



Resources for Coloproctology 2015

Association of Coloproctology
of Great Britain and Ireland



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Preface

The NHS is on a journey towards ensuring a safe, effective and responsive standard of care for all patients, a standard which the scandals at Mid Staffordshire NHS Foundation Trust and a number of other similarly afflicted providers have shown is sadly not universally available in our health service.

It will not be possible in practice to achieve this goal without the wholehearted commitment of all healthcare professions, but particularly the medical profession through the relevant specialty associations, acting in partnership with the patients whom they serve. No such collaboration can exist without a shared understanding of what is required to provide a proper standard of care.

Therefore I welcome the transparent patient centred approach to this vital area of the health service evidenced by this report. It demonstrates just what the medical profession can contribute to the development of their particular areas of expertise for the benefit of patients and how patients can be included in the understanding of what is required.

Aimed at informing patients about what is needed to ensure safe and good quality care in coloproctology, the report is written in language which is accessible not only to patients and the public, but also the boards who have to balance to competing priorities, and regulators who need to understand the resources required to maintain proper standards. As we look increasingly to a partnership between those who work in the service, and those who are served, the required mutual understanding of the challenges and solutions for them in every specialty can only be created by guidance such as contained in this report. In that way patients in particular and the public in general can play their part in the debates about where scarce resources should be allocated. These are not problems to be discussed behind closed doors, but ones where the views of all can drive constructive change and improvement.

The report offers much practical guidance, but to my mind one area which needs to be an absolute priority for any healthcare service is the identification of a measurable standard of safe staffing. Without this boards and other leaders are not well equipped to protect patients and allocate resources appropriately. In this regard I suggest this report could be a model for any specialty keen to assist in the definition of the staffing and other resources required to deliver safe and good quality care to patients, as well as demonstrating how these needs can be explained in relatively non-technical language.

I believe that this report is likely to make a major contribution towards ensuring that all those who need to understand and plan for staffing and other resource requirements, have a ready point of reference to assist them.

In short I commend to this work to all those, professional and interested laymen alike, who are interested in ensuring proper standards of care in coloproctology.

Sir Robert Francis QC
23 November 2015

Commentary

This new publication of Resources for Coloproctology has the potential to be a useful guide for patients to inform their questions before, during and after treatment for colorectal conditions. It also has the potential to highlight the complexity of the workings of the NHS, and how changes to one area of care may have unintended consequences for others.

We all need to be more questioning and critical of political sound bites which sound appealing in the first instance but which, on further scrutiny, reveal that the practical realities do not always serve patients well.

It is also important to point out that good resources are not the only factor in providing optimal care. Patients should take a wider view and weigh up the particular problems and benefits of their local colorectal services, which extend beyond resources.

Day Surgery

Patient concern lies in the area of staff qualification and experience in undertaking day surgery, with particular regard to patient safety. Defining what types of operation are appropriate for a day case setting, together with greater clarity in its use, with established guidelines and recommendations should be the next step. For patients, such surgery is to be welcomed where appropriate (most patients would rather not stay unless they have to!) but there is a need for resource and development of this service. Patients would hope that the ACPGBI will do all it can to keep its finger on the pulse in this area.

It is good to see the emphasis on the need for follow up support, if required, in the period after returning home following day surgery. This may involve additional input so that patients feel confident and well prepared to self manage at home when they can. The obvious concern is that patients may be sent home unsupported, and that enhanced tariffs for day surgery will incentivise its use in inappropriate circumstances. Responsible selection of patients for day surgery remains key.

Out Patients

In the outpatient setting, the problems with two-week wait pathways are noted, particularly the important issue that some patients who may be given the all clear for cancer but who continue to have symptoms can remain untreated. The two-week wait pathway may also divert resources away from patients in need of cancer treatment but who arrive via other pathways. Some patients with symptoms of rectal bleeding may wish to see if there is a local unit that provides a one-stop service.

In Patients and Theatres

The Resource document highlights wide variation between surplus theatre capacity in some regions while others have shortfalls, so that access to theatre for patients remains a postcode lottery.

Whilst many hospitals now provide pre-assessment clinics with CPEX or Cardio Pulmonary Testing for patients, this is not universally available. Such resources can help the understanding of risk assessment for major surgery and help plan what level of aftercare the patient will need post surgery. Depending what type of post-operative care is suitable, it is important to verifying the availability of the right level of aftercare to make a good recovery; whether it be Intensive Care (ICU), High Dependency (HDU) with the availability of critical care specialists or a normal ward, where, for some conditions, the availability of a separate ward only for colorectal patients is of benefit.

Nursing

It is good to see the emphasis that nursing should not become too academic but remain focused on holistic patient care. Their role in helping patients to self-manage at the most practical level remains crucial. CNS (Clinical Nurse Specialist) skills need to be more effectively directed towards the patient by increasing their administrative support. Where patients are admitted for cancer care being assigned a CNS (Clinical Nurse Specialist) can provide continuity of care and valuable practical advice and wide ranging support. Where a stoma is the likely outcome of surgery, then a stoma nurse, available before and after surgery can make a huge difference to patient care.

The reduction of registered nurses on wards remains a concern for patients, and the minimum recommendation of one registered nurse for every 8 patients on a ward offers patients a base guideline towards ensuring that their post operative care needs will be met. The National Cancer Patient Survey year on year cites patients reporting that there were insufficient nursing resources on wards.

Pelvic Floor

The cross specialty coordination in the management of pelvic floor problems is to be welcomed by patients, together with an emphasis on enhanced communication, where conditions may be treated by Gynaecology and Urology as well as Coloproctology. Non-conflicting communication can be a problem for patients at the best of times – what one surgeon/clinician may tell a patient may be very different from another, and this has the potential to be even more confusing across different surgical specialties. Consensus within departments and, if possible, between departments, would be a gold standard for integrated patient care. Clinicians should be made aware of the existence of a growing number of patient leaflets on these conditions so that they can be more widely disseminated to patients.

Treatment can often be staged in a “trial and error” manner for these conditions, sometimes moving through from less to more invasive treatments, with good clinical indications. However, this may cause problems in sustaining the patient’s patience, which can be alleviated by good explanation of the process.

The report highlights other inadequacies in this emergent specialty and the need for its further development towards maturity.

Oncology

The comments made in the section on Oncology regarding quality of life following treatment versus the chance to cure in the over 65 population are welcomed by patients. This is a very important issue with regard to current treatments available and their short and long term effects. The problematic nature of such discussions with all patients is not to be underestimated, and it takes great skill to register with patients in some distress following diagnosis, where shock can temporarily compromise cognitive and memory function, affecting the ability to weigh up decisions.

Multi-disciplinary Teams

Cases may sometimes be discussed by a team of clinicians with varied expert skills, to determine the best treatment for the patient. This report gives sound advice that the patient’s views, preferences and needs should be expressed to the team by those who have had direct contact with the patient, so that the patient is fully represented at the meeting. A definition of the role of the MDT coordinator is also welcomed to alleviate the work of clinicians.

Conclusion

The report provides evidence of worrying shortcomings in resources across many areas, such as Radiology and Pathology, which are vital for accurate diagnosis and subsequent treatment. If patients are aware of the important areas of care where the provision of the right resources optimizes their care, then it is to be hoped that this will raise the debate and draw attention to the need to rectify the position.

**Jo Church, Chairman,
Patient Liaison Group**

Introduction

The Association of Coloproctology is a multiprofessional organisation which, since its inception, has been committed to the identification of the determinants of high quality patient care and the setting and maintenance of standards, in order to achieve continuous improvement in the quality of care for patients with colorectal disorders. It aims to achieve this through various processes including audit, training, research and education.

Approximately 15 years ago the Association recognised that, in order to deliver a high quality service it was necessary to identify and describe the services necessary for the investigation, diagnosis and treatment of colorectal disease. This led to the publication of the first 'Resources for Coloproctology' in 2001. A subsequent update was published in 2006 with the aim of outlining changes in resource allocation as a result of the introduction of the new Consultant contract, and the then recently introduced 'two week wait' and 31/62 investigation and treatment pathway. Both documents attempted 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. This took into account the total requirements of patients with colorectal disease and conditions in the community and extra non-clinical duties now also required by all levels of staff.

A great deal has changed since 2006. The 'two week wait' is now an established part of our working practice. Laparoscopic surgery has become more common, bringing with it increased resource in terms of equipment and time in theatre. Pelvic floor services have expanded. MDTs, having been established for cancer patients and are gradually being incorporated in both pelvic floor and IBD patient pathways. Emergency Surgery has been highlighted as an area in need of increased attention and resource. Commissioning of services has also become an issue and government targets are influencing patient care more and more.

These changes alone would prompt the need for an update of the resource document. However, one further event in the last 10 years has really emphasised the urgent need for this update. In 2013 the Francis report was published and highlighted appalling levels of care in one NHS Trust, mainly due to a 'cost-cutting, target chasing culture'. Although the report concerned one Trust, the message was clear that this scandal should not be seen as a 'one-off' and that there needed to be a fundamental recognition of the danger of this attitude throughout the NHS. Patient care and safety should come first.

All these factors have led us to revisit the resource document and to update all aspects of care in order to produce something which we hope reflects the current situation in 2015 and which will endure for some time beyond.

Methodology

The process of updating the resource document was carried out in as scientific and logical a way as possible. The document was divided into different areas of practice, representing each of the 16 chapters detailed below. For each chapter a generic framework was developed and a lead clinician identified. Each lead clinician was asked to form a subcommittee, preferably of at least 3 other specialists interested in that area of work in order to develop consensus and avoid individual bias, particularly in areas where there

is little or no evidence. This subcommittee was then tasked with the following procedure. Firstly, they were required to define the subject of their chapter. They then sought evidence via a literature search of all relevant articles connected with resource and volume related outcomes, including any DoH publications.

In order to assess current resources, it was necessary to examine current practice. Each sub-committee submitted questions relevant to their subject and all these questions were collated into an extensive questionnaire. This was then sent out to individuals from each of the 175 identified Trusts in mainland UK. Follow up email and telephone prompting was carried out over a period of 6 months. Data collected was then summarised and the relevant synopsis delivered to each lead clinician.

Using these data and evidence, the leads and subcommittees were then asked to form a consensus opinion about what resources are required to provide a service based on a population of 500,000, and to identify any resource gap that may exist.

This document has been collated and edited to a standard format, in order better to inform the reader. It has been scrutinised by the ACPGBI Patient Liaison Group, and the methodological process has enabled the widest possible professional engagement in the project. There is a commentary by the Chairman of the Patient Liaison Group.

Conclusion

It is hoped that this document will inform clinicians, managers, medical directors, chief executives and politicians, so that any existing inequalities in care for patients, resulting in what has been described as "a postcode lottery" can be corrected, so that standards nationally will be more uniform.

This resource document will be in the public domain. The recommendations made will be made available to patients, so that they have the relevant information on which to base enquiries about whether local levels of resource are adequate to ensure good patient care.

Acknowledgements

The process of obtaining this data and writing such an extensive document would not be possible without the funding support of Bowel Cancer UK and the Bowel Disease Research Foundation. Asha Kaur from BCUK has been invaluable in the development of the questionnaire and the chasing of the data. The project has required significant input from numerous members of the ACPGBI. These include the leads for each of the chapters and their sub-committees, but also the many members who put the effort into replying to what was an extensive questionnaire. Jo Church and the Patient Liaison Group has also provided invaluable advice and commentary.

Finally we are most grateful to Sir Robert Francis for writing the preface and giving validity and support to this document.

Summary Recommendations

1. Consultant Colorectal Surgeon

Current numbers would indicate that there is a median of 8 colorectal surgeons per 500,000 population.

On call commitments vary according to local requirements.

Specific session allocation also vary according to local and job specific requirements but most colorectal surgeons have 2-2.5 theatre sessions, 2 clinics and 1 endoscopy session with a median of 2 SPAs.

2. In Patients

The average number of beds per 500,000 of the population from our survey is 48 (including level 0-1 and short stay beds).

All colorectal units should have access to level 3 ITU beds.

Critical care input to level 2 HDU beds is essential. The majority of colorectal units have level 2 beds with care delivered by critical care staff, although approximately a fifth of such beds have care solely delivered by surgical staff.

Pre-assessment clinics should be an integral part of any colorectal unit and should be fully funded.

CPEX testing is becoming more readily available with more evidence supporting its use. Over 50% of UK colorectal units offer this service and increased uptake should be encouraged.

3. Day case surgery

For a population of 500,000, 24 colorectal day cases a week may need to be treated, utilising approximately 5 dedicated sessions.

4. In patient theatres

In order to service the colorectal needs of a population of 500,000 approximately 12.5 hours of in-patient operating are required per day.

5. Emergency surgery

The median number of EGS admissions for a 500,000 population is 20 per 24 hours.

The surgeon on call should be free from elective commitments.

A dedicated NCEPOD theatre is available in the majority of hospitals and should be considered as essential.

6. Outpatients

For a population of 500,000 over 100 new patients will need to be seen by the colorectal unit per week.

7. Endoscopy

For a population of 500,000 there may be a future need for 32-34 lower GI lists per week.

Surgeons currently provide 30% of lower GI endoscopy demand which will equate to 11 lists per week.

8. Nursing

A stoma CNS workload should average around 100 new patients per year. This equates to 3 stoma care nurses per 500,000 population.

Due to the variable roles of a more generic CNS within different Trusts it is difficult to estimate the number of CNS needed per 500,000 population. Current data from our survey would suggest there are an average of 3-4 CNS per 500,000.

The ratio of ward nurses to patients on a colorectal ward should be 1:8 or more with a mix of >65% registered nurses.

9. Pelvic floor

The evidence supports the development of pelvic floor services in 3 key areas; the pelvic floor MDT, accreditation of units and the role of The Pelvic Floor Society.

10. Radiology

The minimum radiology resource to meet the coloproctology diagnostic imaging requirements of a population of 500,000 is at least 2 WTE consultant GI Radiologists in terms of time, but covered and delivered by at least 3 consultant GI Radiologists within the overall GI Radiology service.

11. Pathology

Approximately 2 histopathologists are required per 500,000 population to service the colorectal workload.

12. Oncology

To provide an adequate colorectal specialist oncological service, there is a need for 1 extra oncologist for every 2.5 million population. At least half of these should be clinical oncologists.

13. Palliative care

It is estimated that there should be 4 whole time equivalent consultants in palliative medicine per 500,000 head of population. In addition to consultant staff there should be an additional 4 supporting doctors of either training grade or associate specialists for this population.

14. Training

The average ratio of consultant to specialty trainee should be at least 1.5:1

15. Specialist commissioning

There are 9 conditions subject to specialist commissioning. These are all adequately provided for within the NHS. Each has its own recommendation for the provision of services – some are provided in tertiary centres and some within regular colorectal departments.

16. MDTs

All hospitals should aim for functioning MDT meetings adhering to the minimum standards in the following areas:

- Colorectal cancer
- Anal cancer
- IBD
- Functional bowel disease
- Polyps
- Rare diseases

These will sometimes be provided as part of combination MDTs.

1. Consultant Colorectal Surgeon

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Introduction

Evidence for current model

In defining how many Colorectal consultants are required to provide a specialist service the model used is that of a single or linked DGHs which can provide a Clinical Network serving a population of 500,000 (1). This size population was originally defined in a report on Provision of Elective Services by the Royal College of Surgeons in November 2001 (2). This report identified the critical mass needed to provide a consultant led service whilst accommodating the recognized changes in the structure of General Surgery. In particular the impact of increasing sub-specialization and its negative effect on provision of a general surgical emergency service. Additional demands on consultant time in light of the new contract were also taken into consideration.

An optimal service requires a critical mass both in terms of professional expertise and the population served. The solution with a consensus between surgeons and physicians was that secondary care acute services should be predominately based on networks delivering care to populations of approximately 500,000 – 600,000. This would enable appropriate adjacencies between clinical specialties to be maintained whilst achieving expertise across a range of specialties in addition to being large enough to meet the change in junior doctors' hours.

This size of network was deemed applicable to most emergency and elective surgical services whilst remaining accessible to all but remote communities. This recommendation features in a number of reports and is the view of several specialist surgical associations (3-5)

The report also highlighted that in 1998 the majority of 154 acute hospitals in England and Wales served a population of 300,000 or less with only 10% serving 500,000 or more.

At that time 30% of general surgeons reported a primary clinical interest in Coloproctology whilst 33% described general surgery as their primary clinical interest. A shortfall in consultant numbers of between 161 and 246 was predicted by 2009 (6).

A follow up online census of Consultant Surgeons in England, Wales and Northern Ireland was repeated in 2010 and the results published in 2011. Actual numbers and specialty interests were reported against a guideline figure of 1 consultant general surgeon per 25,000 population (7). The census achieved a 70.41% response rate and collected data on the surgical workforce and information on consultant surgeons' working practices. The survey was based on a total of 7540 respondents of whom 2273 were general surgeons. Colorectal surgery accounted for the largest subspecialist interest (24.6%) followed by Breast (17.3%) and Vascular (15.6%). Gastrointestinal at 12.3% was the next largest subspecialty (93.4% respondents were in clinical practice 3.5% academic and 3.1% combined). Over half (55.2%) of respondents indicated that they were free from elective duties while on call whilst 7.9% were resident whilst on call. Realistic job plans for consultants should recognise the increase in non-clinical as well as clinical workload.

The average PAs contracted on a 10 PA week were 1.6 for supporting professional activity with 0.3 for additional professional activity. More than 70% of consultants worked more than 10 PAs with 45% reporting an average of 12 or more.

Many of the recommendations for numbers of colorectal surgeons in the 500,000-population model are also based around the NHS Cancer Plan. The number of colorectal surgeons required to cover a colorectal cancer MDT as defined by NICE is 2-3 per 200,000 with a minimum of 20 colorectal cancer resections with curative intent per annum (8). For IBD MDTs the recommendation is 2 colorectal surgeons per 250,000 (9).

The previous resources document of the ACPGIB (2006) refines the calculation for numbers of colorectal surgeons required based on the cancer waiting times targets at the time and calculation of operative workload weighted for case complexity (the majority of cases being colorectal cancer). Again the recommended number of surgeons in the context of a DGH/Network with a referral population of 500,000 was one per 100,000 (10)

On the basis of the 2001 'Resources in Coloproctology' document (11) a postal survey was conducted by the ACPGIB to determine the shortfall of resources for the management of patients with all forms of colorectal disease including bowel cancer and inflammatory bowel disease.

Colorectal surgeons were asked to document their practices against the benchmark set out in the original resources document

Numbers of Clinicians per 250,000 population (from 2006)	
Consultant surgeons	2.5 FTEs (including extra clinical duties)
Histopathologists	0.75 FTEs (excluding extra non-clinical duties)
Oncologists	1.25 FTEs
Radiologists	1 FTEs
Palliative care consultants	0.5-1 FTEs
GP/Nurse endoscopy sessions	1.5 per week
Colorectal cancer nurse specialists	1-1.5 Full-Time equivalents
Stoma therapists	2 FTEs
Other colorectal	< 4 FTEs (nurse specialists for other cancer roles including 2 McMillan nurses and 2 for the management of benign disease).

The results were extrapolated to estimate the shortfall across the whole of the U.K. This identified a potential shortfall of 170 full-time equivalent colorectal surgeons in the UK with similar but smaller deficits for oncology, radiology, pathology and histopathology. The shortfall in nurse endoscopists equated to 2 more per 500,000 of the population.

Current Situation in UK

The current survey performed by the ACPGIB in 2014 is based on prospective data and includes data from the whole of the UK including Wales and Scotland. Data specifically related to Consultant numbers and job plans are of interest given the previous predictions of shortfalls in overall workforce. Of the 175 Trusts sent questionnaires 91 replied.

These were 61 District General Hospitals and 30 Teaching Hospitals. They cover a median population 250,000 and 500,000 respectively covering a population of 31,000,000. From this data there are currently 8 consultant colorectal surgeons per 500,000 population with 1 Associate Specialist.

The range of on call varies from 1 in 6 to 1 in 18 with a median of 1 in 8. The majority are on call for general surgery with a median of 7 surgeons per 500,000. (PAs for on call range from 0.3 – 4.0).

Despite the expansion of both Colorectal and Upper GI Consultant numbers only 5% of the U.K colorectal workforce currently provide a specialist emergency service.

A similar minority of surgeons (4%) practice exclusively in coloproctology. Seventy percent continue to perform some general surgery (1-25% of workload) whilst 25% still perform up to 50% general cases (range 26-50%). The remaining 3% work over 50% as general surgeons .

Job plans show some improvement both in relation to number of allocated SPA's median 2.0 (range 0.5 – 3.0) and protected time for teaching (44%) Theatre sessions, clinics and endoscopy sessions are generally within the recommendations as well.

Table 1.1 | Median and range of PAs/week for colorectal consultant job plan

PA/week	Median	Range
Operating	2.5	1 - 4
Clinics	2.0	1-3
Clinics	1.0	1-2

Conclusions

With the expansion of consultant numbers the current UK Coloproctology workforce has largely begun to align with or exceed the number predicted as required in previous guidance.

Remaining challenges include the direction of Emergency General Surgery in the U.K. This has been eloquently and concisely summarised by the ASGBI (12) (see also chapter 5). Superior results that are achieved in colorectal emergency surgery when performed by specialists are well documented (13-16). Following this to its natural conclusion separation of all emergency general surgery is both feasible and effective (17). This could be quite easily achieved with the current number of consultants in both upper and lower GI surgery. Anderson however argues that this type of rota would not be easy to sustain except in large teaching hospitals and concludes that a general emergency service supported by separate subspecialist rotas might be better (11). Where change to sub specialty emergency surgery has taken place however better outcomes have been reported in both lower and upper GI surgery (17-19).

Defining the Colorectal Surgeon

Colorectal Surgery encompasses four distinct disease groups centred on four distinct anatomical sites; small bowel, colon, rectum and anus – colorectal cancer, inflammatory bowel disease including diverticular disease, functional bowel disease and proctology.

The rationale of specialisation within surgical practice is that expert knowledge and technique benefits patient outcomes. A consistent finding in colorectal cancer surgery is that specialisation defined by case volume, is associated with better patient outcome. Specialist surgeons performing a high volume of colorectal cancer surgery consistently demonstrate better 5-year survival rates than non-specialist surgeons and much lower rates of local recurrence than non-specialist surgeons. Emergency surgery in diverticular disease has lower mortality and higher rates of primary anastomosis. Specialisation in IBD also conforms to this pattern with better outcomes in subspecialised units. Specialization in colorectal surgery also improves mortality, morbidity, and anastomotic dehiscence rates after colorectal emergencies and increases the percentage of single-stage procedures

ACPGBI is a craft organisation and not a statutory body. However, as the largest craft organisation for colorectal surgery in the UK with 800 consultant and trainee members, – charged by a charitable constitution and in line with its ethical and professional commitment to patient care to prevent patient suffering from colorectal disease - it has had to develop a view of what constitutes colorectal surgical practice that furthers this charitable aim. Thus in the interests of patient safety and outcomes it has now become necessary to define in a transparent fashion what constitutes a specialist colorectal surgeon. This definition will be required by the patient to ensure that their colorectal disease management is within the care of a surgeon with specialist knowledge and also for medical directors who have direct executive responsibility for patient safety. The categories of surgeon that this definition might be applied to include;

- an established Consultant Colorectal Surgeon
- a new CCT holder applying for a post as a Consultant Colorectal Surgeon
- a “general surgeon” who wishes to manage colorectal disease.

As well as defining the attributes of a specialist Colorectal Surgeon, it is also important to define the job plan of a Colorectal Surgeon, so that he/she remains adequately skilled in the delivery of Colorectal care.

Guideline job description

This description should be read in conjunction with the generic job plan for NHS consultant colorectal surgeon available on the ACPGBI website.

The Resource document from 2006 summarised a single surgeon job plan into a simple table in accordance with NHS employment terms & conditions for Hospital Consultants in England, Scotland and Northern Ireland. Therefore 7.5PAs were dedicated to direct clinical care and 2.5PAs to non-clinical commitments involving supporting professional activities. The proportion of time allotted to each of the components of the job plan is flexible and should be negotiated with the employing Trust.

