



## Scope for Improvement:

A toolkit for a safer Upper Gastrointestinal  
Bleeding (UGIB) service

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*This piece of work was initiated following reports of challenges with patients with suspected upper gastrointestinal bleeds accessing endoscopy services outside normal working hours resulting in poorer patient outcomes. This was highlighted by the National Patient Safety Agency and as a result, a piece of research was initiated under the title of Consultant Rota On-call Modelling of Endoscopy Services (CROMES). Following the first stage of research it was agreed that the remit of the outputs from the research should be broadened to cover all elements of Upper Gastrointestinal Bleeding Services.*

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pH Associates Ltd prepared the report and provided excellent project management, calmly and efficiently steering the project over the pit-falls and hurdles in its way.

Finally the team would like to acknowledge the support from the National Patient Safety Agency and the Academy of Medical Royal Colleges through the provision of funds for the project.

*Date: October 2010*

# Foreword 1

A series of evidence based guidelines have defined the best management for patients who develop acute upper gastrointestinal bleeding; a condition affecting more than 50,000 patients each year in the UK with a mortality of approximately 10%. The guidelines conclude that active resuscitation followed by timely therapeutic endoscopy, supplemented by a range of radiological interventions in selected cases and by judicious use of specific drugs, produces the best outcomes. Indeed specialised centres that provide a full range of therapeutic endoscopy and have access to therapeutic radiology during the working week and 'out of hours' report much lower mortalities and reduced need for surgical intervention compared to unselected series.

We therefore know how best to treat patients who present with non-variceal (principally peptic ulcer) and variceal haemorrhage. How does this relate to ordinary clinical practice? In order to answer this question a series of audits have been undertaken in the UK. The most recent of these was undertaken under the supervision of the National Blood Service and the British Society of Gastroenterology and reported in 2010. The findings were salutary; in an unselected series of 6750 patients who were recruited from hospitals throughout the UK we found that the prevalence of varices has more than doubled compared to a previous audit that was undertaken 16 years earlier, that the overall mortality was 10% (not

much different to that reported 60 years earlier) and that the mortality of patients who were established inpatients for other reasons and developed acute gastrointestinal haemorrhage was 25%. There was great variety in clinical provision; some hospitals provided excellent service with timely therapy during working hours or 'out of hours'. Other hospitals did not consistently provide endoscopy within 24 hours, 45% of hospitals did not provide 'out of hours' endoscopy, a significant proportion of urgent endoscopy was undertaken by practitioners who were unable to treat bleeding varices; provision of therapeutic radiology was very patchy and was rarely available in the evenings or weekends. In short, we could do better.

There is clearly a gap between what is recommended in guidelines as optimum management for acute gastrointestinal bleeding and what is actually provided by many UK hospitals. It is likely that improved delivery of haemostatic therapies (endoscopic or radiological) would save lives, reduce the need for urgent surgery, need for blood transfusion and reduce the length of hospital admission. In addition early endoscopy in patients at low risk of death (relatively fit younger patients) facilitates early hospital discharge and has the potential to reduce costs.

The purpose of this project is to help hospitals provide a better service for patients who present with acute gastrointestinal bleeding. We define a service that should be available to all patients whether they present to a small

rural hospital or a large inner city teaching hospital. We recognise that it is not reasonable for small institutions to provide 24/7 urgent endoscopy or interventional radiology- the rarity of out of hours severe haemorrhage and the lack of a critical number of skilled endoscopists needed to provide an out of hours rota in this setting makes this impossible. Nevertheless all patients must be treated optimally and appropriate cases should be transferred to units where emergency haemostatic therapies can be provided- ie networks for bleeding patients should be developed. The project therefore addresses the service that is required in referral centres and small units and defines criteria for safe transfer. The project team are all too conscious of financial constraints within the NHS and suggest approaches for service re-design and budgeting to fund the optimum 'bleeding service'.

I would like to thank all the members of the steering group who have contributed to this report, to the large number of medical and nursing staff who energetically comprised focus groups and, most of all, to Lesley Howell and her colleagues at pH Associates who completed this project with enormous professionalism within budget and on time.



Kel Palmer

Past president of the British Society of Gastroenterology and CROMES Clinical Director

# Foreword 2

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My own personal experience of the NHS has been regular and varied. It has involved (amongst many other procedures) renal transplants, hip replacement, cataract surgery and cardiac procedures.

Nothing however left me feeling more vulnerable than when I suffered an acute upper gastrointestinal bleed (UGIB).

I was lucky though. I was already on a ward as an in-patient of a large teaching hospital where there was ready access to the health care professionals required to respond to my needs.

Presently there are still many parts of the country where other patients would not be so fortunate should they require the same sort of expert emergency care. Too many people are still dying as a result of less than adequate - or even non-existent services.

There are other clinical specialties where patients sometimes also require an emergency response – and in most cases there are the teams and infrastructure in place to respond to those in distress. Patients suffering cardiac arrest for example can generally be assured of receiving the care they need wherever they live.

The toolkit described in this document has been written in order to assist those health care professionals and Trusts who may wish to embark on a review of their services where they consider that present provision for patients

suffering UGIBs are less than robust.

Improving services for patients with UGIB need not necessarily require significant increases in resources. In many cases suitably qualified health care professionals and the physical resources required are already available to Trusts – improved utilisation and innovative approaches to resource sharing across geographical areas can often result in a positive dividend for patients.

I have enjoyed making a contribution to the guidance in this document. I hope that you will find the content useful and that if service provision subsequently improves many more patients might benefit as a result.



Phil Willan

Royal College of Physicians Patient Involvement Unit

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# Executive summary

# Executive summary

Acute upper gastrointestinal bleeding (UGIB) is a common, potentially life threatening emergency, associated with over 4,000 deaths a year in the UK.

Deaths can be avoided by patients having access to crucial interventions including endoscopy, surgery and interventional radiology, both during the working day and, in selected patients, out of normal working hours.

Several surveys have shown that many current UGIB services are inadequately resourced and unsustainable. Current provision is unsafe and not in the best interests of our patients.

This report provides:

1. A series of service standards that are aligned with accepted clinical standards and national policy agendas under the domains of:
  - Leadership
  - Assessment, risk scoring and resuscitation
  - Time to diagnostic or therapeutic intervention
  - Support Services and Staffing
  - Location
  - Evaluation
2. Service models that achieve these standards of care in an efficient manner to ensure all patients with UGIB can be treated in a timely manner
3. Examples of business cases for developing services
4. A suggested dataset for evaluation of local service delivery

For the safety of patients, it is necessary that NHS organisations have formal and robust arrangements to care for emergency patients presenting with upper gastrointestinal bleeding (UGIB), 24 hours a day every day of the year, throughout the UK.

This toolkit has been designed to help you consider whether there are changes you can make to your service to achieve these service standards. It is not intended as a clinical guideline. It provides a wealth of resources to support providers and commissioners to take an active approach to improving the delivery of care for their UGIB patients.

# Executive summary

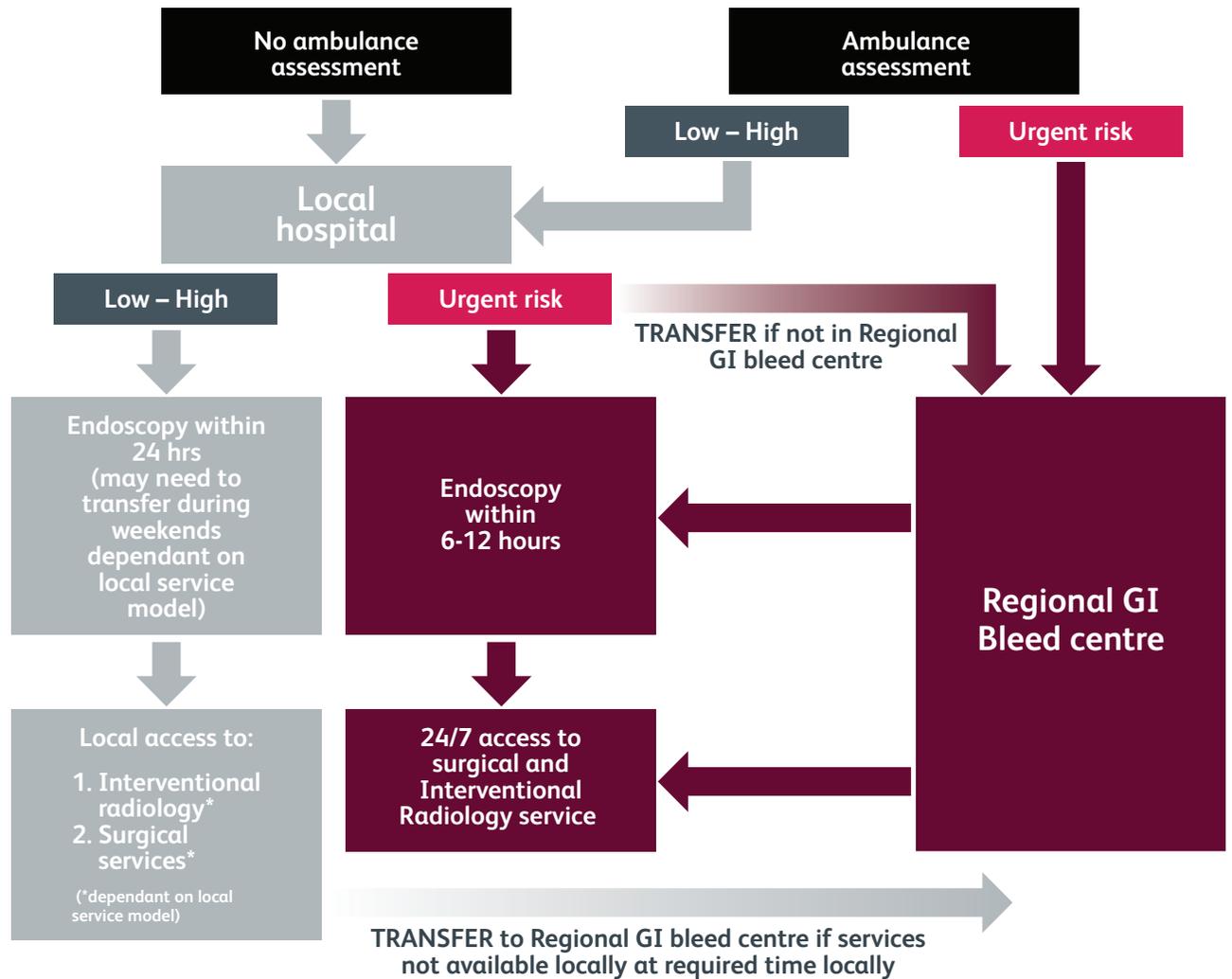


Diagram: Example service model discussed in the toolkit

The background features a dark red field with a large, curved, semi-transparent dark red shape on the right side. Two bright pink rectangular areas are positioned at the top right and bottom left corners, partially overlapping the dark red elements.

# Section 1: Introduction

# Section 1: Introduction

## 1.1 Key messages

There is a high mortality associated with upper GI bleeding (UGIB) in the UK;

- Over-all mortality for patients presenting with UGIB is approximately 10% with that of established in-patients being at least 25%

A UK-wide audit in 2007 highlighted significant deficiencies and inconsistencies in service provision and care of patients presenting with UGIB.

