It gives me great pleasure to introduce this timely update of the Resources for Coloproctology document published in 2001 under the guidance of Professor Christopher Marks. That document has been an invaluable reference source which has helped enormously in the development of colorectal units as specialisation has become established.

The present updated report summarises exactly what is required in terms of investigation, diagnosis and treatment of colorectal disease and the resources required to maintain high quality care, and we are grateful to Professor John Monson and his team for coordinating this.

The report addresses changes in practice and resource implications at a time of increased accountability and other aspects of clinical governance, not only in clinical practice, but also administration, management, training, appraisal, assessment and research. It calculates, in the wake of the new consultant contract, the number of sessions per 500,000 population required to run a comprehensive multi-professional colorectal service.

The report emphasises that outpatient demands in terms of consultant numbers exceed the requirement for inpatient services, and the difference must be met by more clinical nurse specialists, especially with respect to clinics and colonoscopy. Colonoscopy demands have increased significantly since 2001, and colorectal surgeons must share service development with gastroenterology colleagues. Extra resource is essential; good colonoscopy takes time. Data collection, protocols and high quality training also reduce turnover.

In short, one colorectal surgeon per 100,000 population is needed, implying that in the UK there is a current shortfall of around 100 colorectal surgeons. Shortfalls do need to be addressed by Trusts, even in a difficult financial climate. Numbers of surgeons in training must also match retirements. Wider colorectal service requirements are addressed in terms of radiologists, oncologists, hepatobiliary surgeons, gastroenterologists, palliative care physicians, physiologists and histopathologists, on whose support we are so dependent. Of particular importance is the need for significant additional resource to improve oncology, radiology and histopathology manpower and to invest in infrastructure. The priority wish-list for a quality colorectal service in a nutshell would be additional colorectal surgeons, clinical nurse specialists, histopathologists and MLSOs, radiologists and oncologists all working as a team; no waiting time for preoperative chemoradiotherapy and one PET-CT per 1.5 million population!

Professor Andrew Shorthouse
President
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The Association of Coloproctology of Great Britain and Ireland, is a multi-professional organisation, committed to setting, developing and maintaining the highest standards of care of patients with colorectal disease including bowel cancer by audit, training, research and education. The Association recognises that increased funding has been directed towards the NHS and cancer care welcomes the Government’s initiative in directing more resource to cancer services and supports the multidisciplinary team management of patients with all forms of colorectal disease, especially colorectal cancer and inflammatory bowel disease. The Association also recognises the proper demands by the public for greater access to services and that greater public awareness of the symptoms of bowel disease will increase the pressure on outpatient and inpatient services. On the basis of new data assessing current demand, this report outlines the services required for the investigation, diagnosis and treatment of colorectal disease and the resources needed to maintain a high quality of care and builds on the original report published in 2001. By updating the different sections in the first report it attempts to review and recognise some of the changes relevant to delivering colorectal services in the last five years.

Until recently a consultant could devote most of his or her time to direct patient care. The rapid change in the Government’s and public’s expectations for higher standards of care, accountability of clinical governance have made significant inroads into the time that doctors and other health professionals can spend with their patients. Accurate measurement of a consultant’s performance requires training, research, audit and involvement in the organisation of the service. The standard of performance expected in all these new aspects of work extra to their clinical duties have also greatly increased. For example, it is no longer acceptable for consultants to offer training to their juniors just on the principle of an apprenticeship. This requires time for structured training and appraisal, and the organisation of courses and conferences at local, regional, national and international levels. Administration of the service particularly for clinical directors, may involve up to two sessions per week.

Since the 2001 report was published the new consultant contract has been introduced with a range of consequences. In most cases remuneration for consultants has increased but working arrangements now vary quite widely and are developed through the job planning process. Although this process has produced a degree of clarity and transparency in relation to the consultants working timetable the new contract has not meaningfully increased time devoted to direct patient care. In fact, the new arrangements have in many instances revealed quite starkly how little of the surgeon’s working week is spent either seeing or operating on patients. For the most part this gap in activity is due to lack of hospital fabric (beds and operating theatres) or staff (usually nurses).

The net effect of these demands has seen very little improvement in waiting times for investigation and treatment despite an increase in the number of new consultant appointments. The introduction of the “two week wait” rule and more recently the 31/62 investigation and treatment targets has added further stress to the system.
Resources to support the two-week wait patients are being identified and re-directed at the expense of patients being referred outside this system. Although this has eased the patient journey for one group of patients, one consequence has been an increase in waiting times for consultation, investigation and treatment for the so-called less urgent group. This is despite the understanding that the majority of patients with colorectal cancer fall into this latter group.

This document attempts to define what multi-professional personnel, including consultant, nursing and non-clinical staff, would be required to provide a prompt and high quality colorectal service taking into account the total requirements of patients with colorectal disease and conditions in the community and the extra non-clinical duties now also required by all levels of staff.

The overall services required are calculated on the basis of estimates of the numbers of patients with established minor and major colorectal disease needing treatment each year for a population of 500,000 people.

The Joint Consultants’ Committee and the Royal College of Surgeons of England has produced a report on the organisation of elective and emergency surgical services, which defines what can safely and reasonably be expected of a single consultant surgeon in terms of the numbers of patients to be seen, investigated or treated per session of activity. The number of sessions required by consultant surgeons to manage this overall workload can be calculated when the total volume of clinical work and extra non-clinical duties are matched. In a similar way the numbers of consultant gastrointestinal physicians, pathologists and radiologists, colorectal nurse specialists and stoma therapists can also be estimated.

Data for this report was obtained from the following audits, (see Association of Coloproctology website, www.acpgbi.org.uk). In some instances data was updated from the analysis undertaken for the 2001 reports whereas in others the data remained valid.

1. Association of Coloproctology (ACP) Audit 2000 of surgeons’ programmes including outpatients operations
2. Radiology – a national survey of the services required
3. Endoanal ultrasound (EAUS) and anorectal physiology (ARP) – survey of established units (revised 2005)
4. Endoscopy – British Society of Gastroenterology (BSG) data and data from training units
5. Inpatient/theatre workloads – North West Regional data
6. Histopathology – survey of selected units from Leicester
7. Nursing Services and Nurse Practitioner data – the Nursing Chapter of the ACP and Hull
summary

outpatient services

It is estimated that there will be a need for 750 – 1500 clinics per year per 500,000 of the population. This will require the staff as listed below.

<table>
<thead>
<tr>
<th>Clinics per year</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2 consultant GI physicians (full-time equivalents) (2 clinics/week 2x2x42)</td>
<td>168</td>
</tr>
<tr>
<td>5 consultant colorectal surgeons (full-time equivalents) (2 clinics/week 2x5x42) 420*</td>
<td>420</td>
</tr>
<tr>
<td>2 GPs/3 Nurse Endoscopists (1 clinic / week; 5 x 1 x 42)</td>
<td>210</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>798</strong></td>
</tr>
</tbody>
</table>

* 420 clinics of which one quarter (105) will be needed for follow-up of colorectal cancer, colitis, rectal prolapse and other post-operative conditions as well as outpatient management of benign anorectal conditions such as piles, pruritis, incontinence.

Key points

- The demand for staffing a colorectal diagnostic unit is greater than the consultant staff needed for inpatient services.
- The allocation of patients to clinics has been significantly distorted by the introduction of the Two Week Wait Rule requiring ring fenced clinic slots.
- The development of partial and full booking systems is also having an effect on clinic processes that may not be entirely beneficial.
- This gap in clinic facilities must be filled by non-consultant staff such as GPs and nurse endoscopists and non-medical staff where appropriate.
- There remains an urgent need to train non-consultant staff in the investigation and treatment of outpatients.
Surgical treatment of Colorectal Disease

Full-time equivalent colorectal surgeons for population of 500,000

Key points

• Most coloproctology can be done in a medium/large district general hospital.

• Extra non-clinical activity requires a substantial part of the modern consultant’s time for teaching, research, audit and management of service.

• Colorectal cancer occupies the majority of the colorectal surgeon’s time together with inflammatory bowel disease and colonoscopy.

Medical treatment of Colorectal disease

2 full-time equivalent gastrointestinal physicians for a population of 500,000.

Colonoscopy

• A minimum requirement of 830 colonoscopies per year per 500,000 population.

• 250 colonoscopies done per practitioner with a weekly session per year. This 2001 figure is likely to prove unrealistic under current arrangements resulting the need for additional endoscopy staff.

Key points

• Shared responsibilities between the gastrointestinal physicians and gastrointestinal surgeons

Colorectal nurse specialists (main or specialist interest in colorectal imaging)

Resources required for a population of 500,000

• 3 endoscopy nurse specialists

• 2-3 colorectal cancer nurse specialists

• 4 stoma therapists

• Up to 8 other colorectal nurse specialists for other cancer roles and the management of benign disease

Radiological service for Coloproctology

Resources needed per 500,000 of the population

• 3 full-time equivalent radiologists not including extra non-clinical duties (main or specialist interest in colorectal imaging).