Table 1.2 | Criteria that define a specialist colorectal surgeon

	Criteria for Colorectal Approval	Job Plan for Maintained Approval
Established Colorectal Surgeon	<ul style="list-style-type: none"> • >75% of elective surgical practice in Colorectal Surgery • core Colorectal Cancer MDT member with more than 20 curative colorectal cancer resections per year • and/or Inflammatory Bowel Disease MDT member and/or Pelvic Floor MDT member • Laparoscopic Colorectal practice – more than 20 laparoscopic colorectal procedures before December 2009 and/or mentored Lapco experience. 	<ul style="list-style-type: none"> • 1 all day elective colorectal operating list per week • 1 lower GI endoscopy session per week • 1 specialist colorectal clinic per week. • 1 theatre session per week for day case proctology.
New CCT holder applying for Consultant Colorectal Surgeon post	<ul style="list-style-type: none"> • documented log book experience of 40 anterior resections, 150 colonoscopies and 25 fistula in ano procedures • Exit examination in Colorectal Subspecialty Laparoscopic practice – laparoscopic fellowship and/or mentored Lapco training. 	<ul style="list-style-type: none"> • 1 all day elective colorectal operating list per week • 1 lower GI endoscopy session per week • 1 specialist colorectal clinic per week
“General Surgeon” who wishes to manage colorectal disease	<ul style="list-style-type: none"> • documented log book experience of 40 anterior resections, 150 colonoscopies and 25 fistula in ano procedures • completion of ACP online training module • Laparoscopic Colorectal practice – more than 20 laparoscopic colorectal procedures. 	<ul style="list-style-type: none"> • 1 all day elective colorectal operating list per week • 1 lower GI endoscopy session per week • 1 specialist colorectal clinic per week

With time, however, it has become clear that there may be an impact of on call commitment towards work capacity and this factor should be borne in mind when negotiating a job plan.

Three types of colorectal surgeon may be considered, all meeting the definition detailed earlier.

1. Elective specialist

Some colorectal specialists have no on-call commitment and therefore may have a job plan restricted to 2.5 SPA plus 7.5 DCC. This may include a job plan similar to figure 1.1

	Sessions
Inpatient/day case	3.0
Outpatient clinics (with one restricted to subspecialist interest).	2.0
Colonoscopy	1.0
Ward rounds	0.5
MDTs	1.0
Total Clinical Commitments	7.5
CME/appraisal of trainee/research/audit	1.0
Management (clinical) including overall commitments for the whole colorectal surgical team as well as LNC/Clinical Governance/ surgical tutor/local, regional and national surgical courses/ ethics committee etc.	0.5
Administration (non-clinical)	1.0
Total extra non-clinical commitments	2.5

There may be differences for an academic colorectal surgeon that could include dropping one theatre and outpatient session to be replaced by sessions for research/grant applications and laboratory work. There should also be mandatory time dedicated to serious event audit (about 0.25 PA per week) included under clinical management.

2. Pure colorectal elective + emergency specialist

Only 5% of the U.K colorectal workforce currently provide a specialist emergency service. A sample job plan is shown in figure 1.2

	Sessions
Inpatient/day case	2.0
Outpatient clinics (with one restricted to subspecialist interest).	2.0
Colonoscopy	1.0
Ward rounds	0.5
MDTs	1.0
On call (out of hours work including weekends)	0.5
Post-take ward round	0.5
Total Clinical Commitments	7.5
CME/appraisal of trainee/research/audit	1.0
Management (clinical) including overall commitments for the whole colorectal surgical team as well as LNC/Clinical Governance/ surgical tutor/local, regional and national surgical courses/ ethics committee etc.	0.5
Administration (non-clinical)	1.0
Total extra non-clinical commitments	2.5

The on call has become onerous in many centres for various reasons essentially due to specialisation. Often this means that job plans are increased over 10PAs with many surgeons working 12 or more.

Various hybrids have been developed to cope with the on call with some centres working a 24 hour shift in unison with a colleague covering non-colorectal emergencies, to those covering emergencies for up to one week including or excluding nights. Centres also vary as to the element of day time commitment free time that is timetabled for on call. For those that are commitment free the on call sessions simply substitute for the "elective" direct clinical care sessions normally scheduled for that week.

3. Colorectal specialist with general on call

This is commonest work pattern, In this situation the specialist is required to take all comers on call (to include upper and lower GI emergencies). As the majority of general surgical emergency cases are colorectal, provided the on call rota is not too onerous and/or there are facilities to pass the major non-colorectal cases on after the on call has finished, the job plan implications of such a system are little different to a surgeon doing specialist on call.

4. Colorectal specialist with general surgical elective and emergency on call commitment

For the 25% who still perform up to 50% general cases (range 26-50%), it becomes difficult to maintain a colorectal subspecialty within the time available. Additional PAs are required to maintain subspecialty skills and deal with the general surgical workload. This problem is compounded, especially in smaller district general hospitals with other subspecialties such as breast and vascular coming off the on call and leaving more of the general surgery take to the colorectal surgeon. In order to meet the definition of a Colorectal specialist a surgeon taking on such a post must be prepared to negotiate additional terms with their employer.

Summary recommendations

Current numbers would indicate that there is a median of 8 colorectal surgeons per 500,000 population.

On call commitments vary according to local requirements

Specific session allocation also vary according to local and job specific requirements but most colorectal surgeons have 2-2.5 theatre sessions, 2 clinics and 1 endoscopy session with a median of 2 SPAs.

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2. In Patients

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Introduction

The inpatient resources required by a Colorectal Unit serving a population of 500,000 people are dependent on a number of factors. Colorectal Surgeons commonly function not only as Specialist Coloproctologists but also as Emergency General Surgeons. Specialist Colorectal Surgery consists of core areas such as Colorectal (and Anal) cancer, Inflammatory Bowel Disease, Diverticular Disease and Proctology, and resources for these areas may be easier to measure and define. Resources for other areas such as Pelvic Floor Disorders might depend on local expertise and interest. More senior colorectal surgeons often retain the skills to deliver elective surgery in other specialities, although this is increasingly rare. The resource requirement may therefore change as personnel change and has done so in recent years in units where open surgeons have been progressively replaced by laparoscopic surgeons. This may necessitate increased theatre capacity but reduced inpatient bed requirements. The definition of emergency colorectal surgery is also open to interpretation. Acute admissions related to the core areas mentioned clearly fall into this category but whether adhesive small bowel obstruction, for instance, requires colorectal expertise is debatable. However, colorectal surgery clearly dominates the indications for emergency laparotomy in the UK and this is likely to become a more significant part of a colorectal surgeon's workload with increasing sub-specialisation (1).

Resource allocation is dependent on a number of factors. The local population demographics, particularly age, and socio-economic status clearly have influence on demand. However, access and capacity also form a complex interplay with demand, such that increasing resources do not always lead to improvements. Appointing a new surgeon in response to excess local demand, may improve access, i.e. more new patients seen, than local capacity, i.e. beds and theatres, can deal with after a period of time. Appointing a new surgeon with a specialist interest might exacerbate this problem further. Thus, defining the resources required for colorectal surgery is extremely challenging.

There is very little existing evidence in this area. It is likely that every hospital calculates its bed stock requirements for General Surgery rather than Colorectal surgery per se, with no differentiation in emergency and elective beds. Resources are often allocated in response to changes in demand and backlog, rather than by defining an optimal level of capacity or target of activity.

Resources required

1. Inpatient beds

There is no existing recommendation or guidance on what these resources should be. Current practice was explored through the ACPGBI in 2014 by sending out a questionnaire regarding inpatient resource allocations in colorectal surgery to all Trusts in the UK. Ninety-one Trusts responded to the survey out of a possible 175 (52%). Of the respondents 30 were Teaching Hospitals and 61 were District General Hospitals. 52% of Trusts confirmed the presence of "designated" Colorectal wards within their hospitals. There was however some ambiguity in response to this question with some Trusts answering "no" due to the lack of "dedicated" or "exclusively" colorectal wards and therefore the proportion may be much higher than just over half.

There was considerable variation in supplementary questions about short stay beds and Level 1 beds as there is little differentiation in most trusts between general/colorectal; beds or elective/emergency beds. The number of beds available to colorectal patients appeared to vary from 1-76 within trusts who responded. Analysis of the available data suggested that 24 colorectal beds may be available per 500,000 of the population but this is likely to reflect Level 0 and Level 1 bed provision. (Table 1)

Short stay beds were interpreted as day surgery beds by some and weekday only wards by others. Allowing for this variation, 49% confirmed existence of Short Stay beds and across those Trusts there were on average 24 such beds per 500,000 of the population.

This is the only existing study looking at current UK practice but it is difficult to determine from the data what these resources should be and defining resource gaps also remains difficult.

Level 0 (General Ward)	Requires hospitalisation. Needs can be met through normal ward care. Intravenous therapy Observations required less frequently than 4 hourly.
Level 1 (enhanced care)	Patients in need of additional monitoring, clinical interventions, clinical input or advice. Patients requiring critical care outreach service support. Requiring a minimum of 4-hourly observation. Requiring a minimum of 4-hourly GCS assessment. Requiring frequent (>2x day) peak expiratory flow rate measurement. Requiring continuous oxygen therapy. Requiring respiratory physiotherapy to treat or prevent respiratory failure. At risk of aspiration pneumonia. With a chest drain in situ. With diabetes, receiving a continuous infusion of insulin. Requiring administration of bolus intravenous drugs through a central venous catheter. Abnormal vital signs but not requiring a higher level of critical care. Risk of clinical deterioration and potential need to step up to level 2 care. Patients fulfil the 'medium' risk category as defined by NICE Guideline 50.

- What percentage of this population receive postoperative care direct from theatre in HDU/ICU
- What percentage of patients returning to the ward are subsequently transferred to HDU/ICU

There is already a joint publication from the Faculty of Intensive Care Medicine and the Intensive Care Society in 2013 entitled Core standards in Intensive Care Units which details how an ICU should be staffed and resourced based on the number of patients it accommodates. These figures could then be used once we understand the need per 500,000 of the population (3). The Department for Health are due shortly to release statistics for Adult critical care in England: April 2013 to March 2014 (4).

The recent UK survey carried out by ACPGBI showed that there were approximately 10 HDU and 14 ITU beds per 500,000 of the population. All replying colorectal units had access to an ITU unit but HDU care was still largely delivered by surgical staff in 21% of trusts.

In conclusion there is not much by way of specific guidelines or evidence based literature on the future provision of critical care services within the UK.

Table 2.1 | Definitions of levels of care

2. ITU/HDU provision

HDU/ICU support is a necessary component of the modern colorectal surgical practice.

A study published in critical care in 2006 analysed over 4 million (just under 3 million elective, just over 1 million emergency) general surgical cases. Those with a prospectively predicted mortality of over 5% were identified as a high risk surgical population. This group constituted 12.5% of surgical procedures but more than 80% of deaths. Despite high mortality rates, fewer than 15% of these patients were admitted to the ICU. This indicates that in 2006, at least, there was a greater need for ICU/HDU beds than was being met (2).

Therefore the first questions are:

- What percentage of surgical patients are considered high risk
 - This should probably be divided between a predictable elective population and an unpredictable emergency population
 - An agreed definition of high risk would need to be established

3. Pre-assessment clinics

A comprehensive pre assessment service is fundamental to providing a high quality safe service. The ability to assess the chance of harm and benefit provided by any intervention is essential and should be communicated to the patient and the family. Pre assessment should encompass assessment and optimization. This should be carried out by an interdisciplinary team which should include pre-operative nurses, anaesthetists, surgeons and pharmacists. Cardiopulmonary exercise testing (CPEX) has become well established in the preoperative assessment of patients requiring major surgery in the United Kingdom. There is some evidence supporting its use in risk-stratifying patients prior to high-risk surgical procedures and allocation to an appropriate level of postoperative care (5).

The pre assessment clinic is an integral part of the service and should be fully funded. A secondary care pre-anaesthetic service allows elective patients to be risk-assessed and a triage system to identify those patients who are suitable for assessment by a nurse, those who would benefit from a consultation with an anaesthetist and those at highest risk and who would benefit from further dynamic assessment (such as a cardiopulmonary exercise testing) as well as an in depth consultation on the chance of benefit or harm from the proposed surgery.

Sufficient anaesthetic consultant led sessions should be provided to allow for review of the notes and a facility for patients at greatest risk of harm to undergo more extensive testing and discussion.

The Royal College of Anaesthetists UK in 2014 published Guidelines for the provision of anaesthetic services that details the resources required for the provision of pre assessment services based per 1,000 patients (6).

Recommended time allocation (per week) per 1,000 in-patients passing through a pre-assessment clinic:

- Reviews/consultations 1 session (1.25PAs)
- High risk clinics 1 session (1.25PAs)
- Clinical leadership for the service 1 session (1.25PAs)
- Backfill and secretarial support should also be provided

Local protocols should determine the grade and experience of the nurse undertaking preoperative assessments. For 1,000 patients the following minimum staffing should be factored in:

- 0.6 Registered nurse
- 0.3 HCA

In the United Kingdom, improving surgical outcome group UK (ISOG UK) in its report for modernising care for patients undergoing major surgery, acknowledges the value of CPET and recommends use of CPET CPEX during pre-assessment in hospitals doing major elective surgery (7). In a national survey regarding CPEX testing 32% of centres in the England offered CPEX testing in 2011. 47% of centres that responded had attempted to set up a CPEX service but had been unsuccessful. In the majority of cases this was due to financial constraints (8).

Currently it appears from the results of the recent ACPGBI survey that 98% of centres offer pre-assessment clinics and 40% of these are staffed by consultant anaesthetists. Further information would be required to ascertain if all high-risk triaged patients are receiving consultant directed pre assessment.

There is evidence supporting the use of CPEX in risk-stratifying patients prior to undertaking high-risk surgical procedures. It appears that the number of units offering CPEX testing is steadily increasing with 60% offering CPEX in the questionnaire. The barriers to setting up a service appear to be financial constraints.

Summary recommendations

The average number of beds per 500,000 of the population from our survey is 48 (including level 0-1 and short stay beds).

All colorectal units should have access to level 3 ITU beds

Critical care input to level 2 HDU beds is essential. The majority of colorectal units have level 2 beds with care delivered by critical care staff, although approximately a fifth of such beds have care solely delivered by surgical staff.

Pre-assessment clinics should be an integral part of any colorectal unit and should be fully funded.

CPEX testing is becoming more readily available with more evidence supporting its use. Over 50% of UK colorectal units offer this service and increased uptake should be encouraged.

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3. Day Case Surgery

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Introduction

Day surgery is the admission of selected patients to hospital for a planned surgical procedure, returning home on the same day. "True day surgery" patients are day case patients who require full operating theatre facilities and/or a general anaesthetic, and any day cases not included as outpatient or endoscopy (1). Although 23-h and short stay surgery apply the same principles of care and can improve the quality of patient care whilst reducing length of stay they are still counted as inpatient treatment.

In 2004 the Modernisation Agency, through its work with NHS clinical teams, identified '10 High Impact Changes' that organisations in health and social care can adopt to make significant, measurable improvements in the way they deliver care. The first High Impact Change is 'treating day surgery (rather than inpatient surgery) as the norm for elective surgery'. This could, they suggest, release nearly half a million inpatient bed days each year (2).

The NHS Plan in 2000 stated that around three-quarters of operations will be carried out on a day case bases with no overnight stay required and envisaged the implementation of this target within the "near future". To reach this point each Trust should first aim to increase their surgery activity to the 2001 upper quartile by 2005 (1). The Department of Health 2000/01 figure for the percentage of elective operations performed as day surgery was 68%, but this contains large numbers of procedures performed in day surgery units which do not need operating theatre facilities and which could be undertaken in other parts of the hospital or in primary care (e.g. Blood transfusion, endoscopic and radiological diagnostic procedures). The percentage of "true day surgery" is much less, and no hospital is performing at uniformly high levels across all specialties (1). Whereas the target of 75% of elective surgery to be performed as day cases from the NHS plan remains (3), the true picture is difficult to determine, since the only nationally reported data are limited to 25 procedures originally included in the Audit Commission updated basket produced in 2001

(4,5). Of these 25 procedures only two were colorectal; Anal Fissure, Haemorrhoidectomy. To overcome possible restrictions imposed by the Audit Commission basket the British Association of Day Surgery have proposed a list of more major procedures that can also be performed as day cases in perhaps 50% of cases, however none of the 17 procedures included were colorectal. In June 2012 the BADS produced an updated directory of procedures that should be performed as day case and within General Surgery included nine colorectal procedures (6) (See Table 1).

Table 1

1.	Transanal excision of lesion of anus
2.	Excision/destruction of lesion of anus
3.	Haemorrhoidectomy
4.	Injection or banding of haemorrhoids
5.	Circular stapling haemorrhoidectomy
6.	Anorectal stretch
7.	Excision/treatment of anal fissure
8.	Lateral sphincterotomy of anus
9.	Pilonidal sinus surgery

This list is not fully comprehensive and some colorectal procedures currently performed as day case or which could be potentially performed as day case are not included. For example the BADS directory does not include procedures listed in Table 2.

Table 2

Treatment of fistula in ano
Treatment of faecal incontinence (bulking agents, SNS)
Laparoscopic Ventral mesh rectopexy
Closure of loop ileostomy
TEMS, TAMIS

Where are we now?

A survey of the current resources available in the country for day surgery was recently carried out by the ACPGBI. Members of the ACPGBI at 91 different hospitals returned the questionnaire. The results of the survey demonstrated a significant variation amongst different sites across the UK (Table 3.1). The average number of day cases lists per week across all sites was 1.7 with a very wide range. About one third of the hospitals (30/91) do not currently have a dedicated day surgery list for colorectal cases, often these cases being mixed with general cases or performed on the main theatre list (St Marks Hospital). If considering only the hospitals where there is a dedicated colorectal day cases list (61/91) the average number of lists performed per week is 2.6. Sixteen hospitals do not currently have a dedicated day surgery unit. At 2 of these sites this is being built. The number of cases booked per list also demonstrated a significant variation across different sites ranging from 1 to 9 for an average of 4.6. This probably reflects the different use made of these lists and the case mixed of patients treated as "day surgery". Based on these figures if we considered all hospitals the median number of colorectal day cases performed per week per 500,000 population would be about 16 (N=15.6). However when considering only the hospitals where there is actually a dedicated colorectal day-list the median number of colorectal day cases performed per week is 24. Only 54 hospitals (63%) reported a proportion of patients with same day admission in over 80% of cases. This is of course very surprising considering that by definition a day case should be admitted and discharged on the same day of the procedure. This is even more surprising considering that there is a big effort for same day admission not just for day cases but also for in-patients. This inevitably raises questions about the definition of day cases being actually respected and whether cases considered as being treated as day cases are indeed day cases.

Hospitals were also asked whether there was a need to perform extra lists to accommodate colorectal day cases. Extra lists are required in about 70% of the hospitals. The frequency of these extra lists is very variable and very often these lists are organised on an ad-hoc basis according to the hospital's needs at the time and it is therefore impossible to quantify the actual number of extra lists performed. Most of the colorectal day cases lists are Consultant led and only in 16% (15/91) of the cases a middle grade is allowed to run a list without consultant supervision. One would assume this is for simple cases where the middle grade is considered experienced enough to perform those cases independently.

The majority of the surgeons (77%) believe that colorectal day cases should only be performed by colorectal surgeons, although only a few colorectal surgeons (26%) see a potential role for a dedicated colorectal day case surgeon. Many (72%) find it relatively easy to train junior surgeons while running a day cases list. Only 10% of hospitals have a colorectal day case Clinical Lead while 19% of surgeons think that every hospital/trust should have a colorectal day case Clinical Lead.

Discussion

The benefits of day surgery have been outlined in many documents and the evidence very well summarised by the Healthcare Commission and the Modernisation Agency. General guidelines on day case surgery were last revised by the RCS in 1992 and there are currently no specific guidelines or recommendation for colorectal day case surgery.

Day Surgery is a continually evolving specialty where refinements in surgical and anaesthetic management have led to an ongoing expansion in the range and complexity of procedures now deemed suitable for one-day care. The British Association of Day Surgery (BADs) has developed a Directory of Procedures providing aspirational day surgery rates for over 180 operations. Achieving these rates is dependent upon recognising that best practice day surgery is a planned pathway that begins in the GP surgery with knowledge of the procedures that can be feasibly carried out on an ambulatory basis, referral to a care provider with an intention of day surgery management, expectation that the provider will accommodate a quality assured care process with booking, the period of admission, and provision of follow up support in the immediate period after home discharge. Day surgery represents a unique opportunity to achieve both high quality and cost efficient care as 'best practice', and as such, is being increasingly rewarded with enhanced tariff payments. Carrying out elective procedures as day cases where clinical circumstances allow saves money on bed occupancy and nursing care.

There is a wide range of colorectal procedures that can and/or should be performed as a day case (Tables 1 & 2); however only some of these procedures are currently included in the BADs directory. This list should be revised and updated. All day case colorectal procedures currently included in the BADs directory come under General Surgery and there are no recommendations or guidelines on who should be performing these procedures.

It is very difficult to obtain a reliable picture of what is the current practice of colorectal day surgery in the UK. This is in part the consequence of a significant difference in practice across sites with one third of UK hospitals not having a dedicated colorectal day surgery list and 17% of hospitals not having a dedicated Day Surgery Unit at all. It is very likely that there is also a significant difference in local demand and capacity across hospitals in the UK and we do not know if the current capacity is enough to accommodate the local needs. It has not been possible to obtain specific data in this regard but a recent document of the DH demonstrated a massive variation amongst NHS Trusts about the overall number of patients that breached the 18 week target this ranging from several hundred to more than 11 thousand. Furthermore the new trend of shifting NHS patients to the private sector makes it even more difficult to get a proper grasp of the situation and data have subsequently to be interpreted with caution.

However, the data from the ACPGBI survey suggest that the average capacity of colorectal day cases currently available in the UK consisting of about 5 lists per week for a total of 24 cases week for a hospital serving a population of 500,000. This capacity in most cases is not adequate and further capacity is needed.

If we look at national figures for all specialties the English waiting list has been in established growth for two years, and that means baseline activity is not keeping up with demand, this is despite a significant investment on initiative lists. It looks as though all this 'extra' work may not be extra at all, and should instead be part of the normal capacity that is needed to keep up with demand. It is very likely that this is happening also for the colorectal day cases activity. Furthermore with many Trusts currently facing massive waiting times for day cases it is likely that when 'extra' activity is laid on, it does not all go towards reducing the waiting list; the first call is to make up the shortfall against demand, and then if anything is left over afterwards then that is used to shrink the waiting list.

As far as who should be performing day cases colorectal surgery there is a general consensus amongst colorectal surgeons that colorectal day-cases should be treated by a colorectal specialist, although very few see a role for a dedicated day surgery colorectal surgeon. Possible explanations for this could be that a day surgery colorectal surgeon post could be seen as a reductive position restricting the surgeon to a limited number of cases of low complexity making such a post less attractive and not very rewarding. It is also likely that most colorectal surgeons enjoy those procedures performed as day cases and for some could represent a possible subspecialist interest, making them therefore reluctant to give away that part of their practice.

There is also a need to clarify or reinforce the definition of 'day case' and this should be strictly applied. The fact that less than two thirds of the hospitals in the UK are currently admitting and discharging less than 80% of patients the same day of the surgery raises reservations about patients currently considered to be treated as a day case actually being day cases. Patients admitted the night before for day case procedures and/or patients kept in overnight for non-clinical reasons is however a well-recognised problem for day cases in general and should be addressed locally accordingly.

The ACPGBI survey revealed that only 10% of hospitals have a dedicated clinical lead for day-case surgery and 19% of colorectal surgeons believe that such a role would be beneficial. Evidence suggests that where there is an identified clinical lead, the commitment to improve day surgery rates is increased and therefore lack of focused clinical leadership may be detrimental. Training on a day cases list does not seem to be a problem.

Conclusion

There are currently no specific guidelines or recommendation for colorectal day case surgery. There is a wide range of colorectal procedures that can and/or should be performed as a day case (Tables 1 & 2); however only some of these procedures are currently included in the BADS directory. This list should be revised and updated. All day case colorectal procedures currently included in the BADS directory come under General Surgery and there are no recommendations or guidelines on who should be performing these procedures.

It is likely that the current resources are not enough to ensure adequate capacity to meet the demand with many Trusts currently facing massive waiting times for day cases. The only way to overcome this problem in a sustainable way would be by making up the shortfall against demand and then investing extra resources to shrink the waiting list. It has also to be considered that increasing the number of procedures performed as day case, while saving beds and money on one side will generate a need for further capacity in day surgery requiring shifting some of the resources towards the day cases settings.

Summary recommendations

For a population of 500,000, 24 colorectal day cases a week may need to be treated utilising approximately 5 dedicated sessions.