There were poorer outcomes for patients attending Hospitals where there was a lack of on-call consultant led endoscopy in the out of hours setting.

A review of patient safety incidents to May 2008 found that there were 28 cases where there was a stated lack of an on-call rota or service to enable a patient to receive emergency endoscopy treatment. Of these 19 were graded as no harm and 9 resulted in deaths.

This toolkit has been developed to provide practical support to providers and commissioners of healthcare to consider changes to their UGIB services to:

- help improve the quality of care for their patients with UGIB
- avoid unnecessary deaths

## 1.2 Setting the scene

### Why do people die?

Upper gastrointestinal bleeding is most commonly due to erosion of an artery in the duodenum or stomach by an ulcer. Major sudden blood loss from the eroded artery is a life threatening event and elderly patients with other medical conditions such as heart, lung or kidney diseases are at particular risk of dying, in fact death from exsanguination is rare and most patients who die do so from a complication of these other general medical conditions that are destabilised by the bleed.

The other major risk factor for death is chronic liver disease, for example alcoholic cirrhosis. Cirrhotic patients commonly develop large, distended veins in the oesophagus or stomach and these may rupture to cause severe bleeding that in turn compromises other organ systems leading to death. Management of patients with acute gastrointestinal bleeding therefore involves stopping the bleeding (using endoscopy, a range of radiological procedures or surgery) as well as supporting medical co-morbidity.

### Equity and excellence

For the safety of patients, NHS organisations should have formal and robust arrangements to care for emergency patients presenting with upper gastrointestinal bleeding (UGIB), 24 hours a day every day of the year, throughout the UK.

The key elements of the recent Department Of Health White Paper 'Equity and Excellence: Liberating the NHS'<sup>1</sup> are; ensuring services are patient led, moving the focus to outcomes rather than process, equitable provision of care and engagement of clinicians in service management. These principles have been reflected throughout this document and the service developments described can ensure delivery of an equitable service in line with patient expectations with quality outcomes and patient safety at its core.

### Unsustainable and inadequate

Several surveys<sup>2,3,4</sup> have shown that many current UGIB services are inadequately resourced and unsustainable, particularly in the out of hours (OOH) period, which may have resulted in unnecessary patient deaths. A review of data from the National Patient Safety Agency's (NPSA) National Reporting and Learning System (NRLS) identified 28 patient safety incidents related to patients with UGIB who arrived as emergencies out of hours between 1 September 2004 and 30 May 2008. These included nine reports of patients who died from UGIB after problems or delays in accessing emergency investigation or treatment. The problems described included:

- a lack of clarity on how to refer and transfer patients on to neighbouring hospitals if no local service was available out of hours
- informal 'goodwill' arrangements for OOH gastroscopy that failed to cover all dates and times

# Section 1: Introduction

- reliance on medical on-call rotas where not all participants were able to perform endoscopy or able to band oesophageal varices
- no access to the endoscopy suite and equipment out of hours
- no access to nursing or technical staff with the skills to support endoscopists out of hours

Of the nine deaths, two related to oesophageal varices and seven to unspecified UGIB. The additional nineteen reports also described problems or delays in access to investigation or treatment because of lack of formal systems to provide this out of hours and where the patients survived despite the delays.

A recent UK-wide audit showed that compliance with standards of care (the use of blood products, deployment of investigations and management) for acute UGIB are variable at best<sup>5</sup>. The National Institute for Health and Clinical Excellence (NICE) has recognised the current service shortfalls and recommends that:

*‘a national guideline is needed on the prevention and management of acute upper gastrointestinal bleeding to address the challenges posed by new interventions, and the uncertainties and variability in practice in primary and secondary care’.*<sup>6</sup>

Whilst this work is underway it is not expected to report until July 2012.

## Low profile service

In today’s resource constrained NHS, it can be difficult for managers to make a case for service improvements especially when the numbers of patients involved may be low and the service may not be seen as high priority by commissioners. Any service changes therefore need to be thought through carefully, taking account of the whole system of service provision. Quality improvements that can be achieved largely within existing resources will be attractive.

## A solution

Clear and simple routes to finding the right care 24/7 are needed in advance of NICE developing its guidance. A start can be made by developing some basic service standards<sup>7</sup> and reviewing current UGIB services against these. This should help identify and prioritise improvements or changes required to achieve optimum service levels around the UK.

## Quality, innovation, productivity and prevention

The service changes described in this document can help improve efficiency, productivity and sustainability of UGIB services and reduce the demand on OOH services in some cases (e.g. Endoscopy) due to the optimisation of in-hours services. Where resource may be scarce and more usually required on an emergency basis, ways of linking services are proposed. These measures are suggested with the aim of avoiding unnecessary use of resources, meeting national quality standards of care<sup>8,9</sup> and improving patient outcomes.

## 1.3 Support for You

This toolkit offers commissioning and providing NHS organisations support in building more sustainable services and clinical networks to improve the care of patients presenting with UGIB as well as improvements in auditing and measuring the quality of UGIB services and the impact of service changes on outcomes.

### Aims

- To improve the efficiency and quality of UGIB services whilst ensuring value for money.
- To improve 24/7 access to optimum diagnostic and therapeutic management of UGIB
- To help improve networks for a sustainable and equitable care pathway

The toolkit is based on practical improvement experience from 20 different NHS acute hospitals<sup>10</sup> that has made a difference to services along the patient pathway, that is clinically led and patient focussed to achieve the best outcomes. It is backed by existing service standards and national guidance from the British Society of Gastroenterology<sup>11,12</sup>, Royal College of Radiology<sup>13</sup>, and others together with expert opinion<sup>14</sup> from representatives of all the key stakeholder groups in the provision, governance and commissioning of UGIB services.

# Section 1: Introduction

## 1.4 Background

### Project commissioned

A UK-wide audit in 2007, highlighted significant deficiencies and inconsistencies in service provision and care of patients presenting with upper GI bleeding (UGIB), in particular there were less good outcomes for patients attending hospitals where there was a lack of on-call consultant led endoscopy in the out of hours setting<sup>15</sup>.

With the aim of improving patient safety outcomes in GI bleeding the National Patient Safety Agency (NPSA), commissioned the Royal College of Physicians (RCP) and the British Society of Gastroenterology (BSG) to undertake a project to describe models of best practice in out-of-hours (OOH) endoscopy services and determine how these can be used to support the development of UGIB services throughout the UK.

### Many services unsustainable

This project was carried out in 2009 and involved recruiting a representative sample of UK hospitals that had been involved in the National Audit and had stated that they did have an OOH service in place for patients with UGIB. Clinicians involved in the UGIB service at these centres were interviewed using a pre-agreed discussion framework to understand the structure and development of the service. It was found that most UGIB services were based on one of three models ranging from a formal, fully-funded

and resourced 24 hour, 7 day a week (24/7) UGIB service to a 5 day a week endoscopy and interventional radiology service during core working hours (8am to 5.30pm) with no formal OOH provision. The latter rely on the goodwill of clinicians should a patient require therapeutic intervention during the evening/night or weekend. The majority of hospitals interviewed had a partial service functioning somewhere between these two extremes, many of which relied to some extent on informal availability of medical professionals outside their normal working hours, often whilst covering other on-call responsibilities and without any remuneration to carry out additional duties. Services with no formal arrangements for the management of patients OOH are unsustainable, and the same may be true of some elements of the partially formed services<sup>16</sup>.

### Service standards

Following this initial research, and in the absence of an evidence base for an ideal UGIB service model, a focus group approach was used to define the features of an ideal UGIB service<sup>17</sup>. Two groups were convened to include a variety of experts with an involvement in the planning and delivery of UGIB services (healthcare professionals, NHS managers, patient representatives, commissioners). Participants were selected from a range of hospital locations and sizes, and from hospitals with and without an OOH UGIB service. Objectives, discussion flows and methods were pre-agreed and the groups were run by an

experienced facilitator external to the immediate project team. Two focus groups were held in order to check the validity of the findings.

One of the main objectives of the focus groups was to develop a model of best practice for the management of UGIB. Whilst the groups were able to define an 'ideal' service model, they considered the development of such services within every Acute hospitals would be financially unachievable, particularly in the current financial climate, and medically unnecessary. Hence, the focus groups moved on to develop a set of recommended UGIB 'service standards' which are recommended in this document along with a suggested model of service to achieve these standards<sup>18</sup>. It was considered that this gave more flexibility for Trusts to work within the locally available resources and capacity.

### Suggested models and local considerations

The suggested model considered in this document (see section 3) works on the basis of several local services each providing care for local patients during normal working hours with 'networked services' for care out-of-hours. Networked services may also be appropriate during normal working hours for some of the more specialised interventions for which resource may be scarce in some hospitals. It is recognised that there are different ways to achieve the recommended standards, taking into account local circumstances; for example, services may

## Section 1: Introduction

be networked using a 'hub and spoke' approach or by sharing resources from two or more hospitals. Similarly it is recognised that many organisations may already have resources and arrangements to provide high quality UGIB services without the need to share resources with others. There is no reason to change the current arrangements if they are sustainable in the long term, properly resourced and meet the recommended service standards. However, for hospitals where services could be improved, this toolkit aims to provide practical support to assist with that process.

### 1.5 UGIB Service Planning

Finding new ways of working or service planning requires careful preparation especially where changes in staffing may be necessary. By following a structured process shown in the steps outlined below, practical issues can be taken into account e.g. identifying the resources available locally, the resources that need to be sourced from or shared with other hospitals and the impact of any change on other services. It is important that any service change should be monitored to evaluate whether it is achieving its intended goal. This stepwise approach will help to ensure that arrangements are sustainable, realistic and fully support the delivery of high quality patient care.

There are three major components that need to come together in order to achieve the revised or new service model:

- Whole system approach, involving all key stakeholders: this will create common purpose, shared values and practice between those commissioning, providing and regulating services, whether in the health, local authority, private, or community sectors.
- Workforce sustainability: workforces need to have the right number of people with the right competencies, the right balance of members within a team, working in the right place, now and in the future
- Continuous improvement through a process of innovation and evaluation.

