

Scottish Audit of Gastric and Oesophageal
Cancer Steering Group

Scottish Audit of Gastric and Oesophageal Cancer

Report 1997 - 2000

A prospective audit

Edited by
FJ Gilbert, KGM Park, and AM Thompson

Statistical Analysis by
T Rapson and CS Thomson

Disclaimer : The views expressed are those of the authors.

Project funded by the Clinical Resource and Audit Group,
Scottish Executive Health Department

Edinburgh 2002

© Scottish Audit of Gastric and Oesophageal Cancer Steering Group 2002

Brief extracts from this publication may be reproduced provided the source is fully acknowledged.
Proposals for reproduction of large extracts should be addressed to: Professor Fiona Gilbert,
Department of Radiology, Lillian Sutton Building, Aberdeen, AB25 2ZD.

Internet edition only

<http://www.show.scot.nhs.uk/crag/>

Designed and typeset in Edinburgh by David Loeb at the Scottish Cancer Intelligence Unit, ISD Scotland.

Contents

Foreword <i>by Lars Lundell</i>	v
Introduction <i>by Harry Burns</i>	vii
Executive Summary	ix
Chapter Summaries	xi
Recommendations and Conclusions	xviii
1 Methods <i>by Pamela Aerts and Tracey Rapson</i>	
2 Epidemiology <i>by Kenneth Park and David Brewster</i>	
3 Risk Factors and Delays in Presentation <i>by Alastair McGilchrist and Kenneth Park</i>	
4 Diagnosis and Staging <i>by Fiona Gilbert and John Anderson</i>	
5 Pathology <i>by Hugh Gilmour</i>	
6 Surgery <i>by Dhruva Prakash and Trevor Crofts</i>	
7 Radiotherapy and Chemotherapy <i>by Hosney Yosef and Marianne Nicolson</i>	
8 Endoscopic Palliative Treatment <i>by Alastair Thompson</i>	
9 Adverse Outcomes <i>by Kenneth Park</i>	
10 Survival <i>by Tracey Rapson</i>	

APPENDICES

- 1 National Steering Group Committee
- 2 Acknowledgements
- 3 Contributing hospitals
- 4 Forms

Foreword

Two immense challenges come into focus when issues related to carcinomas of the oesophagus and gastro-oesophageal junction are discussed. Firstly these malignancies affect the elderly part of the population who are frequently also affected by concomitant complicating, sometimes also debilitating, medical disorders. Despite the fact that considerable efforts have been made to improve the dismal prognosis for patients with these tumours, for instance by various adjunctive therapies, surgical resection remains the basic, mainstay therapy that presently can offer these patients at least a potential for cure. Resection for a cancer of the oesophagus and gastro-oesophageal junction are extremely demanding operations and constitute one of the largest and most extensive operative traumas that we, as clinical surgeons, expose our patients to under elective conditions. As a consequence of that the postoperative mortality figures have been comparatively high and a substantial morbidity, especially affecting the respiratory system, has repeatedly been recorded. Taken together it is therefore of utmost importance to survey carefully the management strategies for patients with similar tumour manifestations and above all to elucidate carefully key therapeutic outcome variables. This is particularly important when the health services invest a lot of money in advanced therapies in patients who not infrequently will soon succumb due to progressive neoplastic disease processes. A comprehensive nationwide ongoing audit is warranted and urgently needed to update management principles and outcomes which would create a firm basis for future strategic investments in order to secure and improve the quality of care.

