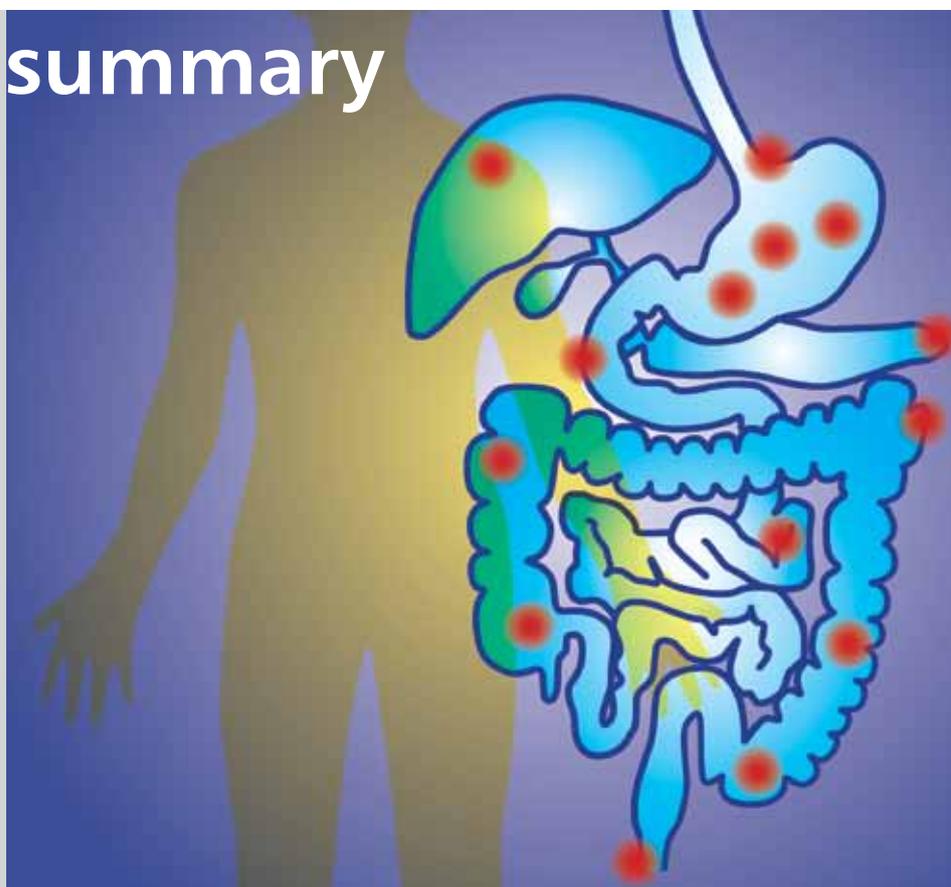


Time to Get Control?

A review of the care received by patients who had a severe gastrointestinal haemorrhage

summary



Time to Get Control?

A review of the care received by patients who had a severe gastrointestinal haemorrhage

A report by the National Confidential Enquiry into Patient Outcome and Death
(2015)

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Principal recommendations

Patients with any acute GI bleed should only be admitted to hospitals with 24/7 access to on-site endoscopy, interventional radiology (on-site or covered by a formal network), on-site GI bleed surgery, on-site critical care and anaesthesia. *(Medical Directors, Ambulance Trusts and Commissioners)*

Hospitals that do not admit patients with GI bleeds must have 24/7 access to endoscopy, interventional radiology and GI bleed surgery for patients who develop a GI bleed while as an inpatient for another condition by either an on-site service or a formal network. *(Medical Directors, Chief Executives and Trust Boards)*

The traditional separation of care for upper and lower GI bleeding in hospitals should stop. All acute hospitals should have a Lead Clinician who is responsible for local integrated care pathways for both upper and lower GI bleeding and their clinical governance, including identifying named consultants, ideally gastroenterologists, who would be responsible for the emergency and on-going care of all major GI bleeds. *(Medical Directors, Clinical Directors)*

All patients who present with a major upper or lower GI bleed, either on admission or as an inpatient, should be discussed with the duty or on-call (out-of-hours) consultant responsible for major GI bleeds, within one hour of the diagnosis of a major bleed. *(All Doctors)*

The ongoing management of care for patients with a major bleed should rest with, and be directed by the named consultant responsible for GI bleeds; to ensure timely investigation and treatment to stop bleeding and reduce unnecessary blood transfusion. *(Lead Clinicians for GI Bleeds, Medical Directors, Clinical Directors)*

All patients with a GI bleed must have a clearly documented re-bleed plan agreed at the time of each diagnostic or therapeutic intervention. *(Gastroenterologists, Radiologists and GI Bleed Surgeons)*

Introduction

Gastrointestinal (GI) bleeding is one of the commonest medical emergencies. The incidence rate of 1.33/1000 population equates to approximately 85,000 cases/year in the UK or one gastrointestinal bleed every 6 minutes.^{1,2} Several surveys have shown that current services are inadequately resourced, particularly in the out-of-hours period.³⁻⁵

GI bleeding is the second commonest medical reason for transfusion in the UK after haematological malignancy, accounting for 14% of all blood transfusions.⁶ Early treatment can reduce the number of units of blood received and complications. Beyond the individual patient benefits, reducing the amount of blood used would reduce NHS transfusion costs.