Key points

• Major increase in demand for imaging, particularly rectal cancer

• Increasing demand for imaging benign conditions of the pelvic floor and perianal sepsis

• These demands are likely to increase and the estimate of the number of consultant radiologists as stated above is likely to be an under-estimate of the need in the future.
Histopathology

- 1.5 full-time equivalent histopathologists for a population of 500,000, not including time for extra non-clinical duties

Key points

- Over 300 consultant vacancies at the moment, which is likely to rise to over 400
- Significant improvement unlikely before 2004, because of shortage of senior trainees

Chemotherapy and Radiotherapy

Resources needed for a population of 500,000 for adjuvant and palliative treatment of colorectal cancer

- At least 2 full-time equivalent consultant oncologists

Key points

- Serious current under-provision, which is patchy across the country
- Oncology service is seriously hampered by the lack of access to imaging to monitor the effectiveness of treatment
- Recent trials of radiotherapy in rectal cancer are likely to results in a dramatic increase in demand for pre-operative treatment. It is almost inevitable that there will be a shortfall in numbers of both linear accelerators and trained radiographer staff
- Increasing need because of expansion in hepatic resection for liver metastases.
- A greater awareness of psychological support requirements has identified a nationwide shortfall.

Palliative care

Resources needed for a population of 500,000

- 2 full-time equivalent palliative care consultants
- 2 Macmillan nurses inside hospital and 2 in the community of which 10% of time should be for colorectal disease

Key points

- 10-20% of all palliative care provision is for patients with disseminated bowel cancer
- £2 million per year at 1991 prices, over half of this for surgery, 28% for palliative care
introduction

Colorectal Outpatients provides services for the investigation and treatment and advice to patients with the symptoms of bowel cancer, colitis, diverticular disease and benign anorectal and functional bowel diseases. The majority of outpatients do not have serious conditions (cancer or colitis). Less severe conditions such as irritable bowel syndrome, benign anorectal conditions or functional bowel disease may be disabling. Benign anorectal disease can often be treated during one visit to Outpatients.

Flexible sigmoidoscopy has been shown to be effective for the diagnosis of significant serious diseases such as cancer, colitis and diverticular disease, but rigid sigmoidoscopy with or without a barium enema is still the most common mode of investigation in Outpatients in the UK. The recent introduction of the Government’s ‘Two Week Standard’ has increased pressure on Outpatients, but has also focused attention on current serious deficiencies in the system and service.

demand

The demand for Outpatient appointments can be divided into those requiring an appointment within two weeks under the ‘Two Week Standard’ and those referred under the previous system to routine clinics on the basis of an urgent, routine or in-turn basis.

resources required for patients referred on the basis of the Government’s ‘Two Week Standard’

This was determined using the following assumptions and calculations:

- 58 new bowel cancers per 100,000 population per year\(^1\) of which 25% or 14 will present as an emergency, leaving 44 to be seen in the Out-Patient Clinic\(^2\).
- 90% of these 44 patients will have high risk symptoms = 40 patients
- The diagnostic yields in the fast-track clinics will be between 5-10%\(^3,4\)
- This means 10-20 patients are seen for every cancer diagnosed, which will result in 400 – 800 patients needing investigation each year
- 8 new patients will be seen per clinic
- The number of clinics needed per year = 400-800 / 8 – 50-100 clinics per year per 100,000
- For a population of 500,000, 250-500 clinics are needed to cover the ‘Two Week Standard’
This assumes that the fast track clinics will include all the high-risk patients. If they only see half the eligible cancer patients, the others being seen in routine clinics (50% effective) then the numbers needing to be seen in the fast-track clinic will be half those predicted i.e. 125-250 clinics per year.

It has been estimated from data collected in Hull and Portsmouth that the patients eligible for the fast-track clinics represent approximately one-third of all patients needing to be seen for lower gastrointestinal symptoms and other coloproctological disorders. If this is correct, there will be a need of 750-1500 clinics per year or 18 – 36 clinics per week, assuming 42 weeks per year per doctor per 500,000 of the population. Later in this document it has been estimated that 5 full-time equivalent colorectal surgeons and 2 full-time gastrointestinal physicians are needed to cover the inpatient work for coloproctology patients for a population of 500,000. Assuming each consultant will do two clinics per week, the 5 consultant surgeons will do 2 x 5 x 42 clinics per year or 420 clinics per year. A quarter of these will be needed for follow-ups of patients having surgery for colorectal cancer, colitis, rectal prolapse and follow-up for some of the patients who are treated entirely in Outpatients.

Two full-time equivalent colorectal gastrointestinal physicians also doing two clinics a week entirely of new patients between them would do 2 x 2 x 42 = 168 clinics per year.

The total number of clinics (588) provided by colorectal surgeons (420) and the physicians (168) does not match the minimum requirement of 750 clinics for a population of 500,000. It is suggested that the additional clinics are provided by a combination of general practitioners (GPs) and nurses.

For example, two GPs doing one clinic each week = 2 x 1 x 42 = 84 clinics per year, Three nurses doing two clinics per week = 3 x 2 x 42 = 252 clinics per year.

The contribution made by GPs and nurses will depend on local circumstances. However it is clear from these calculations that a substantial number of extra clinics are needed in each district in addition to those which are provided by consultant staff.

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**Audit of current outpatient practice and current shortfalls in resources**

The Government and Department of Health initiatives regarding colorectal cancer are welcomed, but it is important to highlight the full range and importance of all benign and malignant colorectal conditions. Many clinicians are concerned that implementation of the ‘Two Week Standard’ will delay the treatment of benign colorectal conditions. Often these benign conditions are both socially isolating and embarrassing. It must be recognised that colorectal cancer will constitute a small percentage of patients presenting to colorectal clinics. In addition, those patients not included in the ‘Two Week Standard’, but who are subsequently diagnosed as having colorectal cancer will not be helped by a system focused on a limited number of symptom profiles. These may be excessive delays for patients booked into routine clinics if additional resources are not provided.

The Association of Coloproctology Audit 2000, (Appendix 1) has shown that 63% of patients marked urgent were seen within 2 weeks and 90% within 4 weeks, before the introduction of the ‘Two Week Standard’. In contrast, 35% of those patients categorised as soon are seen within four weeks and 72% by 10 weeks rising to 94% by 20 weeks.

To achieve these standards Outpatient Clinics start early and finish late, compromising the quality of care by shortening the time for a clinic appointment, increasing the waits for scheduled Outpatient appointments and disrupting the work planned for the rest of the day. Neither the public nor health professionals will tolerate these demands indefinitely.

- **Support for Outpatient Services**
  - The introduction of the new ‘Two Week Standard’ has put increased pressure on the administrative support and clerical staff in planning and organising the outpatient clinics. It has also been necessary to monitor the clinical effectiveness of these clinics. It is important that the clinical staff are increased proportionately to cope with these new pressures. There is no point in providing new services if the infrastructure is insufficient to provide efficient organisation of appointments.
  - Only 10% of "Two Week Wait" patients have colorectal cancer and they represent only 20% of the total cancer workload. The Association is concerned that this symptom inappropriately diverts resources in a manner that is not clinically effective.
conclusion

The staff required for outpatient coloproctology is as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Clinics per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 consultant GI physicians (full-time equivalents)</td>
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<tr>
<td>(2 clinics/week; 2x2x42)</td>
<td></td>
</tr>
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</tr>
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<td></td>
</tr>
<tr>
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<td>210</td>
</tr>
<tr>
<td>Total</td>
<td>798</td>
</tr>
</tbody>
</table>

references:

resources for inpatient treatment of patients with colorectal disease

introduction

Coloproctologists treat disease in the small and large bowel, rectum and anal canal including anal incontinence, rectal prolapse and other degenerative pelvic floor disorders.

surgical workload

The surgical workload was estimated on the basis of the number of operations needed for these conditions for a population of 500,000 people.

Measurement of surgical workload was defined in the Royal College of Surgeons of England’s publication entitled ‘General surgical workload and the provider/purchase contract’. Each case can be given a BUPA group classification – minor to complex major, and then a workload value is derived by an intermediate equivalent value (IEV)\(^1\).

<table>
<thead>
<tr>
<th>Group</th>
<th>IEV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor</td>
<td>0.50</td>
</tr>
<tr>
<td>Intermediate</td>
<td>1.00</td>
</tr>
<tr>
<td>Major</td>
<td>1.75</td>
</tr>
<tr>
<td>Major +</td>
<td>2.20</td>
</tr>
<tr>
<td>CMO</td>
<td>4.00</td>
</tr>
</tbody>
</table>

This system can be used to score the workload achieved per notional half-day theatre list. The maximum number of IEVs per list is 4.00 and most half-day lists will achieve 3.5 IEVs which should be accepted as the value achievable nationally. However, theatre throughput on training lists will be reduced and it is likely that and IEV of between 2 and 3 units will be achieved. Surgical workload depends on anaesthetic expertise and will be reduced when junior anaesthetists are being taught procedures.

reference

demand for colorectal surgical services and the manpower and theatre resources required

The demand for colorectal surgical services is calculated on the basis of the volume of colorectal disease needing to be treated each year for a population of 500,000. The number of intermediate equivalents required for each patient with a particular condition is listed together with the total number of intermediate equivalents needed for all patients.

The number of intermediate equivalents required for each operation has been calculated on the basis of the BUPA grading, taking into account other factors including anaesthesia and training of surgeons. For a difficult low anterior resection for cancer of the rectum, 5 intermediate equivalents may be needed, exceeding the time available on a half day list.

The number of lists required can then be calculated for elective, emergency or day-case procedures and endoscopies, and from this the number of consultants needed to cover these sessions can be calculated.