Secondly, the enigma surrounding the almost exponential increase in the incidence of adenocarcinoma of the oesophagus and the gastro-oesophageal junction poses a challenge. Epidemiological, circumstantial evidence is accumulating to show that important pathogenetic mechanisms may be linked to and involved with chronic mucosal injury caused by severe, longstanding gastro-oesophageal reflux. If this is the case we, as physicians, face a unique opportunity to intervene in a core pathogenetic mechanism by the very effective therapeutic means which are currently available for such a common disease in western societies. Based on similar considerations we can predict that the management of carcinomas of the oesophagus and gastro-oesophageal junction will even in the broadest perspective take an expanding role in the future. Combined with this we have to realise that by the use of modern imaging and tumour staging technologies we will soon have unique opportunities to tailor both the pre- and peri operative measures taken to individualise the therapy depending on the characteristics of the aggressor as well as the host. Nationwide surveys and audits therefore also contribute to the fundamental prerequisites for successful clinical research programmes in the form of describing the present state of management, defining patient volumes and flowcharts, assessing treatment outcome parameters, but also by discerningly constructing networks through which relevant clinical research programmes and protocols can be transmitted and further processed.

Lars Lundell

Associate Professor, University of Gothenburg
Department of Surgery, Sahlgrenska University Hospital
Gothenburg, Sweden

Introduction

Patients who are diagnosed as having cancer often face an uncertain future. Those who develop cancer of the oesophagus or stomach may face a more uncertain future than most. There are many aspects of the diagnosis, staging and management of upper gastrointestinal cancer which have not yet been clearly tested by randomised controlled trials. Furthermore, the technical aspects of surgery of the upper gastrointestinal tract are complex and difficult and resection of these tumours can have a high complication rate.

International comparisons suggest that Scottish patients with these cancers may have a poorer prognosis than patients living in other European countries. It is not clear if this observation is simply a reflection of the way data is collected, caused by Scottish patients presenting with more advanced tumours than is the case elsewhere or is a function of the quality of the treatment offered in Scotland. Over the past decade, clinicians from a variety of specialties in Scotland have worked systematically to audit outcome of their care. This report reflects the results of a careful audit of the management of patients with upper GI cancers across most of Scotland. It contains data which will prove invaluable in improving the outlook of patients with oesophageal and gastric cancer. It tells us when, in the course of the disease, Scottish patients present. It tells us how they are assessed, how they are treated and how well they do after treatment. It tells us how clinical practice varies across Scotland. It also provides an invaluable data source to allow comparison of Scottish management of these cancers with clinical practices in other countries.

Over the years, the Clinical Resource and Audit Group has supported a great many audits and some have been more successful than others. Few, I predict, will prove as successful as SAGOC. The audit organisers have given their time generously and wholeheartedly to ensuring the audit has worked well. Clinicians throughout Scotland have co-operated in collection of data and contributed to its analysis at a variety of meetings held over the past few years. The entire enterprise has been taken forward in a constructive spirit and the efficiency and effectiveness of the Steering Committee has been impressive to watch.

The conclusions of the audit must now be considered carefully. The clinical community needs to examine the variations in practice and consider the reasons they exist. Clinical Governance Committees throughout Scotland will be interested in the implications of the audit for their Trusts and NHS Boards. In many instances, consideration of the audit will inevitably lead to the conclusion that improved clinical processes require improved levels of investment. The audit makes it possible to estimate the level of benefit that might be achieved with extra resource invested in upper GI cancer services. Managers will need to consider priorities carefully in the light of this report.

Over the past three years it has been a pleasure to be associated with this audit. It is clear, however, that the publication of this report does not signal an end to the task of improving the care of patients with upper GI cancer. This audit report is simply the beginning of a journey in the course of which patients will experience better outcomes and less uncertainty about their future.