GI bleeding can occur anywhere from the mouth to the anus and is managed by both medical and surgical teams. It is traditionally split into upper GI and lower GI bleeding. Both are most commonly due to benign diseases. Mortality is largely due to complications associated with a combination of advanced age, multiple co-morbidities and low haemoglobin levels at presentation,⁷ rather than bleeding to death.

Upper GI bleeds are subdivided into non-variceal upper GI bleeds (NVUGIB 89%) and variceal upper GI bleeds (VUGIB 11%).³ NVUGIB is most commonly due to peptic ulcer disease and less commonly abnormal blood vessels, malignancy and other rare causes. VUGIB is commonly due to increased portal pressure from liver disease. Upper GI bleeds have an associated mortality rate of 10%.³

Lower GI bleeding is three times less common than upper GI bleeding.² Causes include diverticular bleeding, abnormal blood vessels, colitis, bowel cancer and haemorrhoids. The reported mortality rates for lower GI bleeding are also less than for upper GI bleeding, and have not been the focus of much attention. However, a

recent study from Portugal showed that despite indicators of severe bleeding being present in a third of patients the mortality rate remained low at 2.2% across the entire study population.⁸

The separation of bleeding into upper and lower GI bleeding has a practical relevance. The distal duodenum represents the limit that can be routinely reached by a standard fibre-optic endoscope via an oral approach. Beyond the reach of oesophago-gastric-duodenoscopy (OGD) alternative diagnostic and therapeutic techniques are required. Upper GI bleeding investigation and treatment includes supportive therapy, pharmacological agents, endoscopic treatment, diagnostic and interventional radiology procedures, and open surgery. Lower GI bleeding investigation and management includes supportive therapy, diagnostic and interventional radiology, colonoscopy/flexible sigmoidoscopy and open surgery.

Around 15% of upper GI bleeds occur in patients already in hospital and are associated with higher mortality rates.^{1,3} The physiological stresses of other illnesses, medications including anticoagulants and the greater prevalence of co-morbidities in a hospitalised population have all been implicated. The significance of this is that the burden of caring for patients with a GI bleed, at least in the initial phase of their illness, may fall to any medical team, ward or hospital.

The first UK audit of acute upper gastrointestinal haemorrhage was performed in 1993 across four health care regions.¹ It reported an overall mortality rate of 14% (11% in those admitted as an emergency for their upper GI bleed and 33% in those who developed an upper GI bleed whilst in hospital) and that the elderly were more likely to have a GI bleed.

A follow-up UK wide audit was performed by the British Society of Gastroenterologists and the National Blood

Transfusion Service in 2007 on 6750 patients.³ This highlighted significant deficiencies and inconsistencies in service provision and the care of patients presenting with upper GI bleeding. Difficulties in obtaining accurate data on blood transfusion times and volumes undermined some of its intended analyses but it reported an improvement in mortality rates since 1993 with an overall mortality rate of 10% (new admissions 7%, existing in-patients 26%). The submitted data about the care of patients when OGD could not control the non-variceal upper GI bleeding suggested surgery and interventional radiology were rarely used (2.3% and 1.5 % respectively), although this was not assessed against service availability.⁹ The audit which was based on physician and hospital returns concluded *"The relationships between service provision and outcomes (in particular with reference to interventions and outcomes in emergency endoscopy) need more detailed investigation"*.³ Conversely the review of services for lower GI bleeding has been lacking.

Evidence based guidance on the management of upper GI bleeds are widely available.^{3,10-14} In 2008 the BSG adopted the 2008 SIGN guidelines which included lower GI bleeding.¹² No current guideline addresses all presentation, pathologies or treatment options for lower GI bleeding.^{12,14} This may be due to the far fewer publications on lower GI bleeding and consequently a limited evidence base on which to base management recommendations. It may also be due to the available mortality data which suggest it is largely a self limiting condition which rarely results in harm.

Upper GI bleeding has also received more attention than lower GI bleeding in the setting of service standards. In 2007 the BSG published detailed Quality and Safety indicators for therapeutic upper GI endoscopy in GI bleeding. Although colonoscopy and flexible sigmoidoscopy were included and had standards set against them, their role in lower GI bleeding was not recognised.¹⁵

On the basis of 335 incidents reported to its national reporting and learning system (NRLS) over a 14 month period from 2008-2009 the NPSA highlighted the difficulties that patients with suspected upper GI bleeding faced in accessing endoscopy services outside of normal working

hours, with resulting poorer patient outcomes.¹⁶ A multi-collegiate (RCP, AoMRC, AUGIS, BSG, RCN and RCR) response followed in 2010 in the form of the CROMES project.⁴ It found that 45% of Trusts to which patients with GI bleeding were admitted did not have a comprehensive out-of-hours service but recognised that smaller units would struggle to provide comprehensive care 24/7/365. Three models of care for an upper GI bleeding service were recommended with either an autonomous 24 hour on-site GI bleeding service, use of networks for all patients, or a combination. To facilitate this it developed a toolkit, stating that *"...all patients should have access to endoscopy, interventional radiology and surgery and to deliver this required planning and co-ordination between individual services, particularly:*

