Appendix: Results Tables - Principle Findings, Patient Data and Organisational Standards

Identified cases

	National Audit N (%) Cases	Your site N (%) Cases
Total		
Definite LGIB		
Cases excluded as found to be UGIB at endoscopy		
Insufficient data to decide		

Patient Demographics

	National Audit	Your Site
Mean age [SD]		
Male sex		
Charlson Co-morbidity index *0* *1* *2* *≥3*		
Presentation *De novo admission* *LGIB in an established inpatient*		
Patients transferred out *All* *For endoscopy* *For interventional radiology* *For surgical input*		
Patients with clinically significant bleeding*		
Patients with major haemorrhage**		

*Clinically significant bleeding defined as SBP<100, HR >100 and the need for ≥ 1 unit red cell transfusion. ** Major haemorrhage is defined as patients that triggered a massive haemorrhage alert or equivalent

Investigation and Treatment

	National Audit (n patients (%)	Your Site (n patients (%)
Inpatient diagnostic flexible sigmoidoscopy or colonoscopy		
Inpatient OGD		
Inpatient therapeutic flexible sigmoidoscopy or colonoscopy		
CT angiography *Total* *Extravasation of contrast*		
Mesenteric angiography		

Total *Extravasation of contrast*		
Mesenteric Embolisation		
Laparotomy for bleeding		
No inpatient treatment for LGIB		

Transfusion

	National Audit (n %)	Your Site (n %)
Total volume of red cell transfusion (n patients): *None* *1 unit* *2 unit* *3 unit* *≥4 unit transfusions* Mean (±SD) red cell transfusions per patient		
Total volume of FFP (n patients): *1 unit* *2 unit* *3 unit* *≥4 unit* Mean (± SD) FFP transfusions per patient		
Total volume of platelet transfusion (n patients) *1 unit* *2 unit* *>2 unit* Mean (±SD) number of platelet transfusions per patient		

Table: Patient Outcomes

	National Audit	Your Site
Cause of bleeding *Anorectal* *Diverticular* *Colitis* *Ischaemic* *Inflammatory Bowel Disease* *Undetermined* *Colorectal Cancer* *Angiodysplasia* *Other*		
Length of Stay (median and		

range)		
Mortality *All cause* *Due to LGIB*		
Discharge destination *Home* *New discharge to nursing home/care home*		
Re-admitted within 28 days *All re-admissions* *Further LGIB*		

Patient Data Audit Standards

Audit Standard 1: All patients with lower GI bleeding should undergo digital rectal examination (SIGN 2008)

	National Audit Patients n (%)	Your Site Patients n (%)
Did the patient have a digital rectal examination? *Yes* *No* *Unknown*		
N (%) meeting Standard		

Audit Standard 2: All patients with rectal bleeding should undergo proctoscopy or rigid sigmoidoscopy (SIGN 2008)*

	National Audit Patients n (%)	Your Site Patients n (%)
Total patients with rectal bleeding *Proctoscopy* *Rigid sigmoidoscopy*		
N (%) meeting Standard		

*Rectal bleeding is defined as bright or dark red blood per rectum or clots

Audit Standard 3: All patients admitted with LGIB should have a full blood count (FBC), coagulation screen and routine biochemistry (consensus opinion)

	National Audit Patients n (%)	Your Site Patients n (%)
Laboratory test *Full blood count* *Coagulation Screen* *Biochemistry*		
All 3 completed		

Any 2 completed ≤ 1 completed		
N (%) meeting Standard		

Audit Standard 4: Continue low-dose aspirin for secondary prevention of vascular events in patients with lower gastrointestinal bleeding in whom haemostasis has been achieved or are considered to have stopped bleeding spontaneously (developed from Nice 2012)

	National Audit Patients n (%)		Your Site Patients n (%)	
	All	Aspirin stopped	All	Aspirin stopped
Patients on aspirin: *Bleeding stopped spontaneously* *- LGIB not requiring intervention or transfusion* *- LGIB requiring only transfusion* *Haemostasis achieved* *- LGIB requiring endoscopic therapy* *- LGIB requiring interventional radiological treatment* *All*				
N (%) meeting Standard				

Audit Standard 5: Stop other non-steroidal anti-inflammatory drugs (including cyclooxygenase-2 [COX-2] inhibitors) during the acute phase in patients presenting with lower gastrointestinal bleeding (developed from Nice 2012)

	National Audit Patients n (%)	Your Site Patients n (%)
Patients on NSAID NSAID stopped		
N (%) meeting Standard		

Audit Standard 6: Emergency anticoagulation reversal in major haemorrhage should be with 25-50U/kg 4 factor PCC and 5mg Vitamin K IV (BSCH 2013)

	National Audit Patients n (%)	Your Site Patients n (%)
Patients that triggered a MHP* and were on warfarin: *All* *Received appropriate PCC*** *Received appropriate Vitamin K*		
N (%) meeting Standard		

For the purpose of this audit, major haemorrhage is defined as patients who triggered a Major Haemorrhage Protocol. *Major Haemorrhage Protocol
** Prothrombin Complex Concentrate

Audit Standard 7: Reversal for non-major bleeding should be with 1-3mg IV vitamin K (BCSH 2013)

	National Audit Patients n (%)	Your Site Patients n (%)
Patients that were on Warfarin: *All* *Meet criteria for non-major bleeding** *Received appropriate Vitamin K*		
N (%) meeting Standard		

***** For the purpose of this audit, non-major bleeding is defined as bleeding that does not meet the criteria for clinically significant bleeding (defined as SBP<100, HR≥100 and the need for ≥ 1 unit red cell transfusion).