Harry Burns

Director of Public Health, Greater Glasgow NHS Board

Executive Summary

- The Scottish Audit of Gastric and Oesophageal Cancer (SAGOC) was based on data from 3,293 patients with upper gastrointestinal tumours (1490 oesophageal, 539 oesophago-gastric (OG) junction, 1264 gastric) from July 1997-July 1999. This represents in excess of 98% of all such tumours diagnosed within Scotland in the study period and as such represents the largest prospective population based audit of gastric and oesophageal cancer.
- The SAGOC study has highlighted the changing epidemiology of gastric and oesophageal cancers found in reports from other Western countries. Scotland currently has one of the highest incidences of oesophageal cancer in Europe and within the UK. Within Scotland oesophageal cancer is now more common than gastric cancer, and adenocarcinomas of the lower oesophagus predominate over squamous cell cancers.
- Patients delayed presenting to their doctor by more than 4 months in 30% of cases. The delay between initial presentation and establishing a diagnosis varied between health boards; in 22% of patients it was more than 4 weeks.
- Patients presented to 53 different hospitals with varying facilities available – only one third of patients initially presented to a major teaching hospital with full oncological, radiological and surgical services onsite. Patients presenting to smaller hospitals were not disadvantaged in terms of time to diagnosis or commencement of treatment and indeed there were significantly fewer delays in diagnosis.
- The relatively advanced nature of the majority of tumours at the time of presentation; a median age of 72 years for patients with gastric and oesophageal cancers; and the finding that 40% of patients had significant co-morbid disease – contributed to curative treatment being thought possible in only a minority of patients. In total, 1302 (39.5%) patients were treated surgically (30.7% oesophageal, 38.2% junctional and 50.6% gastric cancers); 24.8% of patients received chemotherapy and/or radiotherapy; and 28.8% of patients received endoscopic palliative treatment (EPT) (42.5% of patients with oesophageal or OG junction cancers).
- Surgical excision of the primary tumour is the primary goal of most curative treatment. However there was a difference in the reliability of pre-treatment staging modalities to predict the possibility of performing a complete resection - in only 60% of patients in whom the pre-operative intent was a curative resection did the surgeon feel that a curative resection had been performed. Patients having a non-curative resection were subjected to the risks of surgery but without the survival benefits. When the standard operation had to be extended to resect more extensive local disease it raised the mortality and decreased the one-year survival figures.
- The role of neo-adjuvant treatment for patients with gastric cancer is unknown, and it remains controversial for oesophageal cancer. However, only a minority of patients were included in randomised trials to address these issues.
- There was a significant mortality and morbidity associated with the performance of surgery for gastric and oesophageal cancers however this was comparable to other population based

studies and mortality and anastomotic leak rates, for the whole population, compared favourably to many reports from single institutions.

- Overall, the one-year survival estimate for patients was 32% and the two-year survival estimate was 17%. These rates are poor compared to European countries. Patients undergoing surgery had one- and two-year survival estimates of 53.9% and 32.8%, respectively.
- The major factors affecting survival were found to be: age; a history of pre-morbid disease (as determined by the American Society of Anesthesiologists (ASA) grading); the level of physical activity; degree of dysphagia; and the pre-treatment aim of treatment. In patients treated surgically the involvement of resection margins was also a predictor of survival.
- Neither the size of the hospital of presentation nor the size of the hospital of treatment was found to have any significant impact on survival.
- Based upon the above findings, a number of recommendations have been made for the provision of future services to patients with gastric and oesophageal cancer within Scotland; these are listed below. Many of the recommendations are concerned with the current delivery of services; others relate to areas in which future research may contribute to better treatment of these cancers. Whilst a number of models for the implementation of such recommendations are possible, the SAGOC group recommends the following three (closely linked, but separate) pathways :
 - a. The development of a managed clinical network whose structure would be based on a national, over-seeing group, and regional groups, based either on the SAGOC organization or regional cancer networks. Such a managed clinical network would ensure clinical co-ordination of services and ongoing audit of results. The national, over-seeing group would ensure consistency of standards between the regional groups.
 - b. The development of SIGN guidelines for the management of gastric and oesophageal cancer based upon systematic literature reviews
 - c. The formation of a trials group to take forward areas of clinical research identified in the SAGOC report.