- *the ambulance and A&E emergency services*
- *the admissions unit*
- *the gastroenterology team*
- *specialist staff (gastroenterology and/or surgery) in a dedicated bleed ward area*
- *HDU or ITU where appropriate for resuscitation*
- *organisation of diagnostic and interventional endoscopy and radiology*
- *involvement of emergency care surgery.*"¹⁷

The NCEPOD study presented in this report was undertaken firstly because it was felt that the impact of the recent focus on upper GI bleeding clinical care and services was not yet known. Secondly, the care of lower GI bleeding had not been assessed in the UK.

It has been 11 years since NCEPOD published *'Scoping our Practice'*¹⁴ a review of endoscopy services and this new NCEPOD study focusing on GI bleeding is the first peer review study to look at the entire care pathway for all presentations and categories of gastrointestinal bleeds.

The study was designed to identify areas of good practice as well as deficiencies in care. The care of patients who had a severe GI bleed requiring urgent intervention was reviewed as this group would most test the systems in place, to identify opportunities to improve services, clinical management and the overall quality of care received by all patients with a GI bleed.

Method and Data Returns

Study Advisory Group

The Study Advisory Group (SAG) comprised a multidisciplinary group of clinicians in: gastroenterology, critical care, interventional radiology, pharmacy, upper GI surgery and lower GI surgery.

Study aim

To identify the remediable factors in the quality of care provided to patients treated for a GI bleed who received 4 or more units of blood.

Objectives

The Study Advisory Group identified a number of objectives that would address the primary aim of the study, and these will be addressed throughout the following chapters:

- The quality of assessment including the use of risk stratification scores
- Admission/referral pathways, including the transfer of care
- Assess the availability and appropriate use of endoscopy, diagnostic and interventional radiology and surgery, including out-of-hours.
- To assess the effectiveness of local/regional networks where they exist
- Consider the quality of care including
 - * the management and appropriate correction of coagulopathy/anticoagulation
 - * the use of blood products
 - * appropriate timing and documentation of diagnostic investigations
 - * selection, timeliness and performance of interventions
- Assess the use of escalated care and anaesthetic support for interventions
- Identify inappropriate interventions
- Outcomes and learning from poor outcomes

Hospital participation

National Health Service hospitals in England, Wales and Northern Ireland were expected to participate as well as relevant hospitals in the independent sector and public hospitals in the Isle of Man, Guernsey and Jersey.

Within each hospital, a named contact, referred to as the NCEPOD Local Reporter, acted as a link between NCEPOD and the hospital staff, facilitating case identification, dissemination of questionnaires and data collation.

Study population and case ascertainment

All patients who were admitted to hospital in the four months between 1st January 2013 and 30th April 2013 who had a diagnosis of GI bleeding at any point during their inpatient stay were identified to NCEPOD.

The included ICD10 codes were:

- I85.0** Oesophageal varices with bleeding
- K92.0** Haematemesis
 - K92.1** Melaena
 - K92.2** Gastrointestinal haemorrhage, unspecified gastrointestinal bleeding
- K25.0** Gastric ulcer, acute with haemorrhage
- K25.2** Gastric ulcer, acute with both haemorrhage and perforation
- K26.0** Duodenal ulcer, acute with haemorrhage
- K26.2** Duodenal ulcer, acute with both haemorrhage and perforation
- K27.0** Peptic ulcer, site unspecified, acute with haemorrhage
- K27.2** Peptic ulcer, site unspecified, acute with both haemorrhage and perforation
- K28.0** Gastrojejunal ulcer, acute with haemorrhage
- K28.2** Gastrojejunal ulcer, acute with both haemorrhage and perforation
- K29.0** Acute haemorrhagic gastritis

Blood transfusion data were then used to identify a sub-population of patients who received 4 or more units of red blood cells during the corresponding inpatient stay. In order to make the blood transfusion data more obtainable, the criterion for inclusion was 4 units or more of red blood cells at any time during the patients hospital stay. Some patients in the current study may have received blood for a condition other than their GI bleed. Data were collected on the timing of blood transfusions in relation to the GI bleed, if it was obvious to NCEPOD, or the clinician completing the questionnaire that the patient only received blood for a condition not related to their GI bleed, the case was excluded and an alternative selected.

A sample of this subpopulation was then randomly selected by NCEPOD for questionnaire completion and peer review. The peer review sample was limited to a maximum of 5 cases per hospital. Therefore this study is a snapshot of the care provided to patients with a severe GI bleed. The proportion of patients with each type of GI bleed (non-variceal upper GI bleed, variceal upper GI bleed and lower GI bleed) represent a sample of all GI bleed patients who required 4 or more units of blood during the study time frame. The proportions randomly selected were as expected (one quarter lower GI bleeds) but it must be acknowledged that patients who required an interhospital transfer for a particular aspect of GI bleed management (e.g. TIPSS) may be under represented as the sampling method biased case selection towards hospitals with a smaller GI bleed workload.