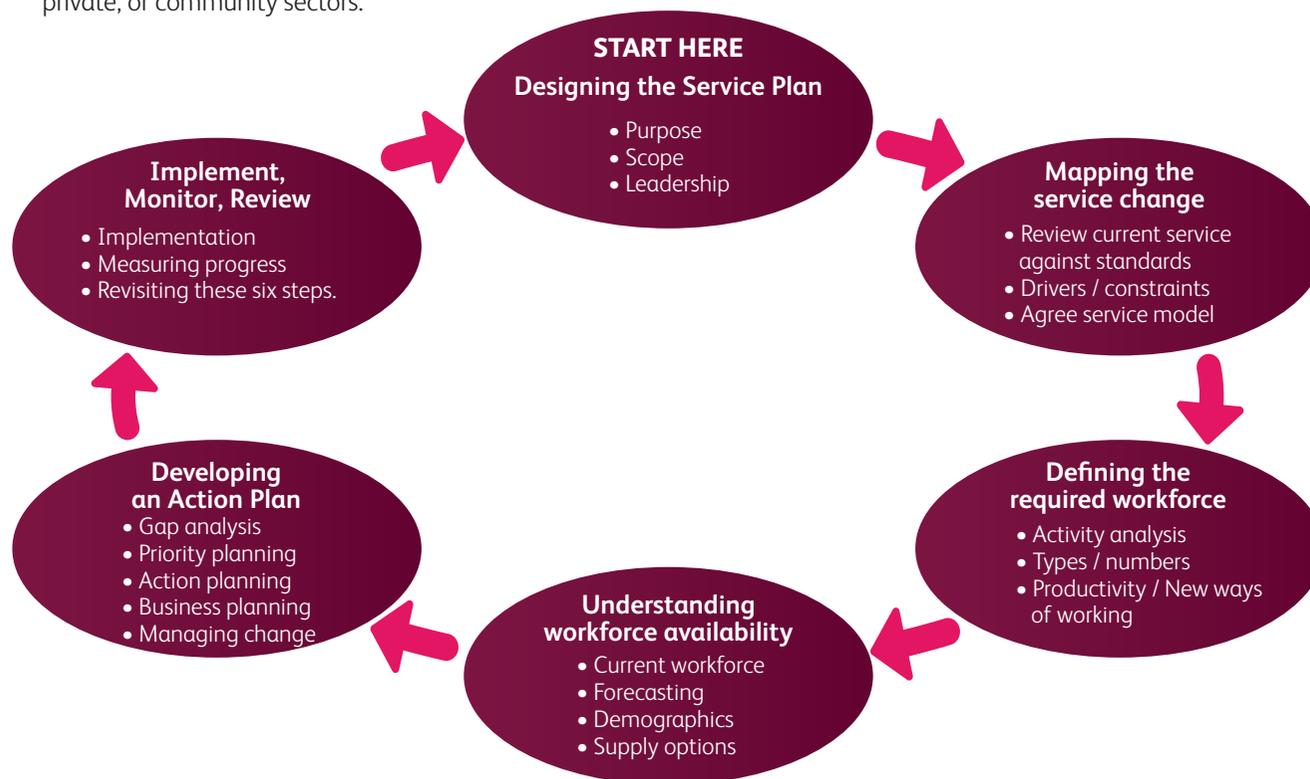


Diagram 1: A stepwise process for service redesign

## **Section 2:**

Recommended Service Standards  
for your Upper Gastrointestinal  
Bleeding service

# Section 2:

## Recommended Service Standards for your Upper Gastrointestinal Bleeding service

### Service standards

#### Leadership of your service

1. There will be a nominated individual with the authority to ensure implementation by the contracted provider.
2. Contracted providers will ensure the minimum service is adequately resourced.

#### Assessment, risk scoring and resuscitation of your patients

3. All patients with suspected UGIB should be properly assessed and risk scored on presentation.
4. All patients should be resuscitated prior to therapeutic intervention.

#### Time to diagnostic or therapeutic intervention for your patients

5. All high risk patients with UGIB should be endoscoped within 24 hours, preferably on a planned list in the first instance.
6. For patients who require more urgent intervention either for endoscopy, interventional radiology or surgery formal 24/7 arrangements must be available.

#### Staffing of your service

7. The necessary team, meeting an agreed competency level, should be available throughout the complete patient pathway.

#### Location of your service

8. Each stage of the patient pathway should be carried out in an area with 'appropriate' facilities, equipment and support including staff experienced in the management of UGIB.

#### Evaluation of your service

9. All hospitals must collect a minimum data set in order to measure service provision against auditable outcomes (case-mix adjusted as appropriate).

These standards are designed to support commissioning and providing NHS organisations to deliver effective, high quality UGIB services and enable patient access to the same quality of care wherever they live in the UK. They are not regulations governing practice but attempt to define the attributes of a service which promote the provision of high quality care to patients.

## Section 2: Recommended Service Standards for your Upper Gastrointestinal Bleeding service

### 2.1: Leadership of your service

#### Service standard 1

There will be a nominated individual with the authority to ensure implementation by the contracted provider.

#### Rationale

Nominated clinical and business leads are necessary to:

- a. Establish a unity of purpose and direction for the service in which staff can be fully involved in achieving the set standards
- b. Co-ordinate and liaise with the 10 or more services involved in the UGIB care pathway; emergency services (A&E and ambulance), resuscitation (ITU/HDU), gastroenterology, endoscopy, interventional radiology, anaesthetics, surgery, nursing and general medical services, laboratory and blood transfusion services.
- c. Review contracts and finance of service.
- d. Innovate change to services and ensure the business case to support this change is achievable
- e. Oversee and evaluate the implementation of service changes

#### Implementation

1. For efficient operation the designated leader of a UGIB service is someone who is
  - a. competent to judge whether the service performance is satisfactory
  - b. responsible and accountable for addressing any service shortfalls in the short and longer term.
  - c. responsible for looking at the sustainability of the UGIB service
  - d. responsible for budgetary management
  - e. able to ensure an evaluation framework is in place
2. Since endoscopy is the most usual first diagnostic and treatment intervention for UGIB, a senior Gastroenterologist may be considered a suitable clinical lead for the service.

#### Examples of service planning leads from around the UK

*Example 1: 'The service and changes to OOH services were championed by a gastroenterologist lead, as it was seen as a clinical quality issue'.*

*Example 2: 'Heads of Surgery & Medicine (most senior clinical managers) led the changes and management support is seen as crucial for success'.*

*Example 3: 'A gastroenterologist took the lead in terms of the Drs changing their current responsibilities. The Nurse Clinical Lead is responsible for the current discussions about increasing the nursing cover provided'.*

*Example 4: 'Service is championed by the Medical directorate manager and supported by the physicians'.*

## Section 2: Recommended Service Standards for your Upper Gastrointestinal Bleeding service

### Service standard 2

Contracted providers will ensure the service is adequately resourced.

#### Rationale

1. Providers of healthcare services are required to apply standards for safety of staff and patients and for the quality of the service. These standards can only be achieved if adequate resources are in place.
2. Increasingly UGIB services are involved in formal sharing of resources through clinical networks to ensure the availability of adequate resources to meet recommended service standards.
3. Any changes in service configuration must work to improve patient care, be evidence based and sensitive to needs of all hospitals, especially rural or outlying hospitals.

#### Implementation

1. The recommended service standards and six step process for service planning allows organisations to map out a local service model and develop a checklist of the service elements already available locally and those that need further development to meet the recommended standards of service.

2. This toolkit incorporates existing recommended standards for the staffing of an UGIB service, where they exist.
3. Networking arrangements allow scarce resources to be shared between Trusts, with appropriate commissioning and Trust support, and ensures investment in services where the size of population they can serve justifies the service.

#### Trusts experiences of securing adequate resourcing

*Example 1: 'We got funding for an OOH UGIB service secured on the back of extending the colon screening service.'*

*Example 2: 'By extending the in- hours planned endoscopy service to 7 days a week we manage to cover the majority of OOH UGIB patients in slots at the beginning of morning clinic. The emergency unstable heavy bleeding patients are referred to a 24/7 unit.'*

*Example 3: A 'near miss' catastrophic bleeding case led to a full clinical risk assessment and showed on Risk Register for Trust (highest level), we involved the support and expertise of Clinical governance patient safety, NHSLA to try and secure more resources for UGIB.'*

*Example 4: 'Two critical events in A&E were judged to have arisen due to lack of emergency endoscopy cover*

*and led to the formalising of OOH cover.'*

*Example 5: 'The service was set up with a full business plan following a GI bleed audit which found standards were below the national average, so clinical issues were the driver.'*

*Example 6: 'The rota was initiated as a clinical quality issue, championed by the Gastroenterology lead who was getting a lot of calls informally. New posts were created as part of a bigger plan for Gastroenterology'*

*Example 7: 'The development of the cross-Trust OOH interventional radiology service was included as part of a plan to expand general radiologist numbers. This allowed the interventionalists to be released from the general rota. However, for the single site this would have meant a 1 in 3 rota which was not sustainable. This was started in the short term but will now be joined with a neighbouring hospital to provide a more sustainable 1 in 6 rota.'*

*Example 8: 'Whilst the Trust receives payment for patients admitted OOH and from outside the area, usually with a code of 'peptic ulcer' the lack of 'unbundling' of tariffs means that these funds are often allocated to gastroenterology and not to interventional radiology. Trusts need to look at the appropriate allocation of funds to make cross-Trust arrangements financially viable.'*

## Section 2: Recommended Service Standards for your Upper Gastrointestinal Bleeding service

### 2.2: Assessment, risk scoring and resuscitation of your patients

#### Service standard 3

All patients with suspected UGIB should be properly assessed and risk scored on presentation

#### Rationale

1. National guidance<sup>19</sup> recommends specific assessments with the Rockall risk scoring method to identify the risk of re-bleeding and death in patients presenting with UGIB. The results of the assessments and risk scores guide decisions on choice and speed of intervention and treatment.
2. A recent audit confirmed the strong relationship between outcome for patients with UGIB and the proper assessment and use of validated Rockall scoring system on presentation<sup>20</sup>
3. Patients with significant UGIB, in particular those at high risk – inpatients, the elderly, and those with high risk scores, should where appropriate, be referred early to specialist care e.g. urgent endoscopy or interventional radiology<sup>21</sup> or discussed with the upper gastro-intestinal surgical team.
4. Adherence to this standard will allow a consistent method of assessment and risk scoring of patients throughout the patient pathway and clinical network; from GPs, ambulance staff, A&E, AMU, HDU/ITU etc.

#### Implementation

1. Hospitals are advised to have written guidelines, initial assessment protocols, Standard Operating Procedures (SOPs) and/or care pathways detailing:
  - a. Recommended assessment and risk scoring system, e.g. Rockall, and a guide to its use
  - b. Documentation and communication of the assessment and risk score.
  - c. Agreed response, decision and action needed for each assessment and score level.
  - d. Criteria and responsibilities for prioritizing and referring patients to endoscopy, interventional radiology and surgery, including OOH.
2. Protocols should be aligned for all networked sites and cover in-hours and OOH e.g. ambulance, receiving and transferring patients, (AMU, HDU, medical or GI ward).
3. It is essential to communicate the agreed protocol to all individuals involved in UGIB patient care, Trust wide and over the network. This may be done via the Trust website, in contractual agreements and in staff meetings.
4. Training may be required to develop skill and competency in assessment and risk scoring.

## Section 2: Recommended Service Standards for your Upper Gastrointestinal Bleeding service

### Service standard 4

All patients should be resuscitated prior to therapeutic intervention

#### Rationale

1. Adequate resuscitation and assessment prior to any diagnostic or therapeutic intervention is key to achieving optimum patient outcomes; it is essential to reduce the potential for cardiorespiratory complications of the procedures themselves<sup>22</sup>.
2. Many patients die not of bleeding directly, but because the resulting haemodynamic instability precipitates exacerbation of e.g. renal failure or ischaemic heart disease.
3. If the patient is not adequately resuscitated before endoscopy;
  - a. endoscopy may be delayed,
  - b. diagnosis and treatment of the patient are delayed,
  - c. patient outcome and quality of care are affected,
  - d. precious time and resources are wasted – staff and clinic time, use of diagnostic equipment. This is especially true if OOH / on call.

#### Implementation

1. Refer to national guidelines on blood loss<sup>23</sup>, agree the optimum level of resuscitation required prior to endoscopy and include in local guidelines that relate to UGIB e.g. Resuscitation, Transfusion, UGIB and Emergency Service Guidelines
2. Coordinate the communication, training and audit of this resuscitation standard in emergency and admitting services.