Chapter Summaries

Methodology

- A prospective population based audit of all oesophageal and gastric cancers in Scotland presenting over a 24 month period (July 1997- July 1999) was performed with a minimum 1-year follow up on each patient.
- All hospitals in Scotland dealing with the diagnosis and/or management of patients with gastric or oesophageal cancer were involved with the aim of registering all cases.
- Data collection was organised into 4 regional subgroups to cover all of Scotland, each comprising roughly the same population; and 4 Data Managers were appointed, one for each of the 4 regions.
- Patients registered in the Audit were cross-checked (against pathology reports, endoscopy reports, radiology reports, Cancer Registry data, and COPPISH SMR returns) on a monthly basis to assess completeness of registration.
- 10% of all data collection forms were checked by expert members of the Steering Group and were found to be 85% accurate.
- Based on 1995/6 SMR 6 cancer registration figures¹, 98% of expected cases of gastric and oesophageal cancer were registered in SAGOC.
- Although the intention was for clinicians to complete data collection forms contemporaneously, approximately 60% of the data were collected by the Data Managers from the case notes towards the end of the Audit.
- Early culling of case records following death of patients with oesophageal and gastric cancer was responsible for difficulty in obtaining patients' notes and incomplete data in a proportion of patients.
- The recording of tumour site was unexpectedly unreliable, particularly for tumours around the gastro-oesophageal junction.

Epidemiology

- The estimated incidence of gastric cancers during the study was 9.9 per 100,000 (12.2 per 100,000 for oesophageal cancer; 4.5 per 100,000 for gastro-oesophageal junction cancers). This is amongst the highest reported in Europe and higher than in other parts of the UK.
- Previous studies have highlighted the changing epidemiology of gastric and oesophageal cancers in Western societies; the SAGOC study is consistent with these. Within Scotland, oesophageal cancer is now more common than gastric cancer, and adenocarcinomas of the lower oesophagus predominate over squamous cell cancers.

- There are differences in the socio-economic status of patients suffering from gastric cancer, squamous cell carcinoma of the oesophagus, and adenocarcinomas of the oesophagus. It is likely that these differences represent different causative factors in the development of these tumours.
- The median age of patients presenting with gastric or oesophageal cancer is 72 years. Furthermore, approximately 40% of patients, at the time of presentation, have severe co-existing medical conditions, and 25% have a significant reduction in their WHO performance status, which are likely to limit available treatment options.
- Patients in Scotland with oesophago-gastric cancer presented to 53 different hospitals with varying facilities available – only 1/3 of patients initially presented to a major teaching hospital with full oncological, radiological and surgical services onsite. Patients presenting to smaller hospitals were not disadvantaged in terms of time to diagnosis or commencement of treatment. Indeed there were significantly fewer delays in establishing a diagnosis in patients presenting to smaller hospitals.
- There are differences between Health Boards in the number of patients referred to hospital with an established diagnosis and in the delay between referral and diagnosis. Similarly there are differences between health boards in the time taken to commence treatment, following the establishment of a diagnosis.

Risk Factors and Delays in Presentation

- There is an apparent familial clustering of patients with gastro-oesophageal cancers but it is not clear whether this represents a common exposure to environmental factors or an inherited predisposition.
- Squamous cell carcinoma of the oesophagus is more strongly associated with smoking and increased alcohol intake than are oesophageal adenocarcinoma or gastric cancer.
- Approximately a third of patients with adenocarcinoma of the oesophagus had a history of gastro-oesophageal reflux.
- Only 14% of patients with oesophageal adenocarcinomas were previously known to have Barrett's oesophagus
- A number of risk factors were associated with gastric cancer including *H. pylori* infection, previous gastric surgery, previous peptic ulcer disease, and pernicious anaemia. A previous history of an ulcer was present in 1 in 5 patients who developed gastric cancer.
- Surveillance programs, designed to detect early gastro-oesophageal cancer, are unlikely to benefit the majority of patients who subsequently develop these tumours if based on known *H. pylori* infection, known Barrett's Oesophagus or other symptoms which are present in only a minority of patients who develop gastric or oesophageal cancer.
- Approximately a third of patients have symptoms for more than 4 months before seeking medical attention.