Patients coded for haemorrhoids alone without one of the above codes were intentionally not included in the study population due to the concern that the study population could be skewed by a large number of patients with haemorrhoids who had received 4 units or more of blood for other conditions. Haemorrhage of anus and rectum (K62.5) was omitted from the list in error. The combination of these factors means that patients with ano-rectal causes for bleeding may be under-represented in the study population.

On review, Mallory-Weiss syndrome (gastro-oesophageal laceration-haemorrhage syndrome: K22.6) which predominantly affects younger patients, was unintentionally omitted from the search codes.

Data collection

Two questionnaires were used to collect data for this study; a clinician questionnaire for each patient and an organisational questionnaire for each hospital participating in the study.

Clinician questionnaire

This questionnaire was sent to the consultant responsible for the patient at the time of their discharge. If the consultant was not the most suitable person to complete the questionnaire they were asked to identify one or more appropriate consultants. Information was requested on the patient's presenting features/co-morbid conditions, initial management, investigations/procedures carried out, treatment, complications and escalation in care.

Organisational questionnaire

The data requested in this questionnaire included information on the locations to which patients with GI bleeding were admitted, endoscopy services, interventional radiology services, surgical services, guidelines and standard operating procedures relevant to the management of GI bleed patients. It was recommended that the clinical leads responsible for different components of the GI bleed service were consulted on the relevant sections.

Case notes

Photocopied case note extracts were requested for the final inpatient admission of each case that was to be peer reviewed:

- All inpatient annotations/medical notes
- Nursing notes
- ICU/HDU notes
- Operation/procedure notes
- Anaesthetic charts
- Observation charts
- Haematology/biochemistry results
- Fluid balance charts
- Blood transfusion records
- Drug charts
- Consent forms
- Discharge letter/summary
- Autopsy report if applicable

Peer review

A multidisciplinary group of peer reviewers was recruited to peer review the case notes and associated clinician questionnaires. The group of reviewers comprised consultants and trainees from the following specialties: gastroenterology, acute medicine, interventional radiology and surgery. The reviewers attended a preliminary training day at NCEPOD with test cases for review and discussion.

Questionnaires and case notes were anonymised by the non-clinical staff at NCEPOD. All patient identifiers were removed. Neither the Clinical Co-ordinators at NCEPOD, nor the reviewers, had access to patient identifiable information.

After being anonymised, each case was reviewed by at least one reviewer within a multidisciplinary group. At regular intervals throughout the meeting, the Chair allowed a period of discussion for each reviewer to summarise their cases and ask for opinions from other specialties or raise aspects of the case for discussion.

Case reviewers answered a number of specific questions by direct entry into a data base, and were also encouraged to enter free text commentary at various points.

The grading system below was used by the reviewers to grade the overall care each patient received:

Good practice: A standard that you would accept from yourself, your trainees and your institution.

Room for improvement: Aspects of **clinical** care that could have been better.

Room for improvement: Aspects of **organisational** care that could have been better.

Room for improvement: Aspects of both **clinical and organisational** care that could have been better.

Less than satisfactory: Several aspects of **clinical and/or organisational** care that were well below that you would accept from yourself, your trainees and your institution.

Insufficient data: Insufficient information submitted to NCEPOD to assess the quality of care.

Quality and confidentiality

Each case was given a unique NCEPOD number. The data from all questionnaires received were electronically scanned into a preset database. Prior to any analysis taking place, the data were cleaned to ensure that there were no duplicate records and that erroneous data had not been entered during scanning. Any fields that contained data that could not be validated were removed.

Data analysis

Following cleaning of the quantitative data, descriptive data summaries were produced. The qualitative data collected from the reviewers' opinions and free text answers in the clinician questionnaires were coded, where applicable, according to content to allow quantitative analysis. The data were reviewed by NCEPOD Clinical Co-ordinators, a Researcher, and a Clinical Researcher, to identify the nature and frequency of recurring themes.

Case studies have been used throughout this report to illustrate particular themes.

All data were analysed using Microsoft Access and Excel by the research staff at NCEPOD.

The findings of the report were reviewed by the Study Advisory Group, Case Reviewers and the NCEPOD Steering Group prior to publication.

Data returns

In total 4,780 patients from 227 hospitals were identified as meeting the study inclusion criterion (Figure 1.1). When the sampling criterion of 5 cases per hospital was applied, 1077 cases were selected for inclusion in the main data collection, this reduced to 769 with exclusions. A total of 618 completed clinician questionnaires and 596 sets of case notes were returned to NCEPOD. The reviewers were able to assess 485 cases, the remainder of the returned case note extracts were either too incomplete for assessment or were returned after the final deadline and last reviewer meeting.