#### Examples of communication tools used to detail UGIB patient initial assessment and care:

*Example 1: 'Endoscopy referral criteria are included in 'Management of GI Bleeds' protocol.'*

*Example 2: 'Our UGIB Protocol covers carrying out a pre-endoscopy risk scoring and contacting a SR or consultant if the patient is high risk (this depends on site and co-morbidities)'*

*Example 3: 'Use an Integrated Care Pathway which details the assessments, risk scoring and resuscitation required together with the documentation and referral process.'*

*Example 4: 'Resuscitation levels are included in HDU/transfusion guideline'*

## Section 2: Recommended Service Standards for your Upper Gastrointestinal Bleeding service

### 2.3: Time to diagnostic and therapeutic intervention for your patients

#### Service standard 5

All high risk patients with an upper GI bleed should be endoscoped within 24 hours, preferably on a planned list.

#### Rationale

1. Endoscopy is a first line diagnostic and therapeutic intervention carried out in patients presenting with UGIB.
2. Although the optimum timing has not been clearly established, latest national guidance recommends endoscopy within 24 hours of initial presentation as optimum for most patients<sup>24</sup>.
3. Early endoscopy allows risk to be estimated for bleeding patients; low risk patients can be discharged from hospital at an early stage reducing the cost of the admission and higher risk patients achieve better outcomes in relation to lower transfusion rates, reduced incidence of rebleeding and reduced need for surgery<sup>25</sup>.

#### Implementation

1. All UGIB services need a clear definition and understanding of the criteria for prioritising patients for endoscopy and other diagnostic and treatment services such as interventional radiology and surgery. This should be defined in local protocols.
2. Current recommendations suggest that with appropriate planning, the majority of patients identified as requiring an endoscopy during the evening/night can be stabilised and endoscoped the next day on a planned list in an endoscopy unit. This could require hospitals without a formal OOH rota services to provide services during the weekend but only during daytime hours. Alternatively there should be an agreed arrangement for transferring patients to a hospital with an OOH endoscopy service during the OOH period.
3. Emergency bleeding slots allocated at the beginning and possibly end of the day will help accommodate the majority of urgent UGIB patients presenting overnight requiring an endoscopy within 24 hours.

#### Examples of extensions to daytime services

*Example 1: 'A weekend endoscopy service was initiated because Monday services were overstretched with patients who had presented over the weekend.'*

*Example 2: 'Endoscopy unit opens Saturday and Sunday mornings for 4-5 hours.'*

*Example 3: 'Planned endoscopy lists on Saturday and Sunday mornings covers routine work as well as high risk UGIB patients presenting out of hours.'*

## Section 2: Recommended Service Standards for your Upper Gastrointestinal Bleeding service

### Service standard 6

For patients who require more urgent intervention formal 24/7 arrangements must be available

#### Rationale

1. There is a need to clearly identify patients who require more immediate intervention with endoscopy (diagnostic or therapeutic). There is currently no evidence to suggest the optimum timing for endoscopy in these emergency patients but there is recognition of the clinical need.
2. A recent audit showed no significant rise in the proportion of high risk UGIB cases receiving early endoscopy in last 15 years<sup>26</sup>.
3. It is equally important to ensure that arrangements are in place to provide 24/7 interventional radiology or surgery and to agree patient selection criteria for these services OOH, as appropriate use of these interventions OOH is always on an emergency rather than elective or semi-elective basis.
4. Every Trust has a duty to ensure that there are formal arrangements to secure provision of elective and emergency interventional radiology services but this is not currently happening. This situation puts patients at risk<sup>27</sup>.

5. There are already standards in place for the provision of 24/7 Interventional Radiology services<sup>28</sup> recognising the importance of these services for a variety of emergency situations including UGIB.
6. It is not sustainable, safe or timely to rely on informal OOH arrangements based on the goodwill of medical professionals or ad hoc arrangements. These are not in the best interest of patients<sup>29</sup>.
7. Formal network agreements between neighbouring Trusts allow more equitable service provision across a wider catchment area maximising the efficient use of scarce resources within the NHS.

#### Implementation

1. Define referral criteria for patients who clinically need access to formal 24/7 services in different situations:

Example 1: criteria for urgent endoscopy ideally within 6-12 hours could include:

- a. Active haematemesis/ melaena associated with BP < 100 despite fluid resuscitation.
- b. Haematemesis/ melaena with a strong suspicion of liver disease.

Example 2: criteria for urgent interventional radiology could include:

- a. Continued uncontrolled bleeding or massive bleeding.

b. Active bleeding at endoscopy that does not immediately respond to endoscopic treatment.

c. In-hospital re-bleed:

- If patient has haemodynamically significant bleed (suggested by tachycardia, peripheral vasoconstriction and decreased urine output) IR or surgery may be considered depending on the site of the bleed
- If patient has a small, haemodynamically insignificant re-bleed consider urgent repeat endoscopy.

Example 3: other considerations for more urgent intervention might include specific patient groups (such as Jehovahs Witnesses) where refusal of a blood transfusion may necessitate a modified management pathway.

2. Agree service model required to achieve service standards that best fits with local resources either through expansion of local service, network arrangement with other Trusts or a combination of both.
3. The model for any networked arrangement may vary based on the geography of the Trust, the location of appropriately skilled and competent staff across the full patient pathway and the availability of the necessary facilities. Local consideration should be given as to whether patients are transferred or the clinical team move to see the patient.

## Section 2: Recommended Service Standards for your Upper Gastrointestinal Bleeding service

4. The appropriate contracts and funding mechanisms need to be in place to ensure any cross-Trust arrangements are clearly defined and understood by the teams responsible for managing patient care.
5. Pathways should be in place for treating patients appropriately when access to the ideal service cannot be achieved, for example when the patient is too unstable to transfer.

### Examples of managing emergency patients

*Example 1: 'As the majority of UGIB patients are managed in day time endoscopy services there are only a small number of emergency patients ( 12/year) that need to be urgent management by the 24/7 OOH service.'*

*Example 2: 'A 24 hour Interventional Radiology service is provided by our Trust for the region to care for emergency patients throughout the working week and at weekends. 30-40% of our interventional radiology work OOH is relating to UGIB'.*

*Example 3: 'We accept patients from other sites within the Trust and cover emergency patients from neighbouring Trusts where there is no formal OOH service.'*

*Example 4: 'We have formal contracts in place to cover all UGIB services from other Trusts and formal links with regional specialist centres e.g. Interventional Radiology.'*

*Example 5: 'In 40% of cases the patient is too unstable to transfer to the site where the Interventionist is based, in these cases the radiologist will travel to the patient. There are radiology nurses and radiographers on-call for both sites at all times under separate rotas.'*

## Section 2: Recommended Service Standards for your Upper Gastrointestinal Bleeding service

### 2.4: Staffing of your service

#### Service standard 7

The necessary team, meeting an agreed competency level, should be available throughout the complete patient pathway

#### Rationale

1. A safe and effective UGIB service relies on the support of many different professions, services and their teams. This list of core and support services should be considered as the minimum grouping of services required for a defined 24/7 UGIB service.

Core Team	Support
Emergency services (Ambulance and A&E)	General Medical services
Admissions unit	Pathology labs
Gastroenterology Team	Blood Transfusion Service
Dedicated 'bleed' ward area and staff (gastro or surgery)	Anaesthetics
Resuscitation HDU/ITU level 2 or 3	Portering
Endoscopy – diagnostic and interventional	Theatres and staff
Interventional Radiology	Pharmacy
Surgery Emergency care	

2. The core UGIB team and support services should have a collaborative and consistent approach to the provision of care. This is especially important if elements of the service are located in a different site or Trust to the other services.
3. Many National standards already exist for optimum staffing levels, skills, knowledge and competences for many of the services involved in the pathway of care for UGIB patients, for example:
  - The Joint Advisory Group (JAG) on Endoscopy has detailed general and specific safety and quality indicators for staff involved in the endoscopy of GI bleeding patient<sup>30</sup>.
  - Non-medical endoscopists should be suitably trained and competent for the agreed procedures to be performed by them<sup>31</sup>.
  - The Royal College of Radiology Standards for providing a 24 hour Interventional Radiology Service detail the support staff required for an optimum safe service<sup>32</sup>.
  - A 24 hour blood transfusion service that adheres to the Guidelines for the Blood Transfusion Services in the UK<sup>33</sup> must be available<sup>34</sup>.
  - The relevant staff have core competencies in blood transfusion, detailed in NPSA 'Right patient, Right blood' safer practice notice<sup>35</sup>.

## Section 2: Recommended Service Standards for your Upper Gastrointestinal Bleeding service

- UGIB surgery should be undertaken by competent surgeons who are recognised members of the UGIB Team, or their supervised trainees, in a unit where the operations are done regularly.
  - All surgeons should achieve the standards of Good Surgical Practice<sup>36</sup>.
  - Highest standards of emergency care are required for UGIB patients. The College of Emergency Medicine has set out guidance and standards to achieve this<sup>37</sup>.
4. For UGIB services to work optimally, it is important that all staff working on their delivery have enough exposure to UGIB patients to maintain (and continually improve on) the required level of competency. Patients need to be treated by those regularly undertaking the relevant procedures.
  5. There needs to be agreed support from other clinical disciplines (on-call general medical services, anaesthetics, intensive care) as patients with UGIB often have other co-morbidities, which may require a multidisciplinary approach to management.

### Implementation

1. For the UGIB service you wish to provide, identify the services and staff you require locally or need to contract from other Trusts to complete and support the UGIB patient pathway.
2. Define roles and responsibilities for each member of the team, and identify strong management and professional leadership.
3. Where networked service arrangements are in place, clear communication and agreed lines of responsibility between different Trusts are essential to avoid confusion or delays to patient care.
4. Any service development should provide definition and management of tasks for staff to deliver the service and ensure the appropriate skill mix and staff complement.
5. The staffing levels considered must support staff to achieve an acceptable work/life balance.
6. Pragmatic solutions to workforce planning can be considered that still adhere to nationally agreed standards. Examples from around the UK have been provided within this chapter.
7. The service development needs to include provision for staff training and regular assessment of competency.
8. Internal audit of the service at a local or regional level allows continual review of the quality and safety of the service.