Diagnosis and Staging

- Endoscopy and biopsy was the primary method of diagnosis (94% of patients) with barium meal performed in 29% of patients.
- Barium meal or endoscopy was ordered by a GP prior to referral i.e. as an ‘open access’ procedure in 20% of patients (endoscopy 14% and barium meal 29%). Both barium studies and endoscopy are widely available in hospitals throughout Scotland.
- 22% of patients waited more than 4 weeks from GP referral date for endoscopy and 14% for barium meal. The waiting times for each vary between Health Boards.
- No complication arose from barium meal and 0.9% of patients had a ruptured oesophagus following endoscopy with 0.3% dying from this complication.
- Staging is predominantly performed using CT in 69% of all patients, Ultrasound in 30% and laparoscopy in 20%.
- There was considerable variation in the use of staging procedures. Endoscopic Ultrasound was only available for 3.3% of patients overall and performed in 19% of patients in one health board.
- There was a difference in the reliability of the various preoperative staging modalities to demonstrate clinically significant regional disease. This is demonstrated in the Kaplan-Meier survival curves with endoscopic ultrasound showing the widest separation.

Surgery

- In total 1302 patients were treated surgically this represented 39.5% of the study population.
- The proportion of patients undergoing surgical treatment varied according to tumour location – with 457/1490 (30.7%) of oesophageal, 206/539 (38.2%) of junctional cancers and 639/1264 (50.6%) of gastric cancers being operated upon.
- Once a diagnosis has been established 45% of patients suitable for surgery have a further delay of more than one month before an operation is performed. Only 25% of patients with gastro-oesophageal cancer undergo their surgery within two weeks of diagnosis
- Patients in the least deprived groups were more likely to undergo an operation with curative intent than those in the most deprived group.
- There were differences between health boards in terms of operation rates reflecting: different referral patterns, surgical practises and crude incidence rates of the different tumour types.
- Thirteen percent (13%) of patients underwent their surgery in a different health board than that of residence – this appeared to reflect established referral patterns.
- Overall the majority of patients had their surgery in medium sized hospitals but 275 patients had their surgery in centres treating less than 14 cases per year and 234 patients had operations in centres operating on more than 45 patients per year.

- There were no differences in operation rates between different hospital sizes to which patients presented however more oesophageal surgery was performed in larger units with correspondingly lower proportions of gastric surgery in these units. The two hospitals with the largest operative through-put performed 30% of oesophageal surgery in Scotland.
- In only 60% of patients in whom the pre-operative intent was a curative resection did the surgeon feel that a curative resection had been performed.
- When the standard operation had to be extended to resect more extensive local disease it raised the mortality and decreased the one-year survival figures.
- Overall 44% of patients suffered from post operative complications the most common being chest infections (20.4%), cardiac complications (8.3%) or anastomotic break down (6.5%).
- The mortality for patients suffering an anastomotic dehiscence was 46%. There was no significant difference between tumour location or size of hospital performing the surgery and the rate of anastomotic breakdown.
- Eight percent (8%) of surgical patients required a second operation. There was a significantly higher post operative mortality amongst these patients compared with those having only 1 procedure (38.5% vs 10.6%).
- The overall post operative mortality rate was 12.9% with minor variation according to tumour location: gastric 14.1%, junctional 9.7% and oesophageal 12.7%.
- There was no statistically significant difference in post operative mortality rates for surgery performed in different sized hospitals in Scotland.

Oncology

- In Scotland, 24.8% patients received chemotherapy and/or radiotherapy. There were significant differences by health board of residence ($p < 0.001$), ranging from 11% to 36%.
- Significantly more patients with oesophageal cancer (31.7%) than gastric cancer (12.2%) received chemotherapy and/or radiotherapy ($p < 0.001$).
- There was little difference by deprivation quintile as to whether radiotherapy, chemotherapy or a combination was given.
- From time of diagnosis, 74.4% of patients waited more than 4 weeks for radiotherapy; 57.7% waited more than 4 weeks for chemotherapy. This suggests either delayed referral, a lack of oncology input, shortage of equipment, long waiting lists for admission or a combination of these factors.
- For patients given chemotherapy alone 30.1% experienced grade 3 or 4 toxicity; this was more common for patients with gastric cancer (35.4%) than oesophageal or OG junction cancer Grade 3 and 4 toxicity among patients treated with combined chemotherapy and radiotherapy was documented in 13.0% of patients.
- Significantly more patients with gastric cancer 7.8%, than patients with oesophageal cancer 2.8%, died during treatment with chemotherapy ($p = 0.018$).