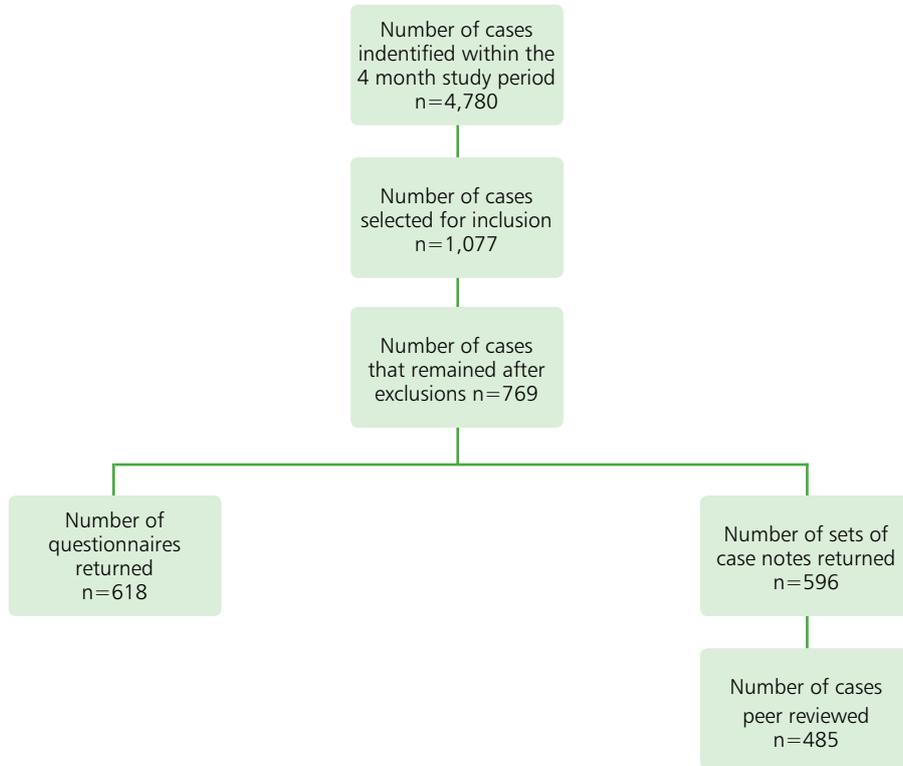


Figure 1.1 Data returns

Key Findings

The organisation of care

- Patients with a lower GI bleed more frequently went to a single location than upper GI bleeds
- 25% (46/184) of hospitals to which patients with a GI bleed were admitted were not JAG accredited.
- Out-of-hours endoscopy was performed in operating theatres in 88% (172/195) of hospitals.
- Equipment for out-of-hours endoscopy was not equivalent to in-hours in 14% (27/188) of hospitals.
- 72% (146/204) of all hospitals had an endoscopy on-call rota of which 91% (132/145) were 24/7.
- 32% (60/185) of hospitals admitting GI bleed patients did not have a 24/7 endoscopy service.
- 47% (451/963) of consultants on endoscopy rotas could not use glue for gastric varices.
- 61% (86/141) of hospitals with a 24/7 endoscopy rota had an endoscopy nurse on-call rota.
- 32% (62/196) hospitals did not have proctoscopy and rigid sigmoidoscopy available 24/7.
- Intra-operative OGD was not available in 18% (32/179) of hospitals and intra-operative colonoscopy was not available in 33% (59/179) of hospitals.
- 73% (149/205) of hospitals could not provide 24/7 embolisation of GI bleeding on-site, 45% (64/143) had a formal network to combat this.
- 13 hospitals had 24/7 access to a TIPSS service.
- 51% (94/185) of hospitals had formal network arrangements for TIPSS.
- 87% (177/203) of hospitals had upper GI bleeding guidelines.
- 25% (49/197) of hospitals had lower GI bleeding guidelines.
- 59% (99/167) of hospitals had a clinical lead for upper GI bleeds and 38% (57/151) of hospitals had one for lower GI bleeds.
- 100% (200/200) of hospitals had a massive blood transfusion policy.
- 36% (59/165) of hospitals had a high cost equipment replacement programme for both imaging and endoscopy equipment.

Patient demographics

- 31,412 patients were identified as having a GI bleed during the 4 month study period.
- 15% (4780/31412) of GI bleed patients received 4 or more units of blood during their inpatient stay.
- Patients receiving 4 or more units of blood were eight years older on average than those patients receiving no blood.
- The mean age was 53 years for variceal upper GI bleeds, 73 years for non-variceal upper GI bleed and 74 years for lower GI bleeds.
- 40% (245/615) of the patients with a GI bleed in the study population were already inpatients being treated for another condition.
- 58% (358/618) of the study population were non-variceal upper GI bleeds.
- 22% (138/618) of the study population were lower GI bleeds.
- 8% (50/618) of the study population were variceal upper GI bleeds.