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4. In Patient Theatres

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Introduction

The true number of Colorectal Surgeons in the UK is difficult to ascertain. In the Royal College of Surgeons census of all surgeons in 2011 (response rate 70%), 24.6% of General Surgeons declared themselves to be working in Colorectal as a specialist interest, the largest sub-specialty group, and this equated to almost 600 surgeons (1). According to data held by ACPGIB, there were 954 declared Colorectal Surgeons in the UK in 2012 (Anne O'Mara, personal communication), but as this simply reflects ACP membership the true number of specialist Colorectal surgeons is unknown. Perhaps the most acceptable figure should come via the NBOCA submission data for colorectal cancer, published nationally and approved by the ACPGIB. This reports on around 660 surgeons in 142 trusts from around the UK operating on colorectal cancer, and this should be a characteristic of the specialist colorectal surgeon. As 7 trusts did not submit data the total number of colorectal surgeons must be around 700.

In 2010 the ASGBI recommended a consultant workforce ratio of 1:25,000 population and an overall maintenance of consultant surgeon numbers (1), which will inevitably vary with each sub-specialty. In 2009, there were just over 6,000 consultant surgeons (1841 General Surgeons) in the UK across all specialties. The equivalent figure for 2011 (1) was 7540 (2273 General Surgeons). For a UK population in excess of 60 million this still represents a major shortfall. The recommended number of colorectal consultants has not been determined (but see chapter 1).

Laparotomies for colorectal pathology contribute almost 50% of the total current UK practice for emergency laparotomy and outcome is likely to be influenced by sub-specialisation (2). In addition to an increasing colorectal cancer workload brought about by improved diagnostic capability, Bowel Cancer Screening and MDT practices, it follows that the demands on colorectal specialists can be extreme.

Theatre capacity for colorectal surgery may be inadequate to cater for these demands. For example, in the last quarter of 2013, there were almost 16,000 cancelled operations in the UK on the day for non-clinical reasons (3) representing 0.9% of total activity, almost identical to the corresponding period a year previously. Specialty and sub-specialty figures are not available. The number of operating theatres in England is known accurately for each trust but there's no evidence of a consistent increase over the last 12 months (numbers for Q1, Q2 and Q3, excluding the independent sector, are 3115, 3105 and 3112, respectively).

Definition & Workload

The predominant Colorectal elective surgical areas are considered to be: colorectal cancer, inflammatory bowel disease, diverticular disease, pelvic floor and functional, and proctology. For most colorectal consultants, cancer will occupy most of the operating time and should be the priority.

This section deals with elective in-patient colorectal surgery only, and excludes day-case surgery. For the purposes of this section, it has been assumed that day-case proctological procedures are dealt with separately, and so calculations will be for procedures which routinely require at least a one night post-operative stay.

Theatre capacity could simply be defined as the available theatre space and time to carry out these surgical operations. Capacity, however, is inevitably influenced by a number of factors, including the following:

- anaesthetic time - how long is the patient in the anaesthetic room?
- surgical time - how long does the operation take?
- turnaround time - what is the delay between cases?
- emergencies - do emergency procedures interfere with elective cases?

- manpower - how many surgeons, anaesthetists, nurses, ODAs, ODPs are there?
- local regulations - are there strict rules on start/finish times?

Surgical workload is estimated on the basis of the number of colorectal operations required for a population of 500,000. There are varying degrees of centralisation around the UK, and differing referral patterns, and so the workload for the purposes of this section relates to mainstream Colorectal Surgery, and is thought to represent the range of Colorectal Surgery carried out in a standard DGH.

Evidence for best practice

There is currently no evidence to support the number of operations that should be done per surgeon per day. Inevitably, surgeons operate at different speeds and safety is paramount. Speed and efficiency are clearly not simply a function of surgical competence and many factors contribute to the smooth running of operating lists, including anaesthetic factors, manpower factors, scrub staff familiarity, teaching of trainees etc.

It can be reasonably expected that Colorectal surgeons will adhere to recognised national waiting time expectations (within 18 weeks for consultant-led treatment from time of referral) and choice (4), and also the 31-day and 62-day timelines for treatment of cancer. These factors will have an impact on decision-making around the make-up of operating lists.

It is recommended that, in a Colorectal department, spreading of the surgical load should be equitable between the surgeons, particularly for cancer resections, to ensure timely operations and to avoid breaches. For colorectal cancer, this allocation and planning is probably best implemented through the MDT process and with cooperation with specialist nurses.

In the 2006 Resources in Coloproctology document, an attempt at best practice modelling was made (5) and this is still relevant, although some modification is required to take into account a different spectrum of activity, in particular the widespread adoption of laparoscopic surgery. For measurement of surgical workload each case can be assigned a BUPA group classification (6) and a workload value derived by an Intermediate Equivalent Value (IEV) (7). The IEV was developed to reflect the time and skill entailed in each operative procedure, and is adapted below (Table 1).

Group	IEV
Minor	0.50
Intermediate	1.00
Major	1.75
Major+	2.20
Complex Major (CMO)	4.00

Table 4.1 | Operation categories

For the common colorectal conditions and procedures, IEV allocation is shown below (reproduced from Resources in Coloproctology 2006 (5)) as a guide only (Table 2).

Operation	IEV
Rectal cancer	5
Enterocutaneous fistula	5
Colon cancer	4
Ileoanal pouch	4
IBD	4
Diverticular disease	4
Rectal prolapse	3
Incontinence	2
Haemorrhoids	1
Pilonidal sinus	1
Fistula in ano	0.75
Fissure	0.5
Rectal EUA	0.5

Table 4.2 | Intermediate Equivalent Values (IEVs) for colorectal procedures

This system can be used to score the workload achieved per list. The maximum number of IEVs per half-day list lasting 4 hours (1 Programmed Activity, PA) is probably 5. Most colorectal surgeons now have run-through all-day lists making it more likely that two major resections can be performed. An 8-hour list, for example (say from 0830-1630), incorporating anaesthetic time, should allow the comfortable achievement of a total of 8 or 9 IEVs.

This is more likely to accommodate more complex procedures such as low anterior resection which may equate to 5 IEVs, and still allow minor cases to be completed, such as closure of ileostomy or proctological work or even a straightforward right hemicolectomy or ileocaecal resection, for example.

From a level of laparoscopic colorectal activity of less than 5% in 2005/6, the equivalent figure now is in excess of 40% across the UK (8) with some trusts doing considerably more. This applies particularly to cancer resections and this inevitably has resource implications and affects capacity planning. Laparoscopic procedures are likely to take longer than the equivalent open operation, although they currently have equivalent IEVs.

There is also a need to train junior surgeons and this process will inevitably lengthen operating times resulting in fewer cases being carried out on an operating list. It is probably more efficient to designate certain lists as training lists and to keep these separate from service lists, with advanced agreement from hospital managers, thereby simultaneously satisfying trainers, trainees and trusts (see chapter 14)

If the demand for colorectal surgical services is known, based on the average number of procedures performed according to nationally recognised databases (HES, Dr Foster), and an IEV assigned to each procedure, the number of lists required for each department can be calculated. It follows that the number of consultants required to achieve this can also be determined.

The Department of Health has proposed a fairly sophisticated calculation for the number of theatres required for each specialty (9). The following factors are considered:

- surgical bed provision
- average length of stay and bed occupancy
- throughput per annum
- average cases per operating session (for selected session lengths)
- number of working weeks per theatre per annum
- policies for emergency usage of theatres and for planned preventive maintenance

The 7-step calculation example given in the document is for Orthopaedics but a similar calculation for Colorectal Surgery might be as follows:

STEP 1 | State the number of beds available for in-patient elective Colorectal Surgery.

Answer: 30 beds

STEP 2 | State average bed occupancy for in-patient elective Colorectal Surgery. **Answer: 80%**

STEP 3 | State average length of stay.

Answer: 7 days

STEP 4 | Estimate future average elective colorectal bed throughputs per annum

Average bed throughput pa =

$\frac{\text{Average bed occupancy} \times 365}{\text{Average length of stay}}$

$= \frac{0.8 \times 365}{7}$

NB This figure is an estimate of the number of patients using each bed in a year.

STEP 5 | Calculate total bed throughput per annum for Colorectal

Total surgical beds available for colorectal x average colorectal throughput per annum

$= 30 \times 41.7$ **Answer: 1251**

STEP 6 | Calculate total colorectal theatre caseload per annum

Total bed throughput for in-patients x % of in-patient elective Colorectal patients undergoing surgery

$= \text{Total colorectal caseload per annum}$

$= 1251 \times 0.9$

Answer: 1126

STEP 7 | Calculate theatre time required for colorectal caseload

i) estimate operating hours of the estimated cases
multiply theatre cases by average operating hours per case

eg $1251 \times 2 = 2502$ op hours per year

ii) convert operating hours into theatre timetable hours required by the efficiency of utilising planned hours of timetabled sessions

There are 3 efficiency factors to take into account:

- lists held (planned hours) as fraction of lists planned (planned hours), **Uc**
- actual run time of lists as fraction of their planned hours, **Ur**
- patient operating hours as fraction of run time hours, **Up**

These may be combined into an overall efficiency factor that shows how much planned theatre time is actually used for operations on individual patients, U_0 , where:

$$U_0 = U_c \times U_r \times U_p$$

Suggested target values are:

$$0.77 = 0.925 \times 0.9 \times 0.92$$

ie 77% of theatre timetable template hours can be expected to be used on individual patients.

Therefore, timetabled planned hours required = annual operating hours/efficiency

e.g. (for the current example) $2502/0.77 = 3249$ **hours per year**

iii) convert these to timetabled hours per week

e.g. $3249/52 = 62.5$ **timetabled hours per week**

Assuming that the work will all take place on weekdays (additional calculations can be done to take into account weekend and evening elective operating),

$$\text{hours of operating required per weekday} = 62.5/5 = 12.5\text{hrs}$$

For 8-hour lists this could be worked as approximately 1.5 lists (theatres) per day. Alternatively, for 10-hour lists, one list (theatre) per day with a double list (two theatres) one day a week.

Such calculations are relatively straightforward but need to be realistic. Whatever calculation method is used, the pressure on trusts to keep the number of PAs worked by each consultant down to 10 is likely to have a significant bearing on the number of operating lists a colorectal department will be able to deliver, and the number of consultants required to deliver them.

Current UK guidelines

There are no specific UK guidelines covering theatre capacity and local arrangements seem to apply, partly based on best practice evidence shown above.

Current UK Practice

A questionnaire was sent out to 175 UK Colorectal departments (Appendix A). There were 92 replies (response rate 52%). Six were excluded from analysis owing to incomplete responses leaving 86 for analysis of all replies other than annual operation numbers. Incomplete data led to the exclusion of 36 departments, leaving 50 for analysis.

The main findings were as follows:

Personnel

The median number of middle-grade surgeons (CT, ST, Fellow or Staff Grade) was 6. From chapter 1 there are about 5-8 consultants per 500,000 population.

Interests

The vast majority (90.7%) of Colorectal consultants operate on colorectal cancer. A wide variety of interests were covered but the two predominant interests across the UK were Inflammatory Bowel Disease (84.9%, 73/86) and Pelvic Floor disorders (77.9%, 67/86).

Operating lists

A wide variety of list frequency and length was noted. Some 59.3% (51/86) stated that they had all-day operating lists, whilst 37.2% (32/86) had half-day lists, and 3 stated neither. The scheduled length of operating lists ranged from 3.5 to 12 hours, with a mean of 6.7 hours and median of 8 hours. The median number of in-patient operating lists (any length) per week was 6 with a range of 2.5 to 14. In 34 (39.5%) hospitals lists occurred on each working day (Monday to Friday). The median for all hospitals was 4 days. This data allowed a calculation of total available operating time per week, giving a median of 40 hours, but with a very wide range from 10 hours to 112 hours, calling into some question the validity of some responses.

On the nature of the lists, a minority of 29 (33.7%) stated that there were formal arrangements in place for planned over-runs, whilst for 52 (60.5%) no such arrangements existed. In 48 (55.8%) hospitals, separate day-case lists existed, thus potentially easing the burden on in-patient

beds, but for 37 (43%) hospitals there were no separate day-case lists. Dedicated training lists were said to occur in only 25 (29.1%) of hospitals, with a large majority (59, 68.6%) having no such arrangement. In 77 (89.5%) hospitals, consultants retained control over their list bookings, but in 8 (9.3%) this task seemed to be controlled by administrators and managers.

For theatres themselves, in 34 (39.5%) hospitals less than 5 other surgical specialties were co-located in the same theatre complex, and in 50 (58.1%), there were more than 5 other specialties. Some 56 (65.1%) stated that they had dedicated colorectal theatres, but only 8 (9.3%) had bespoke laparoscopic theatres. The questionnaire may have been a little ambiguous, and it is a little unclear whether some respondents considered "dedicated" theatres to mean laparoscopic theatres. In 49 (57%) hospitals, there were dedicated colorectal anaesthetists some or all of the time.

Operating with another colorectal consultant was very infrequent, occurring on less than 3 occasions per month in 68 (79%) of hospitals, and occurring on 3 or more occasions monthly in only 17 (19.8%) hospitals. Other sub-specialties were involved with cases in theatre on less than 3 occasions monthly in 70 (81.4%) of hospitals, and on 3 or more occasions per month in only 14 (16.3%) hospitals.

The distribution of lists when a consultant was on-call was more difficult to determine and it was clear that a variety of arrangements were in place, but prospective cover was certainly not uniform. Lists tended to be kept within the Colorectal departments, occurring in 55 (64%), but given away to other departments in 28 (32.6%).

In only one hospital (Oxford) was elective and emergency surgery carried out in entirely different hospitals.

Operative practice

Total Intermediate Equivalent Values (IEVs) were determined from the numbers of specified procedures performed annually at each hospital, as submitted by individual departments. Whilst the suggested pathologies account for the majority of procedures performed in Colorectal practice, inevitably there would be a shortfall of procedures. Surgery for enterocutaneous fistula, adhesions, stoma problems, abdominal hernia and faecal incontinence, for example, would probably not be covered. An estimate of the shortfall had to be made and this was considered to be 25%, necessitating an uplift in the IEV total for the year.

As it was estimated that an 8-hour operating list could accommodate 8IEVs (see above), an estimate of the number of 8-hour lists required annually to accommodate the adjusted IEVs could be made. This was then compared with the actual number of hours available annually, based on a 40-week year (a 52-week year was not chosen as, although most departments would probably work each week in some capacity with prospective cover, full resources and personnel would probably not be available). If 8-hour lists were assumed, a shortfall between what was available and what was required could be calculated.

Summary of resource gap

The median number of 8-hour lists required annually, across the 50 hospitals which submitted complete operative data, was 165 (range 81-420). The median for the number of 8-hour lists potentially available annually was 177.5 (range 80-350). This suggested a surplus across the board but there was huge variation, particularly when it came to calculating shortfall or surplus. There was a mean surplus of 15.8 8-hour lists per year, ranging from a shortfall of 140 lists to a surplus of 213 lists. There was no correlation between the length of operating lists and the achievable number of IEVs annually.

Recommendation for best practice

Based on the findings from the questionnaire it is difficult to make recommendations, but the following elements may improve capacity and efficiency of in-patient operating practice:

- run-through 'all-day' lists of 8 to 10 hours
- dedicated and consistent Colorectal theatre staff
- bespoke laparoscopic colorectal operating theatres (e.g. OR1)
- dedicated Colorectal anaesthetists familiar with ERAS principles
- separate day-case lists, preferably in a separate day-case environment
- separate theatres and wards for the separation of elective from emergency patients
- prospective cover for Colorectal lists

It is possible to make some recommendations with regard to the calculation of capacity requirements. As shown in this document, calculations should probably be based on a combination of in-patient bed capacity and operative workload. Assignment of IEVs to certain procedures is a convenient weighting, but departments must keep an accurate prospective database of all procedures performed if the resultant calculations of theatre list requirements are to be realistic and meaningful.

Conclusion

The vast majority of Colorectal surgeons in the UK operate on colorectal cancer and this pathology remains the priority when determining theatre requirements. Inflammatory bowel disease and pelvic floor disorders are the other main sub-specialty interests. It is clear that there is wide variation in Colorectal elective practice across the UK, in terms of numbers of procedures performed in relation to the operating hours available. Calculations of capacity requirements ought to be straightforward, based upon accurate case volume and there are reasonable tools with which to provide workable capacity estimates. Some hospitals have significant shortfalls in theatre capacity, whilst others would appear to have significant surpluses, worthy of further analysis.

Summary recommendations

In order to service the colorectal needs of a population of 500,000 approximately 12.5 hours of in-patient operating are required per day.

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5. Emergency Surgery

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Introduction

There are at least 33,000 emergency laparotomies each year in the UK. They may have a mortality rate of 15–20% and are presently performed in all acute hospitals. This is only one aspect of the emergency general surgery (EGS) service provided by the emergency general surgeon. It is estimated that 80–90% of deaths arising from general surgery occur in patients undergoing emergency general surgery (EGS). These figures emphasise the importance of running an optimal service for emergencies.

There are widely recognised and well documented problems with running an EGS service. Variable and at times poor outcomes are a consequence in part of an under-resourced service, diminished experience among junior staff and a loss of the team structure. These have offset the benefits of the increased consultant surgeon input seen in the few years. Changes in primary care and emergency medicine have increased the pressure on the EGS service. The fact that EGS at times lacks strategic clinical leadership and is usually staffed by surgeons whose prime interest lies in their elective practice has resulted in an unwieldy service which has not been able to modernise as effectively in response to significant changes in the surrounding NHS and in the needs of the population as some other acute services.

The issues with the current service and strategies for improving standards are the subject of the ASGBI strategic review in conjunction with ACPGBI and AUGIS (1). However, the importance of knowing the current resource issues for EGS is essential in deciding on future strategy and impact of any changes. In this regard we present the results of an audit of current EGS practice.

Where are we now?

There are approximately 8 colorectal consultant surgeons per 500,000 of the population, potentially available for EGS. Most of these (3.5 of 4 - 88%) actually contribute to the EGS.

The median number of EGS admissions is 14 patients (range 3-50), which gives an average of 20 EGS admissions per 500,000 of the population.

- UGI and LGI surgeons provide the majority of EGS. Most general surgeons have specialised their elective practice. While this has resulted in improved outcomes for patients requiring planned specialist intervention, it has potentially destabilized the provision of an appropriately trained and available surgical workforce for the treatment and management of EGS patients.

Only 5% of colorectal consultant surgeons provide a specialist emergency take rather than EGS.

Although only 20% (18 of 88) of acute hospitals have their own emergency surgical unit for admissions, 97% of consultants report that they retain ownership of those patients who are admitted as emergencies.

39% of acute hospitals have non-GI consultant general surgeons involved in EGS, and their involvement ranges from a 1 in 2 to a 1 in 9 contribution of the rota (median 1 in 5).

Although the median rota is 1 in 8 for EGS, this ranges from a 1 in 6 to a 1 in 18 contribution.

48% of acute hospitals admit trauma, although not all of these will be major trauma centres, but will include trauma units.

28% of acute hospitals report that a consultant surgeon may need to provide EGS cover at more than one site.

- Surgical treatment of acutely ill patients should be prioritised over elective surgery when necessary. Services must be consultant-led and senior doctors must be involved throughout the patient's care. The separation of emergency and elective-care workloads in general surgery can improve the quality of care provided to patients and also contribute to high quality training for surgeons.
- In 97% of acute hospitals, the consultant surgeon providing EGS is completely free from elective commitments.

66% of acute hospitals have a 24hr dedicated NCEPOD emergency theatre, but only 4% of acute hospitals reserve this theatre for the sole use of EGS.

- The "Surgeon of the Week" model is a common feature of many hospitals, where the on-call consultant and team are free from all elective responsibilities and available solely to attend to EGS.

76% of acute hospitals report that a block of days is used to facilitate the provision of EGS. Only 1% of acute hospitals report that consultants are now resident on call. Although resident cover may be helpful in busier, larger hospitals, it significantly reduces the time a consultant can provide elective sessions and may not be popular with Trusts.

95% of acute hospitals have middle grade cover throughout a 24 hour period for EGS.

- Increasingly, several hospitals have expressed an interest in dedicated Emergency Surgeons, and increasingly a few have tried or established them. Although some posts have been appointed to, a defined pattern of work does not yet exist, probably reflecting differing needs among hospitals.

22% of hospitals report that they are now employing emergency consultant surgeons, and there is evidence to suggest that this trend may continue in the future.

Discussion

Emergency General Surgery needs modernisation in a setting that has been under-resourced. There needs to be improvements to keep pace with changes in manpower, specialisation and experience. The EGS document (1) discusses the good consensus that has been reached about key recommendations and how the service should develop.

A modern EGS service will be based around Consultant Surgeons capable of dealing with the majority emergencies. The exact mechanism will vary with size of hospital and available expertise. Larger hospitals may have a sub-specialty emergency service. EGS Networks must be established to support the smaller hospitals.

There is a need to maintain if not increase the number of individuals involved in the provision of EGS and all general surgeons should be involved in the EGS service to varying degrees. This is likely to use a component model to allow changes in the provision of EGS by specialists and the roles of the EGS surgeon over their career.

There must be a provision of the appropriate infrastructure to support a modern EGS service – particularly with respect to radiology, theatre capacity and critical care support.

Summary recommendations

The median number of EGS admissions for a 500,000 population is 20 per 24 hours.

The surgeon on call should be free from elective commitments.

A dedicated NCEPOD theatre is available in the majority of hospitals and should be considered as essential.

References

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6. Out Patients

AUTHORS

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Introduction

Colorectal outpatient services allow investigation and treatment as well as follow up surveillance of patients with the symptoms of bowel cancer, inflammatory bowel disease, benign anorectal and functional diseases. Most patients will have no serious conditions and may simply require reassurance. Many patients, particularly with benign anorectal disease may be treated during one outpatient visit. Others requiring investigation may not need further follow up with discharge through 'virtual' clinics.

Where are we now?

The audit included all 3 countries in mainland UK and outcomes are based on data received from 90 trusts. There was no data submission on outpatient services in Northern Ireland. Some aspects of the audit such as those pertaining to 'two week wait' clinics are not applicable to Scotland and in these instances the figures relate to England and Wales.

Data is represented as pertaining to a population of 500,000 irrespective of trust type, be it a large teaching hospital or a small District General Hospital. Extrapolations are based on a UK population of 64.1 million with 53.9 million in England, 5.3 million in Scotland, 3.1 million in Wales and 1.8 million in Northern Ireland.

There are many similarities yet also striking differences in the provision of outpatient colorectal services across the UK. For example the range of colorectal clinics per consultant per week varied from 0.5 to 3.0. Only 41% of trusts avail of virtual or telephone clinics. Only 41% of trusts use a one stop rectal bleeding clinic format. Even within specific clinic types such as the two week wait cancer clinic there is marked variability in clinic design, template and personnel.

The number of new colorectal patients per 500,000 per year is 4934 or 1,263,104 per year in the UK as a whole. These numbers are approximate because the audit data demonstrate that in many trusts new "colorectal" patients are seen by gastroenterologists in general GI clinics that are allocated as two week wait patients. In addition, there is variable outsourcing of patients to NHS choose and book centres and to the private sector itself. However, the survey figure equates to about 100 new colorectal patients per week. There is also anecdotal evidence that this figure is increasing year on year. At least 2 major hospitals where detailed data is available to us have shown an increase of 10-15% in referrals in the last year. The reason for this is unclear.

Approximately 90 % of clinics are either 3.5 or 4 hours duration. New patients were allocated a median of 15 minutes (range 10-20 mins) and follow ups a median of 10 minutes per patient (range 5-20 mins). There was a great variation in new to follow up ratios from 2:1 to 1:4. Any calculation on numbers of follow up patients that can be seen will therefore depend on the local metric rather than a national formula although funding arrangements work to specific ratios and therefore dictate otherwise.

Trusts vary with regard to provision of colorectal subspecialty clinics. Fifty five percent of trusts offer a specialist pelvic floor clinic whilst only 42% of trusts offer a specialist colorectal IBD clinic and surprisingly only 27% offer a specialist colorectal cancer clinic. A minority of trusts offer other subspecialty clinics such as counselling for bad news, family history, ileoanal pouch or peritoneal disease etc. Integrated services with joint clinics and MDT practice within a subspecialty area such as IBD or anal cancer was not recorded.

Colorectal nurse specialists were heavily involved in delivery of colorectal cancer services. They see an extremely variable number of new two week wait patients ranging from 0 to 70% in different trusts but in 80% of trusts CNS's see colorectal cancer follow up patients. Surgical trainees see a significant proportion of colorectal outpatients and in 40% of trusts unsupervised trainees carry out clinics. As trainee numbers decrease this shortfall will have to be accounted for.

All trusts in England and Wales see two week wait patients but only 38% use the concept of a specific two week wait clinic. The majority of trusts (62%) see two week wait patients in allocated slots in more general clinics. This approach means a significant minority of two week wait patients are seen by gastroenterologists in general GI clinics. Whilst the overall median was under 5% it was as high as 80% in some instances. These variations in practice have implications for generalisations about colorectal manpower calculations.