Audit Standard 8: Use restrictive red blood cell transfusion thresholds (70 g/litre and a haemoglobin concentration target of 70–90 g/litre after transfusion) for patients who need red blood cell transfusions and who do not have major haemorrhage or acute coronary syndrome (Nice 2015)

	National Audit Patients n (%)	Your Site Patients n (%)
Patients that received a red cell transfusion: *All* *Number that met criteria for restrictive transfusion threshold* *Number transfused at ≤ 70g/l* *Number transfused at >70g/l*		
N (%) meeting Standard		
Patients that received a red cell transfusion: *Median number of units within an episode [IQR]* *Number with a post-transfusion Hb <70g/l* *Number with a post-transfusion Hb 70-90g/l* *Number with a post-transfusion Hb >90 g/l*		
N (%) meeting Standard		

Audit Standard 9: Offer platelet transfusion to patients with LGIB who are actively bleeding and have a platelet count of less than 30 x 109/litre (developed from Nice 2015)

For the purpose of this audit, actively bleeding is defined as those with a HR≥100, SBP <100 and needing ≥ 1 unit blood.

	National Audit Patients n (%)	Your Site Patients n (%)
Patients that received a platelet transfusion: *Number with a platelet count ≥ 30* *Number with a platelet count < 30 without clinically significant bleeding*		

Number with a platelet count < 30 with clinically significant bleeding		
N (%) meeting Standard		

Audit Standard 10: Do not routinely give more than a single adult dose of platelets in a transfusion (Nice 2015)

	National Audit Patients n (%)	Your Site Patients n (%)
Median number of platelet doses transfused per transfusion episode [IQR] Number that received >1 adult dose		
N (%) meeting Standard		

Audit Standard 11: *In LGIB offer fresh frozen plasma (FFP) to patients who have a prothrombin time (international normalised ratio) or activated partial thromboplastin time greater than 1.5 times normal (developed from Nice 2012)*

	National Audit Patients n (%)	Your Site Patients n (%)
Number of patients that received FFP *INR or APTT > 1.5 times normal and received FFP*		
N (%) meeting Standard		

Audit Standard 12: Use a dose of at least 15 ml/kg when giving fresh frozen plasma transfusions (Nice 2015)

	National Audit Patients n (%)	Your Site Patients n (%)
Number of patients that received FFP *Mean dose (range) ml/kg* *Number patients who received ≥ 15mg/kg*		
N (%) meeting Standard		

Audit Standard 13: The cause and site clinically significant lower gastrointestinal haemorrhage should be determined following the early use (within 24 hours) of colonoscopy or flexible sigmoidoscopy or the use of computed tomography angiography or digital subtraction angiography (developed from SIGN 2008)

	National Audit Patients n (%)	Your Site Patients n (%)
Total number of patients with clinically significant bleeding Patients with clinically significant bleeding that did		

not undergo any inpatient endoscopy or radiology Patients with clinically significant bleeding who underwent: *Colonoscopy or flexible sigmoidoscopy:* *-All* *-Within 24 hours* *CTA* *-All* *-Within 24 hours* *MA* *-All* *-Within 24 hours*		
N (%) meeting Standard (total undergoing endoscopy, CTA or MA within 24 hours)		

Audit Standard 14: Patients with LGIB with clinically significant bleeding should have an OGD unless the cause has been established using another modality of investigation within 24 hours (developed from Nice 2012)

	National Audit Patients n (%)	Your Site Patients n (%)
Total number of patients with clinically significant bleeding *Source of bleeding identified at Colonoscopy, sigmoidoscopy or proctoscopy* *Source of bleeding identified at CT* *Remaining patients that underwent OGD* *- All* *- Within 24 hours*		
N (%) meeting Standard		

Audit Standard 15: When surgery is contemplated, a formal assessment of the risk of death and complications should be undertaken by a clinician and documented in the patient record (adapted from ASGBI 2012 and NELA 2015)

	National Audit Patients n (%)	Your Site Patients n (%)
Total number of patients who underwent surgery Number that had a surgical risk score used		
N (%) meeting Standard		

Audit Standard 16: Localised segmental intestinal resection or subtotal colectomy is recommended for the management of colonic haemorrhage uncontrolled by other techniques (SIGN 2008)