Admission

- 97% (593/614) of patients were non-elective admissions.
- In 16% (56/352) of cases the reviewers felt that the first consultant review was not sufficiently prompt for the patient's condition.
- 14% (40/295) of upper GI bleed patients were managed initially by gastroenterology or a dedicated upper GI bleed team.
- 46/98 lower GI bleed patients were managed by a surgical team.
- 21% (35/170) of patients developing a GI bleed whilst an established inpatient had delayed recognition of their GI bleed.
- 26% (152/587) of patients had a shock index >1 at the time of presentation with their GI bleed.
- 64% (190/299) of patients with an upper GI bleed did not have any risk assessment score calculated.
- Medication was inappropriately continued in 9% (35/399) of patients.
- Important basic investigations were omitted in 20% (47/238) of patients admitted with a GI bleed and 33% (44/133) of inpatients, including 5% who had no cross-match or group and save performed.
- Early basic treatment was omitted in 9% (37/404) of patients.
- Blood product use was inappropriate in 20% (84/426) of cases. In 25% (113/457) improved management would have reduced the need for blood product use.
- Early endoscopy resulted in better management of blood products.

Diagnostic pathway

- No single presentation was specific to upper or lower GI bleeding.
- 16% (80/490) of patients who had an OGD were subsequently found to have a lower GI bleed.
- 14% (16/111) of patients who had lower GI endoscopy subsequently found to have upper GI bleed.
- 36% (156/429) of patients first investigation did not identify site of bleeding.
- 31% (167/540) patients had two or more diagnostic investigations.
- 3/67 patients with bright red rectal bleeding had a proctoscopy or rigid sigmoidoscopy recorded.
- All 5 patients where bright red rectal bleeding was associated with upper GI bleeds had a shock index >1 .
- 78 patients had no investigations recorded.
- The anatomical site of bleeding was identified in 75% (295/392) of patients with upper GI bleeds and 47% (62/133) with lower GI bleeds.
- A pathological cause of bleeding found in 65% (370/570) of cases.

Control of bleeding

Upper GI bleeding

- 26/90 patients who didn't have an OGD reviewers felt should have.
- 35% (115/327) of patients waited longer than 24 hours for an OGD.
- Reviewers found that in 31% (114/369) of patients the time to OGD was too slow.
- 73/94 of patients with a shock index >1 did not have an OGD within 4 hours.
- There was less delay to OGD if the first consultant review was by a GI bleed specialist.
- 74% (342/461) of OGDs were performed by a consultant.
- 23% (110/478) of endoscopies were performed outside an endoscopy unit.
- 24% (117/490) of OGDs had no date and/or time recorded in the case notes.
- 7% (14/199) of patients had too much sedation during endoscopy according to reviewers.
- 19% (78/415) of patients had inadequate documentation of monitoring during their endoscopy.
- 84% (231/276) of patients did not have ECG monitoring during endoscopy.
- 76% (210/276) of patients had pulse, blood pressure and pulse oximetry monitored during endoscopy.
- 42% (82/197) of patients who had an endoscopy for non-variceal upper GI bleed had no re-bleed plan documented.
- 32% (12/37) of patients with a variceal upper GI bleed had no re-bleed plan.
- 39% (14/38) of patients with a variceal upper GI bleed did not receive prophylactic antibiotics.
- In the opinion of the reviewers, the endoscopic management of 12% (43/370) of patients was poor or unacceptable.

Lower GI bleeding

- 54% (74/137) of patients with a lower GI bleed had a colonoscopy or flexible sigmoidoscopy.
- 30% (21/71) of patients had an unnecessary delay to lower GI colonoscopy/flexible sigmoidoscopy

Interventional radiology

- 8% (36/459) of patients underwent an interventional radiology procedure.
- Reviewers found that 6% (21/334) of patients should have had an interventional radiology procedure but did not.

Surgery

- Surgical control of bleeding was needed in 6% (36/618) of patients.
- 9 patients had surgery because there was no interventional radiology available.
- 20 patients who underwent surgery did not have this discussed with interventional radiology despite most being suitable for interventional radiology.
- Only 5 patients had a formal surgical risk assessment score performed.
- Time to theatre was good in 31/32 cases where this could be assessed.
- Trainees performed the surgery in 5/36 cases, all other operations performed by consultants with trainees assisting.
- Patients transferred to appropriate postoperative location in all cases where this could be assessed.

KEY FINDINGS

Outcomes

- 23% (138/595) of patients suffered a re-bleed.
- 58% (65/138) of patients had no active treatment for a re-bleed with 41 given conservative management and 24 palliative care.
- 18% (68/380) of patients had their care escalated to critical care, of whom 30 had undergone surgery.
- 8% (24/312) of patients reviewers felt should have had escalation to critical care.
- 18% (19/108) of patients who had complications, the complications could have been avoided with improved care.
- Median length of stay for severe GI bleeds was 8 days.
- 24% (142/599) of patients died overall whilst 38% (89/236) of patients died who developed a GI bleed whilst already in hospital.
- 49% (45/91) of deaths in patients with a severe GI bleed were discussed at a morbidity and mortality meeting, although remediable factors were rarely found.
- GI bleeding was the cause of death in 36% (45/124) of patients and death was due to complications in 49% (61/124) where this was recorded.
- Increasing shock index at presentaion was associated with increasing mortality.
- The mortality rate of lower GI bleeds in this study was comparable to that of the patients who died with a non-variceal upper GI bleed 20.2% (28/138) and 21.5% (77/358) respectively.