Treatment of colorectal cancer will occupy most of a colorectal surgeon’s operating time. The other major commitments are the treatment of inflammatory bowel disease, diverticular disease together with colonoscopy.

surgical manpower

This will be determined by the number of clinical sessions a consultant surgeon can work per week in addition to the other clinical duties listed in the job description (Appendix 1, www.acpgbi.org.uk) and taking account of annual and study leave and other commitments.
### Lists

<table>
<thead>
<tr>
<th>Nos</th>
<th>IE</th>
<th>Total</th>
<th>Elective</th>
<th>Emergency</th>
<th>Endoscopy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rectal Cancer</td>
<td>70</td>
<td>5</td>
<td>350</td>
<td>87.5</td>
<td>-</td>
</tr>
<tr>
<td>Colon Cancer</td>
<td>210</td>
<td>4</td>
<td>840</td>
<td>160</td>
<td>50</td>
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<tr>
<td>Closure of stoma/ileostomy</td>
<td>50</td>
<td>1</td>
<td>50</td>
<td>12.5</td>
<td>-</td>
</tr>
<tr>
<td>Ileal pouches</td>
<td>8</td>
<td>4</td>
<td>32</td>
<td>8</td>
<td>-</td>
</tr>
<tr>
<td>Rectal prolapse</td>
<td>12</td>
<td>3</td>
<td>36</td>
<td>9</td>
<td>-</td>
</tr>
<tr>
<td>Inflammatory bowel disease</td>
<td>20</td>
<td>4</td>
<td>80</td>
<td>18</td>
<td>2</td>
</tr>
<tr>
<td>Diverticular disease</td>
<td>20</td>
<td>4</td>
<td>80</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Anal incontinence</td>
<td>6</td>
<td>2</td>
<td>12</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>Others (incl re-operations)</td>
<td>60</td>
<td>3.4</td>
<td>210</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>Haemorrhoids</td>
<td>24</td>
<td>1</td>
<td>24</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Fissure</td>
<td>12</td>
<td>0.5</td>
<td>6</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Pilonidal</td>
<td>12</td>
<td>1</td>
<td>12</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Fistula (incl re-operations)</td>
<td>50</td>
<td>0.75</td>
<td>38</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>EUA anal conditions</td>
<td>80</td>
<td>0.5</td>
<td>40</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Flexible sigmoidoscopy</td>
<td>350</td>
<td>0.4</td>
<td>140</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Colonoscopy*</td>
<td>1250</td>
<td>1</td>
<td>1250</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>336</td>
<td></td>
<td>87 (CEPOD)</td>
<td>28</td>
<td></td>
</tr>
</tbody>
</table>

**Total 636**

### Inpatient, day-case and endoscopy sessions per week for a population of 500,000

<table>
<thead>
<tr>
<th>Nos</th>
<th>IE</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5</td>
<td>1.5</td>
<td></td>
</tr>
</tbody>
</table>

**6.4 | 1.7 (CEPOD)**

**12.2 Inpatient, day-case and endoscopy sessions per week for a population of 500,000**

### IE = intermediate equivalents

* A minimum number of 5,000 colonoscopies are required for a population of 500,000. It is assumed that 1,250 of these will be done by Colorectal Surgeons.
# Guideline Job Description

For a single consultant surgeon per week

<table>
<thead>
<tr>
<th>Sessions</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Inpatient/Day case list</td>
<td>2.00</td>
</tr>
<tr>
<td>Outpatient clinics</td>
<td>2.00</td>
</tr>
<tr>
<td>CEPOD list</td>
<td>0.50</td>
</tr>
<tr>
<td>Colonoscopy</td>
<td>1.00</td>
</tr>
<tr>
<td>Ward Rounds</td>
<td>0.50</td>
</tr>
<tr>
<td>Multidisciplinary Team Meetings</td>
<td>0.50</td>
</tr>
<tr>
<td>On-call (out of hours work including the weekends)</td>
<td>0.50</td>
</tr>
<tr>
<td>Post-take ward round</td>
<td>0.50</td>
</tr>
<tr>
<td><strong>Total clinical commitments</strong></td>
<td><strong>7.50</strong></td>
</tr>
<tr>
<td>CME appraisal of trainee/research/audit</td>
<td>1.00</td>
</tr>
</tbody>
</table>

**Management (clinical)**
- Including overall commitments for the whole colorectal
- Surgical team, and also LNC/APC/Clinical Governance/
- Surgical tutor/local, regional and national surgical courses/
- Ethics committee, etc
- Administration (non Clinical)  
  - 0.50
  - 1.00

**Total extra non-clinical commitments**  
- 2.50

**TOTAL**  
- 10.00
This means a single consultant surgeon during a 4-week period can do 12 lists including 7 inpatient/day-case, 2 CEPOD (emergency lists) and 3 colonoscopy sessions.

Therefore the number of lists per year is 12 x 42 / 4 weeks = 126

Total number of theatre session covered per year per 500,000 population = 636. Number a single surgeon can cover = 126

636 / 126 = 5 full time consultant colorectal surgeons for a population of 500,000 or 1 colorectal surgeon per 100,000 of the population.

The population of Great Britain and Northern Ireland (approximately 55 million) requires 550 full-time equivalent colorectal surgeons. There are 590 surgical members of the Association of Coloproctology, not all full-time equivalents, which suggests there is currently a shortfall of about 50 colorectal surgeons in the UK. If a consultant works for approximately 25 years, more than 20 new colorectal surgeons will be needed each year.

Audit of current practice, provision and current shortfalls and solutions

At the moment, coloproctology, in common with other services, is supported by teams of doctors, nurses and paramedics who work long hours in addition to doing extra duties including audit, research, management and clinical administration.

There is an assumption that a consultant colorectal surgeon can also be responsible for an unlimited number of inpatients and this is not acceptable. Continuity and proper inpatient care is made difficult by reduced numbers of junior staff who work fewer hours. Many units have a policy of not providing locums during annual leave and indeed it may be impossible to get satisfactory locums when there is money available to pay for them. All units have problems with bed availability and patient management is often complicated by patients placed on outlying wards without the appropriate nursing support in addition to other seriously ill patients in high dependency units (HDU) or intensive care units (ICU). One audit in a northern region carried out on 27 January 2000 (appendix 5, www.acpgbi.org.uk) showed that the median number of inpatients was 17 (7 of these were emergencies, 2 outliers and 1 usually in ICU/HDU). Defined limits of inpatient workload were suggested. A limit of 7 inpatients will allow delivery of high quality care.

Conclusion

The service provided by colorectal surgeons will be improved by providing 5.0 consultants per 500,000 population, which is one consultant colorectal surgeon per 100,000 of the population.

It is essential that the number of surgeons in training match retirement vacancies as well as the new posts necessary for a high quality service.
resources for subspeciality training for colorectal trainees

introduction

The resources available to provide subspeciality training need to be sufficient to ensure that it is of the highest quality. One of the most important elements of this is that colorectal trainees have the opportunity to work for colorectal consultants.

resources required

A ratio of one colorectal consultant to one colorectal trainee is considered to be required.

current situation

A questionnaire was sent to all colorectal trainees.

Trainees from 14 hospitals replied, spread over 11 regions in England, Scotland and Wales. In the 14 hospitals there were 39 colorectal consultants, an average of 2.8 per hospital and 28 colorectal trainees, an average of 2 per hospital.

Of the 28 colorectal trainees, 24 were working for colorectal consultants and 4 for consultants in other subspecialties.

summary

There are more colorectal consultants than trainees and this ratio is approximately 3:2 in each hospital, furthermore the great majority of trainees who have expressed an interest in coloproctology are working for colorectal consultants. Hence there appears to be a good balance in the number of colorectal consultants and trainees and this is considered to be sufficient for subspeciality training at this time.
colonoscopy and flexible sigmoidoscopy

introduction

At the moment, there is an increasing demand for colonoscopy although this position may change with the introduction of new techniques for colonic imaging.

demand for colonoscopy

The requirements of 500,000 population per year are:

<table>
<thead>
<tr>
<th>Service</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diagnosis</td>
<td>250</td>
</tr>
<tr>
<td>Polyp follow up</td>
<td>250</td>
</tr>
<tr>
<td>Cancer follow up</td>
<td>250</td>
</tr>
<tr>
<td>UC Surveillance</td>
<td>80</td>
</tr>
<tr>
<td>FOB positives from screening</td>
<td>500</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1330</strong></td>
</tr>
</tbody>
</table>

resources required

6 colonoscopies can be done per session with one practitioner able to do 42 sessions per year. This means that approximately 252 colonoscopies can be done per year by a single practitioner with a weekly session.

future demands for endoscopy

Flexible sigmoidoscopy may be performed as either an outpatient procedure or day case. Flexible sigmoidoscopy screening by a single examination at the sixth decade, if introduced and assuming a compliance of 70%, will require approximately 3,500 procedures per 500,000 population per year. A decision is unlikely on the feasibility of flexible sigmoidoscopy screening before 2007.

Screening high-risk individuals for cancer by colonoscopy will require 250-500 new examinations per year. More colonoscopies will be required to follow up these high risk individuals.

If medium risk individuals are included, this would mean an additional 1,750 colonoscopies per year.

The general population screen will also generate a number of follow-up colonoscopies but a proportion of these can be set against significant follow up. The screening figures assume an uptake of 60%.

In the future a population of 500,000 will likely generate around 5,000 colonoscopies and 5,000 flexible sigmoidoscopies per year in addition to the requirement for treatment of symptomatic disease.
The current shortfall in service provision has been assessed with 51% of units at the moment not meeting the target for existing demand without the addition of screening. Half also said they could not expand the service and 60% said they would be unable to implement once-only flexible sigmoidoscopy (MacFarlane et al, Endoscopy 1999; 31 (6): 409-411).