Discussion

In the 2006 ACPGBI resources document it was stated that rigid sigmoidoscopy with or without a barium enema was the most common mode of investigation in outpatients in the UK. In the interim barium enema has been replaced by CT virtual colonography (CTVC) in most units. With the advent of CTVC and the wider availability of colonoscopy, practice has undoubtedly changed. In addition approximately 40% of trusts carry out one stop rectal bleeding clinics including flexible sigmoidoscopy. The majority of trusts however do not use one stop flexible sigmoidoscopy based clinics and so rigid sigmoidoscopy and proctoscopy still play an integral part of outpatient assessment. It should be stated that this audit did not specifically question the continued use of barium enema in outpatient practice nor did it ask the question of how a clinician chooses whether CTVC or colonoscopy is most appropriate for their patient (see chapter 10). This was not a focus of our questionnaire but would seem an important question for the future to enable calculation of radiology and endoscopy resources. The mode of investigation will also be related to the faecal occult blood screened asymptomatic population of today and the flexible sigmoidoscopy screened population of tomorrow. As stated previously at present only 36% of trusts in the UK use a one stop rectal bleeding clinic with flexible sigmoidoscopy for symptomatic patients.

There have been marked increases in the percentage of patients referred via the two week wait pathway since 2006 and this is projected to increase further. The continued emphasis on excluding colorectal cancer is understandable however as in 2006 approximately only 10% of "Two Week Wait" patients have colorectal cancer and they represent only 20% of the total cancer workload. The majority of patients with colorectal cancer still come through the routine pathway with many through the Bowel Cancer Screening Programme. Indeed some 22-25% still present as an emergency. There is concern that whilst being reassured after appropriate investigation that they have a very low probability of bowel cancer, the two week wait referred patient may still be symptomatic and without a diagnosis or a treatment plan. Despite this they may be referred back to primary care. Increasing the number of symptomatic patients referred on a two week pathway will not only increase the number of patients who are at risk of not having their symptoms sorted out if simply referred back to primary care with "no colorectal cancer detected" but will also inappropriately divert resources in a manner that is not clinically effective for cancer treatment of the majority that come through the routine pathway. With all of these changes it will be all the more important to make sure that the symptomatic patient who is referred to a colorectal clinic has due attention to the diagnosis and treatment of their symptoms and not just exclusion of colorectal malignancy. The latter are likely to be catered for in part by "straight to test" protocols that are emerging in conjunction with virtual two week wait clinics.

If the number of patients to be referred on a two week pathway is to be increased then it is important that the clinical staff are increased proportionately to cope with these new clinic appointments. This will almost certainly mean non consultant medical staff as well as advanced nurse practitioners. There will also be increased pressure on the administrative support and clerical staff in planning and organising the outpatient clinics and this non clinical support will be crucial. Resources are already critical as this audit shows that a significant minority of two week wait clinics are additional activity in the form of waiting list initiative clinics. This was up to 44% for in some trusts although the median was closer to 5%.

It would appear that calculations on staff requirements for colorectal outpatients cannot be generalised given the variance in practice that this audit highlights. In any event the number of consultant colorectal surgeons for each treatment centre should be determined by the operating workload not the numbers of new outpatient referrals. Once this has been done one can calculate how many full-time equivalents of non-consultant staff (nurse specialists, associate grades etc.) are needed to cover the outpatient shortfall for a given population. Trainees' rotas mean they are less able to see patients in clinic and further reductions in trainee numbers will exacerbate this further.

There is already a discrepancy between the number of outpatients that need assessment and the number that need subsequent colorectal surgery. Exactly how to balance this workforce will be impacted on further by forthcoming changes in practice with regards to the provision of emergency surgery. Around a third of trusts in the UK have already embarked on the appointment of emergency surgeons. This may well free up colorectal surgeons to do more elective outpatient work and at least some of this is likely to be in the form of desk based virtual clinics.

Conclusions

Outpatient services and personnel are very variable across the UK and calculations on staff requirements cannot be generalised. Numbers of consultant surgeons required should be based on operative demand rather than outpatient needs. As in 2006 there is a discrepancy between the two. Nurses are increasingly important in the delivery of outpatient services and there is likely to be a further increased need for permanent non consultant staff. The increasing demand on two week wait clinics places an undue burden on services without necessarily improving the delivery of cancer services for the majority. Straight to test protocols and virtual clinics will emerge to help with the cancer exclusion burden but may not treat the symptomatic patient.

Summary recommendations

For a population of 500,000 over 100 new patients will need to be seen by the colorectal unit per week.

7. Endoscopy

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Introduction

Most colorectal surgeons have at least one endoscopy session in their job plans. Surgeons contribute around 30% of colonoscopy activity in England. This chapter examines current demand and future trends including Key Performance Indicators (KPI), training and therapeutics.

A recent ACP survey has shown a wide range of colonoscopy lists per week with variation in the proportion delivered by colorectal surgeons. Estimates place it at around 7 lists per week for a population of 500,000. Lists are booked using a points system, with only very few trusts reporting fewer than 10 points per list, and many reporting 12. As a routine colonoscopy is booked as 2 points and a flexible sigmoidoscopy 1 this shows a range of actual procedures performed per list. Annual numbers of endoscopy sessions performed by a colorectal surgeon ranged from 20 to 100, presumably due to on call and other commitments, with a mode of 40 sessions per year. 97% of respondents reported pooled lists within their unit, but it was unclear whether pooling was across all Trust patients or within surgery alone.

Current and Future Demand

Methods of calculation of current activity and projections for the future are complex. Table 1 illustrates the activity in the UK and by each nation. The rate of procedures per 10,000 people is a metric used in the English Department of Health (DH) based on Hospital Episode Statistics. There are clear differences between the 4 nations. Other international comparisons show much of the UK to perform fewer LGI investigations. Countries such as Poland, Australia and Canada all show much higher rates of lower GI endoscopic investigation rates, with Australia at 239 per 10,000.

From English DH figures for 2006 to 2013 the numbers of lower GI endoscopic investigations have increased by 65% (from ca. 500,000 in 2006 to 827,000 in 2011/12; NHS England figures). This increase is driven by diagnostic investigations (including the 2 week wait pathway), by therapeutic procedures, polyp and cancer surveillance, by inflammatory bowel disease surveillance and by Bowel Cancer Screening Programme examinations. There is a very recent proposal that patient self-referral may be introduced, following a pilot phase.

Table 7.1 | Declared Population numbers and numbers of lower GI procedures performed in relevant years.

	England 2012	NI 2012	Scotland 2012	Wales 2013
Population (millions)	55.68	1.82	5.33	
Colonoscopy	513173	24031	78472**	21985
Flexi Sig	297283	9117		14697
Colons/104	92	132		72
Flexi Sig/104	53	50		48
Colon+FS /104	146	182	147	120

** Colonoscopy and flexible sigmoidoscopy figures combined

Recent years have seen a rapid decline in use of Barium enema as a diagnostic tool in lower GI disease. Over the same period availability and use of CT colonography has increased. However, colonoscopy remains the gold standard investigation of the lower GI tract, combining diagnostic and therapeutic options.

National Bowel Cancer Screening Programmes run in all parts of the UK. Although the details differ subtly between the nations, all use a two stage screen starting with faecal testing for blood and then usually colonoscopy for those found to be positive. Guaiac acid Faecal Occult blood testing is the current mainstay, but Faecal Immunochemical Testing (FIT) may replace it as a more sensitive and specific test that is quantifiable and easier for patients. It will generate more colonoscopy activity – potentially much more. Other countries have adopted FIT in preference to FOB and to flexible sigmoidoscopy screening.

Screening using flexible sigmoidoscopy (“Bowel Scope”) is rolling out in England from 2013 to 2016/17. All 55 year olds will be invited for a one off test.

For a population of 500,000 Bowel Scope will generate 2,500 flexible sigmoidoscopies (assuming 1% of the population are aged 55 years and an uptake rate of 50%). Around 5% of these examinations will need a follow on colonoscopy for detected polyps, and in turn some will enter surveillance.

The English DH has an ambitious target for more than 200 lower GI endoscopies per 10,000 per year (>120 colonoscopies per 10,000 population and >80 Flexible Sigmoidoscopies). Some argue an ultimate ambition to provide 150 colonoscopies /10,000 / year by the end of the decade.

For a population of 500,000 the ambition for 120 colonoscopies and 80 flexible sigmoidoscopies per 10,000 people per year means 6000 colonoscopies and 4000 flexible sigmoidoscopies. In the 2006 ACP Resources document stated 1500 colonoscopies would be required, and recognised this to be a conservative estimate.

Quality of Colonoscopy

There have been significant improvements in the safety and quality of colonoscopy in the past decade. Bowles et al (3) quoted alarming data for perforation, bleeding and death in a self-reported survey of British endoscopy units. A significant proportion of endoscopists had received no formal training. After considerable investment in training and equipment a follow on study nearly a decade later showed considerable improvements in safety and quality of colonoscopy in Britain (4).

The ACP survey has reported on endoscopy equipment and staffing. Adequacy of nurse numbers in the endoscopy department is hard to assess and vary from 1 to 3 in the room and 1 to 10 outside the room. Easier to assess was equipment – 100% units have electronic reporting systems, 60% with video capability. In only one unit is video recording performed routinely as part of the patient record. 99% reported adequate accessories, with 77% units using a ‘Scope Guide’ type device and 72% having Entonox available for analgesia. Only 40% of units report use of carbon dioxide insufflation during lower GI endoscopy although all units providing Bowel Scope screening will need to provide this routinely.

Quality assessment of each procedure can be derived from audit and where the literature supports it, numerical standards – even aspirational – can be set and agreed. For other items no agreed numerical standard exists but can still be recorded as an auditable outcome.

Current British key performance indicators are:

1. Unadjusted caecal intubation rate 90%
2. Adenoma detection rate 15%
3. Colonoscopy withdrawal time mean >6 minutes
4. Sedation levels
5. >100 undertaken by endoscopist or directly supervising trainee in the room
6. Polyp retrieval rate >90%
7. Comfort level – no more than 10% patients experienced moderate or severe pain (4 or 5 on Gloucester Comfort Score)
8. Overall perforation rate <1 in 1000 for diagnostic colonoscopy and <1:5000 for flexible sigmoidoscopy. More specific standards relate to perforation during dilatation (<3%) or stent insertion (<10%)
9. Post polypectomy bleeding <1:200.

10. Post-procedural colorectal cancer (PPCRC) will become the highest level of key performance indicator. Cancers developing within 3 years after index colonoscopy (or increasingly CT colonography) might reflect aggressive tumour biology but is far more likely to reflect inadequacy of the examination for one of a number of reasons. These can reflect preparation, equipment, patient anatomy and variability or operator dependent factors. Current rates are variously calculated but may be as high as 8.6% at 3 years in the English NHS .

US, European and British specialist societies publish similar standards (7,8).

Surgical colonoscopy and training

There is an ongoing debate as to whether all colorectal surgeons need to perform colonoscopy but, at the current time, training in lower GI endoscopy remains on the curriculum for colorectal trainees. It is imperative that all those performing colonoscopy, flexible sigmoidoscopy and endoscopic therapy be fully trained and competent throughout their careers. In the member survey 80% respondents indicated all CR surgeons should perform colonoscopy, with 87% supporting JAG certification of trainees in the procedure.

Investment in endoscopic training has brought about national improvements in colonoscopy performance . Structured training brought national standards and certification of competence. This developed through the Joint Advisory Group on Gastrointestinal Endoscopy (JAG) and is now delivered through the web-based JAG Endoscopy Training System (JETS) . This allows provisional certification after completion of a basic colonoscopy skills course and 200 suitably recorded and assessed procedures and full certification after submission of a further 100 procedures with satisfactory performance and assessment. This is similar to the Colonoscopy Core Curriculum published by the American Society for Gastrointestinal Endoscopy (ASGE) . The use of endoscopic specific structured Direct Observation of Practical Skill (DOPS) methodology is core to this process. DOPS are both formative and ultimately summative in the ongoing assessment, training and certification of trainees.

Units with colorectal specialist trainees should arrange formal lower GI endoscopy training through their endoscopy unit using the JETS e-portfolio. The timing and intensity of training should be planned as part of the learning agreement and also form part of the annual ARCP. Lower GI endoscopy training and certification may best be delivered in a concentrated format in the middle years of Specialist Training. Training can be delivered by either medical or surgical JETs registered trainers and should be to the recommended standard. Time and resources need to be made available by both trainers and trainees for the delivery of adequate training in lower GI endoscopy. Trainees should have access to at least one list per week to achieve their recommended numbers. Trainers should have done the Training the Trainers (colonoscopy) and should be able to assess and sign off trainees for competency using structured DOPS. Trainees in endoscopy should hold equal status for training irrespective of their craft background. Training leads in endoscopy units must recognise the needs of all trainees. Trainees must engage fully to maximise their opportunities and have protected time for this activity as agreed with their programme directors and trainers. In the survey only 35% of surgeons were accredited trainers; 78% of respondents stated dedicated training lists were available for trainees.

Established independent surgical colonoscopists should have opportunities to develop their skills in colonoscopy and polypectomy. They should be offered the necessary flexibility in their job plans to develop advanced colonoscopy and polypectomy. As a part of the governance framework colonoscopy related key performance indicators, including morbidity and mortality, should be discussed and documented at an appropriate gastroenterology or surgical forum. 97% of respondents in the survey indicated personal data was available to them at least annually for performance review.

Surgical colonoscopists are underrepresented in the National Bowel Cancer Screening Programme. Central estimates put the proportion at 25% whereas the survey indicated 33%. Surgical colonoscopists (experienced and newly appointed) wishing to develop as screeners should be encouraged and incentivised with appropriate flexibility in job plans, case mix and mentorship. Colorectal units should consider expanding their colorectal workforce to compliment the requirements for screening with colonoscopy and Bowel Scope as well as emerging emergency general surgical cover needs. Existing screeners should be encouraged to take on mentorship roles within the unit to support succession planning.

Therapeutic Colonoscopy

Modern colonoscopy offers both diagnostic and therapeutic capabilities. Detection of cancer and the removal of adenomas is the mechanism for benefit in screening programmes. Training in polypectomy is formalised as part of the JETS programme run by JAG, with demonstration of competence being part of the award of certification. All colonoscopists should be skilled enough to remove polyps in all locations up to 1cm in size. However, larger and more proximal polyps and those with difficult access are more technically challenging to remove adequately with a potential for increased complication rates. Each colonoscopist needs to be aware of their own limitations and of mechanisms of referral to an appropriate colleague either within their own organisation or at a tertiary unit.

The ACP survey showed 97% of respondents have a means to discuss challenging lesions with colleagues and 94% have a mechanism of referral to a colleague or tertiary centre. Some use networking technology to allow clinicians to discuss such lesions across multiple sites – a virtual Multidisciplinary Team meeting to formulate best management on an individual patient. Unfortunately funding has not been identified to provide this nationally at the current time.

Standards methods for description, photography or video recording documentation are important. Where therapy is likely to be complex or involve Endoscopic Mucosal Resection (EMR) or Endoscopic Submucosal Dissection (ESD) biopsy or trial injection should not be performed – the scarring produced degrades subsequent therapy. Suspicion of malignancy would modify this approach.

All should be adept at lifting sessile or flat lesions with saline or colloid-based mixtures, allowing a dissection plane and thermal cushion to prevent damage to the remainder of the bowel wall. Tattooing should be available and used according to agreed unit guidelines.

All colonoscopists performing therapy should be able to use a range of snares, biopsy instruments and haemostatic techniques such as clipping or argon plasma coagulation appropriately, and have relevant support for training if not.

With larger polyps skill in use of lifting solutions and snares for EMR or piecemeal EMR is essential. Focussing such skills on a few designated colonoscopists familiar with working in retroflexion, use of dye spray and able to use loops clips for both haemostasis and defect closure is wise. Some units are using combined endoscopic and laparoscopic methods to remove polyps, typically on the right side where the bowel is thinner.

Other therapeutic methods such as ESD should be confined to those with specific training not usually available to all in UK. The survey indicates 28% units have such a service but in only 1 case was a surgeon delivering this.

Whilst 80% respondents stated their Trust support complex interventional endoscopy it is ill defined and in only 43% was a surgeon involved and in only 42% were specific therapeutics lists available.

All but a very few Trusts responding to the survey have mechanisms both to discuss difficult polyps and therapeutic procedures and referral systems to tertiary centres.

Colorectal stenting either as a bridge to surgery for obstructing cancers or as a palliative therapy is widely available, with 79% respondents having combined radiological and endoscopic insertion. In only 6% were stents placed by radiology alone.

Conclusions

Colorectal surgeons contribute a significant proportion of national lower GI endoscopy activity in the UK. The demand for these procedures will continue to grow over the foreseeable future. Surgical training in endoscopic procedures should be identical to other medical and nonmedical staff by virtue of a national set of training standards. High quality service delivery will be increasingly driven by evidence based Key Performance Indicators.

For a population of 500,000 it is suggested that up to 6000 colonoscopies and 4000 flexible sigmoidoscopies will be needed annually if international comparisons and trends are followed. Assuming 10 points on a list (with 2 for a colonoscopy and 1 for a flexible sigmoidoscopy) this equates to 16000 points or 1600 lists per year (32 to 34 per week). Surgeons will continue to make a considerable contribution to this work.

Colorectal surgical trainees wishing to pursue this discipline have a clear curriculum to follow but need to accommodate this training in amongst the other conflicting commitments of their work.

Therapeutic skills should be a standard part of the training and expertise of colonoscopists, but mindful of circumstances where the best patient outcome is onward referral for more challenging problems. Network multidisciplinary meetings will enhance decision-making, referral and clinical management.

Summary recommendations

For a population of 500,000 there may be a future need for 32-34 lower GI lists per week.

Surgeons currently provide 30% of lower GI endoscopy demand which will equate to 11 lists per week.

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8. Nursing

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Introduction

Over the last decade or so there has been a significant increase in nurses working at an advanced clinical level, not least within the specialism of Coloproctology. Advanced Clinical Practice requires first level registration with the main component of the roles, be they Clinical Nurse Specialists (CNS) or Nurse Practitioners (NP), being the direct provision of care or clinical work; as well as education of self and others; service development and audit/research (1,2). The expectation is that clinical practice will be underpinned by a first degree and that the post holder will work towards a Masters qualification (3). It is important that nurses working at this level continue to practise the art and science of nursing, considering holistic needs and supporting the collection of Patient-Reported Outcome Measures (PROMS) (4).

The 2001 edition of Resources for Coloproctology (5) stated that 2-3 colorectal cancer nurse specialists and 4 stoma therapists were required for every 500,000 population. The survey in 2014 suggested there were an average of 3.6 CNS per 500,000 population throughout mainland UK. However, within Trusts, development and use of the CNS role has been variable and inconsistent (6). A study carried out by the National Colorectal Cancer Nurse Network found there was disparity between aspects of the colorectal cancer CNS roles (7) which makes comparison between these roles difficult. This is true for all Coloproctology CNS/NP roles. For example- A CNS may support stoma patients in a hospital setting. Others will cross boundaries into Primary care as well and provide support/practical advice in the patient's home and education to the District Nurse team; Some CNS/teams (cancer, IBD etc.) will support the patient with the condition whilst others will do this as well as provide nurse led clinical activity such as clinics or endoscopy.

This important fact makes clear guidance about what makes for a reasonable CNS workload challenging. A recent, unpublished, survey of stoma care CNSs by ACPGBI (2014) with a response from 91 Stoma care CNSs/teams (52%) found that they saw an average of 67 new patients per WTE CNS per year. Much of the review of CNS workload has been around cancer CNSs. The National Cancer Action team (8) found a WTE cancer CNS workload ranged from 56- 233 new cases per year. The NCCNN survey (Taylor et al 2014) found great variation in caseload ranging from 100-200 new patients per WTE CNS per year. However they acknowledged that many colorectal cancer CNSs felt that their services were "being stretched beyond their capacity to respond". We can deduce, therefore, that the WTE CNS workload should be towards the lower end of this range (100 new patients per year) to ensure a manageable workload. If we extrapolate to stoma nurses only, according to the survey there are on average 234 new patients requiring stoma care per 500,000 population per year. If the capacity for each stoma nurse is 100 new patients per year then at least 3 stoma nurses are required per 500,000 population.

What is important is that CNS/NP services evaluate their activity to ensure they are not regularly doing work that could be carried out by support staff, in the form of support nurses or Admin and Clerical staff. That way they and their managers can ensure their job plans can deliver the whole CNS/NP job description in a manageable way.

The 2006 edition of Resources for Coloproctology (9) included advanced nurse practice roles and this has been included again although is not exhaustive. It must be remembered that nurses/nurse teams develop roles in keeping with needs of patients/clinical teams and organisational requirements and there may be crossover of roles. For example; some colorectal cancer CNSs also provide stoma care nursing services; some colorectal cancer CNSs also manage a case load of patient's with benign conditions etc.

Clinical Nurse Specialists and Nurse Practitioners may see patients at any stage in their pathway. Nurse Practitioners tend to be involved with an episode of care within that pathway. For example- in a nurse led clinic. CNSs tend to work with the patient along the whole pathway and are seen as the key worker. Other health care professionals that provide care/support/information are Dietician, Physiotherapy and Occupational Therapy, Psychologist, cancer Counsellor, Social Worker/Social Services, Chaplain, Community Continuing Care Teams, Genetics Counsellor.

Examples of Advanced Clinical nurse roles for Coloproctology patients

Nurse Consultant -

Nurse practitioner - Coloproctology

Nurse Practitioner - GI

Surgical Care Practitioner

Clinical Nurse Specialist - Colorectal care/cancer

Clinical Nurse Specialist - Stoma care

Clinical Nurse Specialist - Nutrition

Clinical Nurse Specialist - HPB

Clinical Nurse Specialist - Oncology

Clinical Nurse Specialist - Palliative care

Clinical Nurse Specialist - IBD

BCSP Screening colonoscopist

Nurse Endoscopist

CNS/NP- Functional bowel disorders - anal incontinence and bio- feedback

All of these roles may have support/developmental nurse roles working with them and the MDT.

Advanced Clinical Nursing practice will continue to evolve. The emphasis should continue to be on patient centred care being delivered to support self -management and survivorship.

Ward nurse requirement

There is some guidance on safe nursing levels produced by the Royal College of Nursing (10).

One key finding from a survey carried out was that on wards with a ratio of 6 patients or fewer per registered nurse (RN) respondents to the survey reported that care was rarely compromised due to short staffing. However, where the ratio was 8 or more care was described as being compromised at least once per week. The document points out the draw back of a simple RN:patient ratio in predicting safe staffing levels with case mix being one of the variables. It also highlights the increasing trend to a reduced proportion of RN compared to the total nurse staffing levels, with a benchmark of 65% of total nursing being RN.

Summary recommendations

A stoma CNS workload should average around 100 new patients per year. This equates to about 3 stoma care nurses per 500,000 population.

Due to the variable roles of a more generic CNS within different Trusts it is difficult to estimate the number of CNS needed per 500,000 population. Current data from our survey would suggest there are an average of 3-4 CNS per 500,000.

The ratio of ward nurses to patients on a colorectal ward should be 1:8 or more with a mix of >65% registered nurses.

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Resources for CNS/APs

The RCN Gastrointestinal Nursing Forum

RCN Inflammatory Bowel Disease (IBD) Network

ASCN (The association of stoma care nurses UK)

www.ascnukconference.co.uk

NNNG (National Nutrition Nursing Group) www.nnng.org

NCCNN (National Colorectal cancer Nurse Network)

ECCO (European Crohn's & Colitis Organisation) [www.](http://www.ecco-ibd.eu)

[ecco-ibd.eu](http://www.ecco-ibd.eu)

BSG (British Society of Gastroenterology) at

www.bsg.org.uk

ESGENA (European Society of Gastro & Endoscopy Nurses
Associates) www.esgena.org

NNEN (National nurse endoscopist network) [www.bsg.org.
uk/sections/bsgna-nneng1](http://www.bsg.org.uk/sections/bsgna-nneng1)

9. Pelvic Floor

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Introduction

Pelvic floor services include the investigation and treatment of patients with pelvic floor pathology. This includes those with faecal incontinence, obstructed defaecation, constipation, pelvic organ prolapse and chronic pelvic or anal pain. The treatment of these conditions inevitably involves a multi-disciplinary approach and team. In addition to coloproctology, the main specialities involved are gynaecology, uro-gynaecology, urology and geriatrics. The MDT should also include specialist nursing, physiotherapy, clinical scientists, radiology and on occasion chronic pain specialists.

