meeting discussions indicate room for significant further progress.

There was evidence of improved patient selection for radical intervention with subsequent improvements in survival for oesophageal cancer resection patients; this trend, however was not seen for stomach cancer patients.

Despite the increase in Multidisciplinary Team Meeting activity, only 60% of oesophageal cancer and 40% of stomach cancer patients had their case discussed. The target is for all patients to have such a discussion.

Much effort needs to be made to meet waiting times targets. In 2005, at least a third and possibly over half of oesophageal patients and over three quarters of stomach patients fell outside the standard for referral to first treatment of 62 days. At least 30% of oesophageal patients and 60% of stomach patients fell outside the 31 day standard for diagnosis to first treatment.

The development of services is ongoing and it is a credit to those working with these difficult diseases that such progress had been made. There are continuous developments e.g. Guidelines for Direct Access Endoscopy Services. The impact of these and work towards achieving the Cancer Access Standards indicate that ongoing audit of the services for oesophageal and stomach cancer patients is essential. It was beyond the scope of this report to examine the detail of surgery performed. Further audit of this area is also recommended.

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Appendix A – TNM Clinical Classification Oesophagus

TNM classification of malignant tumours 6th Edition¹⁰

Primary Tumour (T)

TX	Primary tumour cannot be assessed
T0	No evidence of primary tumour
Tis	Carcinoma in situ
T1	Tumour invades lamina propria or submucosa
T2	Tumour invades muscularis propria
T3	Tumour invades adventitia
T4	Tumour invades adjacent structures

Lymph Nodes (N)

NX	Regional lymph nodes cannot be assessed
N0	No regional lymph node metastasis
N1	Regional lymph node metastasis

Distant Metastasis (M)

MX	Presence of distant metastasis cannot be assessed
M0	No distant metastasis
M1	Distant metastasis

For tumours of lower thoracic oesophagus

M1a	Metastasis in coeliac lymph nodes
M1b	Other distant metastasis

For tumours of the upper thoracic oesophagus

M1a	Metastasis in cervical lymph nodes
M1b	Other distant metastasis

For tumours of mid-thoracic oesophagus

M1a	Not applicable
M1b	Non-regional lymph node or other distant metastasis

In cases where there has been preoperative multimodality therapy this should be indicated in the pathological staging and may be noted by the 'y' prefix.

Oesophageal Cancer Stage Groupings

Stage 0	Tis	N0	M0
Stage I	T1	N0	M0
Stage IIA	T2, T3	N0	M0
Stage IIB	T1, T2	N1	M0
Stage III	T3	N1	M0
	T4	Any N	M0
Stage IV	Any T	Any N	M1
Stage IVA	Any T	Any N	M1a
Stage IVB	Any T	Any N	M1b

Appendix B

Campbell Report¹¹: Recommendations regarding Cancer Services in N. Ireland, 1996

1. The management of patients with cancer should be undertaken by appropriately trained, organ and disease specific medical specialists.
2. All patients with cancer should be managed by multidisciplinary, multiprofessional specialist cancer teams.
3. A Cancer Forum should be established involving all key interests in the delivery of cancer services.
4. Cancer Units should, in conjunction with local GPs and other providers, develop an effective communication strategy.
5. Northern Ireland should have one Cancer Centre, which in addition to its regional role, should act as a Cancer Unit to its local catchment population of around half a million.
6. There should be four other Cancer Units, one in each Board area, each serving a population of around a quarter of a million.
7. Radiotherapy services, together with chemotherapy services, should be moved as soon as possible to the Belfast City Hospital and become an integral part of the regional Cancer Centre.
8. Each Cancer Unit should develop a chemotherapy service. This service should be staffed by designated specialist nurses and pharmacists, and should be overseen by the non-surgical oncologist attached to the unit, with back-up from a haematologist.
9. There should be a minimum target of 13 consultants in non-surgical oncology for Northern Ireland by 2005.
10. Any new appointments of trained cancer specialists should be to Cancer Units or to the Cancer Centre.
11. Guidelines should be drawn up and agreed for the appropriate investigation and management of patients presenting to non-Cancer Unit hospitals who turn out to have cancer.
12. The Cancer Centre and Cancer Units should each develop a specialist multiprofessional palliative care team.
13. There should be a comprehensive review of palliative care services in Northern Ireland.
14. The Northern Ireland Cancer Registry should be adequately resourced.

The above recommendations outlined the change that was necessary to improve cancer care.

Appendix C – TNM Clinical Classification Stomach

TNM classification of malignant tumours 6th Edition¹⁰

Primary Tumour (T)

TX	Primary tumour cannot be assessed
T0	No evidence of primary tumour
Tis	Carcinoma in situ: Intraepithelial tumour without invasion of the lamina propria
T1	Tumour invades lamina propria or subserosa
T2	Tumour invades muscularis propria or subserosa
T2a	Tumour invades muscularis propria
T2b	Tumour invades subserosa
T3	Tumour penetrates serosa (visceral peritoneum) without invasion of adjacent structures
T4	Tumour invades adjacent structures

Lymph Node (N)

NX	Regional lymph nodes cannot be assessed
N0	No regional lymph node metastasis
N1	Metastasis in 1 to 6 regional lymph nodes
N2	Metastasis in 7 to 15 regional lymph nodes
N3	Metastasis in more than 15 regional lymph nodes

Distant Metastasis (M)

MX	Presence of distant metastasis cannot be assessed
M0	No distant metastasis
M1	Distant metastasis

In cases where there has been preoperative multimodality therapy this should be indicated in the pathological staging and may be noted by the 'y' prefix.

Gastric Cancer Stage Groupings

Stage 0	Tis	N0	M0
Stage IA	T1	N0	M0
Stage IB	T1	N1	M0
	T2a/b	N0	M0
Stage II	T1	N2	M0
	T2a/b	N1	M0
	T3	N0	M0
Stage IIIA	T2a/b	N2	M0
	T3	N1	M0
	T4	N0	M0
Stage IIIB	T3	N2	M0
Stage IV	T4	N1, N2, N3	M0
	T1, T2, T3	N3	M0
	Any T	Any N	M1

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