Overall quality of care

- 44% (210/476) of patients received good care overall.
- 18% (88/476) of cases had organisational factors identified as leading to less than good care.
- 45% (214/476) of cases had clinical factors identified as leading to less than good care.
- There was no difference in the quality of care provided across all types of GI bleed.

Recommendations

- 1 Patients with any acute GI bleed should only be admitted to hospitals with 24/7 access to on-site endoscopy, interventional radiology (on-site or covered by a formal network), on-site GI bleed surgery, on-site critical care and anaesthesia. *(Medical Directors, Ambulance Trusts and Commissioners)*
- 2 Hospitals that do not admit patients with GI bleeds must have 24/7 access to endoscopy, interventional radiology and GI bleed surgery for patients who develop a GI bleed while as an inpatient for another condition by either an on-site service or a formal network. *(Medical Directors, Chief Executives and Trust Boards)*
- 3 Network arrangements for GI bleeds must include repatriation as well as referral, transfer and admission in their protocols and should take into account any existing networks for other conditions which require these services and integrate with them. *(Medical Directors and Commissioners)*
- 4 The traditional separation of care for upper and lower GI bleeding in hospitals should stop. All acute hospitals should have a Lead Clinician who is responsible for local integrated care pathways for both upper and lower GI bleeding and their clinical governance, including identifying named consultants, ideally gastroenterologists, who would be responsible for the emergency and on-going care of all major GI bleeds. *(Medical Directors, Clinical Directors)*
- 5 Care pathways for all GI bleeds should include, as a minimum, risk assessment, escalation of care, transfusion documentation, core procedural documentation, network arrangements and re-bleed plans. The pathway needs to be clearly documented. *(Lead Clinicians for GI Bleeds and Medical Directors)*
- 6 All patients who present with a major upper or lower GI bleed, either on admission or as an inpatient, should be discussed with the duty or on-call (out-of-hours) consultant responsible for major GI bleeds*, within one hour of the diagnosis of a major bleed. *(All Doctors)*
*see recommendation #4
- 7 The ongoing management of care for patients with a major bleed should rest with, and be directed by the named consultant responsible for GI bleeds*; to ensure timely investigation and treatment to stop bleeding and reduce unnecessary blood transfusion. *(Lead Clinicians for GI Bleeds, Medical Directors, Clinical Directors)*
*see recommendation #4
- 8 As previously stated by NICE (QS38), all patients with a GI bleed and haemodynamic instability should have 24/7 access to an OGD within two hours of optimal resuscitation. *(Lead Clinicians for GI Bleeds, Medical Directors and Commissioners)*
- 9 Endoscopy lists should be organised to ensure that GI bleed emergencies can be prioritised and all acute patients with GI bleeding have their endoscopy within 24 hours. *(Clinical Directors)*
- 10 Hospitals should improve access to colonoscopies for patients with a major GI bleed to avoid the unnecessary delays seen in this report. *(Clinical Directors)*
- 11 GI bleed specialists need to develop risk stratification methods relevant to all GI bleeding. *(Professional Societies)*
- 12 All patients with a GI bleed must have a clearly documented re-bleed plan agreed at the time of each diagnostic or therapeutic intervention. *(Gastroenterologists, Radiologists and GI Bleed Surgeons)*

Local guidelines/protocols will need to define a major bleed pending any National Guideline/consensus

RECOMMENDATIONS

- 13 Resuscitation and airway support during endoscopy and interventional radiology procedures should be equivalent to facilities during emergency surgery. Unstable patients should have anaesthetic and/or critical care support. *(Clinical Directors and Consultants in Anaesthesia and Critical Care Medicine and Medical Directors)*
- 14 Minimal monitoring during procedures for *major* GI bleeds should be blood pressure, pulse oximetry and ECG. Monitoring should be provided by suitably skilled individuals who are separate from the procedural team and available 24/7. *(Lead Clinicians for GI Bleeds, Clinical Directors and Medical Directors)*
- 15 Endoscopy equipment and nursing support should be comparable in all locations where endoscopy is performed. *(Clinical Directors and Directors of Nursing)*
- 16 Core procedural data to be recorded at every OGD should be defined and audited. *(Lead Clinicians for GI Bleeds, Professional Societies)*
- 17 All patients with a possible lower GI bleed should have 24/7 access to proctoscopy/rigid sigmoidoscopy. *(Medical Directors, Clinical Directors and Commissioners)*
- 18 All hospitals must have an integrated replacement plan for all high cost equipment which plans 5 years ahead and is reviewed annually. *(Medical Directors, Finance Directors, Chief Executives and Trust Boards)*
- 19 Hospitals should have contingency plans for failure of endoscopy, interventional radiology or surgical equipment. *(Clinical Directors)*
- 20 All deaths from *major* GI bleeds within 30 days of admission should undergo combined multidisciplinary peer review to identify remediable factors in patient care. *(All Clinicians and Allied Healthcare Professionals)*
- 21 The NICE Clinical Guideline (CG141) and Quality Standard (QS38) for Acute Upper GI Bleeding should be adhered to. *(All Doctors)*
- 22 Guidelines need to be developed for the optimal management of lower GI bleeds. *(British Society for Gastroenterologists, Medical and Surgical Royal Colleges and Specialist Associations and NICE)*
- 23 Consideration needs to be given to developing a combined guideline for all GI bleeding (to include NICE CG 141, QS 38, SIGN guidelines and the recommendations from this NCEPOD report). *(Led by the BSG and NICE and to include, but not limited to, SIGN, RCR, BSIR, ASGBI, AAGBI, RCoA, ICS, FICM)*
- 24 All hospitals to which patients with a GI bleed are admitted should have their endoscopy units accredited by the *Joint Advisory Group (JAG) on GI Endoscopy*. *(Medical Directors and Chief Executives)*
- 25 The *Joint Advisory Group (JAG) on GI Endoscopy* should consider including access to and delivery of 24/7 endoscopy for GI bleeding in their Global Rating Scale. *(Joint Advisory Group (JAG) on GI Endoscopy)*
- 26 A consensus exercise should be undertaken by specialties with an interest in GI bleeds to define 'major/severe' GI bleeding. *(Relevant Royal Colleges, Specialist Associations and Professional Societies)*