Workload

The chapter will initially review current practice in the UK. Specifically, using a questionnaire sent to all hospitals in the UK, the present state of pelvic floor services will be reviewed to establish which institutions are carrying out investigations and treatment and what the demand is for these tests / treatment, per head of population (500,000). The following will be reviewed:

- Staff support: Consultant clinicians (Coloproctologist, Gynaecologist, Uro-gynaecologist, Urologist, Gastroenterologist, Geriatrician, and Chronic Pain Physician), nurse specialist/consultant, physiotherapist, clinical scientist, research fellows and organisational support.
- Specialist investigations: Anorectal physiology; dynamic imaging investigations (anal/pelvic ultrasound, fluoroscopic and MRI proctography).
- Multidisciplinary team (MDT) process to establish who is presently involved and what proportion of institutions have access to a full MDT.

- Available treatments: To establish the availability of advanced bowel management and biofeedback in the UK. This will also assess the likely demand for this service and the distribution of expertise across the Nation to assess healthcare service imbalance. Treatment review will also include adjunctive ambulatory procedures e.g. percutaneous tibial nerve stimulation (PTNS) and ascertain which operative procedures are available in which institutions.
- Uptake to R&D: we will record the spread of National involvement in National / Local research and the uptake of entering patients in clinical trials / databases.

Having established the demand for pelvic floor services, by reviewing how this demand is met, we will be able to guide the likely need per head of population. We will also advise on the design and construction of the MDT. It is anticipated that the demand for pelvic floor services will increase over the next ten years and this will be taken into account in the guidelines. There are some guidelines on the management of the more common pelvic floor problems and these will be detailed below.

Best Practice for Pelvic Floor Services

The management of pelvic floor pathology is a relatively new discipline with evolving working practice between surgical and non-surgical specialties. The traditional compartmentalised and fragmented approach to treatment fails to address the cross-specialty nature of the disorder and frequently fails to resolve the problem. In addition the repertoire and complexity of surgical procedures available for pelvic floor disease (PFD) has increased dramatically over the last decade. Defining treatment pathways, exhausting conservative therapy before moving to surgical treatment demands careful multi-group (MDT) appraisal. Summarising best practice is not straightforward and published evidence for it is as such lacking.

Prevalence and impact

It is estimated that faecal incontinence (FI) affects 10% of the female adult population with some studies suggesting it may be even higher, up to 15% of the population over 18 years old (1). In 2005 Bharucha and colleagues (2) undertook a postal questionnaire to a random sample of 5,300 women of all ages (including nursing homes), with a response rate of 53%. They found an overall prevalence of around 12%. The incidence increases with age with 7% suffering from it in 20-29 age group compared with 22% in the 50-59 year old group. In nursing homes this rises to around 50% (3). Its effects can be devastating with a clear association with anxiety, depression and poor quality of life (QOL) (4,5). Bharucha (2) found that nearly a quarter of all those with FI had a moderate to severe impact on one or more domain of QOL. In those who gauged their FI to be significant 82% reported a moderate to severe impact on QOL. Aside from the high prevalence of FI the future demand for pelvic floor services is likely to increase further driven by public expectation, technological advances, an ageing population and increasing prevalence of predisposing factors such as diabetes and obesity. Best estimates indicate a rise in healthcare demand by over 50% in the next 30 years (6).

Constipation affects nearly everyone at some stage in their life to some extent. However, some people suffer chronic symptoms that seriously impair their quality of life and which require medical intervention. They have a longer duration of symptoms (more than 6 months) and will have failed to respond to basic measures e.g. exercise, increased fluid intake, simple diet changes and laxatives. This problem affects 1 in 10 people, especially women, with about 1 in 50 people seeking specialist hospital management. Patient dissatisfaction is high, nearly 80% feel that laxative therapy is unsatisfactory and the effect of symptoms on QOL is significant. Chronic constipation consumes significant healthcare resources; it is estimated that in the UK 10 per cent of district nursing time is spent on constipation and the annual spend on laxatives exceeds £100m.

Chronic constipation can be remarkably difficult to treat effectively, even in specialist units, resulting in a significant and sometimes severe impact on quality of life. Current approaches include laxatives, newer drugs, nurse-led bowel retraining programmes, bowel (anal) irrigation, and a variety of surgical operations that have variable, and sometimes very poor, results.

Current UK guidelines

In 2014 the National Institute of Clinical Excellence updated its guidance on FI (7). In developing its summary and recommendations it employed the advice of expert surgeons, a gastroenterologist, incontinence nurses, women's health physiotherapists, midwives, continence advisors and the lay public. It considered the highest available level of evidence base available in the literature and excluded reports from pre 1990. Cost effectiveness was considered in generating its recommendations. As such the report provides us with the best evidence we have for best practice of pelvic floor disorders. The summary of its conclusions for best practice were that patients suffering with FI were:

- That the condition only be managed by those with the appropriate and relevant skills;
- At risk groups such as the elderly, multiparous females, those with pelvic floor prolapse, and those with cognitive impairment should be identified and appropriately managed according to their needs;
- Clinical assessment through history and examination was required and that exclusion of luminal bowel disease was paramount;
- Conservative management strategies were safe and cost effective and should be employed as first line therapy in most cases. This includes optimising stool type, advice on toilet positioning, involving support groups and developing patient centered coping strategies for the patient's particular needs. If these measures fail then introducing medication, the use of plugs, rectal irrigation, bio-feedback and electro-stimulation should be considered;
- Specialist assessment through ano-rectal physiology, ultra-sound and proctography may be required if the above measures fail to achieve improvement;
- Only surgeons with the appropriate experience and expertise should be involved in the surgery for this condition. These must have open discussion as to the risk and likely outcome from such intervention;
- Surgery that might be considered includes anal sphincter repair and sacral neuro-modulation with both considered cost-effective in the appropriately selected cases.

NICE guidelines in constipation are limited to constipation in children and technology appraisals of the prokinetic agents Prucalopride, Lubiprostone and Linaclotide as well as STARR (Stapled Trans Anal Rectal Resection); there has been no technology appraisal of Laparoscopic Ventral Rectopexy.

Current Service delivery

There is consensus that primary care resources are underutilized and access to specialist care is variable, often inappropriate and that there are unacceptable delays. In 2010 Davis et al (6) published results of a scoping study exploring current service provision. Responses from nearly 250 expert clinicians involved in frontline services across the 10 strategic health authorities in England were collected. They represented members from the International Continence Society (ICS), the Association of Coloproctology of Great Britain and Ireland (ACPGBI), the Royal College of Nursing (RCN), continence and stoma advisors, pelvic floor physiotherapists and general practitioners although representation from the latter was comparatively sparse. Literature evidence from 36 studies sourced from a total of over 2000 published papers that focused specifically on service provision was included. The authors concluded that initial treatment strategies in the UK were broadly similar following a pathway of treatment escalation as outlined in the 2007 NICE guidance (7). Most primary care clinicians referred patients with pelvic floor disorders either to a hospital consultant, physiotherapist or continence advisor. Very few arranged second appointments or attempted to advise on the condition themselves. There were four main models of healthcare delivery: the single practitioner, sub-specialist using MDT practice model, cross speciality and across boundary referral. The majority were in the first two groups and most used a triage system to help direct primary care referral. Nurses were in attendance in 40% and pelvic floor physiotherapists in 50% of clinics. Two thirds of the consultants ran a practice with infrequent and ad-hoc MDTs. Most surgery was conducted on a compartmental model with only one in three surgeons undertaking combined operations.

Suggested areas for improvement

Davis's Study indicated that a combination of external and internal organisational change is needed to change what is perceived as a fragmented, highly variable and poorly integrated approach to PF service in the UK. Models in other countries have demonstrated improved

synchronised care and team working and are a useful guide to future development in the UK (8,9). It was specifically suggested that:

- Access and availability of specialist services be increased. There was concern that PFD was considered low priority and that there was lack coherent strategy. GPs needed a defined pathway of referral;
- Team working. Improving inter-professional referral and streamlining pathways within hospitals. Avoidance of multiple hospital reviews by different specialists leading to frequent duplication of investigation and treatments. That treatments should be more standardised, for example – nurse practitioner and physiotherapy advice frequently differed;
- Funding and investment. There is too often insufficient time and lack of available resource hampering one-stop MDT services. This problem is compounded by target driven healthcare;
- Information and research. Patient information leaflets should be made more widely available. There should be standardised data collection and collaborative work between centres delivering this service.

Pelvic Floor Census Results

During 2014 all hospitals in Great Britain and Ireland on the ACPGBI register were sent a questionnaire asking specific questions regarding local pelvic floor services. Unit responses were categorised as those units without in-house pelvic floor services, those with a regional service and those considered as providing a tertiary service.

Sixty-seven centres responded to the questionnaire survey (over 75 % of those hospitals where a consultant surgeon is a member of The Pelvic Floor Society). The main findings in the 67 respondents were:

Infrastructure:

- 104 Consultant Surgeons in 67 NHS hospitals identified themselves as providing a pelvic floor service.
- Twenty-six (39%) were tertiary referral centres for pelvic floor surgery, 32 (48%) performed some pelvic floor surgery and 9 (13%) did not perform any or very little. Of the tertiary referral centres 96% served a population of over 500,000. All other centres served a population of 250,000 – 500,000.

- The median total number of colorectal surgeons per unit was 6 for the tertiary referral centres and 5 for both other groups. The mean proportion of colorectal surgeons with an interest in pelvic floor surgery was 30% in the tertiary referral centres and 38% in those centres performing some pelvic floor work.
- Of tertiary referral centres, half had at least one whole time equivalent consultant solely performing pelvic floor work (median whole time equivalent 0.88, range 0.25 to 2.5). Of those centres performing some pelvic floor work 41% had at least one whole time equivalent consultant (median 0.75, range 0.2 – 1.75). The mean whole time equivalent for tertiary centres was 1.03 compared with 0.77 WTE for regional centres who do some pelvic floor work.
- 81% of tertiary referral centres and 56% of units performing some pelvic floor surgery ran specific pelvic floor clinics, which were held weekly in the tertiary referral centres (mean 1.3, median 1, range 0.2 – 3.5 times per week). 58% of other centres running pelvic floor clinics held them at least once a week (mean 0.84, median 1, range 0.25 – 2 times per week).
- 69% of tertiary referral centres and 38% of centres performing some pelvic floor surgery ran joint clinics with allied health professionals or consultants from other specialities. All joint clinics were attended by a colorectal surgeon. The proportion of joint clinics attended by different specialists is outlined below.

Proportion of joint clinics attended	Tertiary referral centres	Centres performing some pelvic floor surgery
Colorectal Surgeon	100%	100%
Gynaecologist	75%	58%
Urologist	31%	25%
Physiotherapist	38%	75%
Nurse Specialist	81%	50%

Table 9.1 | Attenders for joint clinics

- 38 of the 67 hospitals said that they hold regular Pelvic Floor Multidisciplinary Meetings (MDM). Only 80% of tertiary referral centres, but 59% of centres performing some pelvic floor work, held an MDM. 33% of tertiary referral centres and 32% of other units holding an MDM did so in conjunction with another unit and 4% of those from tertiary referral centres and 16% of those from other units attended an MDM elsewhere.

- The proportion of MDMs attended by a gynaecologist, urologist, radiologist, clinical scientist, nurse specialist, gastroenterologist or administrative staff is outlined below. The majority of centres from both groups attended an MDM once monthly (61% of tertiary centres and 47% of centres performing some work). The mean number of cases discussed in each MDM in the tertiary referral centres was 9 and 9.3 for those other centres.

Proportion of MDMs attended by a:	Tertiary referral centres	Centres performing some pelvic floor surgery
Colorectal Surgeon	100%	100%
Gynaecologist	86%	95%
Urologist	60%	6%
Radiologist	76%	76%
Physiotherapist	71%	71%
Clinical Scientist	48%	80%
Nurse Specialist	86%	81%
Gastroenterologist	43%	10%
Administrative Staff	38%	52%

Table 9.2 | Attenders of a pelvic floor MDT

- With regard to clinical testing, 95% of tertiary centres had an anal ultrasound, ano-rectal physiology service with 96% having defaecation proctography and 50% having MRI proctography available. This compared with 50% of centres with an interest in pelvic floor pathology of whom only 17% had MRI proctography. The physiology service was run by a clinical scientist in 70% of tertiary centres and 44% of regional centres, with the remaining tests being carried out largely by the consultant surgeons or a specialist nurse. Tertiary centres carried out an average of eight physiology and ultrasound tests per week, but some centres had a much larger work load (up to 35 cases / week), compared with 5 per week in regional centres (maximum 20 / week).
- At tertiary centres there was general agreement as to the composition of physiological assessment with 92% measuring maximum voluntary and involuntary (resting) sphincter pressure, maximum tolerated rectal volume and assessing the recto-anal inhibitory reflex, compared with only 50% of regional centres investigating these variables. By comparison pudendal nerve latency and EMG studies were far less commonly measured (23%).

Workload:

- Estimating workload from the questionnaire returns was problematic since there was great variation in reported numbers between units, especially from tertiary referral centres.
- There was a median of 35 new cases / month referred to these centres with numbers in some centres reaching 185 cases / month, compared with 25 cases / month with a maximum of 245 cases / month for those regional centres with an interest in pelvic floor disorders.

Treatments:

- Biofeedback was available in 88% of tertiary centres seeing a mean number of 130 patients per annum (maximum number seen 550) equally split between those with constipation and those with incontinence. This compares with 78% of regional centres, treating 33 patients / year (maximum 160). Rectal irrigation is offered in both centres equally (88%).

- Neuromodulation was available in the form of sacral nerve stimulation in 25 hospitals; 65% of tertiary centres and only 28% of regional centres, with similar numbers offering percutaneous tibial nerve stimulation. Where performed, neuromodulation with SNS was performed on similar numbers of patients between the two types of centre with a mean number of cases per annum of 30, with two thirds being for incontinence and one third for constipation.
- The mean and median number of surgeries performed in the centres per year is detailed in Table 9.3.

It is clear that complex abdominal pelvic procedures are largely carried out in the tertiary centres with half the number in regional centres. Perineal procedures for prolapse have generally been considered part of standard colorectal surgical practice and so as expected they are performed almost equally between the different types of institutions. There is some concern however that there are some cases of complex pelvic floor surgery being carried out in units with no pelvic floor interest and importantly no or limited access to an MDT process.

Training:

- A total of fourteen hospital units offered pelvic floor research fellowships and six offered post CCT Fellowships.

Procedure Mean, Median (Range)	Tertiary Referral Centres	Centres performing some pelvic floor work	Centres with no pelvic floor interest
Perineal procedure for prolapse	8.25, 7 (1 – 20)	9.5, 8 (1 – 25)	9.9, 8 (0 – 15)
Abdominal posterior resection rectopexy	3.95, 2.5 (0 – 18)	2.8, 2 (0 – 14)	3.1, 2 (0 – 15)
Ventral Mesh Rectopexy	24.4, 20 (0 – 84)	12.26, 12 (0 – 30)	2.7, 3 (0 – 6)
Perineal rectocoele repair	9.45, 3 (0 – 40)	6.12, 4 (0 – 36)	2.5, 0 (0 – 10)
Sphincter repair	3.98, 4 (0 – 10)	2.8, 1.5 (0 – 10)	1.4, 0 (0 – 0)
STARR	1.5, 0 (0 – 10)	4.64, 0 (0 – 27)	0
Open rectopexy	2.05, 2 (0 – 10)	1.3, 0 (0 – 15)	1.6, 1 (0 – 5)

Table 9.3 | The number of surgeries performed in centres per year.

Summary recommendations

The evidence supports the development of pelvic floor services in 3 key areas; the pelvic floor MDT (see also the MDT chapter), accreditation of units and the role of The Pelvic Floor Society.

These factors and recommendations for structure and function are discussed in detail in Appendix 1.

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10. Radiology

AUTHORS

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Introduction

There is significant resource pressure on radiologists. This document is written at a time when an open letter has recently been published by the President of the Royal College of Radiologists describing around 330000 patients waiting more than a month for the results of their X-rays and scans (1).

The difficulties in collecting and analysing data for this resource document reflect the overlap between colorectal and gastroenterology services for the diagnosis of colorectal cancer, the overlap between the reporting of oncological and post-operative follow up scans and the challenges for the provision of interventional radiology services. The latter has been driven by the need to support trauma and vascular services but has resulted in a change to interventional radiology training. This is in turn resulting in GI radiology training focusing on diagnostic modalities. There is also variation in the provision of endoscopic ultrasound services (including endorectal and endoanal ultrasound) by gastroenterologists, colorectal surgeons and consultant radiologists. In addition, the available radiology information systems (RIS) do not easily yield the level of data interrogation required.

Methodology for data collection

The data collection for the resource document for radiological services (see chapter 0) has been performed with the following methodology and key findings.

Data was requested from 175 centres.

46 centres returned complete information on the general structure of their service.

16% of the consultant radiology workforce in these centres were considered to be gastrointestinal (GI) radiologists.

On average 2 consultants per centre attended MDTs which required 2-3 hours of MDT preparation per week.

In terms of CT scanning 60% of colorectal staging scans and oncology scans were reported by consultant GI radiologists and 50% of colorectal post-operative follow up scans.

There was a large variation in the provision of both interventional services and endoluminal ultrasound; these workload figures were not included in calculations.

CT colonography is replacing the provision of barium enema following the publication of the SIGGAR trial findings (2), which is a major change since the previous resource document.

56% of centres reported inadequate resourcing to meet the audit standards of the BCSP. Very few centres are double reporting these examinations and there is still no robust national quality assurance in place.

In 77% of centres, 100% of rectal cancer staging scans were reported by consultant GI radiologists. This reflects the more sub specialist requirements for appropriate surgical case selection, understanding recent surgical advances and oncological treatments.

There were detailed workload figures provided by 17 centres (Appendix 1) combined to give a group total of imaging studies per 500,000 population.

Separate detailed data was obtained from the RIS at Portsmouth Hospitals NHS Trust (PHT population served 723,000) combining requests from colorectal and gastroenterology services with additional data from oncological services and adjusted to reflect a 500,000 population base.

The GISHEN index has been used with a suggested number of reports for each imaging examination given (3).

IMAGING EXAMINATIONS	GROUP DATA PER 500,000 population Yearly Number of Studies	GISHEN INDEX Number of studies reported per hour	GROUP reporting hours per year	PHT DATA (Adj) PER 500,000 Population Yearly Number of Studies	PHT Reporting hours per year
Water soluble contrast enemas	60	3	20	90	30
Barium follow through	60	3	20	3	1
Endoanal ultrasound	100	4	10	28	7
Defecating fluoroscopy studies / MRI	100	4	25	88	22
MRI staging scans of the rectum	120	3	40	96	32
MRI fistula studies of pelvis	120	4	30	172	43
MRI of the small bowel	260	4	65	80	20
MRI liver with liver specific contrast for colorectal staging	100	3	33	100	33
CT enteroclysis	50	2	25	14	7
CT Chest, abdomen and pelvis (for staging, oncology, follow-up)	1180	4	295	2000	500
CT colonography	830	2	365	980	490
CT abdomen pelvis (routine and acute)		4		420	105
Oncology *		3		420	140
Ultrasound		3		630	210
TOTAL			928		1640

*The data from the RIS at Portsmouth Hospitals NHS Trust identified coloproctology oncology scans requested under the names of the colorectal surgical consultants and the oncology consultants separately, the latter entered separately under Oncology

Data from PHT suggests that an additional 5% workload can be added for issuing addendum reports by GI consultant radiologists to examinations reported by non-GI specialists.

Assuming a consultant works 42 weeks per year (after deducting annual and study leave) and that there are 7.5 sessions of DCC (4 hour duration) in a standard contract (accepting that recent contracts for newly appointed consultants are for 8 sessions of DCC)

Total hours available per year = $7.5 \times 42 \times 4 = 1260$

Allow 1 session for colorectal cancer MDT including preparation = $4 \times 42 = 168$

Allow 1 session for IBD MDT, pelvic floor MDT, benign case MDT discussion = 168

Total reporting hours per consultant radiologist (1 WTE) = 924

This data suggests that for a population of 500,000 as the requirements of oncological scanning, ultrasound and more general abdominal reporting workload are added to the more specialist colorectal imaging examinations, the requirement is for 2 WTE GI consultant radiologists to cover just colorectal related work.

Discussion

The estimate of 2 WTE consultant GI radiologists per 500,000 population does not include the provision of acute imaging, percutaneous biopsy, drainage procedures, interventional procedures (colorectal stenting) or radiological endoscopic provision. Neither does it address the PETCT requirements of colorectal services. It also does not allow for other services provided by consultant GI radiologists, for instance, to support upper GI and bariatric surgery, HPB surgery and hepatology as well as more general gastroenterology. There are very few consultant GI radiologists who devote all their time to coloproctology.

There needs to be a balance in concentration of expertise to maintain a continuous service. One other issue which has not been taken into account which requires a significant time commitment is training. This remains an essential component of NHS responsibility. It is important in terms of radiological resource to make the point that the scope of this document does not cover the number of consultant GI radiologists required to provide a GI radiology service in its entirety.

There is a need for more responsive development of Radiology Information Systems to allow standardised reporting of radiological examinations following the RCR CASPAR pilot (The Cancer Staging Proforma Reporting (CASPAR) Project (4) and the collection of standardised data sets to facilitate national population level data collection.

Radiology intervention is a service that is under pressure from different sources – with divisions between diagnostic and intervention training and delivery a particular issue. Delivery of non-vascular intervention is becoming more problematic as different departments are adopting different models with some vascular interventionists also delivering GI intervention some not.

One major change in the last 10 years is the increasing use of CT colonography. This change has happened with inadequate funding and has now almost completely replaced barium enema examinations. Whereas the barium enema service was historically provided by a skilled radiographic workforce, CT colonography is almost exclusively reported by consultant GI radiologists and is more time consuming to report, factors which have increased pressure on consultant radiology resource.

It is accepted that there will be variation in the number of imaging examinations that would be expected to be reported even using the GISHEN index, which itself gives a range of suggested numbers of examinations allowing for a degree of interruption to reporting workflow.

There will be marked variation in workload according to the specialist nature of services provided by any institution with up to 1000 endoanal examinations for example being performed at St Marks Hospital, but marked variation may also be seen in district general hospitals such as Portsmouth, due to the difference in imaging preference for investigating common diseases such as Crohns disease (US, barium follow through, CT enteroclysis and small bowel MRI).

There is likely to be increasing complexity to the imaging investigations being performed with the most recent trials involving the following areas: FOXTROT (Pre-operative chemotherapy), PROSPECT (Perfusion CT imaging) and MERCURY 2 (Low rectal cancer) and the increasing consideration and utilisation of cytoreductive surgery in patients with colorectal peritoneal metastases (5).

Finally the National Emergency laparotomy audit (NELA) has recorded the contemporaneous reporting of acute abdominal CT by a radiologist with a gastrointestinal specialisation to be only 2% with 24 hour access to such an opinion only available in a very small minority of sites (6). Review by a radiologist with subspecialty GI expertise may be associated with enhanced accuracy of diagnosis and management.

Summary recommendations

The minimum radiology resource to meet the coloproctology diagnostic imaging requirements of a population of 500,000 is at least 2 WTE consultant GI Radiologists in terms of time, but covered and delivered by at least 3 consultant GI Radiologists within the overall GI Radiology service.

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11. Pathology

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Definition and workload

Histopathology refers to the microscopic examination of tissue in order to study the manifestation of disease. Following from this, the traditional view of the histopathologist was of someone enslaved to their microscope with little, if any, interaction with surgeons or physicians. Reports generated were accepted as gold standard and rarely challenged.

Histopathology has evolved to supplement the advances made in basic sciences and clinical practice. Workload has increased and so have the expectations on the pathologist. Specialisation, once the reserve of large academic centres, has improved quality while participation in external quality assurance schemes is now mandatory. Multidisciplinary Team (MDT) meetings provide an excellent forum where the pathologist can interact with other disciplines.

Colorectal disease, and specific cancers, epitomises a discipline which is at the forefront of change. More accurate radiological diagnosis and staging, evolving surgical techniques and change in oncological practice has been accompanied by more detailed and accurate reporting of resected specimens. The bowel cancer screening programme (BCSP) and recently introduced bowel scope programme continues to place an extra demand on the pathology services. Molecular pathology, once in the domain of the research scientist, is now firmly embedded in routine practice and dictates the response to oncological drugs. This is a field that is rapidly expanding.

The histopathologist with a special interest in gastrointestinal pathology may only report work related to this discipline or, more commonly, have other fields of interest. This is a necessity in smaller departments to provide cover during periods of leave. However the obstacle in assessing adequacy of resources is not specialisation but the workload as defined by this document.

