



Management of Upper Gastro-Intestinal Bleeding in Children Guidance: A Transport Team Perspective (Embrace)

Reference: 1654v3
Written by: Dr Vickramsingh Jutton
Dr Fatemah Rajah
Reviewed by: Dr Aparna Manou
Peer reviewer: Dr Stephen Hancock
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Purpose

This guideline intends to facilitate the management of patients with Upper GI bleeding referred for specialist input from peripheral hospitals via Embrace Yorkshire & Humber Infant & Children Transport Service. The aim is to have a standard approach across the Yorkshire and Humber region in managing children with Upper GI bleeding and to be aware of which centre is best suited to the patient's needs.

Intended Audience

Embrace Team (Nurses, ANPs and Doctors)

| REQUIREMENT | ACTION |
|--|---|
| Who should be aware of the guideline and where to access it. | Embrace Team (Call Handlers, Nurses, ANPs and Doctors) |
| Who should understand the guideline. | Embrace Team (Nurses, ANPs and Doctors) |
| Who should have a good working knowledge of the guideline. | Embrace Team (Nurses, ANPs and Doctors) |
| Where is the guideline available. | Available via the intranet SC (NHS) FT |
| Process for monitoring the effectiveness of this document. | Clinical Audits, Feedback from users and Review of Critical Incident Reporting |
| Groups/persons consulted. | Embrace Team Dr Mike Thomson (Consultant Paediatric Gastroenterologist at SC (NHS) FT Dr Sanjay Rajwal (Consultant Paediatric Hepatologist at Leeds Teaching Hospital NHS FT) Karen Bourne (Senior Pharmacist) |
| Training. | Embrace Training Programme Induction |
| Linked Documents. | This guideline should be used in conjunction with the Massive Transfusion/Haemorrhage guideline |
| This Guideline is subject to the Freedom of Information Act | |

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ABBREVIATIONS

| | |
|--------|----------------------------------|
| ABC | Airway, Breathing, Circulation |
| FBC | Full Blood Count |
| HUS | Haemolytic Uraemic Syndrome |
| IV | Intra-Venous |
| LFTs | Liver Function Tests |
| NSAIDs | Non-Steroidal Inflammatory Drugs |
| NBM | Nil By Mouth |
| NG | Naso-Gastric |
| RBC | Red Blood Cell |
| GI | Gastro-Intestinal |
| UGI | Upper Gastro-Intestinal |
| UEs | Urea and Electrolytes |

1. OBJECTIVES

This guideline intends to facilitate the management of patients with Upper GI bleeding referred for specialist input from peripheral hospitals via Embrace Yorkshire & Humber Infant & Children Transport Service. The aim is to have a standard approach across the Yorkshire and Humber region in managing children with Upper GI bleeding and to be aware of which centre is best suited to the patient's needs.

2. BACKGROUND INFORMATION

Upper GI bleeding is defined as haematemesis or any amount of blood from the naso-gastric tube secondary to a bleeding source above the ligament of Trietz (2nd part of duodenum). The incidence of Upper GI bleeding in children is not well established. In most cases, the Upper GI bleeding is trivial and unlikely to cause haemodynamic instability. However, it is important to decrease the potential risks that could arise from an Upper GI bleed by acting early.

Children with major Upper GI bleeding will require a multidisciplinary team approach for optimal outcomes. The initial steps include thorough assessment, resuscitation and re-evaluation, identifying the cause of the bleeding and starting treatment early. With the advent of Embrace, management of critically ill children has been streamlined via a common pathway to involve relevant teams in the care of the sick child. It is therefore important that we provide a standard approach to managing Upper GI bleeding across the Yorkshire and Humber region.

3. GUIDELINE

Upper GI bleeding, defined as blood loss proximal to the ligament of Treitz in the distal duodenum, is an uncommon but important sign in children. The bleeding can be insidious but can also present as an emergency. Upper GI bleed should always be considered as an emergency.

Consultation with a Paediatric Gastroenterology +/- Paediatric Surgical Team +/- Liver Team is essential in Children with upper GI bleeding and should be considered as an urgent transfer as it needs specific treatment/interventions.

Common causes of Upper GI bleeding as per age groups:

Neonates:

Swallowed maternal blood
Haemorrhagic disease of the newborn
Coagulopathy
Oesophagitis
Stress gastritis
Gastroduodenal ulcers
Duplication cyst
Necrotising Enterocolitis

1 month to 2 years:

Oesophagitis
Gastritis
Gastro-duodenal ulcer
NSAID-induced ulcer
Oesophageal varices
Gastric varices
Foreign body ingestion
(especially 'Button batteries')

2 years and older:

Oesophageal varices
Gastric varices
Mallory Weiss tears
Dieulafoy's lesions

Assessment on First Look Call:

It is essential that you look for the following, as they will have an impact on what you do next.