- However, record keeping of toxicity and disease response for both radiotherapy and chemotherapy was poor, particularly for palliative radiotherapy due to inadequate follow up.
- The survival data for patients treated with concomitant CT and RT (CCI) is comparable to that recently reported in the literature. For squamous cell carcinoma of the oesophagus the survival was 31.6% at 30 months which is comparable to that for surgical treatment.
- Survival by health board of residence showed significant variation for patients who received radiotherapy and chemotherapy.
- The proportion of patients entered into clinical trials varied considerably among health boards varying from 0 to 25% with an average of 12%.
- Variation in practice among health boards may reflect the presence of clinical and medical oncologists with a special interest in upper GI cancer.

Endoscopic Palliation

- 948 (28.8%) patients in the SAGOC audit had endoscopic palliative treatment (EPT).
- EPT was used in 796/1875 (42.5%) of patients with oesophageal or OG junction cancers, but rarely in gastric cancer.
- There was significant variation ($p < 0.001$) in EPT by Health Board of residence from 18.4% to 38%. This may relate to the provision of services, local expertise or both.
- Expandable metal stent placement was the commonest EPT; LASER was also used and both were used in combination with radiotherapy and less often chemotherapy.
- In health boards where stent placement was used extensively, LASER was rarely used; conversely in health boards where LASER was commonly used, stent placement was less often utilised ($p < 0.001$).
- Complications of EPT were recorded in 221 out of 948 patients and associated with stenting plus dilation or more than one other treatment.
- EPT was judged to have been appropriately given for over 83% of LASER patients and 95% of stent patients.
- Survival was 39.6% at 6 months, 16.6% at 12 months, 6.2% at 24 months.
- Patients receiving multiple types of intervention fared better, but this may not be a comparison of like with like.

Pathology

- The histological type of tumour was well recorded but there was relatively poor recording of the further histological classification of adenocarcinomas and histological features associated with all tumours.

- Pathology reports were not always easily interpreted and there is variation in terminology.
- Margin involvement was common in resection specimens of oesophageal carcinomas and was associated with poorer survival especially when multiple margins were affected.
- Pathological TNM staging was poorly recorded and particularly regarding whether tumour cells were present on the serosal surface of gastric resections, ie whether Stage pT2 or pT3.
- The division of tumour sites to include OG junction tumours caused problems in analysing the data as the UICC pathological staging for T and N stages are not identical for oesophageal and gastric carcinomas.

Survival

- Overall, the one-year survival estimate for patients was 32% and the two-year survival estimate was 17%. These rates are poor compared to European rates.
- Patients undergoing surgery had increased one and two-year survival estimates of 53.9% and 32.8% respectively.
- Univariate, casemix adjusted and multivariate analyses were carried out on all patients and surgical patients only. Multivariate models were also created separately for curative and palliative patients.
- The major factors affecting survival were found to be age, ASA grading, WHO level of physical activity, degree of dysphagia, pre-treatment aim of treatment and margin involvement.
- Neither the hospital band of treatment for all patients nor the hospital band of surgery for surgical patients were found to have any significant impact on survival.
- Patients with a delay in diagnosis appeared to have a higher survival one year after diagnosis than those with no delay.