Current times to colonoscopy are shown in the chart below:

<table>
<thead>
<tr>
<th>ACP Audit 2000</th>
<th>&lt;2 weeks</th>
<th>&lt;4 weeks</th>
<th>&lt;20 weeks</th>
<th>&lt;40 weeks</th>
<th>&lt;80 weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urgent</td>
<td>52%</td>
<td>90%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Routine</td>
<td></td>
<td>1%</td>
<td>79%</td>
<td>93%</td>
<td>98%</td>
</tr>
</tbody>
</table>

The BSG Audit (Appendix 4, www.acpgbi.org.uk) showed that the average wait for an urgent outpatients appointment was 2.7 weeks with soon at 6.8 weeks and routine at 17.3 weeks. The patient pathways require referral to diagnosis in 62 days. To achieve this the national endoscopy targets are urgent referrals done in under 2 weeks and routine colonoscopies in under 6 weeks. This will create a temporary need to expand access prior to the 12/06 implementation to reduce list sizes. The implementation of NICE Guidelines and "Test First" are likely to see the increase in flexible sigmoidoscopy procedures from current 0.8% to 1.0% i.e. 5,000/500,000 population. It is anticipated that a substantial majority of these will be undertaken by non-medical endoscopists of all types.

quality of colonoscopy

At the moment these procedures are associated with a significant morbidity (a national perforation rate of 1:1500 compared with 1:5000 at most expert centres), which must be reduced by appropriate training. In addition the whole colon is visualized in 90%+ of examination only at expert centres compared with 77% in non-specialist centres.

Quality control has been introduced as part of the screening program. Those wishing to undertake screening colonoscopy must fulfil the following criteria.

1. Must be carrying out 150 colonoscopies per annum. (some will be done by trainees under the direct [in room] supervision of the applicant);
2. Should have a documented completion rate on an “intention to colonoscope” basis of greater than 90% (no discounting for impassable strictures or poor preparation allowed);
3. Should have a lifetime perforation rate less than 1:1,000
4. Should use a maximum dosage of 50mg of pethidine, or 100 micrograms of fentanyl (or equivalent opioid), and 3mg of midazolam for almost all patients sedated. (other sedation methods will be considered on merit).
5. Should have collected 50 consecutive cases plus pathology over the preceding year to determine their adenoma detection rate (should be >15%) in first diagnostic colonoscopies.

Those that achieve the above quality service may elect to be part of the screening program. They will be reviewed by an assessment panel and if successful will undergo a practical examination that will involve an MCQ based largely on lesion recognition, followed by a DOPS examination over 4 consecutive cases, supervised by 2 experts utilizing magnetic imaging and tri-screen recording.

Colonoscopists should note that the screen Q and A is certain to be applied to general NHS and private service providers in the near future so all colonoscopists will have to operate to the same standards.
Formal training in medical endoscopy has now been implemented in England(3) and will be introduced soon throughout the UK. All trainees have to comply with these regulations. ACP and JCHST have agreed to the JAG guidelines. Endoscopy will now be included in the RITA assessments. Trainees taking up consultant posts will have to provide evidence of competence in endoscopy to have endoscopy included in their job plans and will have to maintain an audit in line with the Q&A assessment.

Training will begin at SpR1, and not below that level. All trainees should undertake a basic endoscopy course (either diagnostic upper GI endoscopy or flexible sigmoidoscopy). This training must be consolidated in line with JAG requirements over the following year.

Training in colonoscopy will only be available to those committed to a special interest in colorectal surgery (anticipated SpR3 and above). Trainees will undertake a colonoscopy course and consolidation of practice as per JAG guidelines. For details see www.thejag.org.uk. Non-medical colonoscopy is already being undertaken by a variety of clinical groups. Training of these individuals must also adhere to JAG guidelines and these practitioners must be registered with JAG. At their completion of training a certificate of training will be required (issued by JAG). Certification will likely be required for medical trainees in the future from JAG to inform the RITA process.

solution

There is an urgent need to develop colonoscopy services both in terms of increasing the physical resources and in training doctors and other endoscopists in the skills required for endoscopy. The national endoscopy program has provided 10 training centres that supply basic and colonoscopic training courses. All trainees should complete these courses and consolidate their practices appropriately. This will involve alterations to traditional timetabling for this to be successful. It is essential trainees are given the required opportunity for supervised training to competence. Supervision requires the trainer to be in the endoscopy room with the trainee. It is likely (and desirable) that trainers have undergone appropriate training in adult educational techniques and in endoscopy training techniques. Training the trainers courses can be accessed through the National Endoscopy Program, or via Deaneries or the colleges. Courses supporting trainers will also be available from endoscopy training centres. It is anticipated that Training the Trainers or supporting training courses will be required in the near future to allow supervision of trainees in endoscopy. Trainers will almost certainly be required to have their own practice audits available. It will also be necessary to encourage more widespread access to endoscopic training for nurses and other trainees. They must be taught according to JAG guidelines but once certified as competent, can practice independently. It should be anticipated nursing and other endoscopists will form the backbone of diagnostic endoscopy (including screening) in the future).

conclusion

The number of colonoscopies required for a population of 500,000 will change because of novel ways of imaging the colon. If screening is introduced without adequate planning and resources, there will be an additional demand. At present the resources for coping with demand are inadequate. There is an urgent need for more physical resources and training in colonoscopy and flexible sigmoidoscopy for all grades of staff.

Although it may be a serious under-estimate, the short-term aim should be to achieve 1,500 colonoscopies per year per 500,000 of the population or 24 per week (1000/42) or 6 sessions (24/5-6 per session) per week, which will be shared between 2 full time equivalent gastrointestinal physicians and 5 full-time equivalent colorectal surgeons. The need for inpatient flexible sigmoidoscopy will vary according to the method of investigating lower gastrointestinal symptoms, and will be much higher in districts where this is not used in Outpatients.

References:
nursing contribution to colorectal care

introduction

The previous document (June 2001) covered colorectal nurse specialists and focused on various roles mainly colorectal cancer. It recognised the nursing input into Coloproctology but only mentioned specialist roles.

Nursing is a key component of the patients colorectal care pathway. The colorectal pathway of care may include malignant and benign colorectal disorders. Colorectal nursing care has developed into a wide field of specialist roles, however it is important to recognise that outpatient and inpatient care delivery is integral to any pathway of care.

Ward nursing requires support to provide specialist areas for colorectal post operative surgery. This support should be resourced to provide education and development for ward nurses to improve essential skills in colorectal surgical and medical care. The provision of high dependency units for post operative colorectal procedures also requires resources for education and development.

The colorectal surgical theatre team should also have access to colorectal resources for development and training in specialist colorectal surgical techniques and care.

Colorectal specialist nurse roles have also developed over the past 3 – 5 years with an increase in the number of colorectal nurse specialist and overlapping roles with the existing stoma care nurse specialists. Opportunities have been taken to extend the roles and boundaries of nursing in the colorectal specialty.

The colorectal multi-disciplinary team (MDT) process for cancer care should be mirrored for benign conditions. Links with specialist colorectal palliative care and Macmillan nurses also need appropriate resources to allow seamless programs of care.

Colorectal nursing can be divided into the following specialist areas:

- Colorectal cancer pathway
- Inflammatory bowel disease pathway
- Functional bowel disorders - anal incontinence and bio feedback
- Nutrition and short bowel
- Oncology
- Palliative care and Macmillan

current practice

Role definitions vary from place to place and differ in function. The role of the newly created ‘nurse consultant’ also varies from one unit to another. These roles are also shared with other health care professionals and are not the total domain of the nurse. Within the boundaries of practice and in response to the colorectal patient journey most colorectal nursing roles have been developed to improve the quality and continuity of care.

The precursor to most of the colorectal nursing roles is that of the stoma therapy nurse. Colorectal nursing teams should be developed in partnership between stoma therapy nurses and other colorectal nursing roles. The development of follow up clinics, diagnostic clinics, inflammatory bowel disease nursing, functional bowel disorders, and colorectal endoscopy have all broadened the nursing input into colorectal care delivery.
Autonomous practice and competency based roles have been discussed within the colorectal nursing profession and are important when deciding on resources for colorectal nursing. It is recommended therefore that this document should be read together with the Royal College of Nursing ‘Caring for people with colorectal problems’ competencies project.

**future demand and role development**

The Government plans for colorectal screening are awaited and the need for appropriate health care staff to meet the needs of screening programs will need to be established. These diagnostic roles will require resources and training monies to implement a Nationwide screening service. Diagnostic centres may be a future service provided outside the traditional remit of acute hospital trusts and attract staff away from the traditional colorectal acute environment.

Primary Care Trusts (PCT’s) could potentially provide community in-reach services in competition to the traditional acute pathway of care. Stoma therapy services may be divided into two key areas a) acute surgery and b) long term stoma care.

Family history clinics in association with genetic screening centres will also require resources as newly identified genes become apparent and are linked to colorectal disorders.

Continual professional development requires resources to be available to improve the colorectal patient experience. Nurses and health care professionals involved in the colorectal pathways of care should have access to these resources to enable them to develop a professional seamless package of high quality continuous care.

**supporting roles for colorectal nurses**

Colorectal nurses with varying role definitions all require adequate support form clerical staff. Accurate documentation is essential to any care pathway and nurses working in clinics, outpatients, inpatients, follow up, telephone clinics etc must have secretarial support in order to provide an effective service.

Research and audit are also fundamental to the specialist colorectal nursing roles and also require adequate resources to enable active research and audit participation. It is often the specialist nurse who collects data for most colorectal audit minimum datasets.