### Example of guidelines prepared by the Royal College of Nursing and BSG Endoscopy Associated Group: for therapeutic endoscopic procedures the endoscopist must be assisted by two Registered Nurses at least one of whom is part of the endoscopy staff

#### Practice examples

*Example 1: 'All gastroenterology nurses from the ward spend some time in endoscopy. Two nurses from the ward will assist for any out of hours endoscopy work carried out if required but there will be two doctors present due to the way our rota is structured'*

*Example 3: 'Two endoscopy nurses are available 8-12am on Saturdays and emergency endoscopies are carried out during daytime hours where possible'*

*Example 5 'General theatre staff are trained to assist in endoscopies for OOH cover'*

*Example 6: 'An endoscopy nurse is available OOH to assist with every procedure and the patient's ward supplies a second Registered Nurse'*

## Section 2: Recommended Service Standards for your Upper Gastrointestinal Bleeding service

**Example of standards from RCR: There should be recognition that in the absence of provision of IR services patients will be placed at risk. There should be clarity about what interventional services are available locally and discussions with commissioners about purchasing appropriate services from other Trusts where there is an unmet clinical need. Out-of-hours service provision must be subject to a formal rota. Onward referral pathways must be clear for those Trusts not providing a 24 hour service.**

Practice examples

*Example 1: 'We have a 24/7 IR service which used to be a 1 in 4 rota but is now a 1 in 6 and provides services regionally through arrangements with the other Trusts'*

*Example 2: '6 Radiologists cover all 5 hospitals across the area and their service includes but is not limited to interventional radiology for GI bleeding. Not all interventional radiologists on the rota are proficient at TIPPS but in practice there has not been an incident when we could not get the cover we required'*

*Example 3: 'For patients requiring IR OOH we offer cover to all Trusts within a 25 mile radius. If the patient is fit to travel they are referred to us, if they are not fit to travel they are referred for surgery. This same service is offered in-hours as well for some Trusts that have no IR locally.'*

**Achieving sufficient staffing levels by sharing services between Trusts**

Practice examples

*Example 1: 'the 24/7 UGIB rota is staffed by endoscopists from two hospitals but provides a service over 3 hospitals. All consultants are familiar with the three sites and will travel to the patient out of hours'*

*Example 2: 'The on-call endoscopist and endoscopy nurse from the centre providing 24/7 OOH cover travel to the hospital the patient is admitted to'*

*Example 3: 'A regional 24/7 IR service is planned to start within the next 2 months, to cover upper and lower GI bleeding and poly-trauma. The rota will be staffed by 11 Radiologists from 2 Trusts. This will involve Radiologists travelling to the patient between hospitals that are 40 miles apart. Travelling time is estimated at 60-90 minutes and this has been judged acceptable.'*

**Maintaining competencies in the UGIB team**

Practice examples

*Example 1: 'There was a problem with some of the surgeons not doing enough endoscopies to be proficient, particularly with variceal banding. The solution was for them to drop out of the rota rather than implement training as their interests lay elsewhere'*

*Example 2: 'We have needed to provide training and support for our surgeons to remain competent at endoscopy as that was the only sustainable way of achieving the cover we needed'*

*Example 3: 'In cases where an endoscopy is carried out by a surgeon, if a procedure is required that the surgeon cannot perform they would call the hepatologist'*

## Section 2: Recommended Service Standards for your Upper Gastrointestinal Bleeding service

### Considerations for out of hours rotas

#### Practice examples

*Example 1: 'Covering 3 hospital sites for GI bleeding and being involved in the on call general medicine rota is not sustainable. Discussions are ongoing with respect to the Gastroenterologists being removed from the weekend on call medical rota and instead providing an endoscopy list each morning on a Saturday & Sunday, participating in the Trust wide GI bleed rota and offering support and advice with respect to GI emergencies across the Trust.'*

*Example 2: 'Optimising our in-hours service and having emergency bleeder slots early morning and evening allowed us to carry out most urgent endoscopies when the hospital was fully staffed incase any support was needed.'*

*Example 3: 'Physicians on-call for the GI bleed rota will also be on call for general medicine to reduce the burden of on-call frequency and saves having two gastroenterologists on-call at same time. Consultant calls for general medicine are rare so this and the lack of cover during scoping are not a problem.'*

*Example 4: 'The OOH gastroenterology rota covers all gastroenterology not just GI bleeds/ endoscopy.'*

## 2.5: Location of your service

### Service standard 8

Each stage of the patient pathway should be carried out in an area with 'appropriate' facilities, equipment and support including staff experienced in the management of GI bleeding

#### Rationale

1. Acute UGIB is a complex emergency condition associated with high morbidity and mortality and requires specialist facilities to be available.
2. The service should provide an environment and facilities which are safe, clean, comfortable and fit for purpose for staff, patients and others.
3. Improved outcomes are associated with protocolised care, prompt resuscitation and close medical and surgical liaison and formal OOH care which are found in dedicated GI bleeding units<sup>38</sup>. The key elements of such units may be coordinated or combined in a variety of ways to provide the appropriate facilities required using local and regional resources.

4. For each patient the location of care will depend on the severity of bleeding assessment and scoring and existing co-morbidities:

#### Low risk patients will require

- Facilities for assessment

#### Medium to high risk patients require

- Facilities for assessment, resuscitation and stabilising e.g. general medical or surgical ward with staff experienced with upper GI bleeding
- access to level 2 resuscitation facilities (HDU)
- access to a dedicated endoscopy area with facilities for interventional procedures. The majority of patients once stabilised can be endoscoped within 24 hours during daytime hours
- access to 24/7 UGIB service – endoscopy, interventional radiology and surgery, if needed (this can be provided/contracted by another Trust if not available locally)

#### High risk/urgent patients will require access to the key elements of a GI bleed unit

- Dedicated ward area or beds
- With nursing staff experienced in GI bleeding and available to monitor hourly
- Consultant Gastroenterologist on call 24/7

## Section 2: Recommended Service Standards for your Upper Gastrointestinal Bleeding service

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- Immediate access to dedicated endoscopy area with facilities for interventional procedures
  - Resuscitation level 3 (ITU)
    - Interventional Radiology
    - Surgery, with a rota staffed by surgeons who have experience of GI surgery
5. Safety and quality standards of endoscopy units (structure, equipment and facilities, policies and procedures, staff levels and training) are set by the BSG Joint Advisory Group (JAG) on Endoscopy<sup>39</sup>. JAG accreditation is recommended as it demonstrates the quality of all aspects of endoscopy units. Example of JAG standard:
- Availability of equipment to treat ulcer –related bleeding, variceal bleeding and mucosal bleeding
  - Availability of facilities to perform endoscopy with anaesthetist and GA support, and provide emergency endoscopy OOH
  - Adequate provision of equipment and access to relevant support service (e.g. radiographic screening, general anaesthesia, emergency surgery) for all procedures performed
6. Anaesthetic and resuscitation facilities must be provided on site for the management of complications of sedation and procedures<sup>40</sup>.
- Implementation**
1. For the service configuration or level of service you wish to provide locally or contract from other Trusts, detail the requirements for each area of service e.g. equipment, procedures, staff and auditing.
  2. Define roles and responsibilities for each area of facilities and environment management.
  3. Take account of the distance or time to travel between sites or facilities. Standards or criteria for travel times for patients and staff should be set, especially OOH and any impact on other services reduced e.g. GMS.
  4. For dedicated 24/7 UGIB unit, gastroenterology, resuscitation, endoscopy, interventional radiology and surgery should ideally be in close proximity on one site.
  5. Review quality of current service facilities e.g. through JAG, to provide a current report demonstrating compliance with statutory requirements from the recognised regulator.
  6. Optimise use of daytime services where possible to maximise the availability of support staff to the core UGIB team.
  7. In-patients with UGIB are considered high risk and should ideally be cared for on a designated specialist ward area – gastroenterology, surgery, or joint gastroenterology-surgery.
  8. Put protocols in place for directing ambulance services and admitting teams to the appropriate site or area for each patient with a suspected UGIB.
  9. If the local service involves the possibility of staff visiting from other sites or Trusts, consider processes to ensure they are familiar with the provision and location of facilities.
  10. Ensure all areas used by the service meet the specific needs of the patient population (including children and those with particular needs) and staff.

## Section 2: Recommended Service Standards for your Upper Gastrointestinal Bleeding service

### 2.6: Evaluation of your service

#### Service standard 9

All Trusts must collect a minimum data set in order to measure service provision against auditable outcomes (case-mix adjusted as appropriate).

#### Rationale

The importance of evaluation in health care

1. Audit and evaluation are important parts of the Health Care Quality Improvement process.

*“Health Care Quality Improvement is a broad range of activities of varying degrees of complexity and methodological and statistical rigor through which health care providers develop, implement and assess small-scale interventions and identify those that work well and implement them more broadly in order to improve clinical practice.”*

*Mary Ann Bailey, The Hastings Center<sup>41</sup>*

*“Every provider of NHS services should systemically measure and improve quality”*

*Lord Darzi, High Quality Care for All, 2008<sup>42</sup>*

2. To identify the interventions or process changes that work well and should be prioritized for implementation, continuation or extension beyond an initial pilot, there must be systematic evaluation of important measures of success.

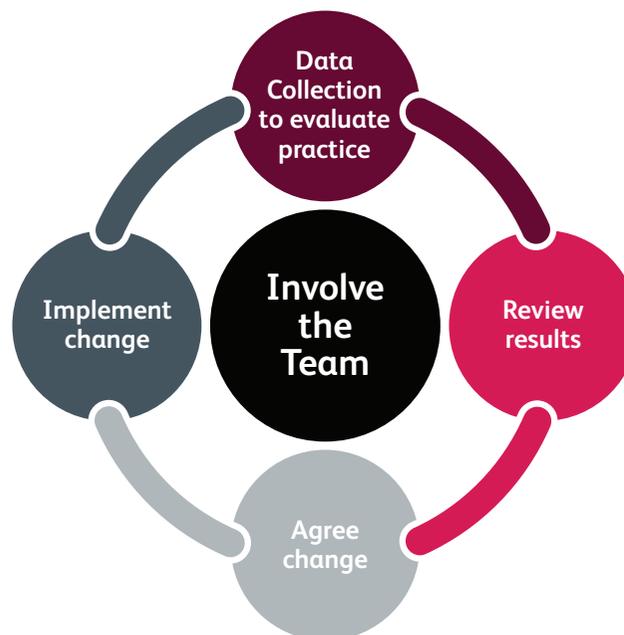


Diagram 2: Evaluation to drive change

3. It is generally accepted that evaluations can be conducted in many ways. Some of these methodologies include:

- Retrospective chart review
- Prospective outcomes study
- Time and motion study
- Primary care database study
- National registry
- Survey
- Patient reported outcomes study

4. However, there are 3 basic types of evaluation<sup>43</sup>

- **Research study** – aims to generate new knowledge either to describe practice or compare different interventions with enough subjects to be able to make generalised conclusions beyond the site(s) of the study.
- **Audit** – aims to check whether practice comes up to a pre-determined authoritative standard – ‘are we doing what we know is best?’
- **Service Evaluation** – aims to describe and evaluate the quality of a local service where there is no recognised standard which could be used for audit. Comparisons with data on previous service performance and/or Stakeholder value judgements may then be used to determine whether the service is ‘worthwhile’ and an improvement on the previous service model.

## Section 2: Recommended Service Standards for your Upper Gastrointestinal Bleeding service

### 5. Evaluation of UGIB services

The suggested form of evaluation for new or revised UGIB services is a local service evaluation, with an element of audit incorporated in it where there are accepted service standards to apply, as audits and local service evaluations are most useful for informing local decisions about service provision and driving further quality improvements in clinical care.

In addition to the need for data to inform decision making at a local level, it will be important to collate data from hospitals that are willing to collaborate on a broader basis, to develop an evidence base to inform national recommendations about optimum service models for the future. Although the national audit of upper gastro-intestinal (GI) bleeding demonstrated that a lack of on-call consultant led endoscopy was associated with poorer outcomes for patients with acute GI bleeding<sup>44</sup>, and clinical guidelines on the management of UGIB are in place<sup>45</sup> there is a lack of good quality evidence to suggest whether any particular model of service yields better patient outcomes and value for money than others.