There is a diverse range of pathological processes in gastrointestinal pathology, and depending on the practice of the hospital, the specialist gastrointestinal pathologist reports on a variable case mix which may include upper gastrointestinal resections and hepatobiliary and pancreatic specimens. Whilst it may be possible to translate colorectal cancer pathology workload into direct clinical care commitments, it will be difficult to correlate this with the number of pathologist required to provide the service given their other reporting duties in this field.

Histopathologist Workload

The various roles of the histopathologist are perhaps not completely appreciated by the average colorectal surgeon. Workload may include not only reporting of specimens but also trimming, MDT preparation and attendance, quality assurance, audit, reviewing cases and molecular testing. Refer to Appendix 2 for more detail.

Current UK guidelines

There is guidance from the Royal College of Pathologists regarding appropriate staffing resource. The guidance uses a points system to indicate ranges of times within which aspects of the work should normally be completed. This system is widely used in histopathology departments in the United Kingdom. Workload units or points are assigned to specimens to reflect the average time taken to report the specific case (see appendix). From this document it is estimated that most pathologists should be able to achieve 36 points for each DCC PA assigned to reporting. This figure is useful in estimating the resource required for coloproctology. Refer to Appendix 2 for more detail.

Current UK practice

To ascertain the current UK practice, a detailed questionnaire was sent to 175 trusts. About one third provided data for further analysis, representing about 26 million people.

Based on the responses in the questionnaire, the total workload to include macroscopy, histology and MDT commitments is can be calculated using the point system (Appendix 2) as indicating there is a need for 1.82 pathologists per 500,000 population to service colorectal pathology requirements. This could drop to 1.47 consultants per 500000 if all specimen trimming was performed by biomedical scientists. However there is additional DCC work such as MSI immunohistochemistry and molecular tests which have not been factored in which could increase the pathology requirements further.

Summary of resource gap

It is difficult to relate this figure of 1.82 pathologist per 500000 to actual practice. Whilst colorectal pathology in most trusts makes up the majority of the gastrointestinal workload, no pathologist reports only colorectal pathology. Furthermore most pathologists are either generalists or report a limited number of other surgical disciplines. However it was the impression from the survey that 40% of trusts felt more pathologist were required to cope with the colorectal workload. Two thirds indicated that they had unfilled positions in their departments with 75% of these likely to report some colorectal pathology. 13% send work out for reporting.

Conclusion

It is not possible to ascertain the resource gap in colorectal histopathology although there is both subjective and objective evidence to support there is a shortage of pathologists to perform the work. 1.82 pathologists are required per 500,000 to service the colorectal histopathology workload. However with the advent of specialist biomedical dissectors and the introduction of additional molecular based tests, there will undoubtedly be fluctuations in the future.

Summary recommendations

Approximately 2 histopathologists are required per 500,000 population to service the colorectal workload.

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12. Oncology

AUTHORS

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Introduction

Multidisciplinary team working is firmly embedded as standard practice in the management of cancer patients in the UK, dating back to the Calman-Hine report (1995) (1). Nationally, non-surgical oncology services are delivered by a mixture of medical and surgical oncologists working together in teams. There is often significant variation in the composition of those teams, which can be variably based in cancer centres or units.

Over the decade from 2000-2011 the incidence of bowel cancer in the UK increased modestly by approximately 5%. However, working practices for the oncologist have changed due to a variety of reasons including changes in stage distribution with more early cases identified through screening, which started in 2006. Based on the same evidence base, differing MDTs have varied approaches to treating some aspects of colorectal cancer (for example with operable rectal cancer), which creates differing proportionate workloads across units. This means that precise definition of the proportion of UK-wide non-surgical oncology workforce and equipment provision necessary for colorectal cancer treatment, as opposed to treatment of all cancers, is difficult.

Since 1997 the incidence of anal cancer has increased by 26% in men and 66% in women, which has impacted on clinical oncology workload. In addition, the treatment for anal cancer has become more complex, with the increasing adoption of intensity modulated radiotherapy (IMRT) as a UK standard.

For the first time the Workforce Census (2013) from the Royal College of Radiologists has attempted to define overall numbers of both clinical and medical oncologists working in the UK, with subdivision of clinical oncologists into colorectal and other subspecialties (2).

In the coming years there will be greater definition of resources required for specific cancer subspecialties, including colorectal, based on the establishment of and collection of national datasets.

Clinical Oncology and Medical Oncology workforce

The 2013 Workforce Census from the Faculty of Clinical Oncology of the Royal College of Radiologists showed that the overall head count of consultant clinical oncologists working in the UK had increased from 431 in 2002 to 749 as of 1st October 2013, representing 691 whole-time equivalents (WTE) (2). This WTE data conforms to the current NHS convention of excluding PAs that exceed 10 PAs. However, many consultants work in excess of a standard 10 PA contract and if all consultants were limited to 10 PAs then there would be a requirement for an additional 56 consultant clinical oncologists.

In 2013 there were 376 clinical oncology trainees and 367 medical oncology consultant WTE (increased from approximately 170 in 2002). There was significant variation in different parts of the UK with between 12.1 and 22.5 either clinical or medical oncologists (East Midlands and London respectively) per million population (pmp).

Overall approximately 46% of the clinical oncology workforce is female and increasing feminisation of the workforce is anticipated because 57% of trainees and 55% of consultants less than 50 years old are female compared to 30% of consultants more than 50 years old. This is important because of the greater propensity for women to work less than full time. Over a third of women consultant clinical oncologists work less than full time and the overall figure for part time working can thus be expected to rise in the future.

The 2001 ACPGBI resource document concluded that for adjuvant and palliative treatment of colorectal cancer there should be at least 2 WTE consultant oncologists for a population of 500,000 i.e. approximately 256 UK oncologists with a colorectal interest in total (3).

The Manual for Cancer Services Colorectal Measures v.1 (2014), designed to facilitate peer review of MDTs, states that for colorectal cancer a clinical oncologist +/- a medical oncologist fulfils radiotherapy and systemic therapy provision. All core members are expected to attend two thirds of meetings and a quorum to cover both radiotherapy and chemotherapy should be present for 95% of MDT meetings, with cover when necessary.

The 2013 RCR Workforce Census (4) reports a total of 175 of the 749 (head count) consultant clinical oncologists in the UK as having a colorectal site specialty interest (23%), equating to 161 WTE. The number of medical oncologists with colorectal site specialisation is unknown but by extrapolation might not unreasonably be thought to be a similar percentage i.e. approximately 86 WTE, giving approximately 247 WTE clinical or medical oncologists across the UK with colorectal site specialist interest.

Based on the 2001 requirement of 2 WTE oncologists with colorectal interest per 500,000 population, and taking into account the overall increase of 5% in the incidence of colorectal cancer between 2001 and 2011 (and more in anal cancer), together with additional workload because of increasing complexity of treatment and increasing survival of incurable patients, there is a current UK requirement for at least 270 WTE oncologists i.e. a current deficit of approximately 25.

This view is reinforced by data from the National Peer Review Report for Colorectal Cancer Services 2012-2013 (5), which identified 166 MDTs treating colorectal cancer in England as showing 94% compliance in having a clinical oncologist core member, indicating that there was a small but significant number of teams (10 teams, 6%) without coverage.

Provision of equipment for radiotherapy service provision

The National Audit Office report Delivering the Cancer Reform Strategy (2010) (6) highlighted that overall there was a wide variation in throughput per radiotherapy machine in England. The average capacity of a radiotherapy machine was 7,000 fractions per year, and had changed little since the Cancer Reform Strategy (CRS) was published in 2007 (7). It was stated that if an average throughput of 8,700 fractions per machine per year could be achieved across all centres, up to 20% more patients could be treated without the need for significant extra capital investment in radiotherapy capacity. This was thought to be in part due to trusts not being willing to pay for out-of-hours servicing and upgrades.

The 2012 Radiotherapy Services in England report by the National Radiotherapy Implementation Group (NRIG) described three years of data collected by the national Radiotherapy Data Set (RTDS) (8). It demonstrated that in 2010-2011 that the service provision averaged 33,000 attendances pmp although best practice, defined with the new Malthus modelling tool, actually demanded 48,000 attendances pmp. This was expected to rise to 55,000 by 2016 to meet rising demand, a 67% increase.

At the time of the NRIG 2012 report 265 linear accelerator machines were in clinical use although an additional 147 machines were thought to be needed to meet the increasing demand by 2016, bringing the total to 412, as cancer becomes commoner in an ageing population. As of November 2013 data from the National Cancer Services Analysis Team (NATCANSAT) suggested that there had been little change, with 269 machines in England, 27 in Scotland, 15 in Wales and 8 in Northern Ireland (9).

Exactly how much of this capacity is needed for colorectal radiotherapy is not well defined. This made more difficult by a marked variability in approach to giving radiotherapy as part of operable rectal cancer treatment, which a recent survey of 91 UK MDTs has highlighted (NCRI Colorectal Clinical Studies Group unpublished). In selected clinical cases accompanied by high quality MRI scans, 40% of teams said they would go straight to surgery, 35% treat with short-course preoperative radiotherapy over one week and 25% treat with long-course preoperative chemoradiation over five weeks.

Overall, the need for increased use of advanced radiation techniques such as IMRT was highlighted in the 2012 NRIG report and specifically is being gradually implemented throughout the UK in anal cancer (8). There are clear advantages to the use of IMRT in anal cancer in terms of reducing acute treatment-related morbidity although at the current time not all UK centres can offer this to their patients. The incidence of anal cancer is rising and the more complex planning necessary will consume more clinical oncology and planning staff time.

A push for more out of hours and week end working, as described in the NHS Improvement report Equality For All: Delivering Safe Care Seven Days a Week (2012) (10) will potentially increase pressure on equipment and staff, for example needing to schedule machine servicing out of extended working hours.

With the NHS Bowel Cancer Screening Programme, earlier cancers are being diagnosed. Contact radiotherapy for early rectal cancers is an option that is growing in popularity in the UK, as a potential method of organ preservation. In the UK this has been led by Prof Myint at Clatterbridge Cancer Centre, where 750 such cancers have been treated. Functioning machines are now in place in three other UK centres and business cases submitted for machines in five additional centres. A NICE review of contact radiotherapy is taking place in 2015.

Non-workforce service provision for medical oncology

Overall, the use of chemotherapy has markedly increased in recent years, noted to have grown by 60% over a four year period in the report Chemotherapy Services in England: Ensuring Quality and Safety, from the National Chemotherapy Advisory Group (NCAG), 2009 (11). This report set out a series of recommendations to address the serious concerns highlighted by the National Confidential Enquiry into Patient Outcome and Death (NCEPOD) report into chemotherapy, published in 2008 (12).

The 2009 NCAG report established quality standards including decisions for treatment initiation to be made at consultant level and the establishment of an Acute Oncology Service in all hospitals with emergency departments. The Cancer Reform Strategy (DH 2007) (7) placed very significant emphasis on the need for cancer inpatient stays to be reduced and indeed the vast majority of colorectal systemic anti-cancer therapy (SACT) is delivered in an outpatient setting, including patients undergoing concurrent chemotherapy as part of rectal and anal cancer chemoradiation treatment regimens.

The 2013/14 NHS Standard Contract for Cancer Chemotherapy (Adult) Service Specifications described the expected constituent parts of a chemotherapy service including the fact that MDT working with adequate core membership is mandatory (13).

In general, defining exactly which SACTs are delivered to who and where across the UK has hitherto been problematic however. A drive to much improved data quality is currently taking place on the back of the SACT Dataset which commenced roll-out across the NHS in April 2012. The dataset covers the collection of treatment data on all adult solid tumours, haematology and paediatric chemotherapy programmes. The National Cancer Registration Service (NCRS) will collate this information, together with information from a variety of sources to complete the Cancer Outcomes and Services Dataset (COSD), which is designed to define and deliver consistency in data recording, data submission and analysis across cancer services in the NHS (14).

Since April 2011 the Cancer Drugs Fund in England has allowed access to non-NICE approved high-cost drugs in the NHS. The budget will be £340 million in 2015-2016 although changes to the evaluation criteria announced in January 2015, which now include drug cost, have narrowed colorectal cancer indications for bevacizumab and cetuximab and removed aflibercept from the list.

Specifically with regard to colorectal cancer, changes which are happening now or may occur in the future include the increasing length of survival for patients with metastatic colorectal cancer who are receiving SACT. There are increased options for treatment with SACT, with innovative local hepatic treatments such as selective internal radiotherapy (SIRT) and aggressive hepatic surgery or local ablative therapy. The median survival of patients who present with metastatic colorectal cancer has now increased to approximately two years, which increases the burden on SACT services.

In contrast, if the SCOT trial/International Duration Evaluation of Adjuvant Chemotherapy (IDEA) collaboration, which includes 6 phase III trials comparing 3 versus 6 months of adjuvant oxaliplatin/fluoropyrimidine chemotherapy in a total of >10,500 patients, demonstrates non-inferiority for the 3 month duration, then this would halve the length of adjuvant chemotherapy needed for resected high risk colorectal cancer in the future.

Conclusion

Oncology resources required now and in the future for managing colorectal cancer in the UK will be influenced by a variety of factors including changing overall numbers of colorectal cancers diagnosed, changing stage distribution at presentation and changing treatment practices. There is an increase in the ageing population in the UK with the percentage of people above the age of 65 years increasing from 15% in 1985 to 17% in 2010, amounting to an increase of 1.7 million people in absolute terms. Most patients with colorectal cancer are above 65 years old and provision of oncology services for these patients must take into account not only the chance to cure their cancer but also quality of life following treatment.

An increase in earlier tumours identified through Bowel Screening and more conservative approaches evolving to manage such cancers, such as organ preservation and 'wait and watch' strategies in rectal cancer, means that survivorship and quality of life for such patients will become increasingly important as increasing numbers of patients survive their cancer.

Finally where variability in practice exists which thereby creates differing resource usage in different treatment centres, such as with the preoperative treatment of operable rectal cancer, the development and recruitment to appropriate clinical trials which address relevant questions is of paramount importance.

Starting with a baseline of the 2001 ACPGBI resources document demonstrating a requirement of 2 WTE oncologists with colorectal interest per 500,000 population, and taking into account the overall increasing incidence of colorectal cancer, together with additional workload because of increasing complexity of treatment and increasing survival of incurable patients, there is a current UK deficit of approximately 25 WTE consultant oncologists with a colorectal specialist interest, of which at least half should be clinical oncologists.

Summary recommendations

To provide an adequate colorectal specialist oncological service, there is a need for 1 extra oncologist for every 2.5 million population. At least half of these should be clinical oncologists.

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13. Palliative Care

AUTHORS

Graham Williams: Consultant colorectal surgeon, Wolverhampton | **Deborah Pearson:** Consultant in palliative care, Wolverhampton

Introduction

The majority of palliative care in the UK is delivered by the speciality of Palliative Medicine, defined as “the study of patients with active, progressive, far-advanced disease, for whom the focus of care is the quality of life of the patient”. This involves specialist palliative care teams, who assess and treat patients with difficult symptoms and complex psychological and spiritual problems. The role of the palliative care service involves inpatient specialist care, community and hospital palliative care, day therapy services and outpatient clinic services as well as education of other specialist services treating patients with cancer and other life limiting illnesses. Palliative medicine teams are multi-professional and as well as being formed of consultants and non-consultant medical practitioners, includes clinical nurse specialists, specialist physiotherapists and occupational therapists, specialist social workers, pharmacists, dieticians, chaplains, clinical psychologists and complementary therapists.

A palliative care team does not work in isolation and works in close co-operation with other disciplines, especially oncology and surgery, as well as other specialties, both as sources of referral as well as for help in managing specific problems in patients receiving palliative care. Thus a palliative care team will provide support to patients with a variety of cancers and colorectal cancer accounts for only a proportion of their activity. Whilst desirable, it is not usually possible for palliative care teams to provide comprehensive consultant input into all the cancer multidisciplinary teams in a unit and palliative care pathways rely on good working relationships and communication with other specialties.

It is difficult to separate colorectal cancer from all other cancers dealt with by palliative care services. However, colorectal cancer accounts for 12.5% of all cancers that develop in the UK (41,000 per annum) and 10% of cancer deaths (15,500). Therefore, colorectal cancer will form a significant part of the work of the palliative care team.

Resources required:

Inpatient Services:

All patients with cancer should have access to an inpatient palliative care unit, where patients with complex requirements for control of symptoms, significant emotional distress and family problems can be admitted. This unit may be in a separate location to the main acute hospital, but some are sited in acute and community hospital grounds. Currently there are 223 adult inpatient specialist palliative care units. This equates to 26 beds per 500,000 head of population. A quarter of the funding comes from the NHS, but three quarters of the funding is from the voluntary sector. Current estimate is that the number of inpatient palliative care beds should be between 32 and 36 per 500,000 population. Because of the nature of the care provided, ratio of nurse to patient in these units should be high (1.2).

Hospital Services:

Hospital palliative care teams should be available to provide advice and support for patients with palliative care needs who are under the care of other specialists in the acute hospital setting. The service is usually run during normal working hours but many teams are now developing 7 day working patterns. Out of hour's advice is available: this may be from the hospital palliative care team or local inpatient palliative care unit.

Outpatient Services:

Much community palliative care is provided by GPs and community nurses, with advice when required from specialist community palliative care teams which include clinical nurse specialists. Many community teams also have palliative medicine doctors within their service.

This support and advice may be supplemented by direct care provided by carers supplied by social services or nurses employed by cancer charities such as Marie Curie and Macmillan nurses. Outpatient palliative care services are provided in a variety of locations such as hospices, community hospitals and hospital outpatient departments. This service should also include day care as well as other services, such as bereavement support, counselling and complementary therapies. In some areas, hospice-at-home services are available which vary from rapid response services to sustained hands-on care in the patient's own home.

Pressures on palliative care services:

There is a progressive increase in the number of elderly people in the population and as cancer is predominantly a disease of older people, this will result in increasing referrals for palliative care services. In addition, there has been an increase in referral from other specialist for palliative care services for non-malignant conditions, such as cardiac and renal failure and progressive neurological diseases.

There are a high proportion of female doctors in palliative care medicine (71% of consultants and 84% of specialist registrars). A significant proportion of consultants in palliative medicine work less than full time (44%).

Workforce Requirements:

1. In 2011, the Royal College of Physicians identified 474 consultants in palliative medicine; 71% were female and 44.4% of the consultant workforce worked part time. The current workforce is less than required, taking into account increasing need for palliative care services, both from an increasing population at risk of developing cancer, as well as demands for palliative care services in other conditions, not to mention restrictions imposed by the European Working Time Directive. Working on an estimate of 1320 deaths from cancer per 500,000 head of population it is estimated that there should be 4 whole time equivalent consultants in palliative medicine per 500,000 head of population (roughly 505 WTE for the whole of the UK). This would need to increase to nearly 600 WTE by 2020. In addition to consultant staff, there should be an additional 4 supporting doctors per 500,000 head of population of either training grade or specialty/staff grade.
2. Recommended number of community specialty palliative care nurses is 10 per 500,000 population.

3. Palliative medicine consultants will cover patients in specialist palliative care units, the community as well as acute hospital beds. For a 250-bed acute hospital, the minimum requirements for palliative care are: 1 WTE Consultant/associate specialist in palliative medicine and 1 WTE specialist palliative care nurse. Hospitals with cancer centres will require more than the above minimum requirements. Large secondary care hospitals and hospitals accepting tertiary referrals and management may need additional SPC professionals, including sub-specialisation roles and provision of additional support and education.

Summary recommendations

It is estimated that there should be 4 whole time equivalent consultants in palliative medicine per 500,000 head of population. In addition to consultant staff there should be an additional 4 supporting doctors of either training grade or associate specialists for this population.

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14. Training

AUTHORS

Justin Davies: Consultant Colorectal Surgeon, Cambridge | on behalf of The Education and Training Committee, ACPGBI

Introduction

High quality training in coloproctology is of paramount importance, and requires resources to achieve. Whilst mindful that colorectal specialists train within and are examined in General Surgery, colorectal Specialty Trainees are required to train with teams of specialist colorectal surgeons. They must also be trained in emergency general surgery such that they are able to manage an undifferentiated emergency take on consultant appointment.

Guidance

The Intercollegiate Surgical Curriculum Programme (ISCP) (1) states that the index procedures for colorectal Specialty Trainees are anterior resection, colonoscopy, fistula surgery, segmental colectomy and the surgical treatment of haemorrhoids. In terms of assessing the resources and requirements to achieve this level of training and subsequent competency, a questionnaire was sent to all specialist colorectal units in the United Kingdom and Ireland, with a nominated colorectal consultant collating replies.

Current situation

Returns were received from 91 of 175 (52%) hospitals, covering a population of 31 million people. Per population of 500,000, there is a mean of 4 colorectal Specialty Trainees and 19 total junior staff (Foundation, Core, Specialty Trainee, Trust Grade, etc). The mean colorectal consultant: Specialty Trainee ratio is 1.5:1.

Seventy-four percent of Foundation doctors are team-based, rather than ward-based. Review of elective colorectal inpatients Monday-Friday is by the consultant and team in 91% of cases, but there are specific colorectal ward rounds at the weekend in only 45% of units.

Regular training for Specialty Trainees occurs for 76%, with 89% having access to dry skills, animal tissue, human cadaveric tissue or virtual reality training; 85% have access to Human Factors training; and 76% receive training on consultant-led teaching ward rounds. Eighty percent of units provide trainees with access to dedicated colonoscopy training lists. Twenty-four percent of units felt that there are resource implications for medical student training.

Training in Emergency Surgery

Colorectal consultants will continue to deliver Emergency General Surgery (EGS). Training for this will need to be delivered during the training period outlined above. This is against a background of very few future trainees presently expressing an interest in a career in EGS, strongly preferring a subspecialist path.

EWTD, subspecialisation and other factors have resulted in trainees having less experience of EGS than previously. The 2013 surgical curriculum will help, and needs to be embraced and implemented.

Those trainees who do wish to follow a career in EGS should be encouraged strongly to do so as the future leaders in this field need to be promoted. As there is no specific pathway for this, trainees wishing to pursue a career in EGS will need to develop their special interest during specialist training.

The development of fellowships in EGS should be encouraged so long as this does not detract from training opportunities of the more junior grades.

Conclusions

There remain more colorectal consultants than Specialty Trainees, with the ratio being approximately 3:2 in each hospital. Despite the limitations of the questionnaire, training opportunities appear well provided for, although it is concerning that 20% of units do not provide access to dedicated colonoscopy training lists and 55% of units do not provide specific colorectal weekend ward rounds. There is no specific training for EGS within the programmes of most deaneries. The impact of the Shape of Training Review led by Professor David Greenaway remains to be seen (2).

Summary recommendations

The average ratio of consultant to specialty trainee should be at least 1.5:1

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15. Specialist Commissioning

AUTHORS

Mark Chapman: Consultant Colorectal Surgeon, Birmingham, Chairman of the Clinical Reference Group for Specialist Colorectal Services

Introduction

Following the NHS white paper in 2013, clinical reference groups (CRGs) were established to provide NHS England with clinical advice on specialist services. These services are funded by NHS England via local area teams (LATs). This should help to ensure equity of provision and access across the whole of England for these services. Services that are not specified as “specialist” are commissioned and funded by local CCGs. (This only applies to England.)

Colorectal specialist services are:

1. Type II & III intestinal failure
2. Distal sacrectomy for recurrent or advanced rectal cancer
3. Complex inflammatory bowel disease
4. Complex treatments for faecal incontinence
5. Transanal endoscopic microsurgery (TEMS) for the removal of malignant lesions
6. Cytoreductive surgery and HIPEC for recurrent colorectal cancer
7. Anal cancer
8. Pseudomyxoma peritoneal service
9. Autologous intestinal reconstruction

The definitions of these services can be found on the NHS England website where the service specifications state the inclusion and exclusion criteria (1).

These services are commissioned by NHS England via local area teams who are responsible for ensuring the standards in the service specifications are upheld.

Provision of service

Currently, there are 2 centres commissioned to perform pseudomyxoma peritoneal treatment (the Christie and Basingstoke Hospitals). They also offer cytoreductive surgery and HIPEC for peritoneal colorectal malignancy and a third unit (Heartlands Hospital) has recently been commissioned for this service.

There are 2 nationally funded intestinal failure units, St Marks, London and Hope Hospital, Salford. Autologous intestinal reconstruction is performed at the Salford unit.

The results of the questionnaire of which 84 out of 92 trusts responded are shown in table 15.1.

	No of Trusts offering treatment	%
Intestinal Failure (type II & III)	27	32
Distal Sacrectomy	12	14
Complex IBD	58	69
Complex Faecal Incontinence	43	51
TEMS for malignancy	50	59
Anal Cancer	36	43

Table 15.1 | Results of the questionnaire on specialist services.