Adverse Outcomes

- Approximately 1/3 of patients delayed more than 4 months from the onset of symptoms to seeking medical attention.
- Having sought medical attention 22.2% of patients were delayed for more than 4 weeks from this date until a diagnosis was established, 2.3% were delayed more than 4 months.
- There were variations between health boards in the number of patients delayed in the establishment of a diagnosis.
- In hospitals seeing less than 10 gastro-oesophageal cancers per year only 13.4% of patients waited more than 4 weeks before a diagnosis was established whereas 25.2% of patients initially seen in hospitals seeing 35-74 patients per year experienced a delay of >4 weeks [p=0.001].

- 19% of patients undergoing surgery had a non-curative resection, this was more common for oesophageal cancers and was due to involvement of the radial resection margin in most of these cases.
- 12.9% of patients having surgery for oesophageal cancer 8.3% for junctional cancers and 8.1% for gastric cancer had recurrence of the disease within 12 months.
- The overall anastomotic leak rate was 6.5% which compares favourably with many series from single institutions. The mortality associated with an anastomotic leakage was nearly 50%.
- The overall post-operative mortality rate was 12.9% which is comparable to most large series. There was no difference in the post-operative mortality rate according to either the size of hospital to which patients present or have their surgery.
- Overall 15.7% of patients receiving oncological treatments experienced grade 3 or 4 toxicity reactions this was more common in patients treated with chemotherapy alone (30.1%). Significantly less patients with oesophageal cancer receiving chemotherapy experienced toxicity (20.4%) than gastric (35.5%) or OG junction cancer patients (33.8%) [$p=0.03$].
- The incidence of one of the recorded adverse outcomes of endoscopic palliative treatments (haemorrhage, bolus obstruction, stent migration or oesophageal perforation) was 11.6%. There was no difference between hospitals of different sizes or health boards in this regard.

Recommendations and Conclusions

Based on the findings of the SAGOC audit a number of recommendations aimed at improving the treatment of patients with gastric and oesophageal cancers have been made. The implications of these recommendations for the future treatment of patients within Scotland are considered under the following headings: (1) Service organisation and delivery; (2) Audit and quality assurance; (3) Health education; (4) Medical Education and Continued Professional Development; and (5) Research.

1 Service Organisation and Delivery

It is clear from the SAGOC data that there are differences between Health Boards in the delays experienced by patients in the establishment of a diagnosis of oesophageal or gastric cancer and, thereafter, in the delivery of treatment. It is not clear whether such delays influence the prognosis of patients but they do contribute to increased anxiety and patient concern. It is proposed that:

- 1.1 Local referral networks from primary care, within hospitals and between hospitals are established to ensure that all patients have prompt access to necessary diagnostic and staging modalities. Thereafter each patient should be discussed at a multi-disciplinary clinical-radiological case conference to ensure optimal treatment. This should include all specialties involved in the treatment of such patients and may require the development of networks between different hospitals within the same region. In this regard the informal referral patterns that already exist in some regions should be strengthened and formalised while in other areas such networks should be established.
- 1.2 Adequate in-hospital support and facilities should be provided to avoid delays due to lack of operating facilities, peri-operative high dependency or intensive care, radiology, radiotherapy or oncology services.

There are differences between regions in operation rates, the use of oncology services and other treatments offered to patients. In addition to the development of multi-disciplinary networks it is recommended that:

- 1.3 There is standardisation of assessment and staging protocols – this might include a risk stratification system such as ASA grading so that patients who are unlikely to benefit from aggressive treatment are not subjected to unnecessary investigations.
- 1.4 The incomplete resection rate should be reduced to avoid inappropriate surgery. The effectiveness of new staging modalities including endoscopic and laparoscopic ultrasound should be robustly evaluated to establish whether these investigations can improve treatment selection and accordingly whether they should be more widely available across Scotland. In addition, surgical philosophy should perhaps be altered to consider resection only in cases when a complete resection is likely rather than possible.

- 1.5 All patients should have equal access to all appropriate treatment modalities. The establishment of regional and national networks would ensure not only that all patients benefit from good local services but also that they have the opportunity to benefit from facilities available in tertiary referral centres.