**Examples of colorectal nursing roles within colorectal pathways**

(See flow charts)

1. Colorectal Cancer
2. Endoscopy
Colorectal Nursing - Cancer Pathway

PATIENT

1. GP Direct Referral
2. Colorectal Surgeon
3. Gastroenterologist
4. Care of the Elderly

Diagnostic phase

Family history screening
National Screening Program
Anaemia Pathway

District Nurse/Macmillan Nurse
Nurse Consultant Assessment
Outpatient Rectal bleeding clinic.
Colorectal Nurse Practitioner
Nurse Endoscopist / practitioner.
2 week wait referrals
One stop diagnostic clinics
Flexible sigmoidoscopy
Barium Enema
Colonoscopy

Confirmed Cancer Diagnosis / Suspected Diagnosis

Oncology Nursing
Colorectal Nurse Specialist / Practitioner Nurse Consultant
Stoma Therapy Nurse
Pre-admission Nursing Team
Theatre Nursing / Recovery / HDU / ITU
Inpatient Ward Nursing Team
Nutritional Nursing
Community Nursing - post operative

PATIENT

Liver Nurse Specialist
Genetic Screening Nurse

Treatment Options - Information phase
Choices and decisions (counselling)

Macmillan Support - Community Nursing
Stoma Therapy Nurse - Colorectal Nurse Specialist
Colorectal Nursing follow up - Outpatient Care
Surveillance Endoscopy Care
Adjuvant therapy - Oncology Nursing
Reversal of Stoma - Nursing Care
Hospice Nursing Care

Other supporting care from other health care professionals:
Dietician Support, Psychologist, Social Worker/Social Services, Physiotherapy and Occupational Therapy, Chaplain,
Community Continuing Care Teams, Imaging Department – Radiographer/Scanners, Endoscopy Nursing Team - Surveillance
introduction

Endoscopy has finally received recognition and Government attention for its vital contribution in diagnosis and treatment. Much of this work is being recognised, developed and supported by the NHS Modernisation Agency and New Ways of Working Initiatives. The development of an Endoscopy Toolkit is helping endoscopy units throughout the country to re-examine their practice and services, enabling them to resource appropriately. The use of this toolkit is recommended.

The importance of nursing has been recognised both in the support and care of patients undergoing endoscopy procedures but also in the development of nurses as endoscopists. As early as 1994, the first nurse endoscopists in the UK were developed, primarily in the performance of flexible sigmoidoscopy.

Today, many nurses (although exact numbers not known) have undertaken flexible sigmoidoscopy as part of their role in the support and care of patients with colorectal cancer. These nurses have developed with the support of their colorectal team, rapid-access nurse-led clinics to cope with the demand for investigation of colorectal symptoms.

However, new challenges lay ahead with the Government’s decision to implement a national colorectal cancer screening programme. Endoscopy will be an important and integral part of this programme, and will require endoscopists to meet demand of screening as well as maintaining quality symptomatic services.

The use of other professionals other than doctors to provide services will be necessary to meet demand.

However, this may not necessarily be a nurse and colorectal services may utilise non-medical endoscopists. Certainly, any screening programme will need additional endoscopists to perform colonoscopy as previous research trials and pilots have shown. There are a few nurses within the UK who are pioneering nurse colonoscopy services and initial outcomes of such services have been very promising having a significant and positive impact to local services and training.

The diagram below summarizes the contribution of nursing within endoscopy pertaining to the care and treatment of patients with colorectal disease and problems.

resources (per 500,000 population)

Two – three nurse endoscopists to meet symptomatic service demands. May need to double this and consider non-medical endoscopist, should flexible sigmoidoscopy be part of the colorectal cancer screening programme.

Consideration to utilize a nurse colonoscopist to meet diagnostic and screening demands should be given as a possible resource.

Endoscopy Units should be accredited by Joint Advisory Group (JAG) and could utilise nurse endoscopist has a JAG trainer.

Endoscopy Units are recommended to utilise the Modernisation Agency Endoscopy Toolkit.
suggested endoscopy pathway

<table>
<thead>
<tr>
<th>Flexible Sigmoidoscopy</th>
<th>Colonoscopy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Symptomatology</strong></td>
<td></td>
</tr>
<tr>
<td>Rapid Access Clinics</td>
<td>Rapid Access Clinics</td>
</tr>
<tr>
<td>Rectal Bleed Clinics</td>
<td>Diagnostic Services</td>
</tr>
<tr>
<td>Combined FS + BaE Services</td>
<td>Therapeutic Services</td>
</tr>
<tr>
<td>One Stop Diagnostic Service</td>
<td>Trainers</td>
</tr>
<tr>
<td>Two week wait clinics</td>
<td></td>
</tr>
<tr>
<td>Trainers</td>
<td></td>
</tr>
</tbody>
</table>

| **Surveillance**       |             |
| IBD Surveillance       | BD Surveillance |
| CRC Follow Up          | CRC Follow UP |
|                        | Polyp Follow Up |

| **Screening**          |             |
| Population Screening   | Population Screening |
| FAP Screening          | Family History Screening |
|                        | Genetic Syndromes (e.g. – HNPPC) |
radiology services for coloproctology

Introduction

Imaging services for cancer
Imaging techniques are essential for the staging of colorectal cancer. The use of adjuvant and definitive treatments depends on the detection of distant disease in addition to the local staging of the tumour, particularly for rectal cancers.

There is also a need to monitor the outcome of treatment of disseminated disease, and thereby determine the effectiveness of the various chemotherapy regimes.

Imaging for benign conditions
There is growth in the demand for imaging of the pelvic floor for anal incontinence, functional problems with defaecation and perianal sepsis.

demand
The calculations below are based on the number of each radiological investigation that is required for a population of 500,000 over a one year period and the sessions needed per year to accomplish this workload is calculated on the cases per session that can be achieved.

<table>
<thead>
<tr>
<th></th>
<th>Number of Cases per year</th>
<th>Cases per session</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT Scan</td>
<td>480</td>
<td>8</td>
</tr>
<tr>
<td>EAUS</td>
<td>120</td>
<td>4</td>
</tr>
<tr>
<td>ERUS</td>
<td>100</td>
<td>4</td>
</tr>
<tr>
<td>US</td>
<td>1000</td>
<td>15</td>
</tr>
<tr>
<td>MR (Pelvic)</td>
<td>200</td>
<td>5</td>
</tr>
<tr>
<td>MR (Liver)</td>
<td>100</td>
<td>5</td>
</tr>
<tr>
<td>Barium enema</td>
<td>2000</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>570</td>
<td></td>
</tr>
</tbody>
</table>

EAUS = Endoanal ultrasound scan  
ERUS = Endorectal ultrasound scan
US = Abdominal ultrasound scanning  
MR = Magnetic resonance imaging
resources needed for coloproctology radiological services

This was calculated on the basis that a consultant radiologist will do 7 sessions per week for 42 weeks a year in a similar way to the calculation for consultant surgeons.

Each consultant radiologist will complete 7 x 42 = 294 sessions per year. This would require 570 / 294 = approximately 2 whole-time consultant radiologists.

No time has been included for extra non-clinical duties such as training, audit, clinical governance, management and attendance at multi-disciplinary team meetings.

audit of current practice, provision, problems and solutions

The ACP audit showed that there was a wide regional variation in the availability of barium enemas.

Time to performance of urgent and routine barium enemas as determined by the ACP 2000 audit and the audit by Professor Clive Bartram (appendix 2, HYPERLINK "http://www.acpgbi.org.uk" www.acpgbi.org.uk) is shown in the Tables

<table>
<thead>
<tr>
<th>ACP Audit</th>
<th>&lt;2 weeks</th>
<th>&lt;6 weeks</th>
<th>&lt;10 weeks</th>
<th>&lt;20 weeks</th>
<th>&lt;40 weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urgent</td>
<td>58%</td>
<td>96%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Routine</td>
<td>32%</td>
<td>51%</td>
<td>92%</td>
<td>99%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Prof Bartram Audit</th>
<th>&gt;1 week</th>
<th>1-2 weeks</th>
<th>&lt;3 weeks</th>
<th>3-12 weeks</th>
<th>&gt;12 weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urgent</td>
<td>41%</td>
<td>49%</td>
<td>10%</td>
<td>(&gt;2 weeks)</td>
<td></td>
</tr>
<tr>
<td>Routine</td>
<td></td>
<td></td>
<td>40%</td>
<td>65%</td>
<td>21%</td>
</tr>
</tbody>
</table>

In Professor Clive Bartram’s audit, 8% of radiology departments thought that the “Two Week Rule” would not increase the waiting time, a further 10% had spare capacity. However 82% of departments felt that this could only be accommodated by increasing the waiting time for other patients. The audit asked about the proportion of radiographers performing barium enemas. In 27% of respondents, the radiographers never performed barium enemas, in 23% the radiographers performed most examinations, in 22% about half and less than half in 28%.

There are approximately 800 radiographers nationally who are qualified to perform double contrast barium enema (Society of Radiographers). Their qualification involves attending a course with monitoring and training in their departments, and a second course to monitor performance. Probably half of all DCBEs (325,000 performed annually in the UK) are performed by radiographers. The average is 6 cases per list. The standards of radiographer performed enemas are good. A recent survey of 5 years work with 595 patients having DCBE and colonoscopy indicated that 96% of polyps >1cm in size and 97% of cancers were detected radiologically.
Professor Clive Bartram’s survey also demonstrated a deficiency in the ability to provide CT coronagraph, defaecating coloproctography, anal endosonography and in both MRI and CT on the basis of lack of time and money.