Conclusion

There may have been a lack of awareness of the service specifications so respondents may have incorrectly identified whether they offer a specialised services. They may also not be aware of which services their local area teams have commissioned at their Trust.

This survey would indicate that there seems to be more than an adequate number of centres offering specialised colorectal services.

Going forward local area teams may wish to question whether all the centres offering specialised services are truly specialised and whether they meet the criteria as laid out in the service specification. No doubt there will be ongoing debate about centralisation and specialisation versus local availability and access of services. Going forward there will be work around referral pathways and safe, appropriate repatriation of patients from centres to local units.

Currently, the governance surrounding specialist colorectal services is weak. In time, commissioners, by using QIPPs and CQUINs will drive up the standard of care and introduce efficiency savings so as to increase value for money.

Summary recommendations

There are 9 conditions subject to specialist commissioning. These are commissioned and funded by a Local Area Team (LAT) and need to meet the standards as set out in the service specifications. In the future the LATs may be looking to consolidate these specialist services.

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1. <http://www.england.nhs.uk/commissioning/spec-services/npc-crg/group-a/>

16. MDTs

AUTHORS

Michael Kelly: Emeritus colorectal surgeon, Leicester | **Baljit Singh:** Consultant colorectal surgeon, Leicester
Oliver Jones: Consultant colorectal surgeon, Oxford | **Jonathan Wilson:** Consultant colorectal surgeon, Whittington Hospital
John de Caestecker: Consultant gastroenterologist, Leicester | **Richard Robinson:** Consultant gastroenterologist, Leicester
Jacquette Masterman: Colorectal clinical nurse specialist, Leicester | **Tracy Duckett:** Gastroenterological clinical nurse specialist, Leicester
Tracey Cook: MDT coordinator, Leicester

Introduction

Scope

This Chapter covers:

- a. Colorectal Cancer MDT's
- b. Anal Cancer MDT's
- c. Inflammatory Bowel Disease MDT's
- d. Functional Bowel Disorder MDT's
- e. Polyp MDT's
- f. Rare Disease MDT's
- g. Combination MDT's

Literature Review

In the UK it is generally agreed that the breast surgeons were the first set of general surgeons, as they then were, to set up a modern style Multidisciplinary Team (MDT) that met weekly to review the diagnosis and discuss the management of patients with breast cancer (1). The impetus for translating this concept into colorectal practice came from Sir Mike Richards when he sought to secure implementation of the 1999 NHS Executive's published recommendations for improving outcomes for colorectal cancer (CRC) (2). He established the Cancer Collaborative Project, which started with nine pilot sites and was then rolled out nationally with Leicester and the Whittington, London, taking the lead (3-5).

In 2001 two National Lead Clinicians for Colorectal Cancer were appointed so that by 2003 it was possible to send a questionnaire to some 168 centres in England and Wales seeking information on their CRC MDT's (6-8). During the following years many centres introduced video-conferencing to get over the difficulties caused by members of the MDT (particularly radiologists, pathologists and oncologists) being geographically in the 'wrong hospital' (9). The role of the MDT co-ordinator has emerged as central to the effective management of cancer MDT's and in most centres is now separate from that of the clinical nurse specialist, so much so that the co-ordinators now have their own national organisation (10).

By 2010, weekly MDT's for CRC had become the standard in the UK, and the Leicester Team published a detailed account of how they ran theirs, with a subsection for anal cancers (11). In the meantime, the MDT model had been exported among the wider colorectal fraternity to cover inflammatory bowel disease, polyps, functional bowel disease and the pelvic floor. Most units now run an inflammatory bowel disease MDT whereas the distribution of the other varieties depends more on the volume of practice and local enthusiasm. As a generalisation, the CRC MDT's are adequately funded (12) and administratively supported, whereas the others are not.

This Chapter, below, covers what we recommend regarding the resources that need to be made available to make sure that these MDT's can function satisfactorily to everyone's advantage (the patients, their relatives, the medical and nursing staff and their trainees) and we propose a set of minimum standards that should inform Commissioners when they are choosing services in their own locality.

Snapshot of MDT's in 2014

In October 2014, ACPGBI sent an email questionnaire to some 175 known colorectal MDT's in England, Wales and Scotland, of which 74 replied (42%) supplying fairly full data for the MDT section. We received no replies from 99, and two gave very partial or equivocal answers (Table-1).

Only one MDT gave a positive answer to all 14 questions; those scoring from 10-14/74 came to 53 (72%), with another 15 (20%) scoring 8 or 9. This left 6 (8%) scoring between 3 and 7/14 (some of these represented inadequate data, but most were for hospitals with no MDT access for pelvic floor, IBD, Hepatobiliary, and anal cancers.)

Some 70/84 (95%) of consultants did have Job Plan time allocated for MDT attendance, and the number of PA's allocated ranged from ¼ to 1 PA with most have either ¼ or ½ PA whereas only 30/74 (41%) Trusts seem to recognise that additional time needs to be allocated to the consultant actually running it.

MDT Types Do you have one?	Data Supplied	
	Yes	%
CRC	74	100
Pelvic floor	47	64
IBD	60	84
HPB	30	46
Anal Cancer	30	45

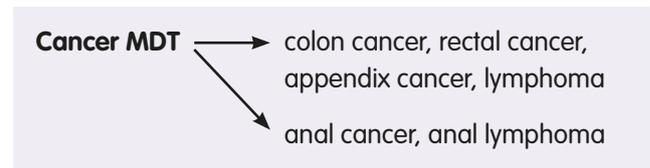
General

Since their inception, the colorectal cancer MDT's have been mostly surgeon led, mainly because of the central part in the patient's journey occupied by "the operation" and the logistic imperatives surrounding these procedures.

The basic resources of an MDT clerk coordinator, a data base and an adequate room are mostly in place. The logistic arrangements in terms of attendance, timing, duration and record keeping are very variable, ranging from the real time placing of sophisticated form letters derived from a dedicated database in the case notes (11) to vague passing references in outpatient clinic letters which make it difficult to discover what was decided, by whom and when. Likewise, the allocation of time to do this work

in the Job Plans of consultants, nurses, secretaries and others is also very variable. The following rubric sets out what ACPGBI regards as the essential minimum, required to run a good service for the patients with a catchment area of 500,000.

a. Cancer MDT



The Colorectal Cancer MDT needs to have a major input into the Hospital / Unit Policy & Audit department; it must be properly resourced with members having time allowed for it in their job plans. There must be adequate secretarial back-up and a suitable meeting room must be provided by the hospital. Group activities include;

Weekly MDT meetings

Regular meetings (> 4 times per year) to discuss, debate and issue working policies and guidelines taking into account national guidelines and directives.

Facilitating both on-going audit and an annual Audit Meeting where the database can be trawled in real time. This meeting must be open to hospital clinical and managerial staff and a written record must be made of it.

Responsibility each year for uploading the Unit's data into the national NBOCA database

Action as the central reference point for research requests using the database's material.

Authorising and "sign off" the final version of research papers being submitted externally for publication.

Issuing an open Annual Report, which must be distributed to appropriate bodies including the Trust Board.

Weekly MDT Case Management Meeting

The colorectal cancer MDT

MDT Staff 10 involvement: MDT Clerk/coordinator

MDT Meeting Chairman (additional) 0.5 PA per week

2^o involvement: generic hospital cancer database manager (NBOCA)

case notes procurement service

Core Members consultant (1 PA) involvement - radiologist(s) (inc prep)

- histopathology (inc prep) consultant 0.5 PA involvement - colorectal surgeons
- GI physician
- oncology / radiotherapy
- HPB surgeon (see table)

Nursing involvement: 2h pw – stoma nurse, CNS

Extended Team Palliative Care team member 1 / quarter

- Dietician 1 / quarter
- Physiotherapist 1 / quarter
- Ward nurses as available
- SpR's as available

MDT Clerk

1 WTE = 40h per week

Holiday cover (preferably from parallel clerks)

Ideally should be geographically close to consultant PA's & CNS rather than OPD offices

Needs a desk, telephone, standard viewing station, laptop, printer, fax

Must have access to clinic letters, discharge letters, hepatobiliary (HPB), thoracic, gynaecology, urology and all other MDT minutes.

Must have access to results on hospital databases for radiology, endoscopy, haematology, biochemistry, microbiology, immunology and histopathology.

MDT Database

Must have a dedicated specialist system for colorectal cancers

Must contain a mixture of labelled data fields and free text boxes as follows

Single subfolder for each patient.

Direct download of demographics, clinic dates, etc. from hospital mainframe.

Fields to cover:

- Clinic dates, dates of provisional Δ ; working Δ ; histological Δ
- Pre-op staging; pathological staging
- Pre-op chemo, radio
- Operation
- Histology
- Post-op adjuvant treatment
- Palliative treatment and care
- Audit features, including untoward incidents

Must have free text boxes for each MDT discussion.

Must be able easily to transfer the above data into form letters (or equivalent) for GP's, case notes, other consultants, etc.

Must be able to generate pre-meeting Agenda (patient lists) and post-meeting updated patient data (Minutes of the Meeting).

Must have a scheduling facility.

Must be compatible with the national database for NBOCA thereby allowing

straight-forward uploading.

Must be capable of being "trawled" at the annual audit meeting thus providing the figures and statistics to underpin discussion.

MDT Meeting Facilities

The Room(s)

- Boardroom layout (not lecture theatre)
- X-ray viewing facility (PACS)
- Histopathology on screen viewing
- Real time entry of results, discussions, etc. into the database.
- Video conferencing facility to other sites where necessary, ideally encrypted, (e.g. pathologists working on a different site from the colorectal clinical team)

Hepato-biliary Arrangements

A; HPB available in same hospital - arrangements in place for attendance

B; HPB available in different hospital in same town - as above

C; HPB provided from a distant site - formal arrangements for regular discussions

Thoracic Surgery (TS)

A; TS available in same hospital - arrangements in place for attendance and / or liaison, usually on an ad hoc basis.

B; TS available in different hospital in same town - as above

C; TS provided from a distant site - formal arrangements for regular discussions

Palliative Care

Formal arrangements in place for a limited but regular attendance quarterly

Arrangements in place for ad hoc attendance for specific patients.

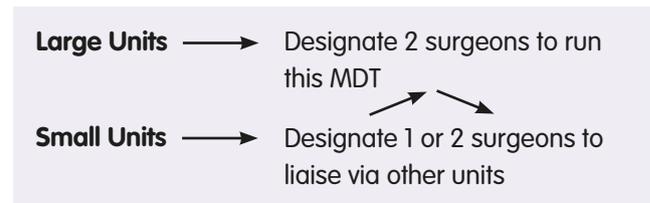
Availability of Personnel (appx 3.1)

Workings of the MDT (appx 3.2)

MDT coordinator role (appx 3.3)

b. Anal Cancer MDT

In general, the Anal Cancer MDT functions as a subunit of the general Cancer MDT. Case numbers are small (typically 10-12 documented new cancer cases / ½ million / year). 20+ worrying dysplasia cases / ½ million / year. Close liaison with radiotherapists and histologists is essential. A Hub-and-spoke system needs to operate between the large units and small DGH's



The facilities required are the same as for the Cancer MDT and are shared. Some form of face-to-face Policy and Audit Meeting should take place annually.

c. Inflammatory Bowel MDT

General

Except in the largest specialised units, Inflammatory Bowel Disease MDT's have largely evolved piecemeal, partly in the wake of the Cancer MDT's and partly on their own. They are not called "MDT's", but this is how they function. They are usually called IBD Meetings (IBDM's).

In contrast to the Cancer MDT's, they have mostly been physician-led, largely because the prospect of major surgery is only relevant to about one quarter of the cases discussed.

Lacking both the immediacy of the central "event" of a major operation, the general "terror factor" of the word cancer, and the inescapable compulsory requirements of Peer Review and the National Cancer Standards, IBDM's have been very much the "poor relations" with regard to funding and logistics, although they have become central to the good management of IBD patients.

Guidelines, Standards, etc.

- British Society of Gastroenterology Guidelines (12)
- Multidisciplinary Group IBD Standards (2013)
- The Royal College of Physicians "Organisation Audit", round-4 taking place in 2014.
- National Association Crohn's & Colitis (NACC): local and national pressure group

The British Society of Gastroenterology issues Guidelines but these concentrate more on the details of care and treatment for IBD rather than the mechanism of service delivery.

There are IBD Standards issued by a multidisciplinary group (2013) that are more specific. There is a specific Standard A3.1 devoted to IBD "Team Meetings". This lays down that:

- Meetings should be regular and timetabled, "preferably weekly"
- There should be administrative support, IBD database recording and audit.
- Patients to be discussed should be identified by the IBD Team
- All decisions should be recorded and relevant audit data noted
- The outcome of the discussions should be formally recorded in the case notes

One of its problems is that the gap between the IBD Standards', particularly regarding staffing levels, and NHS reality is considerable, and unlike the cancer MDT's there is no unavoidable inspecting body to enforce adherence.

The RCP has a compulsory "Organisation Audit", round-4 taking place in 2014.

There is a section on Multidisciplinary working which both pretty specific but also "broad brush", requiring only Yes/No answers. Thus the single question, CQ5.3, asks whether there are MDT Meetings at least every three weeks, these are minuted, have an attendance register, and are regularly attended by "medical, surgical and nursing representatives"? The only possible answers are "Yes" or "No". There are no specific sanctions in place for returning poor scores, although these will of course be available various national bodies insofar as they are released by the RCP.

In reality, although virtually all of the larger hospitals do have an IBD MDT, these mostly consist of informal regular gatherings with no dedicated funded MDT Coordinator, no database and no systematic written records. It is often built round an X-ray Meeting. Attendance is very variable with most of the GI physicians being present most of the time with their clinical nurse specialists, and one or more of the surgeons arriving for variable lengths of time to discuss just the cases with which they are involved. The CNS takes on the role of MDT coordinator.

One of the problems is that many of the IBD patients are "on the books" of their physicians for months and years, rather than for a few busy weeks (as is the case with the cancer patients). Thus it is completely impossible for "all the patients" to be discussed, and a selection has to be made. In essence this means that members of the MDT "bring cases which they regard as suitable" to the meeting, thereby fulfilling Standard A3.1.

Nevertheless these patients do have complex, interesting and difficult problems that benefit enormously from MDT discussion, and there are a handful of expensive drugs (mostly immuno-modulators such as Infliximab) where good practice requires that the case for prescribing them should be discussed in an MDT-type forum by consultants not directly involved in treating them

IBD Team Roles:

There is no national or local equivalent of the Cancer MDT's Framework of Regional / Sub regional Network Liaison or the Hospital / Unit Policy & Audit Control Groups, whereas the regular MDT-type Case Management Meetings are indeed largely in place. There are also no regular hospital fora for the discussion of IBD patient deaths unless these occur after a surgical operation, in which event they will be discussed at the (compulsory) surgical Mortality and Morbidity Meeting.

IBD Staff

1 – 2 weekly

1^o involvement: CNS usually acts as coordinator: 5h pw
IBD Meeting Chairman ad hoc (no designated role)

2^o involvement:

Core Members consultant 0.25 PA involvement

- GI physicians
- Radiologist

consultant 0.25 PA involvement

- Histopathologist
- Colorectal surgeon(s)

Extended Team Palliative Care team member 1 / quarter

- Dietician 1 / quarter
- Pharmacists 1/quarter
- Ward nurses as available
- SpR's as available, coming for training

IBD Database

Usually not in place, but there is an approved dedicated specialist system available for purchase.

Usually the CNS' laptop is employed to organise sessions (see below)

Features required

- Must contain a mixture of labelled data fields and free text boxes as follows
- Single subfolder for each patient
- Direct download of demographics, clinic dates, etc. from hospital mainframe
- Fields to cover
 - Clinic dates, dates of provisional Δ; working Δ; histological Δ
 - Endoscopy results
 - Radiology results
 - Treatment
 - Audit features, including untoward incidents

Must have free text boxes for each MDT discussion

Must be able easily to transfer the above data into form letters (or equivalent) for GP's, case notes, other consultants, etc.

Must be able to generate pre-meeting Agenda (patient lists) and post-meeting updated patient data (Minutes of the Meeting)

Must have a scheduling facility

Must be compatible with any national databases for IBD

Must be capable of being "trawled" at an annual audit meeting thus providing the figures and statistics to underpin discussion

MDT Meeting Facilities

The Room(s)

- X-ray viewing facility (PACS)
- Histopathology on screen viewing
- Real time entry of results, discussions, etc. into the database or laptop.

Video conferencing facility to other sites where necessary, ideally encrypted, (e.g. pathologists working on a different site from the clinical team)

d. Functional Bowel Disorder MDT (see pelvic floor)

e. Polyp MDT's

In some hospitals colorectal polyps are discussed at their own MDT. Often there is liaison with the Sub-regional Cancer Screening Service

f. Rare Disease MDT's

There are a number of these associated with major specialist centres, such as the Pseudomyxoma MDT at Basingstoke and the Intestinal Failure MDT at St Mark's.

g. Combination MDT's

Multiple combinations are in existence where a particular MDT may combine several of these categories under one umbrella MDT.

The only MDT's which are genuinely "stand alone" are the Cancer and IBD MDT's, and this is largely because they are so busy with large case loads.

Summary recommendations

All hospitals should aim for functioning MDT meetings adhering to the minimum standards in the following areas:

- Colorectal cancer
- Anal cancer
- IBD
- Functional bowel disease
- Polyps
- Rare diseases

These will sometimes be provided as part of combination MDTs.

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Appendix 1

Pelvic Floor

Recommendations for pelvic floor services

1. The pelvic floor multidisciplinary team

The management of pelvic floor disease is complex:

- The pelvic floor consists of multiple compartments traditionally managed by different specialties who may have different views about therapy, yet pathology often affects multiple pelvic compartments. Many staff work in isolation with surgeons, physicians, radiologists, specialist nurses and physiologists having little direct discussion.
- The evidence base for therapy is poor with a need for robust research and audit, which is not possible unless there is a unified method of streaming patients and central collection of data (c.f. NBOCAP).
- Patients may progress through several sequential therapies on a treatment pathway.
- Considering this complex management pathway there is a paramount need for uniform and clear communication with the patient as well as between primary, secondary and tertiary care.

The argument for a pelvic floor MDT appears strong. It would bring together staff with the necessary knowledge, skills and experience to ensure high quality diagnosis, treatment and care. This is supported by NICE guidance and is central to NHS England's commissioning of specialist pelvic floor services [complex colorectal and complex gynaecology]. (NICE guidance CG49 on FI, Service Spec A08/S/d Adult FI, E10s Recurrent Prolapse & recurrent Urinary incontinence and is mandatory for the performance/funding purposes of SNS. MDT working is also supported by the British Society of Urogynaecology Standards for Service Provision.). It is also supported by The Pelvic Floor Society membership and Executive.

In Scotland it is hoped that the Scottish Government Health and Social Care Directorate will accept that this is a disadvantaged patient group with little public voice and agree to incorporate Pelvic Floor Disease into strategic direction and resource allocation for NHS Scotland.

An effective pelvic floor MDT should result in:

- Individualised treatment and care considered by professional healthcare workers with specialist knowledge and skills relevant to the pelvic floor
- Improved outcomes as a result of better understanding of the patient's issues and condition
- Patients being given information and tailored support needed to cope with their condition
- Continuity of care, even when this care involves different healthcare professionals
- Good communication between primary, secondary and tertiary care
- Good data collection, both for the benefit of the patient and for robust audit and research
- Adherence to local and national guidelines
- Promotion of good working relationships
- Optimisation of resources by more efficient working
- Opportunities for education and training
- Patients being offered the opportunity to be involved in clinical trials

Team constitution:

Core membership will include those considered to be core or essential to the running of a pelvic floor service. These will include:

- At least one colorectal surgeon who specialises in performing the spectrum of operations that may be needed to treat the conditions;

- A pelvic floor physiologist and/or a specialist nurse who undertake diagnostic evaluation of pelvic floor abnormalities and introduce and optimise conservative management at an early stage;
- A urogynaecologist;
- A radiologist (or trained equivalent) with an interest in pelvic floor disorders who is able to offer a high quality dynamic defaecography service and interpretation of endoanal ultrasound
- Administrative staff (MDT co-ordinator) to ensure that documentation is accurate and effectively recorded

Members that can be considered as valuable contributors but not essential (extended members) include:

- Further numbers of the above specialists: ideally a second colorectal surgeon and specialist nurse to cover absence
- A medical gastroenterologists with an interest in digestive motility
- A pain management specialist
- A psychiatrist or psychologist
- A functional urologist
- Trainees (colorectal or gynecological) with interest in pelvic floor disease
- Research staff e.g. CRN-funded NHS support staff to identify trial recruitment
- An MDT coordinator (see below)

Attendance:

MDT members (core and extended) should have dedicated time in their job plan to prepare for and attend MDT meetings. The frequency and amount of time dedicated to such meetings should be negotiated locally to reflect the local workload, but should be no less than monthly.

- Core members should be present for discussion of all cases where their input is required - it is for the chair to decide (in consultation with others) whether there is adequate representation at a single meeting to make safe recommendations about any/all patients.
- The chair is responsible for raising concerns about non-attendance and escalating these concerns if necessary. Frequent non-attendance should be addressed in the appraisal and job-planning review.

- Extended members and non-members may attend for the cases that are relevant to them.
- There should be a register maintained of those attending and minutes recorded.

Chair:

A Chair must be agreed who is responsible for the organisation and running of the MDT meetings (in conjunction with appropriate administrative staff). The responsibilities of the chair include:

- Preparing an agenda;
- Ensuring meeting is quorate taking action if not;
- Ensuring all relevant cases are discussed;
- Ensuring all relevant team members are included in discussion;
- Ensuring discussions are focused and relevant with clear communication;
- Ensuring that interventions are actioned and recorded;
- Ensuring all discussion points and treatment plans are complete before the next patient discussion starts and that all data is recorded and the recommendations summarised and fed back to the patient, GP and clinical team within a locally agreed time frame;
- Promoting evidence-based and patient-centred recommendations and to ensure that eligibility for relevant trial recruitment is considered;
- Promoting education and training.

Team working and culture:

It is essential that each MDT member has mutual respect and trust of each other and has an equal voice with different opinions valued. Best practice should be shared with an opportunity for learning from each other.

Infrastructure:

There should be:

- a dedicated room with a layout to allow all members to sit and hear each other and view all presented data
- equipment for projecting and viewing radiological images;
- access to PACS and other investigation results.

Meeting organization and logistics

Scheduling should ensure that:

- MDT meetings should take place regularly and at times so as not to clash with other fixed clinical commitments;
- Cases for discussion should be identified by each core member and included for submission to the agenda prior to the meeting;
- There is a locally agreed cut off time for inclusion of a case on the MDT. Flexibility for urgent cases should be allowed;
- The patient list is circulated to all members prior to the meeting which includes a locally agreed minimal dataset;
- Each case is discussed by the member relevant to the case;
- There is access to all relevant information at the meeting including patient notes, test results, images and appointment dates.

Post-MDT processes should be in place to:

- Communicate MDT recommendations to patients, GPs and clinical teams within locally agreed time frames;
- Ensure that agreed actions are implemented, or that the MDT is notified of significant changes made to their recommendations.

Patient selection: Who to discuss?

There should be local mechanisms in place to identify all patients where discussion at MDT is needed.

The following patients mandate discussion:

- Any patient who is being considered for surgery with the primary intent of managing PFD
- Any patient with FI being considered for SNS [CQUIN requirement]
- Any patient with complications following surgery, or failed surgery to include recurrent POP or urinary incontinence [CQUIN requirement].
- Multi-compartment symptoms (e.g. faecal and urinary incontinence or multi-organ prolapse)
- Failed conservative treatments and in whom the next

steps are unclear

Clinical decision making process:

- A locally agreed minimum dataset of information is provided at the meeting.
- All clinically appropriate treatment options should be considered even if they cannot be offered locally.
- There should be access to a list of all current and relevant clinical trials and suitability should be considered for each patient.
- Standard treatment protocols should be in place and used when appropriate.
- Patient views, preferences and needs inform the decision making process.
- MDT recommendations should always be:
 - Evidence-based and patient-centred (patients should be aware of the MDT purpose and structure. Their views should be represented by someone who has met the patient whenever possible.
 - In line with standard treatment protocols. Deviations should have good reason and the reason documented.
- If data is missing or incomplete it should be possible to bring the patient back for further discussion when the data becomes available.
- It should be clear who will communicate the MDT recommendation to the patient, GP and clinical team. This should be documented.

Governance:

Organisational support: There are costs associated with running an MDT. There is therefore the need for organisational (employer support) for MDT meetings demonstrated via recognition that MDTs are the accepted model to deliver safe and high quality care. The employer will need to fund the resources, required for MDT meetings to operate effectively.