	National Audit Patients n (%)	Your Site Patients n (%)
Total number of patients who underwent surgery *Right hemicolectomy* *Extended right hemicolectomy* *Sigmoid colectomy* *Anterior resection* *Subtotal colectomy* *Panproctocolectomy* *Other*		
N (%) meeting Standard		

Audit Standard 17: Surgical procedures with a predicted mortality >10% should be conducted under the direct supervision of a consultant surgeon (CCT holder) and consultant anaesthetist unless the consultants are satisfied that the delegated staff have adequate competency, experience, manpower and are adequately free of competing responsibilities (ASGBI 2012)

	National Audit Patients n (%)	Your Site Patients n (%)
Total number of patients who underwent surgery with predicted mortality > 10% *Performed by:* *Consultant* *Associate specialist/staff grade* *SpR/StR/research fellow/clinical fellow-supervised* *SpR/StR/research fellow/clinical fellow-unsupervised* *Unknown*		
N (%) meeting Standard		

Organisational Audit Standards

Standard 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 abdominal surgery, on-site critical care and anaesthesia (NCEPOD 2015)

Endoscopy

	National Audit n (%)
Does your hospital provide in-hours colonoscopy or flexible sigmoidoscopy for lower GI bleeding? *Yes* *No* *Unknown*	

Does your hospital provide out-of-hours colonoscopy or flexible sigmoidoscopy for lower GI bleeding? *Yes* *No* *Unknown*	
N (%) meeting Standard	

Interventional Radiology

	National Audit
What are the arrangements for in-hours* interventional radiology for lower GI bleeding? *On-site service* *Agreed referral protocol to another hospital* *Ad hoc arrangements* *No arrangements in place* *Other*	
N (%) meeting Standard	
What are the arrangements for out-of-hours** IR for lower GI bleeding? *On-site service* *Agreed referral protocol to another hospital* *Ad hoc arrangements* *No arrangements in place* *Other*	
N (%) meeting Standard	

The provision of IR is divided into *in hours (9am-5pm Monday to Friday) and **out of hours (5.01pm-8.59am Monday to Friday and throughout the weekend).

Abdominal Surgery

	National Audit
What are the arrangements for in-hours emergency abdominal surgery for lower GI bleeding? *On-site service* *Agreed referral protocol to another hospital* *Ad hoc arrangements* *No arrangements in place*	
N (%) meeting Standard	
What are the arrangements for out-of-hours emergency abdominal surgery for lower GI bleeding? *On-site service* *Agreed referral protocol to another hospital* *Ad hoc arrangements* *No arrangements in place*	
N (%) meeting Standard	

Critical Care

	National Audit
Does your hospital have any Critical Care on-site? *Yes* *No*	
N (%) meeting Standard	

Summary of All Modalities

	National Audit n (%)
N hospitals meeting all standards for: 4 modalities 3 modalities 2 modalities ≤ 1 modality	

Audit Standard 2: Endoscopy lists should be organised to ensure that GI bleeds are prioritised (NCEPOD 2015)

	National Audit
Are there Monday-Friday defined emergency endoscopy slots that can be used for flexible sigmoidoscopy or colonoscopy for lower GI bleeding? Yes No Unknown	
N (%) meeting Standard	

Audit Standard 3: There should be a minimum of 6 interventional radiologists on the rota (BSIR provision statement)

	National Audit
How many interventional radiologists are on the rota that can provide embolisation for lower GI bleeding? *Hospitals with < 6* *Hospitals with ≥ 6* *No data*	
N (%) meeting Standard	

Audit standard 4: Routine daily input from Medicine for the Care of Older People should be available to patients aged ≥ 70 admitted under surgical teams (adapted from NCEPOD 2012 and NELA 2015)

	National Audit

Are elderly patients admitted under the care of surgical teams routinely reviewed by a Care of the Elderly doctor (or equivalent)? *Yes* *No* *Unknown*	
N (%) meeting Standard	

Audit standard 5: A massive transfusion protocol should be readily available in all hospitals (developed from Department of Health guidance)

	National Audit
Does your hospital have separate written guidelines for blood transfusion in patients with major haemorrhage? *Yes* *No* *Unknown*	
N (%) meeting Standard	
How are these guidelines made available? *Provided on hospital intranet* *Displayed on wall in admissions units* *Both* *Other*	
N (%) meeting Standard	

Audit standard 6: Local arrangements should be in place to provide compatible blood urgently for patients with major bleeding (BCSH 2015 and DoH guidance 2010)

	National Audit
Are on-call transfusion laboratory staff on site at all times*? *Yes* *No* *Unknown*	
N (%) meeting Standard	

*24 hours/day, seven days/week

Audit standard 7: Guidelines on gastrointestinal bleeding should be readily available in all hospitals (developed from DoH guidance and NCEPOD 2015 recommendations)

	National Audit
Does your hospital have written guidelines for the management of GI bleeding? *Yes* *No* *Unknown*	

N (%) meeting Standard	
How are these guidelines made available? *Provided on hospital intranet* *Displayed on wall in admissions units* *Both* *Other* *Unknown*	
N (%) meeting Standard	