Of the responders, 157 radiologists were considered to have a special interest in colorectal radiology, which is more than the membership of ESGAR or SIGGAR – the two relevant postgraduate bodies in radiology.

Radiology remains a shortage speciality in the UK. The Department of Health has recognised this and with the support of the Royal College of Radiologists, has funded and implemented a new way of training radiologists for the future – The Integrated Training Initiative. This aims to provide part of the training in electronic form, accessible on the internet. Three training academies have started, in the Peninsular Medical School, Leeds and Norwich. The aim is to double the trainee intake in those sites.

The delegation of tasks traditionally performed by radiologists to appropriately trained radiographers has also eased some of the workload problems. In colorectal services, the performing and reporting of Barium Enemas is the most widely known. CT Colonography, a rapidly growing alternative to Barium Enemas could also be performed and reported by trained radiographers.

The demands of a specialist colorectal service on radiology are increasing, with the increasing reliance on cross sectional imaging for both diagnosis of acute abdominal disease and for cancer staging. Suggested follow up programmes recommend CT scanning and there are increasing numbers of patients surviving thanks to modern oncology treatments.

The Dept.of Health estimates that currently we perform an average of 40 CT scans per 1000 population per year and that this figure must rise to 55/1000/year by March 2007 to reach the target of a maximum 13 week wait for all diagnostics.

There is now an agreed strategy for PET-CT (Position Emission Tomography with Computed Tomography). This was produced by the Royal College of Radiologists in 2005 in collaboration with, among others, the Royal College of Physicians.

This recommends that one PET-CT should be made available for per 1.5 million population and that the service should be developed on a Hub and Satellite model, based on Cancer Networks. This means an additional 16 to 24 installations throughout the UK. There are 11 installations at present (August ’05) for clinical use in the UK. One in Scotland (Aberdeen), one in Belfast, one in Birmingham and eight in South East England. Details of the Government’s proposals to implement this ambitious plan are expected in Spring 2006.

Specialist abdominal radiologists value the close working relationships with their colleagues in Surgery, Oncology and Pathology in taking care of patients with Colorectal diseases and remain convinced that the best service to patients will be provided by such teams working in the same hospital.

**Conclusion**

The demand for imaging of patients with both malignant and benign colorectal disease will continue to increase rapidly in the next few years. It is likely that the current estimate of 2 full-time equivalent radiologists for colorectal imaging for a population of 500,000 is very conservative.
endoanal ultrasound & anorectal physiology practice in the UK - update for the clinical services committee of the association of coloproctology of great britain & ireland

introduction

Background & Previous study

Endoanal ultrasound (EAUS) and anorectal physiology (ARP) have become pivotal investigations in the assessment of anal sphincter and rectal morphology and function. The most common indications for these investigations include anorectal incontinence, anal fistulae, anal fissures, problems after anal surgery, anal cancer, chronic anal pain and prior to low colorectal anastomosis.

EAUS must be distinguished from endorectal ultrasonography (ERUS) which is exclusively used in the staging of mid and low rectal cancers and other unusual low and mid rectal lesions.

The ability for a unit to undertake EAUS and ARP has become ingrained in ACPGBI guidelines for the recognition of units across the UK. These criteria, have in turn led many units to believe, that unless they have an EAUS and ARP service they will not be recognized in terms of training.

In 2000 a postal study was conducted on behalf of the Clinical Services Committee of ACPGBI in order to assess EAUS & ARP practice in the UK. The results at that time indicated that there was considerable variation in practice with many units performing comparatively small numbers of investigations. In ‘Resources for Coloproctology’ published by ACPGBI in 2001 it was concluded that there was a need for the centralization of these investigations and indeed pelvic floor surgery to a smaller number of specialized units on a regional or supraregional basis.

It is against this background that the following study was conducted.

the present study

The purpose of the present study

This was undertaken in order to assess whether there had been any alteration in EAUS & ARP practice and anal sphincter surgery since the ACPGBI guidelines published in 2001.

methodology

An identical questionnaire to that sent out in 2000 (appendix 1) was forwarded to 20 colorectal units, covering a wide geographical area in The UK. Both quantitative and qualitative assessment of these replies was made and non-parametric statistics applied as deemed appropriate. Where a range of values was entered, the higher of the 2 values was entered into the database.
results

Basic demographics

Eighteen out of twenty units replied to the questionnaire. The data below (Table 1) are based on all replies received.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>range</th>
<th>median value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population base</td>
<td>250000 – 2000000</td>
<td>500000</td>
</tr>
<tr>
<td>Surgeons with interest in coloproctology</td>
<td>1.5 – 7.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Colorectal referrals/ year</td>
<td>500 – 3400</td>
<td>1000</td>
</tr>
<tr>
<td>% referred with ARI or related problems</td>
<td>0.1 – 20.0</td>
<td>5.0</td>
</tr>
</tbody>
</table>

There is a wide variation in the percentage of total referrals with ARI or related disorders to any particular unit. Individual surgeon interest or direct referral from primary and secondary care to tertiary centres to those with a special interest may account for these differences.

Sixteen out of the eighteen units (89%) who replied indicated that a regional or supraregional service should be offered for these investigations and anal sphincter/pelvic floor surgery.

numbers of EAUS and ARP performed and referral rate

Fourteen out of the eighteen units who replied were referred patients with ARI or related disorders and the number of investigations performed per week was evaluated (Table 2). Four out of the eighteen replies did not perform ARP or EAUS or consult patients with functional bowel problems (22%).

The following data are concerned entirely with those units who were engaged in functional bowel disease practice and represent 88% of replies i.e. - 14 out of 18.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>range</th>
<th>median value</th>
</tr>
</thead>
<tbody>
<tr>
<td>no. of patients seen/ week with ARI</td>
<td>0.5 – 37.0</td>
<td>3.5</td>
</tr>
<tr>
<td>referrals/ week for EAUS</td>
<td>0.25 – 25.0</td>
<td>2.0</td>
</tr>
<tr>
<td>referrals/ week for ARP</td>
<td>0.15 – 25.0</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Median values are, as in Survey 2000, towards the lower end of the range indicating once again that there are many units seeing a comparatively small number of patients with these problems. However, 10 out of the 14 units (70%) actively engaged in the investigation and management of patients with ARI and/or functional disorders of the colo-anorectum served a population base of 500,000 or more.

who does what

Various personnel were involved in performing EAUS and ARP (Table 3).

<table>
<thead>
<tr>
<th>Personnel</th>
<th>EAUS(%)</th>
<th>ARP(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgeons</td>
<td>46</td>
<td>46</td>
</tr>
<tr>
<td>Radiologists</td>
<td>46</td>
<td>0</td>
</tr>
<tr>
<td>Physiologist</td>
<td>23</td>
<td>38</td>
</tr>
<tr>
<td>CNS</td>
<td>15</td>
<td>46</td>
</tr>
</tbody>
</table>

These data indicate that, compared with 2000, there has been a greater surgeon input to performing both investigations. Clinical nurse specialists are performing about the same number of EAUS's and ARP examinations. Radiologists are becoming more interested in EAUS. The role of research fellows and physiotherapists has disappeared.

Ideally, EAUS and ARP should be undertaken at a single hospital visit by the patient and currently 64% of units could offer this facility. This is an improvement on the previous survey in which only 50% of units offered a ‘One Stop’ service.
types of ARP undertaken

ARP is an umbrella term which encompasses many tests of anorectal function. Participants in this study were asked to indicate which they performed in patients with anorectal incontinence (ARI) and other functional defaecatory problems.

<table>
<thead>
<tr>
<th>Investigation</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manometry</td>
<td>14</td>
<td>100</td>
</tr>
<tr>
<td>Rectal sensation</td>
<td>14</td>
<td>100</td>
</tr>
<tr>
<td>PNTML</td>
<td>8</td>
<td>57</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
<td>50</td>
</tr>
</tbody>
</table>

These figures are not radically different from those recorded in the previous survey. It would seem that anal manometry and rectal sensation studies, including the rectoanal inhibitory reflex provide the mainstay of day to day ARP practice.

numbers of EAUS and ARP investigations performed, waiting lists and sphincter repairs versus population base

Only data from those units (n=14) actually performing these investigations are included below (table 5)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>range</th>
<th>median Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population base</td>
<td>250000 – 2000000</td>
<td>1000000</td>
</tr>
<tr>
<td>EAUS performed/ week</td>
<td>0.25 – 20</td>
<td>4.5</td>
</tr>
<tr>
<td>ARP performed/ week</td>
<td>0.25 – 20</td>
<td>5.0</td>
</tr>
<tr>
<td>Waiting list (weeks)</td>
<td>0 – 36</td>
<td>6.5</td>
</tr>
<tr>
<td>no. of sphincter repairs/ year</td>
<td>3.0 – 35.0</td>
<td>6.0</td>
</tr>
</tbody>
</table>

These data indicate that the median population base of those units undertaking EAUS & ARP and sphincter surgery has doubled when compared with the median population base of 500,000 recorded in 2000 and of the whole data set (Table 1) in the present study.