Data collection, analysis and audit:

- Data collection resource should be available to the MDT
- Key information that directly affects treatment decisions should be collected
- National datasets should be developed and populated allowing refinement of treatment

- Data collected is analysed and fed back to the MDT for the purpose of learning
- There should be internal and external audits of process and outcome. This should include an annual general meeting for discussion of outcomes and an accreditation process for pelvic floor units.

Clinical governance:

The purpose of the MDT and its expected outputs are clearly defined locally. There should be agreed guidelines as to:

- How the MDT operates;
- Who the core and extended members are;
- The roles of the members;
- How the members should work together;
- How changes to clinical practice should be managed;
- Communications post meeting.

There should be mechanisms in place to:

- Record recommendations of the MDT versus the actual treatment given and reasons if there is variation;
- Record serious or adverse events;
- Monitor the proportion of patients discussed.

2. National structure of pelvic floor services

Hospitals that deliver pelvic floor services should only do this within an integrated MDT process. Where such MDT support is not available then patients with pelvic floor pathology should be referred to institutions that can provide suitable care. It is the responsibility of units referring patients to have previously excluded significant other pathology, especially with regard to having previously investigated any "red flag" symptoms thus excluding serious organic pathology (cancer, inflammatory bowel disease etc.) These hospitals may have basic specialist nursing for pelvic floor disorders who will meet with and co-ordinate with colleagues in centres offering pelvic floor services.

It is anticipated that patients with external rectal prolapse will still be treated in some local centres by perineal procedures and standard abdominal surgery, where suitable surgical experience exists. Surgery for incontinence, constipation and internal prolapse, or multi-

compartment surgery should be performed in units where adequate MDT facilities are in place.

Units offering pelvic floor services:

It is expected that an accredited pelvic floor unit will have at least two colorectal surgeons with a pelvic floor interest and that these should represent a proportion of a sufficiently greater colorectal surgical department e.g. minimum of 6 consultants such that adequate subspecialty time can be devoted to pelvic floor disease management. Job plans should reflect between 0.75 and 1.0 whole time equivalents (for a referral population of between 250,000 and 500,000) and 1.0 and 1.5 whole time equivalents (for a referral population over 500,000).

It is anticipated that a centre will have between 25 and 40 new referrals / month leading to a pelvic floor clinic at least weekly and a joint pelvic floor clinic (with urology / urogynaecology input) every 1 – 2 months. Larger units will have 35 and 100 new referrals / month leading to at least 2 pelvic floor clinics per week and a minimum of 2 joint pelvic floor clinics (with urology / urogynaecology input) per month. It is expected that a proportion of pelvic floor clinics in each institution will be "one stop" with some or all of the investigations indicated being carried out at the same visit.

All units offering a pelvic floor service should either have an MDT on site or be directly involved in an MDT which could be shared between two or three centres. Depending upon the number of centres sharing an MDT these should meet between weekly and monthly and discuss between 5 and 10 patients per meeting (no more than 20 cases). Each MDT (as detailed above) should be supported by a physiology service and imaging facilities to provide anal ultrasound, and defaecation proctography or MRI proctography (as per local preference). The physiology service should be run and supervised by a clinical scientist, physiologist or clinical nurse specialist with suitable training. A unit should expect to perform between 5 and 20 examinations per week per unit that it serves, depending upon the referral base. Equivalent numbers of anal ultrasound scans are expected with these being performed by a radiologist, surgeon, nurse, physiotherapist or scientist with suitable training.

Each centre should offer forms of adjunctive therapy in addition to specialist nurse-led bowel retraining for defaecation disorders (mainly incontinence and obstructed defaecation) Adjuncts may include visual biofeedback, pelvic floor muscle therapy, direct neuromuscular (vaginal or perineal) electrical stimulation and minimally invasive forms of neuromodulation e.g. percutaneous tibial nerve

stimulation. Transanal rectal irrigation should be available offering both low and high volume therapy based on patient factors and preference.

Within each MDT group / centre there should be the facility to offer sacral neuromodulation and the full range of complex pelvic floor surgery in those cases where the MDT has decided that surgery is indicated. This surgery should be facilitated with a monthly combined operating list for those patients with multi-compartment pathology requiring input from colorectal surgeon and urologist / urogynaecologist. It is anticipated that details of these cases should be recorded in the future on a National Database for subsequent review and audit coordinated through The Pelvic Floor Society.

It is anticipated that several centres may have / develop the expertise to offer a service for the management of more complex problems and a shortlist of 'reference' centres will be developed nationally with the support of The Pelvic Floor Society (below) to facilitate appropriate referral. This list will include those offering:

- Revisional surgery for complex complications following primary mesh prolapse surgery
- Revisional surgery following sacral neuromodulation
- Anal and perineal reconstructive surgery incorporating tissue transposition
- Antegrade colonic enema (ACE) surgery
- Combined expertise (with gastroenterologists / neurologists) for the assessment of patients with complex primary and secondary neuro-gastroenterological disorders e.g. Hirschsprung's disease, autonomic neuropathies,
- Combined expertise for the management of severe learning or psycho-behavioral disorders
- Transitional care for older children and adolescents

3. Role of the pelvic floor society

The formation of TPFS, a subgroup of the Association of Coloproctology of Great Britain and Ireland, will provide a co-ordinated platform for the provision of training in the management of pelvic floor disorders as well as introducing initiatives in quality assurance and governance. The PFS has also taken the lead in developing a minimum dataset

for all pelvic floor patients undergoing surgery and monitor the use and complication rates following surgery. This will include those specific to implanted material (synthetic and collagen mesh, stimulator units).

A number of accredited centres distributed throughout the country will be identified that can offer training for surgeons with a pelvic floor interest with free access to the MDT meetings and availability to attend operating lists to observe more complex operative procedures. Training should include local mentorship arrangements and the co-ordination of more structured courses. These courses will be co-ordinated through TPFS training and education committee.

A draft curriculum and PBAs has also been produced and will be posted on the societies website. These resources will be a welcomed tool for trainees to use over and above their CCT to demonstrate a special interest in pelvic floor surgery. It is not a requirement for CCT and will remain voluntary. With time TPFS will be developing modular courses (ultrasound and anorectal physiology), training fellowships and formalised research posts.

The purpose of peer review/accreditation is to define and monitor standards of care, organisation and quality within individual pelvic floor unit and MDTs. These standards will be measurable, comparable and identify those units, which deliver best practice. They will be designed to provide a robust mechanism for ensuring quality control in units managing patients with pelvic floor conditions, which will be of value to service users, commissioners and providers. The standards will also provide a framework that will help PF units/MDTs to improve patient care, encourage multidisciplinary working and enhance prospects for individuals units to grow and develop.

Appendix 2

Pathology

Histopathologist workload

Trimming

In most laboratories, biopsy specimens and polyps are loaded by the biomedical scientist (BMS). With the advent of the specialist dissection portfolio, biomedical scientists are starting to trim colorectal cancer resection specimens.

Reporting

Specimens related to colorectal cancer range from biopsies, polypectomies, local excision and resections. Consulting with colleagues on difficult cases and double reporting, mandatory for certain cancers, adds to the workload.

Multidisciplinary Team (MDT) Meetings

In addition to time spent at the MDT, the pathologist is required to review all the cases prior to the meeting and follow up on any requests.

External Quality Assurance (EQA) Scheme participation

Participation in EQA is mandatory and is required for continuing professional development (CPD), revalidation and quality assurance (QA) visits. Membership of the specialist gastrointestinal scheme is preferable over a general pathology EQA. All pathologist reporting BCSP specimens must belong to the BCSP EQA.

Other

There are other duties and tasks performed by the pathologist relating to colorectal pathology which are difficult to measure. These include audit, reviewing cases (internally and externally), selecting slides to be sent for molecular testing, completing forms for national studies (such as FOXTROT and TREC) and teaching.

Histopathologist Job plan

Consultants are contracted in time periods of 4 hours, known as programmed activities (PAs). In a 10 PA job plan, 7.5 sessions are usually devoted to direct clinical care (DCA) and 2.5 sessions to supporting professional activities (SPA). Specimen dissection and reporting and MDTs are part of DCC while EQAs, audit, teaching and research are some of the activities included in SPA. Some consultants work part time while others contract for extra PAs.

Evidence for best practice

There is no evidence to support the number of pathologists required for a given population. This is heavily dependent on the nature of specimens generated and the demand on the pathologist will be greater in a tertiary centre compared to a small DGH.

Current UK guidelines

The third edition of a Royal College of Pathologist document entitled "Guidelines on staffing and workload for histopathology and cytopathology departments" was published in 2012. The contents of this document are intended to help histopathology departments to achieve appropriate staffing levels for their workload.

The guidance uses a points system to indicate ranges of times within which aspects of the work should normally be completed, acknowledging that some specimens will take more or less time. Workload points are specified for diagnostic microscopic and for macroscopic work (specimen dissection and block selection). However it is acknowledged that a fixed allocation of time per week for macroscopic work or exact time taken which is then converted to points may be a more flexible and realistic approach. Aspects of direct clinical care other than those directly involved in the production of diagnostic reports, such as multidisciplinary team meetings, are not covered by the point's allocation system. Whilst the document recommends that these are best timetabled through the job planning process, actual time taken to prepare for and attend the meetings can be converted into points.

This system is widely used in histopathology departments in the United Kingdom. A survey of the Fellowship in 2010 found that some departments had gained approval for additional consultant posts through analysis of the workload by the College system.

Workload units or points are assigned to specimens to reflect the average time taken to report the specific case:

- 1–5 minutes 1 point
- 6–10 2 points
- 11–20 3 points
- 21–30 5 points
- 31–50 8 points
- >50 minutes 12 points.

For microscopy the points are based on the typical time taken for reporting the case from picking up the slide and request form to completing the report, including the time for checking and authorising the typed report and completing datasets.

A session spent in diagnostic reporting entails much more than the core component of viewing the slides at the microscope and dictating reports. The workload scores are not intended to take account of the time for conferring with colleagues, looking up information in text books or on the internet, discussing with referring clinicians, reviewing previous histology and seeking external expert opinions. It is recommended that DCC time for these essential quality-assurance activities is scheduled into the job plan. The appropriate amount of time is best estimated from diary exercises, as it will vary amongst pathologists depending on the particulars of the job. For most pathologists, it is likely to be 1.0 PA.

It was estimated by the working group preparing the document that most pathologists should be able to achieve 36 points for each DCC PA assigned to reporting, averaged over a working week. In assessing a department's annual workload against the medical staffing, the working year of each consultant should be considered as 40 weeks. This accounts for annual leave, study leave, bank holidays and statutory leave. The total number of DCC PAs assigned to diagnostic reporting (macroscopy and microscopy) in the weekly job plan timetable of all the consultants in a department should therefore be multiplied by 40 to indicate the annual capacity. A shortfall in capacity compared with workload received will form the basis of a business case for approval of additional contracted sessions and/or an additional post.

Below is an edited extract from the document with assignment of points for various gastrointestinal specimens.

Gastrointestinal pathology

Specimens	Micro	Macro
Mucosal biopsy, 1 pot	1	–
Mucosal biopsy from one organ, 2–5 pots	3	–
Mucosal biopsy from one organ, >5 pots	5	–
Anastomotic doughnut	1	1
Polyps, haemorrhoids, fistulae, pilonidal sinus	1	1
Omentum or peritoneal biopsy	2	–
Omentectomy	2	2
Endoscopic mucosal resection of tumour	3	2
Transanal endoscopic microsurgery	5	2
Resection of anal margin malignancy (as for dermatopathology)	5	3
Resection of small bowel for benign disease	3	3
Small bowel resection for malignancy	8	8
Colectomy for benign disease (e.g. diverticular/ischaemia/torsion)	3	3
Colectomy for polyposis/idiopathic inflammatory bowel disease	5	5
Colectomy, anterior or AP resection for colorectal or anal cancer (includes synchronous cancers and additional part organs)	8	12

Royal College of Pathologist point allocation system

The Royal College of Pathologist point allocation system is used as specified in the document by 16 of 39 trusts who replied to this question of which a further 11 use a modification of this system. In total 69% (27 of 39) convert specimens to points to distribute work. The majority who use the Royal College of Pathologist point system use these guidelines to allocate points for macroscopic dissection.

	Yes	No
Do you utilise the RCPATH point system with respect to the distribution of GI work?	1	–
If not, do you use a modification of this system?	3	–
If you use the RCPATH system, how are the points allocated for cut-up:	5	–
- As per RCPATH guidelines	1	1
- Time taken converted to points	1	1
- Other	2	–

Table 11.1 | Questionnaire results for the RCPATH point system

The point system is not perfect and in any allocation system some aspects of work may be over scored and others underscored. Of 23 trusts who responded, 9 thought the Royal College Point Allocation system for colorectal pathology was underscored and 13 were satisfied with the system. Only one trust thought it was over scored.

Workload

Microscopic workload

The number of specimens were added together and then divided by the population served by the trusts to determine the average number of each specimen type per 500000 individuals. This was then multiplied by the number of Royal College of Pathology points, both microscopic and macroscopic (where applicable).

	Number per 500000	Responses	Number of points per 500000
How many colorectal resections were performed in your trust during 2013?			
a. Total number	387	30	
b. How many of these were cancer resections?	223	39	1784
c. How many of these were non cancer resections?	164	39	656
How many small bowel resections (excluding duodenum) were performed in your trust during 2013?	102	26	509
How many other colorectal resections (not mentioned above) were performed in your trust during 2013?			
Appendicectomy:	439	26	439
TEMS/EMR:	76	13	382
Others:			
How many colorectal biopsies (to include terminal ileum) and polypectomies were performed in your trust during 2013?	4544	24	13631
Of these specimens how many samples were:			
1 sample received	2256	11	2256
2 samples received	1297	12	3890
3 samples received	456	11	1368
4 samples received	216	11	648
5 samples received	363	11	1088
6 samples received	70	10	348
More than 6 samples	80	10	398

Table 11.2 | Point scores for microscopic workload

MDT workload

In addition a similar exercise was performed for MDT meetings.

	Responses	Per 500000	RCPATH points per MDT/ 500000
How many colorectal MDTs are there per week in your trust?	1.4	53	
On average how long:			
a. does it take to review the cases?	100 min	47	99 min 14.9
b. does the MDT last?	104 min	53	102 min 15.3
c. does it take to travel between sites, if applicable?		5	35 min

Table 11.3 | Points scores for MDT working

A total of 30.2 points is taken for the preparation and attendance of the colorectal MDT per week. At 50 MDTs per year and 1.4 MDTs per trust, this translates to 2111 points per 500000.

Macroscopic workload

Different practises occur in the different trust across the country. Specialist's biomedical scientists are trimming specimens of increasing complexity and in some trusts are dissecting some or all cancer resections. However it is difficult to assess the impact of this on the pathologist workload because of the variability. For workload purposes it will be assumed that the biomedical scientists trim biopsies and polypectomies and the more complex cases are dissected by the pathologist.

In your department, do biomedical scientists trim:	Yes	No	Responses
a. Biopsies	39	0	39
b. Polypectomies	28	11	39
c. EMR/TEMS specimens (if applicable)	11	27	38
d. Resections	9	31	40

Table 11.4 | Questionnaire results for macroscopic workload

Type of specimen	RCPATH points/ 500000 population
Cancer resections	2676
Other colon resections	656
Small bowel resections	306
TEMS	153

Table 11.5 | Point scores for macroscopic workload.

Total workload

Total workload to include macroscopy, histology and MDT commitments is 19668 points per 500000 population per year.

Workforce

There is an average of 11.6 consultants per trust with a total of 555 (48 responses) and a range of 2 to 40. They work an average of 10 sessions (5-13) with 8 direct clinical care (DCC) commitments and 2 supporting professional activities (SPA).

A quarter of pathologist (97 of 384) specialised in gastrointestinal pathology while 5% (18/376) report only gastrointestinal pathology. However this would include reporting upper gastrointestinal pathology and, in some cases, pancreatobiliary and liver pathology.

Due to the variable working practises of histopathologist across the trusts, it is not possible to accurately ascertain the cumulative number of DCC sessions which are devoted to reporting colorectal pathology. However when asked if there were sufficient number of consultants to perform the work, 40% of responses indicated that more pathologist were required to cope with the colorectal workload. To support this two thirds of the 46 trusts who responded indicated that they had unfilled positions in their departments with 75% of these likely to report some colorectal pathology in their case mix. Six of 45 trusts (13%) indicated that they sent work out for reporting to an external source.

Changing working practice

Increased demands of high quality dissection, specimen photography and specimen complexity

The quality of colorectal specimen reporting has increased

over the last decade, driven by education, audit and the MDT. Extra time is required to photograph specimens, whether part of a clinical trial or routine practise, identify lymph nodes and report the histological features. This is not always reflecting in the time allocated for reporting such cases.

Not all trusts however photograph rectal cancer specimens, although this is a requirement in the minimum dataset. Furthermore there is also variability amongst pathologist in the same trust.

For rectal cancer are photographs taken of:	Yes	No	Some
a. The external specimen?	21	8	9
b. Slices through the tumour?	19	9	9

Table 11.6 | Questionnaire results concerning photography

Complex resections, such as recurrent and advanced rectal cancers, are centralised. These cases, which frequently entail enbloc resections post chemotherapy, are not reflecting on the Royal College of Pathologist point allocation system. A similar case can be made for AP resection and extralevator resections for which neoadjuvant chemoradiotherapy is almost always given. These cases, which are encountered in almost all the trusts, are given the same number of microscopic RCPATH points as a simple right hemicolectomy.

Does your trust perform the following surgical procedures:	Yes	No
a. standard APR	48	0
b. Extralevator APR	46	1
c. Local rectal cancer resection (eg TEMS procedures)	37	10
d. Recurrent rectal cancer surgery	31	16
e. Peritoneal carcinomatosis and/or pseudomyxoma surgery	2	45

Table 11.7 | Questionnaire results for types of surgery

Personalised medicine and increasing demand on molecular services

RAS testing is routine in the metastatic colorectal cancer setting. In the majority of trusts this is performed at a reference centre and requires slides to be retrieved, a suitable slide and corresponding block chosen and packaging and postage with the required audit trail. Once the result is available a supplementary report is issued. This represents a further strain on the secretarial and consultant staff. In most cases this additional work is not factored into the daily workload. This burden is only going to increase as additional drugs become available.

	Yes	No
Are molecular studies (eg RAS, BRAF) performed in your department?	8	31
Are molecular studies performed on all colorectal cancer (rather than requested at MDT/ or by oncologist)?	3	39
Is the time taken to perform IHC/molecular studies (including the time taken to choose suitable blocks) factored into your daily workload?	5	29

Table 11.8 | Questionnaire results concerning molecular studies

Immunohistochemistry and microsatellite instability

In 2014 immunohistochemistry for microsatellite testing was included in the revised minimum data set. However in 2013 this was only offered in 12 of 41 trusts. In most trusts this is not factored in the workload (see above).

	Yes	No
Is MSI immunohistochemistry performed in your laboratory?	12	29
Is this performed on:		
a. All colorectal cancer	1	20
b. Age criteria and family history	7	14
c. Histology suggests a MSI phenotype	8	13
d. When requested (at MDT, oncologist, geneticists)	21	0

Table 11.9 | Questionnaire results concerning immunohistochemistry. Biomedical scientists

Biomedical scientists

In the past few years, and with the introduction of the specialist biomedical scientist trimming portfolio, biomedical scientists are dissecting colon resections to include cancer resections. Eleven of the 36 trusts who responded had specialist biomedical scientists in their department trimming colorectal specimens of varying complexity. This is due to increase over the coming years and with 3760 Royal College of Pathology workload points per 500000 population spent by pathologists each year on colon resections, this could represent a saving of 0.35 of a consultant post (per 500000).

Supporting Professional Activities (SPA)

Other work directly or indirectly related to colorectal pathology is included in SPAs. This includes:

Bowel Cancer Screening Programme (BCSP)

Thirty-eight of 45 trusts responding to the question are involved in the BCSP work. Some are allocated additional PAs for the administrative work related to the BCSP and all include this in their SPAs.

Registrar training

Thirty-six of 42 trusts train specialist's registrars who spend an average of 9.4 months per year rotating through gastrointestinal pathology.

External Quality Assurance (EQA)

All pathologists are required to participate in EQA and the EQA schemes related to colorectal pathology are the regional general EQA, national gastrointestinal EQA and BCSP EQA. Due to the inconsistencies in the completion of the questionnaire, it was not possible to ascertain how many pathologists participated in these schemes.

Study leave

The allocation of study leave and a study leave budget is vital for continued professional development. Thirty-seven of 38 trusts who responded to this question received a study leave budget which ranged from £300 - £5500 with an average of £979 and a median of £750. Study leave ranged from 6 to 30 days with an average of 11 days and a median of 10 days.

Recommendation for best practice

Based on the responses in the questionnaire, the total workload to include macroscopy, histology and MDT commitments is 19668 points per 500000 population per year. Some of this work includes colorectal biopsies performed by gastroenterologist for medical indications. The majority of pathologists work 10 PAs per week with 8 devoted to DCC. After annual and study leave as well as other unplanned leave there is an average of 40 working weeks per year per consultant and this is supported in the RCPATH point allocation document. There is 9 points per hour and 54 points of DCC per day. In a year 10800 DCC points are available per consultant per year. Therefore 1.82 pathologists are required per 500000 population to service the colorectal pathology requirements. This could drop to 1.47 consultants per 500000 if all specimen trimming was performed by biomedical scientists. However there is additional DCC work such as MSI immunohistochemistry and molecular tests which have not been factored in which could increase the pathology requirements further. It has not been possible to ascertain the SPA commitments of colorectal pathology. However teaching, audit, BCSP administrative work, external quality assurance programmes and training is included in the 2 SPAs allocated per week.

Appendix 3

MDTs

Appendix 3.1

MDT attendance requirements

*This is to include planned leave

Designation	Attendance when available	Acceptable minimum*	Leave Arrangement
Con Colorect. Surgs.	100% individual	85% individual	essential
MDT Clerk	100% individual	85% individual	Cover 100%
Radiologist(s)	100% team	100% team	essential
Radio / onco	100% team	100% team	essential
Histopathologist	100% team	100% team	essential
CNS / stoma n.	100% team	100% team	essential
G-I physician	100% team	100% team	essential
Palliative Care	20% team	20% team	N/A
Physiotherapist	20% team	20% team	desirable
Dietician	20% team	20% team	desirable
Ward nurses	20% team	20% team	N/A
Surg SpR	40% team	40% team	desirable
HPB Surgeon**	100% team	85% team	Highly desirable

**Where logistically possible (including video link)

Appendix 3.2

Workings of the MDT

Meetings

Chairman:

- there must be a chairman designated in advance for a fixed period in excess of 3 months.
- Must be given time in his Job Plan for a regular pre-meeting discussion with the MDT Clerk and a post-meeting sign-off of "things done".
- Must sign off form letters to GP's and others within 48h
- Must be arrangements to cover leave absences

Meeting Format:

- Must take place weekly
- There must be an agreement in force of what they will discuss and what they will not discuss. In particular, the regular MDT Meeting must not be used for the discussion and development of MDT and Unit policies and practices.
- Each case of CRC must be discussed at provisional Δ; working Δ; histological Δ
- At the conclusion of each case the chairman or clerk must read out what he is going to put in the free text summary box so that it may be agreed by those present as this will form the substance of the form letter issued.
- An adequate record (usually derived electronically from the database) must be placed in the case notes or equivalent in a timely fashion so as to be available to clinicians treating the patient.

Annual Report

- The MDT ideally should generate an Annual Report to be issued to the Trust Board and Commissioners

Scope of Patients Discussed

- Those with a working diagnosis of colon cancer, rectal cancer, appendix cancer, lymphoma. Those on the cancer / dysplasia borderline, including polyps and carcinoma-in-situ. Inflammatory bowel disease patients at high risk for developing a cancer or lymphoma. Those with a strong family history or genetic predisposition to cancer or lymphoma

Appendix 3.3

CNS / Clerk-coordinator's Role

- Prepares a list of patients to be discussed beforehand and sends this to the radiologists and histopathologist a week beforehand (there is less time for late inclusion requests)
- Prepares a folder or equivalent for each case beforehand to include relevant clinic letters, case summary, test results, etc.
- Introduces each case, provides additional test and logistic results in real time from her laptop during the meeting insofar as she can.
- Makes her own notes in order to book tests, clinic appointments, referrals, etc.
- Accepts gracefully additional cases "brought along" by any of the participants which she does her best to "investigate" via her laptop in real time.
- Enters cases, details and decisions into the IBD database (if available)
- Writes the "IBDM Letter" afterwards (in her own name but "on behalf of" the Group)
- Liaises with the patients as their combined CNS + MDT Coordinator