1. Take a quick history or on hand over ask for:

If neonates/newborn ask if Vitamin K has been given
Recurrent vomiting
Use of NSAID or steroids or possible ingestion

History of liver disease or bleeding tendency or inflammatory bowel diseases or recent illness

2. Physical examination:

If in shock then proceed to resuscitation as per APLS

A: If scoring P on the AVPU scale then ask for help from Anaesthetist for airway protection

B: There may be tachypnoea secondary to hypovolemic shock.

C: Tachycardia likely after significant volume loss.

Hypotension is a late and worrying sign

Delayed capillary refill – likely hypovolaemic

Blood pressure – **do not aim to have a high systolic blood pressure**

Newborns to 1 month old: >60mmHg

1 month old to 1 year old: >70 mmHg

more than 1 year old: (Agex2) + 70mmHg

D: Reduced consciousness secondary to shock

E: Maintain normothermia

Jaundice or lemon tinge – think of Haemolytic Uraemic Syndrome or Liver disease or Overdose

F: Consider early Blood transfusion.

Other: look for any signs suggesting aetiology.

Abdominal examination – tenderness would suggest surgical cause or Haemolytic Uraemic Syndrome or gastric/duodenal ulcer; signs of liver disease (hepatosplenomegaly; spider naevi, ascites), pigmentation of the lips (peutz jaegers)

Bruises – think NAI, DIC, Haematological/Oncological pathologies

Significant pre-existing conditions, reported “large” haematemesis, presence of melaena, heart rate at presentation >20 bpm above the mean heart rate for age, CRT of >2 seconds, drop of Hb of >20 g/L (compared with a last known Hb for the patient or compared with the lower limit of normal range for age), requirement for fluid resuscitation and/or blood transfusion and/or other blood products during stabilisation predict higher likelihood of need for endoscopic intervention for the upper GI bleed.

3. Investigations:

What is the latest FBC and Coagulation result?

Hb – Initial haemoglobin maybe normal if taken soon after initial blood loss. Aim for a Hb of 100 g/l, transfuse slowly or bolus depending if in shock or not

Platelets and Coagulation – low platelets and deranged coagulation may warrant Platelet transfusion, FFP or Cryoprecipitate (if fibrinogen less than 1) ; in neonates a repeat dose of Vitamin K IV may be indicated

What is the Urea?

A high urea may mean that a significant bleed took place or bleeding has been insidious
Think of HUS

What is the Creatinine?

If high creatinine and low Hb and high Urea then think of HUS.

Any other recent investigations?

Endoscopies - History of ulcers or varices?

Liver US scan or biopsies?

Management:

All cases should be approached in the Airway, Breathing and Circulation manner. If in shock then proceed with immediate resuscitation (follow APLS).

Airway – if in doubt about airway control then ask for HELP early! Opt for early intubation if there is severe uncontrolled bleeding, encephalopathy & drowsiness, inability to maintain saturations above 90% or signs of aspiration pneumonia.

Breathing – Aim for saturations above 95%.

Circulation – This is usually the cause of all other problems.

- Aim for ≥ 2 large bore cannulae (Blue or Green); Cross match 4 units or request 15-20 mls/kg if neonates. If severely shocked may require intraosseous access initially
- Correct prothrombin time (after discussion with Hepatology team) and correct platelets count if thrombocytopenic (Pancytopenia may reflect hypersplenism)
- Resuscitate with blood as soon as available. Beware of rapid overfilling in variceal bleeds as this can dislodge clots and cause more bleeding.
- If in need of inotropes then gain central venous access
- Monitor heart rate, blood pressure, urine output (catheterise)

Drugs –

1. Prophylactic antibiotics are recommended for all cases of variceal bleeding.
2. The following drugs are beneficial to decrease the bleed

| | |
|-------------|---|
| Vital drugs | <p>Octreotide IV infusion: 1 micrograms/kg (max 50 micrograms) loading dose over 5 mins, then 1-3 micrograms/kg/hr (max 50 micrograms/hr) maintenance infusion 500 micrograms Octreotide in 40mls of 0.9% sodium chloride (1ml/hr = 12.5 micrograms/hr)</p> <p>Vitamin K (phytomenadione) IV (300micrograms/kg IV; maximum 10mg)</p> <p>Inotropes IV to maintain adequate blood pressure</p> |
| Adjuncts | <p>Omeprazole IV (2mg/kg/day; maximum 40mg/day) or</p> <p>Esomeprazole IV (1-11 years (body weight up to 20kg): 10mg od; 1-11 years (body weight over 20kg): 20mg od; 12-17 years: 40mg od) or</p> <p>Ranitidine IV (>1 month old: continuous infusion of 200 micrograms/kg/hr or 1mg/kg every 6 hours; maximum 50mg every 6 hours)</p> |