EAUS & ARP activity per 100,000 population

EAUS and ARP was calculated per 100,000 population (Table 6). These data are based on the 14 units which performed these investigations.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>range</th>
<th>mean value (+/-SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>no. EAUS/ week</td>
<td>0.08 – 1.8</td>
<td>0.65 (+/-0.68)</td>
</tr>
<tr>
<td>no. ARP/ week</td>
<td>0.08 – 1.7</td>
<td>0.64 (+/-0.51)</td>
</tr>
</tbody>
</table>

This activity represents about 50% of that recorded in 2000. This may be interpreted in one of 2 ways. Either there is less EAUS going on in the UK or there is less activity going on in smaller centres.

discussion

The present study was undertaken in order to assess whether there had been any change in the service provision and practice of EAUS and ARP and anal sphincter surgery in the UK since the previous postal survey conducted in 2000. The results of that study, which were summarized in ‘Guidelines for Coloproctology’ published by the ACPGBI in 2001 indicated that some rationalization of these services was required and that a unit (or centre) with an interest in functional disorders of the pelvic floor should serve a population base of around 500,000.
The methodology used in the present study was exactly the same as that employed previously and hence it is reasonable to draw comparisons from the 2 data sets. This is supported by the observation that the range of the population bases of individual units and median values are similar in the two studies and the author believes that the same represent a reasonable cross section of coloproctological practice in the UK.

In the present study, almost 90% of respondents felt that a regional or supraregional service should be offered for the provision of EAUS & ARP and anal sphincter surgery. This compares with a figure of 70% observed in 2000 when there were many units performing small numbers of these investigations and operations.

In the present series almost one quarter of centres who replied did not undertake EAUS & ARP or sphincter surgery themselves and referred to larger centres with a special interest in these problems. Of the fourteen out of 18 units who were engaged in these investigations and treatment there was still, as in 2000, a huge variation in the numbers of patients seen and referred and a median value towards the lower end of the range (Table 2). Nevertheless, 10 of these 14 centres served a population base of not less than 500,000, in keeping with the previous recommendations of the ACPGBI.

In terms of personnel it seems from the results of the present study that there has been a greater surgeon input in performing EAUS & ARP when compared with the survey 5 years ago. The input from radiologists remains fairly constant, but significantly specialist nurses seem to be less involved than previously. The authors certainly believe that the remit of ARP should become that of CNS’s in coloproctology. In contrast EAUS may be performed either by a radiologist with a special interest or by the specialist colorectal service. In either instance it is best performed by individuals with a dedicated interest in this technique.

In the guidelines published in 2001 it was suggested that unit performing 1 list per week of EAUS and 1 list per week of ARP should serve a population base of around 500,000. The results from the present study indicate that the population could be expanded to 1,000,000.
introduction

Accurate and timely histopathology is essential for the treatment of all colorectal disease, particularly large bowel cancer. National standards for the reporting of colorectal cancer have been agreed and the pathologist is a core member of the multidisciplinary colorectal cancer team.

resources needed

There is a persisting crisis in consultant staffing in histopathology, with over 300 consultant vacancies nationwide. The situation is gradually improving due to increased recruitment into the specialty and the development of SHO schools.

The Royal College of Pathologists has recently published a workload matrix indicating the maximum desirable workload for consultants. Using this tool together with previously published workload indices for both teaching and non-teaching hospitals, between 2 and 2.5 consultants are required to provide colorectal services for a population of 500,000. This assumes consultants working on the new consultant contract at 7.5 programmed activities for diagnostic work. It does not include increased workload anticipated in relation to the introduction of the colorectal cancer screening programme, although some of this increase may be offset by changing roles of biomedical scientists.

conclusions

In order to ensure high standards of histopathology, there needs to be sufficient consultant pathologists, laboratory scientific staff and facilities including macroscopic digital photography. This needs to be supported by an appropriate computer system incorporating a relational database capable of handling the national dataset, allowing standardised reporting, analysis of pathological variables, audit and research. Approximately 15-20 programmed activities of direct consultant clinical care are needed to provide all colorectal pathology services to a population of 500,000 and takes into account an enhanced contribution from biomedical scientists and advanced practitioners. Including supporting professional activities, this equates to 2-2.5 consultant histopathologists (10 programmed activity posts).

demand

It is difficult to precisely predict the pathology requirements for coloproctology because of proposed changes in the way pathology services are supplied and configured. There are a number of pressures that require consideration.

1. There is an increase in the data required to assess colorectal cancer cases. The pathology minimum data set is being revised and expanded and has been revised and adopted (2005). Lymph node harvesting from cancer resections is time-consuming but crucial for accurate diagnosis. New guidance on minimum lymph node numbers will increase the time taken in dissecting these complex specimens particularly when preoperative chemo-radiation has been delivered.

2. Multidisciplinary team meetings take up a significant proportion of the consultant histopathologist’s working day in preparation and attendance.

3. The new consultant contract is based on a standard 10 programmed activity job, each of 4 hours duration. Currently most UK histopathologists spend considerably more time on routine diagnostic work.

4. The introduction of the colorectal screening programme will increase pathology workload from April 2006.
The NHS Cancer Plan estimated that compared with the number in post in 1999 an additional 127 consultants in palliative medicine would be required by 2005/06. Since the publication of the Plan in 2000 there has been two new policy initiatives that will further increase demand. They are the NICE Guidance on Improving Supportive and Palliative Care for Adults with cancer and the Government’s programme for improving end of life care for people with any diagnosis. Both Cancer Networks and other managed clinical networks have begun to make population-based palliative care needs assessments which will enable the need for consultants to be assessed more accurately. During the course of 2006 those local assessments will need to be collated in order to identify the size of the gap between the numbers of consultants available and needed.

The NHS Cancer Plan (Chapter 8 page 74) contains a table about anticipated expansion of consultant numbers but that may now be somewhat out of date. A more useful source would be the estimates of medical manpower needed for each Cancer Network that fall out of the population-based palliative care needs assessments that have been undertaken across the country. That would of course involve the collection of 34 assessments and their analysis. While that task is on the agenda, it will not happen until the latter part of next year at the earliest.

The figures from this table (which includes Oncologists, Pathologists, Radiologists and Haematologists) are:

<table>
<thead>
<tr>
<th>Year</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>94</td>
</tr>
<tr>
<td>Anticipated 2003/4</td>
<td>164</td>
</tr>
<tr>
<td>Anticipated 2005/6</td>
<td>221</td>
</tr>
<tr>
<td>Increase 1999-2006</td>
<td>+127 (135%)</td>
</tr>
</tbody>
</table>

However, the figures do not include palliative care physicians working in hospices who do not hold NHS contracts.

It can be estimated that about 10% of the expansion would be required to deal with colorectal cancer.

The exact figures are made more difficult to calculate because of the relatively large proportion of Palliative care Physicians who are employed in the independent sector, mainly by charitable institutions such as hospice. Work will be undertaken by the National Council for Palliative Care in 2006 to clarify the numbers, and to obtain an estimate of medical manpower needed from the Palliative Care Needs Assessments being undertaken by the 34 Cancer Networks.
The previous document from 2001 (1) considered the UK provision based on the needs of Cancer Units and discussed the extra manpower required to make good the shortfall at that time. It was beyond the scope of the document to examine other infrastructure shortfalls. The current document has reviewed the shortage in personnel and in light of recent work by the Royal College of Radiologists has also considered the equipment requirements for radiotherapy. Because of the complexity of providing chemotherapy services in light of constantly changing guidelines and advice, in particular recent pronouncements from the National Institute of Clinical Excellence (NICE), only personnel requirements for the delivery of chemotherapy are considered here.

The provision of non-surgical oncology services is essential to the multidisciplinary management of colorectal cancer. Major changes in consultant staffing requirements were recommended by the Calman Hine report (1995), and included the concept of Cancer Centres and Cancer Units. The resources required for colorectal practice for a population of 500,000, assumed that this represented a Cancer Unit within a Cancer Centre. The NHS Cancer Plan (2000) set out the framework for improving cancer services including cancer networks, strategic service delivery plans and a national cancer research network.

The management of colorectal cancer requires a multidisciplinary team with site specific oncologists. These could be either medical oncologists (delivering chemotherapy) or clinical oncologists (delivering chemotherapy and radiotherapy). For many reasons there has been considerable under-provision of resource, which varies greatly around the country. After consideration of the requirements for chemotherapy and radiotherapy the 2001 resource document concluded that for adjuvant and palliative treatment of colorectal cancer there would be a need for at least 2 whole-time equivalent consultant oncologists for a population of 500,000 ie approximately 200 extra oncologists.

A report from the Royal College of Radiologists, approved by the Board of the Faculty of Clinical Oncology in June 2003, stated that the total number of consultants in post in the UK in June 2002, including Professors and Senior Lecturers, was 431 (2). At the time of the survey, 21 posts were recorded as being vacant. RCR data from Advisory Appointments Committee suggested that there were approximately 40 additional funded, but unfilled posts. The relatively small increase in consultant numbers had hardly kept pace with the increase in referrals and the vast majority of clinical oncologists saw more than there commended number of 315 new patients per year. The consequence was that they had inadequate time for consultation and too little time for increasingly complex treatment planning.

In considering the requirement for medical manpower for 2006, it is essential that the increased complexity of modern treatment regimes is taken into account. Patients are being offered ever more complex combinations of treatment which is requiring intensive medical and nursing support.
This stems from the advent of regular Multidisciplinary team meetings (MDTs) throughout the UK since 2001, increasing availability of MR and CT scanning at presentation as well as the increasing use of both radiotherapy and chemotherapy. Recent recommendations from NICE include recommendations for combination chemotherapy in both the adjuvant and palliative setting. Furthermore, the advent of new drugs such as oral chemotherapeutic agents will allow patients previously felt to be too frail to receive intravenous chemotherapy to receive treatment. This will increase the number of patients seen and treated per year. There are also increasing pressures due to expectation that whenever MDTs are held an oncologist is present. The oncologist may well attend MDTs at several sites, especially if he or she is working at a cancer centre. Although, it is hoped that teleconferencing facilities will be made available to reduce travelling times between centres, nevertheless MDTs take up increasing amounts of consultant time and needs to be reflected in consultant timetables.