### Implementation

#### Conducting an evaluation of an UGIB service

These are some guidance notes to help you to prepare to conduct an evaluation of an UGIB service, using the template evaluation outline in appendix 2, which can be modified to reflect your local service structure and priorities in evaluating the service. However, the following are some steps it will be helpful to include in the planning of your evaluation, whatever your service model is:

#### Step 1: Involving the team

The care pathway of a patient with UGIB may involve a number of departments and specialties within a Trust and between different Trusts where network agreements are in place. As the Evaluation Template shows the evaluation of an UGIB service may involve obtaining data from more than one, if not all of these and implementation of any changes arising from review of the evaluation results is likely to need the co-operation of a variety of individuals. One means of engaging stakeholders in potential changes in the service is to involve as broad a representation as possible in the team evaluating the service. Thus it is important that all relevant members of the team contribute to the discussions and implementation process of this evaluation.

One way to achieve this is to hold a multidisciplinary team meeting to bring together an evaluation team. Once the team members are agreed, it is important that each member of the team is familiar with the methodology for the evaluation and with the correct interpretation of patient records or departmental databases and completion of data collection forms. People to invite to this meeting may include:

- Endoscopists – may include Gastroenterologists, Hepatologists, Surgeons
- Endoscopy Unit Senior nurse/manager
- Endoscopy nurses who participate in on call rota
- Ward nurses and/or theatre assistants who assist in OOH endoscopy or IR
- Operating Theatre manager
- Interventional Radiologists
- Radiology department manager
- Radiographers who assist with IR in hours/OOH
- Clinical Coding department manager
- A&E clinical lead/manager
- (Upper GI) surgeons – who receive patients with UGIB referred for surgery
- UGIB service manager

## Section 2: Recommended Service Standards for your Upper Gastrointestinal Bleeding service

### Step 2: Deciding the priorities for evaluation outcome measures

The template evaluation outline provided in this toolkit lists both a basic list of evaluation criteria (Basic Evaluation) and an extended list of evaluation questions (Extended Evaluation) which can be used to evaluate an UGIB service, based on a service model including local 7/7 in-hours endoscopy service +/- extended day/dedicated early late slots for UGIB endoscopy with network arrangements for IR and endoscopy for urgent/high risk patients. However, your service may not fit this model or the local issues which arose in setting up or modifying the service may raise the importance of some outcome measures, lower the importance of others and possibly make some irrelevant altogether. Additionally, there may be other outcome measures not suggested in the template, which need to be included to address local priorities.

It is not suggested that all of these criteria are used but that centres use the Basic Evaluation to provide a benchmark of their services to inform elements of the service on which they may wish to focus. For each service change that is considered a centre can then select a number of the more detailed criteria in the Extended Evaluation to collect service specific data, which may require a short period of more detailed patient level data collection. Equally, additional criteria may be added that are relevant to your local centre that have not been

covered here. This will only be required to evaluate the implementation of the agreed service change and to inform whether this has been successful and met its objective. In line with the continual evaluation cycle described, the Basic Evaluation can then be repeated at regular intervals to track the service delivery and to understand where to focus further service development activity.

*The evaluation template is intended as a flexible tool that can be customised for local use, to reflect the resources available to conduct the evaluation and local needs in respect of the important questions to answer for the service development being implemented.*

### Step 3: Identifying the sources of data

Once the outcome measures have been decided, the next step is to identify the source of each element of the dataset, for all patients eligible to be included (including inpatients presenting with UGIB as a secondary diagnosis, as well as those presenting in A&E or AMU, or who are transferred from other hospitals under a network arrangement). Possible data sources are included in the Template Evaluation Outline (appendix 2) but these will need to be checked and the template amended to reflect your local databases. Much of the data may be available from existing routinely recorded data, stored in hospital management or departmental electronic databases but

this will vary from Trust to Trust and some data may need to be collected prospectively. Ideally, collection of the required data should be incorporated into routine data recording at the start of a new service or from its upgrading, so that no additional bespoke 'evaluation data' collection is needed. However, if some elements of the dataset would require onerous prospective data collection, it may be necessary to revisit the outcome measure priorities set at step 2. You should still aim to conduct the most comprehensive evaluation as is reasonably possible, to ensure that a focus on one aspect of the service has not led to unintended undesirable consequences in another area.

### Step 4: Deciding on the evaluation period

Although an audit and service evaluation does not need to be formally powered to provide a representative sample to generalise the results to other settings, the appropriate evaluation period will still depend to some extent on the numbers of patients with UGIB presenting to/within the hospital, in order to provide a fair description of the service. However, the need to evaluate the largest possible number of patients must be balanced against the need to obtain results in a timely manner to provide feedback on the service to decision makers, and to be feasible for those undertaking it within the constraints of available resources.

## Section 2: Recommended Service Standards for your Upper Gastrointestinal Bleeding service

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An evaluation period of 6 or 12 months is likely to fulfil all these criteria.

In the case of a new service, it may be advisable to set an evaluation period starting 3 months after the introduction of the service, to allow a period of 'settling in' both for staff providing the service and those referring patients to it.

Alternatively, the results from the 'settling in' period can be presented separately from those for the later 'established' phase of the service.

### **Step 5: Obtaining approvals**

No approval from a Research Ethics Committee or Trust R&D department is needed for audit or service evaluation, as these bodies only deal with research studies<sup>46,47</sup>. Neither do you need to seek patient consent to use identifiable patient records or data in the evaluation, as it involves no direct participation by the patient or intervention in their care, and medical records will be accessed only by members of hospital staff who have legitimate access to patient records for clinical care or management support functions.

You should register the evaluation with the Trust Clinical Governance (Clinical Audit) Department, for inclusion in its Clinical Audit Programme and Annual Report and to seek support to conduct the evaluation. The template evaluation outline in appendix 2, adapted to your local priorities, will be useful in this process.

## **Section 3:**

# Potential Models of Upper Gastrointestinal Bleeding service



## Section 3:

# Potential Models of Upper Gastrointestinal Bleeding service

### 3.1 Local acute UGIB service

The model of service shown above is designed to ensure the majority of patients with UGIB can be treated locally either in smaller hospitals with emergency access to a full 24 hour UGIB service or directly through the larger hospitals. Local consideration needs to be given as to whether transfer distance/times for very severely ill patients would be reasonable and safe and if not whether an alternative model would be feasible.

Since the majority of patients with UGIB can be stabilised and endoscoped within 24 hours on planned lists, local smaller hospitals may be able to provide a daytime service to provide this cover some of the time with the use of emergency bleeding slots at the beginning and end of each planned list. As a next step, service developments to have endoscopy lists on Saturday and Sunday in addition to the daytime week day service should allow the majority of patients to be endoscoped within the 24 hour window.

The small numbers of extremely high risk, unstable patients can be managed through a formal OOH service if sufficient resources are available locally or through network arrangements, either by a 'hub and spoke' arrangement with a larger hospital that has a 24/7 UGIB service or by sharing resources between Trusts to staff a full OOH rota. Access to these services may also be required to provide endoscopy cover at the weekend for local hospitals not able to provide a Saturday and Sunday service.

### Optimise daytime endoscopy services

Increasing Gastroenterology services from 5 days a week to 7 days a week, incorporating a planned endoscopy list every morning allows most UGIB patients to be endoscoped within the recommended 24 hour timeframe. This may be a model that could be used by some Trusts to minimise the need to transfer patients to a regional centre providing a 24/7 service.

A working service has been identified that follows this model<sup>48</sup> with a gastroenterology service that runs Monday to Sunday, 365 days a year between 8am and 5pm. A full endoscopy list runs each morning including Christmas day, with slots at the start of each day for urgent UGIB patients admitted OOH or after the list has finished in the afternoon. The service can cover all endoscopic procedures as well as urgent GI bleeds.

This model highlights the need to first look at optimising in hours services to manage the majority of patients, before planning and reviewing the unmet need for 24/7 cover and specialist services. The case study below describes the details of this service.

## Section 3:

### Potential Models of Upper Gastrointestinal Bleeding service

#### Advantages of optimising planned endoscopy service

- Reduces the need for OOH endoscopy services
- Minimal cost of reconfiguring service – no complex business plan required, just sensible job planning
- Allows non urgent in-patient GI cases to be managed at weekends through the routine Saturday and Sunday lists, reducing waiting times and length of stay
- Endoscopy is performed by competent staff in designated Endoscopy Unit
- Minimum impact on other services and other rota participation
- Predictable work schedule for staff

#### Case Study of Local UGIB service

A large, rural /urban non-foundation Trust with a catchment population of 480,000.

The 365 days a year planned endoscopy service is led by eight gastroenterologists and runs every morning and covers all scoping procedures e.g. upper and lower GI bleeds, food bolus obstructions etc.

Patients presenting with upper GI bleed after the list has finished are stabilised OOH by surgical colleagues until the next day's list. Patients requiring urgent endoscopy who cannot wait until the next day's list (about 12 patients a year) are presently scoped by Gastroenterologists on a goodwill basis as it is not judged to be justified to run a formal 24/7 on call service for these few patients.

The 7/7 endoscopy service is available for patients within the hospital and patients from other areas are transferred in if they require scoping at weekends or on public holidays.

The 365 day service was developed by presentation of a plan to the Trust by the Gastroenterology Clinical lead

and initially was designed to be weekend service for urgent/severe cases only, but after a 6 month trial period it was agreed to be extend it to a full routine list 365 days a year. The financial impact of setting up the service was minimal and the only additional funding needed was for a weekend porter. The Consultants and nurses provide the service as part of their job plans, with no additional payments. All endoscopies are carried out in a designated unit and are part of planned daily services. Weekends and public holidays are staffed as per weekdays. One of the main benefits of this extended service is the time for non-urgent in-patient management which is reducing waiting times and length of stay.

This service is sustainable and has a clear work plan, provides good quality care for patients and there have been no adverse clinical incidents. Staff participants are very happy as the service is provided within predictable and well-contained hours. The Trust sees the service as very good value for money.

*Ninewells Hospital, Dundee, NHS Tayside*

## Section 3:

# Potential Models of Upper Gastrointestinal Bleeding service

### 3.2 24 hour UGIB service in a large acute hospital

National guidance and service model research have described the required components of an ideal UGIB service providing a 24/7 service to local and regional patients.

These elements are:

- All patients with suspected UGIB are admitted to an area with staff that have sufficient expertise in managing patients with UGIB
- A 24/7 service has the formal arrangements set up to provide emergency endoscopy, interventional radiology and surgery when required, covering daytime, all nights and weekends
- There is access to Level 3 resuscitation facilities on ITU/HDU.
- The endoscopy service is provided by competent endoscopy staff on a formal rota including endoscopy nurses.
- Nursing staff are experienced in the care of patients with UGIB, with the ability to regularly monitor patients' vital signs.
- The Trust has guidelines for the management of UGIB with an UGIB protocol or guidelines for junior staff in place.

#### Benefits of 24/7

Fulfills national guidance and service standards.

#### Challenges

Often difficult to engage with neighbouring Trusts to formalise sharing of services.