Exposure

Keep child warm – in intubated patients, consider risk of oesophageal temperature probe, rectal may be more appropriate, otherwise monitor tympanic or axilla temperature

Use warm fluids for resuscitation

A gastric tube is helpful but may lead to trauma in cases of varices. Useful to assess blood loss.

Keep Nil by Mouth

Failure to control active bleeding

Ask for help from the local surgical team or local adult gastroenterologist if not already done so.

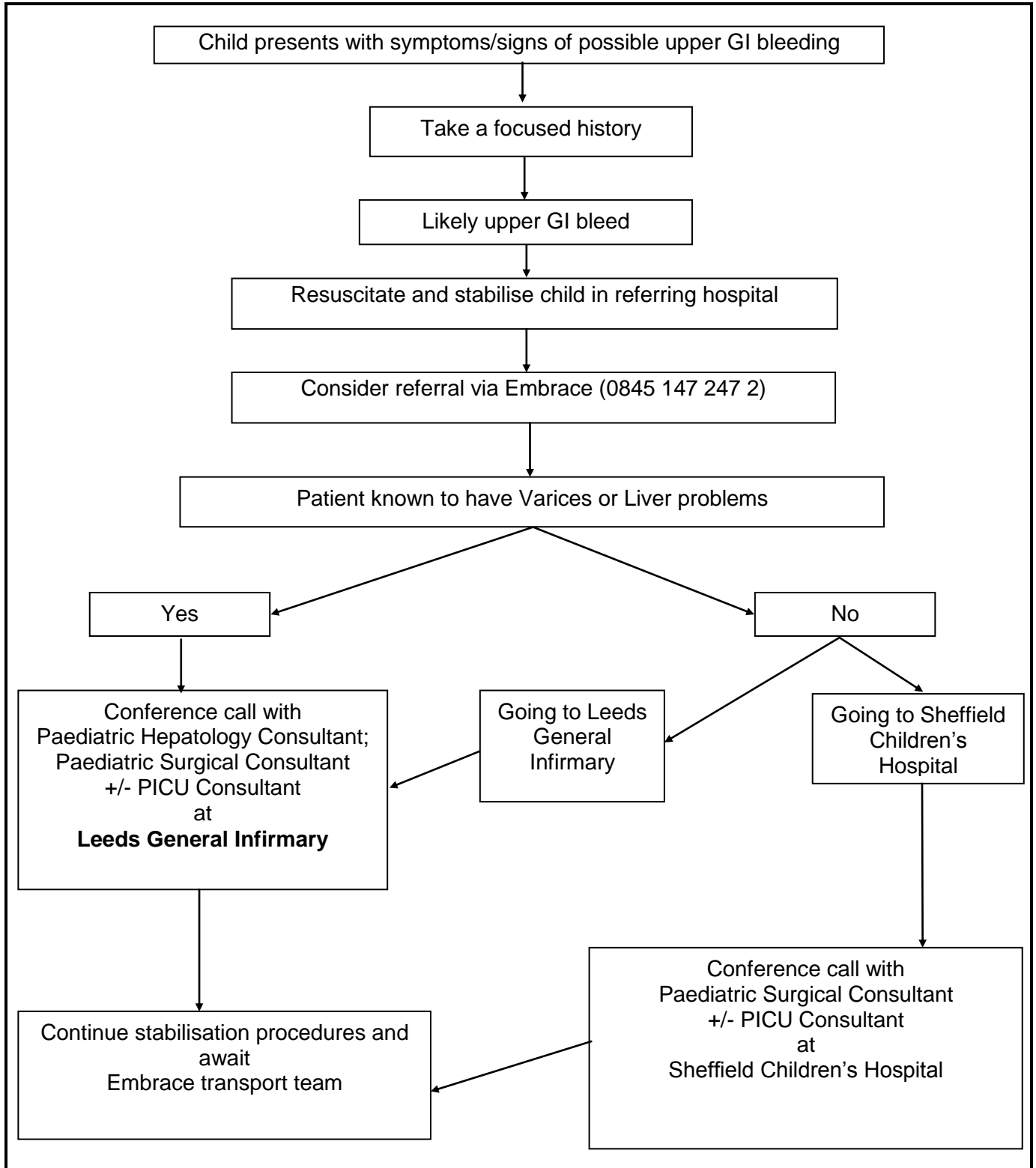
If not able to stabilise then discuss need to proceed for surgical interventions at referring hospital.