At present approximately 95 consultant clinical oncologists are in the age group 50-56 years. Thirty-four others are between the ages of 57 and 65 years. This means that in the coming decade about 129 of the consultant clinical oncologists currently employed within the NHS may retire. The Department of Health Economic and Operational Research Division predict a demand of an additional 262 trained Clinical Oncology specialists by 2010. With an allowance for part-time working of 1.2 this equates to a target of 672 consultant clinical oncologists, a required increase of 55% over current figures.

An audit of the Christie Hospital in Manchester (the largest single site Oncology Centre in Europe) showed that 10% of new patient referrals and workload related to colorectal malignancy. This would equate to a need for 67 new full time clinical oncologists. As Department of Health guidelines call for at least an equal number of medical oncologists for this specialty, there would need to be a similar number of medical oncologists throughout the UK. Although difficult to judge because of consultants specialising in more than one site, there would probably need to be an increase in medical oncology approximately twice that of clinical oncology and this equates to almost 200 new colorectal oncologists in the UK as a whole. In other words, despite the increase in numbers of oncologists between 2001 and 2006, there remains the same disparity in numbers as existed at that time. Since in most smaller units an oncologist will have more than one specialist site of interest, this number would have to rise further if some consultants only had part of their specialist interest in colorectal malignancy. This would mean an increase well beyond the 55% in consultant numbers proposed by the Royal College of Radiologists.

The new consultant contract does not require a reduction in the number of new patient consultations required annually by either the Royal College of Radiologists or the Royal College of Physicians. Nevertheless, by agreeing an upper limit to the number of hours worked per week, there have been effects on the total number of consultations and treatments which can be given by each consultant oncologist and this may further impinge on the overall number of consultants required to deliver this service. At present, it is not possible to estimate what this effect will be especially since the ideal number of new patients to be seen each year (315 according to the Royal College Radiologists) is far from being realised.

linear accelerator requirements

An audit of waiting times for radiotherapy performed in 1988 showed that 28% of patients were unable to start radical potentially curative radiotherapy within 4 weeks of the decision to treat. This was considered quite unacceptable, and yet the peer review of cancer services in 2002 showed that failure to treat within 4 weeks is now the norm and occurs in 81% of cases. This was confirmed by two studies in 2004 which showed that waiting times to start radiotherapy had increased. The advent of the 31/62 day rule requiring patients to receive initial definitive therapy within 31 days of the decision to treat and 62 days from referral by the GP should improve the situation, but only at the expense of a knock on effect on second line or palliative treatments. It is also of note that the Royal College of Radiologists still recommend that no more than 2 weeks wait is considered to be the standard of practice to aim for, with 4 weeks as the maximum acceptable wait.
The Royal College of Radiologists document of 2003 expected 45 additional linear accelerators would have been installed by 2004, and the UK should have had 4.21 linear accelerators per million population. This might have been adequate for 1997 when it was first proposed but fell far short of meeting demand in 2006. Previous calculations suggested that there should be at least 5.0 linear accelerators per million population by 2006 to catch-up with the legacy of under provision, followed by a slower expansion to meet the needs of the ageing population and increasing sophistication of treatment. This meant approximately 60 additional linear accelerators in the UK with the staff necessary to run them. Even if this figure were to be realised the UK would lag well behind the best equipped European countries such as Germany (over 6 linear accelerators per million population). In the event, the planning and investment over the last 5 years throughout Great Britain and Ireland has only permitted the oncology community to stand still in matching capacity with demand and has not provided for any catch-up after years of under-investment.

In summary it is clear that non surgical oncology is poorly resourced. Recent surveys of manpower and equipment have demonstrated that there remain shortages of personnel and equipment and the demand will continue to increase. Overall the manpower shortage remains as great as in 2001. Expansion in machine capacity will need to be linked with parallel plans to increase the training capacity to ensure that there are trained staff to deliver the service. This will require joint planning between the cancer networks and the workforce development confederations. International recruitment is unlikely to provide sufficient staff. Staffing levels can only be increased following sustained significant increases in training places for clinical oncologists, radiographers and medical physicists. It is beyond the scope of this document to consider the total infrastructure required, but at least 60 linear accelerators are required for the UK and an increase of more than 200 in the number of Oncologists is needed to manage current workloads. This would mean an increase of more than 55% in consultant numbers.


guidelines for the resection of colorectal cancer liver metastases: summary of recommendations

- Patients under consideration of treatment of hepatic metastases should be discussed at a multidisciplinary meeting (MDT) which has experience in the management of liver metastases.
- Consideration of patients for resection of liver metastases should be carried out at a single high-volume centre.
- At time of presentation of primary colorectal cancer patients should have a CT scan of abdomen and pelvis performed with intravenous contrast and ideally a maximum collimation of 5mm or less. This should be performed preoperatively or, in the case of an emergency, as soon as practical thereafter. A chest CT is ideal to assess the presence of pulmonary metastases but a chest x-ray is considered satisfactory.
- For a patient discovered to have isolated liver metastases, a CT of chest, abdomen and pelvis should be performed by the liver surgery unit or using protocols agreed with that unit. The liver surgery centre will also often perform liver specific imaging by local protocol.
- Biopsy of hepatic lesions should not be performed without discussion with the regional hepatobiliary unit.
- Patients with “high risk” primary disease (T4 (perforated); C2 (apical node)) disease should have careful pre operative investigations that might include PET and laparoscopy.
- The aim of liver resection is to remove all macroscopic disease with clear (negative) margins and leave sufficient functioning liver.
- Patients with solitary, multiple and bilobar disease who have had radical treatment of the primary colorectal cancer are candidates for liver resection.
- Patients with extrahepatic disease that should be considered for liver resection include resectable/ablatable pulmonary metastases, resectable/ablatable isolated extrahepatic sites for example, spleen, adrenal or respectable local recurrence, and local direct extension of liver metastases to e.g. diaphragm/adrenal that can be resected.
- The liver surgeon and anaesthetist should take the clinical decision regarding fitness for surgery.
- Normal contraindications to liver resection would include uncontrorollable extrahepatic disease such as non treatable primary tumour, widespread pulmonary disease, loco-regional recurrence peritoneal disease, extensive nodal disease, such as retroperitoneal, mediastinal or portal nodes bone or CNS metastases.
- Those patients with tumours thought to be borderline for resection may have resectable or ablatable disease and should be referred for discussion with the regional hepatobiliary unit before chemotherapy.
• Resectability may be achieved by portal vein embolisation or two stage hepatectomy to increase hepatic functional reserve and also by combinations of surgery and ablation.

• The decision to offer ablative therapy to patients with hepatic metastases should be made by the regional hepatobiliary unit.

• Patients with advanced disease unsuitable for liver resection or ablative therapy should be referred to the clinical or medical oncologist with a special interest in colorectal cancer for further management and supportive care.

• Normally colorectal cancer resection and liver resection would not be performed synchronously. However, the management of accessible small metastases detected preoperatively should be discussed with the local liver centre for consideration of combined resection.

• Patients should be referred for consideration of liver resection after recovery from primary surgery.

• Patients with potentially resectable liver disease and who have undergone radical resection of the primary tumour should be considered for liver resection before consideration of chemotherapy.

• Patients with unfavourable primary pathology such as perforated primary tumour or extensive nodal involvement should be considered for chemotherapy prior to liver resection and be restaged at three months.

• The histopathology report of the resected liver specimen must include specific details which can be used to determine prognosis. These should include number, size and location of metastases, resection margin clearance from tumour, capsular invasion, degree of differentiation, presence of necrosis, vascular and lymphatic invasion and lymph node status if sampled.

• Follow up would normally continue for 5 years according to local protocol using CT chest and liver and CEA. Follow-up should be performed by the liver centre or the referring unit following an agreed protocol. Any abnormality should be referred back to the liver centre for consideration of re-resection or ablation. In patients who develop recurrence, it seems appropriate to consider such lesions in the same way as the initial hepatic metastases and offer re-resection or ablation to patients based on operative risk and likely survival.

acknowledgements

I am grateful to the many people who have contributed to this report, particularly the following:

<table>
<thead>
<tr>
<th>Resources for Subspecialty Training for Colorectal Trainees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charles Bailey</td>
</tr>
<tr>
<td>Colonoscopy and Flexible Sigmoidoscopy</td>
</tr>
<tr>
<td>Graeme Duthie</td>
</tr>
<tr>
<td>Nursing Contribution to Colorectal Care</td>
</tr>
<tr>
<td>Ian Fretwell and Mark Hughes</td>
</tr>
<tr>
<td>Radiology</td>
</tr>
<tr>
<td>Clive Bartram and Shona Campbell</td>
</tr>
<tr>
<td>EAUS/Anorectal physiology</td>
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<tr>
<td>Nick Carr</td>
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<tr>
<td>Histopathology</td>
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<tr>
<td>John Schofield</td>
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<tr>
<td>Non-Surgical Oncology</td>
</tr>
<tr>
<td>Ed Levine, Peter Tebbit, Trevor Rimmer</td>
</tr>
<tr>
<td>Liver Metastases</td>
</tr>
<tr>
<td>John Primrose and others</td>
</tr>
<tr>
<td>Palliative Care</td>
</tr>
<tr>
<td>Peter Tebbit and Trevor Rimmer</td>
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</tbody>
</table>

J R T Monson
Chairman, Clinical Services Committee
Association of Coloproctology of Great Britain and Ireland

June 2006