Local guidelines/protocols will need to define a major bleed pending any National Guideline/consensus

Overall quality of care

It should be remembered that some deaths are unavoidable and that many patients with poor outcomes will still have received high quality care. Only 44.1% (210/476) of patients included in this study received a standard of care that the reviewers would have accepted from their team, colleagues or Trust (Table 8.1). The most common deficiencies were in clinical care with nearly half (45%) of the patients identified as having room for improvement. Organisational factors were cited as requiring improvement in around a fifth (18.5%) of cases reviewed. Twenty one patients had less than satisfactory care. This assessment should lead to a drive to improve the care of all patients with a GI bleed.

Table 8.1 Overall assessment of care

Overall assessment of care	Number of patients	%
Good practice	210	44.1
Room for improvement clinical	157	33.0
Room for improvement organisational	31	6.5
Room for improvement clinical and organisational	57	12.0
Less than satisfactory	21	4.4
Subtotal	476	
Insufficient data	9	
Total	485	

In this group who received 4 or more units of blood there was no difference in the quality of care across non-variceal upper GI bleeds, variceal upper GI bleeds, lower GI bleeds and those patients without a diagnosis.

In addition there was only a small difference in the overall assessment of care when the day of presentation was divided into weekdays and weekends (44% good vs 38% good respectively). This applied equally to admissions for GI bleeding and bleeds in established inpatients.

When out-of-hours and in-hours admissions with GI bleeding were considered there was no change in the quality of care ratings so out-of-hours weekday admissions were not masking a weekend effect.

In patients admitted with a GI bleed there was no difference in the quality of care for those with no or less severe haemodynamic changes (shock index <1) between in-hours and out-of-hours presentations. In those with a shock index >1 they were more likely to be graded as good care if they presented between 8am and 6pm Monday to Friday. The major difference between hospitals in-hours and out-of-hours is largely the number of staffing and their seniority. The relatively low numbers in the two groups where data were available of 59.3% (16/27) vs 36.1% (13/36) is recognised.

Summary

The clinical community looking after patients with gastrointestinal (GI) bleeding have long realised that the care of these patients is less than satisfactory. A number of organisations including NICE, the BSG and SIGN have identified this care as wanting and suggested improvements. There is a belief amongst clinicians that progress remains slow and there is still significant variation in care despite recommendations and advances.

It is with this background that NCEPOD was asked to assess the quality of care given to patients with gastrointestinal bleeding. To do this we used our standard method of assessment of all hospitals in our study. This included assessment of care at an organisational level, clinical level within hospitals and external peer review of selected cases. We identified 31,412 patients who had experienced a gastrointestinal bleed during a 4 month period from 1st January 2013. We decided to look at a group of patients with more severe bleeding and found that 15% of patients received 4 or more units of blood. From these we selected a random sample of 618 patients for hospital clinician review and 485 patients for external peer review.

We found that there are still significant opportunities to improve the care of patients with gastrointestinal bleeding. The most striking findings of this study were that the organisation of GI bleeding services remain patchy and lacks co-ordination. Many hospitals do not have the facilities and / or staffing to deliver comprehensive care both during and out-of-hours. As a result many patients received inappropriate treatment whilst waiting for definitive control of bleeding. For example 9% of patients were given medical treatment that our reviewers felt was unnecessary and 25% were given blood products that could have been avoided.

We recommend that the artificial separation of upper and lower gastrointestinal bleeding should be stopped. To do this each hospital should appoint a Lead Clinician for GI bleeds to take responsibility for the management of patients with upper and lower GI bleeding. This clinician should develop pathways for patients with GI bleeds that identify patients early who require specialist input from GI bleed specialists ensuring timely early investigation and treatment of bleeding. This service should include 24/7 access to a specialist, GI bleed service, endoscopy, IR and surgery. Where deficiencies exist hospitals should develop joint networks with neighbouring hospitals.

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