The majority of patients with gastric and oesophageal cancer will have advanced disease and it is essential that care networks do not concentrate solely on patients undergoing potentially curative treatments. It is recommended that:

- 1.6 Palliative care should be directed towards the individual patient's requirements and not simply towards the relief of certain symptoms
- 1.7 Community nursing, dietetic and support services should be recognised as an integral component of any network dealing with gastric and oesophageal cancer.

2 Audit and Quality Assurance

It is essential that clinicians dealing with gastric and oesophageal cancers maintain a high standard of treatment and it is important that a similar quality of treatment is delivered by all units treating these tumours. It is recommended that:

- 2.1 All clinicians involved in the treatment of patients with gastric and oesophageal cancer should regularly review and audit their practice and participate in a regional network so that the standard of treatment within a region does not vary between units. Similarly the standards in different regions should be consistent and a system of national audit should be established to ensure that this is the case. These initiatives are dependent upon the development of an integrated minimum data set for patients with upper gastrointestinal cancer which is collected as a routine for all patients.
- 2.2 Adequate support for on-going audit should be available and recognised as an important issue of quality in the provision of upper gastro-intestinal cancer services. Individual units should be able to demonstrate that the diagnostic, imaging, surgical oncological and support treatment that they provide is of a high standard.

Comparison of results between units, different treatments, and future studies would be facilitated by:

- 2.3 Standardised recording of operative findings, pathology reporting (with a minimal data set) and chemo- and radio-therapy records, in particular with regards to toxicity. The Japanese Research Society for Gastric Cancer have used a standard notation of operative findings for many years and the Royal College of Pathologists has recommended a minimum data set for the reporting of gastric and oesophageal cancers.

3 Health Education

A high proportion of patients with gastric and oesophageal cancer in Scotland delay in presenting to their doctors even though they often have very significant symptoms. Furthermore, the risk of developing upper gastrointestinal cancers may be increased by many lifestyle factors such as

smoking and heavy alcohol intake. Such factors may also contribute to the high incidence of co-morbid disease in many upper gastrointestinal cancer patients. It is recommended that:

- 3.1 Public education programmes should be considered both: (1) specifically to encourage patients to present early with symptoms suspicious of upper gastro-intestinal cancer, and (2) generally to avoid risk factors and reduce co-morbid disease by healthier lifestyle, better diet, and avoidance of smoking and excessive alcohol.

4 Medical Education and Continued Professional Development

Different issues are important within different specialties but an increased awareness of the importance of gastric and oesophageal cancers and the central issues in their treatment must be central. In particular:

- 4.1 All primary care personnel must be aware of the importance of upper gastro-intestinal symptoms and the need for early diagnostic tests.
- 4.2 The subtle changes of early gastric and oesophageal cancer must be appreciated by endoscopists and radiologists.
- 4.3 Increasing sub-specialisation within different clinical disciplines should also be considered. There is already much sub-specialisation within surgery and this should also be considered within radiology and pathology.
- 4.4 Emphasis in surgical training and continued professional development on surgical technique for oesophageal and gastric resection is important as technical aspects of these major operations have a major impact on peri-operative mortality.

5 Research

Approximately two thirds of patients with oesophageal and gastric cancer have advanced disease at the time of presentation. Further evaluation of methods of early detection of tumours is required. It is unlikely that mass population screening would be effective in Scotland; however, surveillance of patients at increased risk of gastric and oesophageal cancer may be of value:

- 5.1 Further evaluation of surveillance endoscopy or barium meals in high risk groups should focus on high prevalence symptoms such as gastro-oesophageal reflux, *H. pylori* infection, and previous peptic ulceration.
- 5.2 Further trials are required to determine the optimum treatment for many aspects of upper gastrointestinal cancer.
- 5.3 Participation in well designed trials of treatment should be encouraged and support given to facilitate patient recruitment.
- 5.4 Neo-adjuvant chemotherapy should only be given within the context of a controlled trial for operable gastric cancers.
- 5.5 Further evaluation of optimal palliation is required.