#### Case Study of 24/7 UGIB service

A longstanding specific out of hours rota for managing patients with acute GI bleeding, in a large urban Foundation Trust with a catchment of 500,000 and a tertiary referral liver unit. The endoscopy rota is staffed by 5 consultant Gastroenterologists and 3 Hepatologists (1 week in 8 rota), a few very senior Registrars may work unsupervised once they are within 6 months of a Consultant post but with consultant cover available. Surgical and Interventional Radiology support is available under separate 24/7 OOH rotas that are organised as a 1 in 7 and a 1 in 3 respectively.

Gastroenterology participants in the GI bleed rota may also be on other rotas (Medicine and Gastroenterology) and duty on these frequently clash – they are co-ordinated

to minimise on-call frequency. The endoscopy service also covers patients from another local hospital (a separate trust) and these patients are transferred in for endoscopy unless they are too sick to travel in which case the endoscopist travels to the patient. The Interventional Radiology rota does not currently formally cover the neighbouring Trust but patients requiring IR are sometimes referred in. Most OOH UGIB patients are endoscoped in a designated endoscopy unit unless patient need dictates theatre or ITU. Trained endoscopy nurses are available OOH, and the patient's ward supplies a second Registered Nurse.

No business case was made to set up the service at the outset due to the age of the service preceding the business case approach. The service is viewed as a vital part of the Hepatology and Gastroenterology services, and has not been under threat at any point.

*Cambridge University Hospitals NHS Foundation Trust*

## Section 3:

### Potential Models of Upper Gastrointestinal Bleeding service

#### Case Study of a cross Trust 24/7 IR service

A recently agreed cross-trust IR service comprising a linked OOH on-call rota provided by and to two medium sized DGH trusts in neighbouring towns 20 miles apart. The on call Radiologist covers all IR procedures, but embolisation for UGIB forms a significant minority of the OOH workload. On weekdays (Monday- Thursday) staff within each trust provide cover for their own trust, while at weekends (Friday- Monday), there is a combined 1 in 6 rota with 3 Radiologists from each trust covering whole weekends. The Radiologists travel to the patients rather than patients being transferred to the trust of the Radiologist on call, as an audit before the service was agreed showed that 40% of patients would not be fit for transfer. Radiologists have an honorary contract with the other trust and daytime visits were arranged prior to the start of the rota, for familiarisation purposes. Local support staff (a Radiographer, Radiology department nurse and a ward nurse) are on call/shift at each site every night and weekend so that staff who are familiar with the patient, location, facilities and access to other support services are available to support the Radiologist.

The Radiology nurses and Radiographers cover separate weekday nights and split weekends and if called after 11-12pm are entitled to compensatory rest in addition to call out fees. Radiologists do not have a compensatory rest agreement but the workload is such that this is not problematic.

Protocols to harmonise IR practice in the two trusts have been agreed, and include the acceptance of referrals only from consultants, not from junior staff.

Costed business cases were presented to managers in each trust: in one trust agreement for the IR rota was linked to expansion in General Radiologist numbers, allowing Interventional Radiologists to leave the general rota, while in the other trust, General Radiologists have accepted an increase in their rota frequency to accommodate the separate IR rota, as they recognise the need for it. Some general work is undertaken by participants in the IR rota, when workload demands. Funding was provided for the support staff on call rotas.

*South Devon Healthcare NHS Foundation Trust and Royal Devon and Exeter NHS Foundation Trust*

#### 3.3 Working together across secondary care: developing UGIB Networks

Regional / national health authorities may wish to consider setting up active formalized UGIB emergency care networks. The development of clinical and managerial networks provides both real opportunities for improvements in clinical outcomes as well as organisational efficiencies.

Networks would be able to:

- Recommend the best distribution of acute care services
- Ensure proper /appropriate organisation of regional 24/7 endoscopy services
- Ensure proper/ appropriate organisation of regional 24/7 emergency interventional radiology and surgical services
- Ensure service delivery of these services is by competent staff against evidence based protocols and is standardized across the region
- Monitor outcomes achieved across the region
- Implement a common clinical governance structure with an improvement process to identify and rectify weak points on the pathway or within the network, so that the best clinical outcomes are achieved.

## Section 3:

# Potential Models of Upper Gastrointestinal Bleeding service

All Trusts have either explicit agreements with other Trusts to transfer patients, or processes that are bound within custom and practice. This guidance is based on the premise that explicit cooperation in the provision of highly specialised and low volume procedures requires organisations to develop close working relationships that can stand both challenge from commissioners as well as provide reliable and timely interventions whenever they are required. Inevitably any agreements that require the transfer of patients also require dialogue and agreement with the ambulance service.

It is important to engage the commissioners in any discussions regarding the establishment of new clinical pathways as there will be financial consequences for them, and these should be clearly understood as part of the development of any business case.

Payment by Results (PBR) is designed to ensure payment is made for work undertaken so no organisation should be penalised for being part of any transfer protocol. Any local agreements that do not recognise this should be resisted.

The allocation of income within any individual Trust is a matter for internal agreement however it is vital that as part of any business case the contribution given and the costs incurred by each part of the service are recognised. Service managers should work with their clinical teams to put in place mechanisms to accurately record activity both to ensure income is achieved and, as importantly, so that

clinical audits can be carried out to judge the effectiveness of the service provided. It is therefore essential that clinical coding is both accurate and complete if individual clinicians, departments and the Trust are to be able to accurately represent the quantity, complexity and effectiveness of their service.

Work undertaken by the Audit Commission and Connecting for Health<sup>49,50</sup>, identifies the following themes that are vital to be addressed if the Trust is to correctly record the work that it does and collect the correct income under PBR.

Accuracy is reliant upon:

- The Clinician providing all the information on the patient's diagnoses and treatment dated and timed, with signature.
- The availability of source documentation (this varies from hospital to hospital for coding but is usually the patient's case notes including; discharge summaries / proformas, clinical work sheets, hospital to patient and hospital to GP documentation). It is essential that these documents:
  - Are clear and detailed - written clearly in indelible ink
  - Provide accurate and complete information
  - Record all diagnoses including co-morbidities and procedures, writing the main diagnosis first
  - Avoid abbreviations

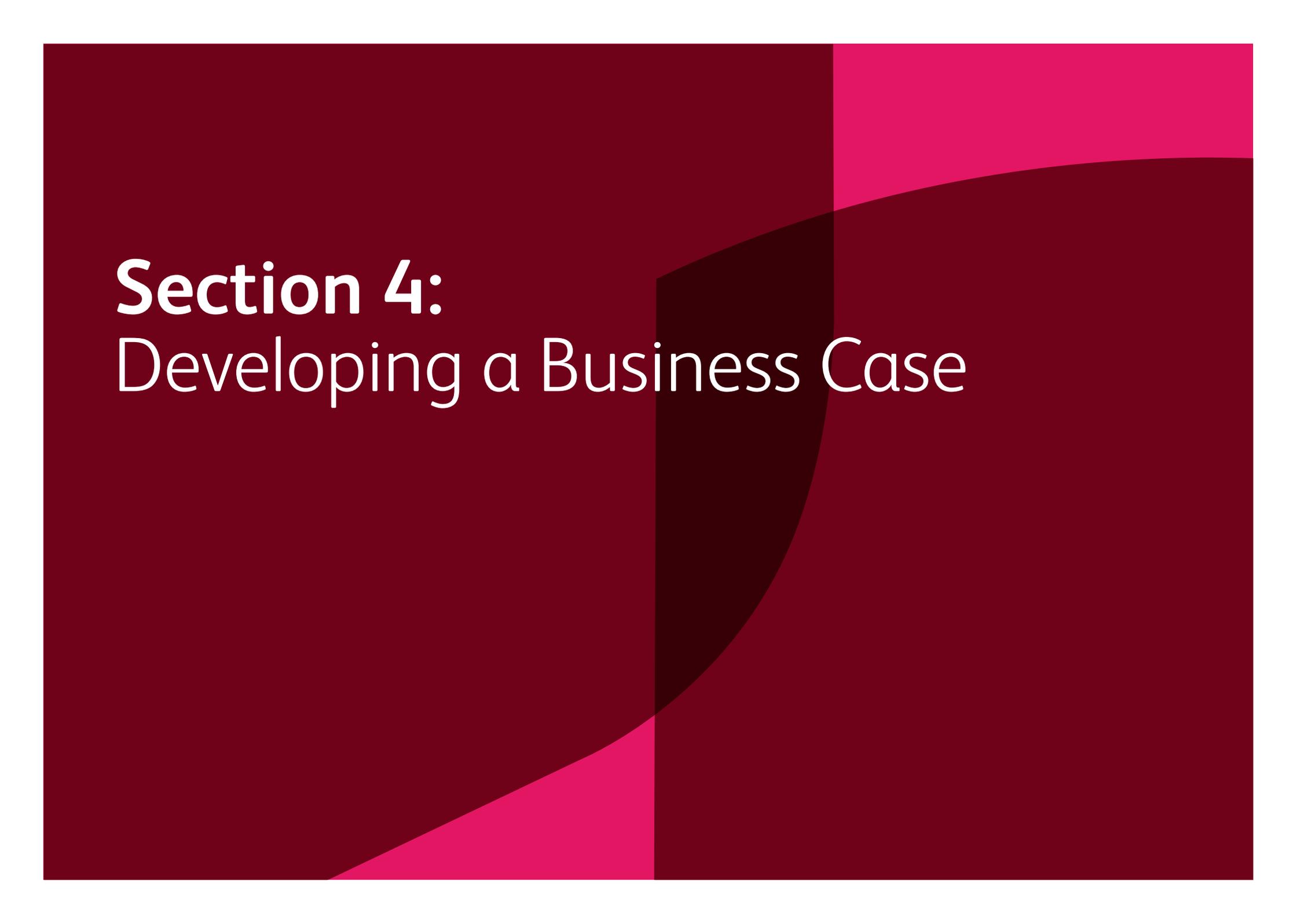
### Support the coder

The coding department is essential for all Trust activities but will be crucial to the success of any networked service that involves the transfer of patients. The coder can be supported as an important member of the UGIB team by:

- Understanding their role
- Start with junior doctor staff – train them early to collaborate with their coder effectively
- <http://www.connectingforhealth.nhs.uk/clinicalcoding/noncoders/clinicians>
- Support investment in coder's training and development
- Adopt the basic principles to ensure accurate coding

### What can be done to ensure coding is accurate

- Carry out regular internal audits on clinical coding and the quality of outpatient data
- Ongoing training for clinical coders
- Engage clinicians in improving the accuracy of inpatient and outpatient data
- Ensure policies and procedures for data quality and capture are up to date
- Encourage source documentation to be of a good quality, accurate and readily accessible to those inputting data.



# Section 4: Developing a Business Case

# Section 4:

## Developing a Business Case

This toolkit has highlighted the wider variation in UGIB services currently in existence in UK Trusts, particularly out of core working hours. Equally, it is recognised that there is no single model of ‘best practice’, rather a number of different approaches to developing UGIB services and any recommendation needs to be flexible to local capacity and resource availability. However, there are some service standards that should be followed in order to allow patients equitable access to services and these have been detailed throughout the toolkit.

In view of this it is anticipated that service development plans around the country are likely to be very different, and, as such any business case template need to be flexible to accommodate that. Developing a business case can be a daunting prospect therefore two template documents have been developed based on:

- 1) The development of a local UGIB service based on the suggested enhanced in hours service detailed in the toolkit
- 2) The development of a regional specialist UGIB service that accepts out of area patients out of hours.

The aim of the templates is to give the user a steer towards the type of information that needs to be considered when completing the business case under the following general headings:

- Executive summary
- Introduction and background
- Description of proposed service
- Measurable value and critical success factors
- Date and proposed timelines
- Strategic fit for local Trust, PCT and wider NHS
- Demonstrate the need for the change
- Benefits and Impacts; patient, organisational (staffing, training, IT etc) and financial
- Risks and monitoring
- Conclusions

Whilst drivers and challenges for each Trust will be different this should provide a framework for Trusts to follow. It is also useful whilst developing a business case for a service change to consider the voice of the patient in here. Incorporating the patient or carer viewpoint can help position the need for change where the rationale is one of quality and patient safety rather than hard clinical outcomes or financial benefit.

### **Fitness for purpose checklist**

Consideration of the some simple questions can act as a quick checklist to ensure that any proposal being considered is worth doing and is locally achievable:

- Is the need clearly stated?
- Does the proposal contribute to the achievement of NHS policy and priorities and Trust objectives and plans?
- Are the benefits clearly stated?
- Is it clear how the benefits will be realised?
- Are the demand and capacity and income forecasts robust?
- Are the capital and revenue costs robust?
- Is it clear why the preferred option has been selected?
- Is it affordable?
- Are the risks and plans to mitigate against them explicitly stated?
- Do the main stakeholders support it?
- Does the team have the capacity and capability to deliver it?

The background features a dark red field with a curved, semi-transparent dark red shape on the right side. Two bright pink rectangular areas are positioned at the top right and bottom left corners, partially overlapping the dark red elements.

# Section 5: Conclusions

# Section 5:

## Conclusions

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This toolkit provides resources for providers and commissioners of care to consider service developments to improve the quality of care provided to UGIB patients presenting out of hours.

Throughout the toolkit the UGIB service has been considered as a whole rather than focusing on any one specialty. This is essential to avoid any service development improving one element of a service whilst impacting negatively on another. In line with this it is crucial that both Interventional Radiology and Surgery are considered as essential elements of the UGIB service when providers are planning their service developments.

There will be several other examples of good practice and models of care that can achieve the service standards detailed in this document other than those highlighted in the toolkit. It is also anticipated that there will be many more innovative models that will be developed over time. This highlights the need for ongoing work in the area to continue to share best practice, to promote the evaluation of new and existing service models to demonstrate their value, and to continue to explore new ways of providing quality services.

The Societies and Royal Colleges representing the key stakeholders involved in UGIB have demonstrated their commitment and support to this area previously through a number of initiatives referred to throughout this document and in a combined way through the development of this toolkit. These bodies provide a potential opportunity for health care professionals and managers to continue this collaborative approach.

The NICE guidance on the management of acute upper gastrointestinal bleeding is anticipated in July 2012. It is hoped that this toolkit will allow the NHS to consider the structure of their UGIB services in preparation for this guidance.

# References

## References

1. Department of Health. Equity and Excellence: Liberating the NHS. July 2010  
ISBN 9780101788120  
Available at:  
[http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_117353](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_117353)  
(accessed 14.10.2010)
2. British Society of Gastroenterology. UK Comparative Audit of Upper Gastrointestinal Bleeding and the Use of Blood.  
Available at:  
[http://www.bsg.org.uk/pdf\\_word\\_docs/blood\\_audit\\_report\\_07.pdf](http://www.bsg.org.uk/pdf_word_docs/blood_audit_report_07.pdf) (accessed 7th June 2010)
3. Data on file: Consultant Rota On-call Modelling of Endoscopy Services (CROMES) Joint Survey 2009 with Royal College of Physicians, British Society of Gastroenterologists, commissioned by National Patient Safety Agency, conducted by pH Associates, Marlow.
4. Gyawali P, Suri D, Barrison I et al. A discussion of the British Society of Gastroenterology survey of emergency gastroenterology workload. *Clinical Medicine* 2007;7:585-88
5. British Society of Gastroenterology *op.cit.*
6. National Institute for Health and Clinical Excellence (NICE). Acute upper GI bleeding: final scope. June 2010  
Available at:  
<http://guidance.nice.org.uk/CG/Wave21/1/Scoping/Scope/pdf/English> (accessed 14.10.2010)
7. Data on file: Consultant Rota On-call Modelling of Endoscopy Services (CROMES): Report of the Focus Group Meetings 2010. Royal College of Physicians, British Society of Gastroenterologists commissioned by National Patient Safety Agency, conducted by pH Associates, Marlow.
8. Scottish Intercollegiate Guidelines Network. Management of Acute Upper and Lower Gastrointestinal Bleeding. SIGN Guideline No. 105, ISBN 978 1 905813 37 7, September 2008  
Available at:  
<http://www.sign.ac.uk/guidelines/fulltext/105/index.html> (accessed 14.10.2010)
9. Professor the Lord Darzi of Denham KBE. High Quality Care for All: The Next Stage Review Final Report. 2008  
Available at:  
[http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_085825](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_085825)  
(accessed 14.10.2010)
10. Data on file: Consultant Rota On-call Modelling of Endoscopy Services (CROMES) Joint Survey 2009 *op.cit.*
11. Joint Advisory Group (JAG) on Gastrointestinal Endoscopy BSG Quality and Safety Indicators for Endoscopy 2007.  
Available at:  
<http://www.thejag.org.uk/downloads%5CUnit%20Resources%5CBSG%20Quality%20and%20Safety%20Indicators.pdf> (accessed 14.10.2010)
12. Global Rating Score (GRS) A Patient Centered Evaluation Tool for Endoscopy units.  
Available at:  
<http://www.grs.nhs.uk/> (accessed 14.10.2010)
13. The Royal College of Radiology. Standards for providing a 24-hours interventional radiology service. Ref No BFCR(08)12 September 2008 ISBN:978-1-905034-31-4.  
Available at:  
<http://www.rcr.ac.uk/publications.aspx?PageID=310&PublicationID=288> (accessed 14.10.2010)
14. Data on file. Consultant Rota On-call Modelling of Endoscopy Services (CROMES): Report of the Focus Group Meetings 2010 *op.cit.*
15. British Society of Gastroenterology. *op.cit.*
16. Data on file. Consultant Rota On-call Modelling of Endoscopy Services (CROMES) Joint Survey 2009. *op.cit.*
17. Data on file. Consultant Rota On-call Modelling of Endoscopy Services (CROMES): Report of the Focus Group Meetings 2010. *op.cit.*
18. *ibid.*
19. Scottish Intercollegiate Guidelines Network. *op.cit.*
20. British Society for Gastroenterology *op.cit.*
21. Scottish Intercollegiate Guidelines Network. *op.cit.*
22. *ibid.*
23. British Committee for standards in Haematology Guidelines on the management of massive blood loss. *Br J Haematol.* 2006 Dec;135(5):634-41.
24. Scottish Intercollegiate Guidelines Network. *op.cit.*
25. *ibid.*

# References

26. British Society of Gastroenterology *op.cit.*
27. The Royal College of Radiology *op.cit.*
28. *ibid.*
29. British Society of Gastroenterology Out of Hours Gastroenterology - A Position Paper (2007)  
Available at:  
<http://www.bsg.org.uk/clinical-guidance/endoscopy/out-of-hours-gastroenterology-a-position-paper-2007.html>  
(accessed 14.10.2010)
30. Joint Advisory Group (JAG) on Gastrointestinal Endoscopy *op.cit.*
31. Working Party of the British Society of Gastroenterology. Non-Medical Endoscopists. August 2005  
Available at:  
[http://www.bsg.org.uk/pdf\\_word\\_docs/endo\\_%20nonmed.pdf](http://www.bsg.org.uk/pdf_word_docs/endo_%20nonmed.pdf) (accessed 14.10.2010)
32. The Royal College of Radiology *op.cit.*
33. UK Blood Transfusion and Tissue Transfer Services. Guidelines for the Blood Transfusion Services in the UK 7th edition (2007)  
Available at:  
<http://www.transfusionguidelines.org.uk/index.aspx?Publication=RB> (accessed 14.10.2010)
34. Palmer KR British Society of Gastroenterology Endoscopy Committee. Non-variceal upper gastrointestinal haemorrhage: guidelines. *Gut* 2002; 51 (Suppl IV):iv1–iv6.
35. National Patient Safety Agency. Right patient, right blood: core competencies for Healthcare staff. NPSA Special Notice November 2006.  
Available at:  
<http://www.nrls.npsa.nhs.uk/resources/?entryid45=65838> (accessed 14.10.2010)
36. Royal College of Surgeons (Eng) Good Surgical Practice. 2008,  
Available at:  
<http://www.rcseng.ac.uk/publications/docs/good-surgical-practice-1>  
(accessed 14.10.2010)
37. The College of Emergency Medicine The Way Ahead 2008-2012. Strategy and guidance for Emergency Medicine in the United Kingdom and the Republic of Ireland  
Available at:  
[www.collemergencymed.ac.uk/asp/document.asp?ID=4474](http://www.collemergencymed.ac.uk/asp/document.asp?ID=4474) (accessed 14.10.2010)
38. Scottish Intercollegiate Guidelines Network. *op.cit.*
39. Joint Advisory Group (JAG) on Gastrointestinal Endoscopy *op.cit.*
40. Scottish Intercollegiate Guidelines Network. *op.cit.*
41. Bailey MA "Quality Improvement Methods in Health Care." In From Birth to Death and Bench to Clinic: The Hastings Centre Bioethics Briefing Book for Journalists, Policymakers and Campaigns, ed. Mary Crowley (Garrison NY, The Hastings Centre 2008: 147-152)  
Available at:  
<http://www.thehastingscenter.org/Publications/BriefingBook/Detail.aspx?id=2204> (accessed 14.10.2010)
42. Professor the Lord Darzi of Denham KBE *op.cit.*
43. National Research Ethics Service. Differentiating audit service evaluation and research  
Available at:  
<http://www.nres.npsa.nhs.uk/applications/guidance/research-guidance/?entryid62=66988>  
(accessed 14.10.2010)
44. British Society of Gastroenterology *op.cit.*
45. Palmer KR British Society of Gastroenterology Endoscopy Committee *op.cit.*
46. National Research Ethics Service *op.cit.*
47. Department of Health. Research governance framework for health and social care: second edition  
Available at:  
[http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_4108962](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4108962) (accessed 14.10.2010)
48. Data on file: Consultant Rota On-call modelling of Endoscopy Services (CROMES) Joint Survey 2009  
*op.cit.*
49. NHS Classifications Service at NHS Connecting for Health. Clinical Coding the Clinicians role  
Available at:  
[www.connectingforhealth.nhs.uk/systemsandservices/.../clinicalcoding/.../clinical\\_coding\\_clinicians1.ppt](http://www.connectingforhealth.nhs.uk/systemsandservices/.../clinicalcoding/.../clinical_coding_clinicians1.ppt)  
(accessed on 18.10.2010)
50. Audit Commission. Improving Data Quality in the NHS. Annual report on the PBR assurance Programme 2010  
Available at:  
<http://www.audit-commission.gov.uk/nationalstudies/health/pbr/pbr2010/Pages/default.aspx>  
(accessed on 18.10.10)