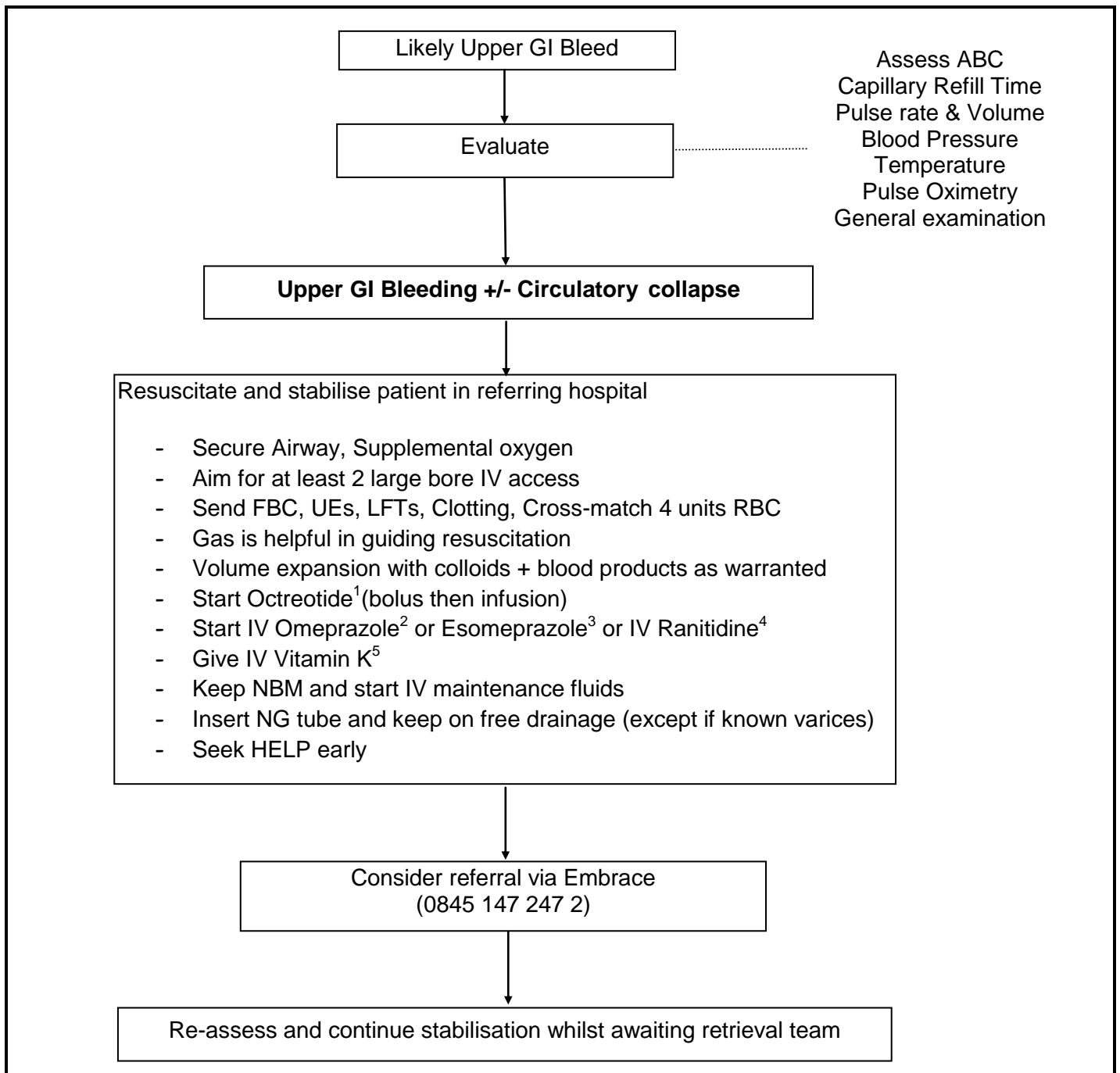
Glucose – Monitor blood glucose 2-4 hourly and maintain normal blood glucose

Helpful interventions

Urgent endoscopic assessment and treatment if feasible at referring hospital
 A Sengstaken tube is a useful tool in the management of uncontrolled upper GI bleed but can lead to more complications if not inserted properly. If in doubt then do not insert one – Consider involving adult gastroenterologist in case of uncontrolled upper GI Bleeding.
 Do Not Use NSAIDs.

Referral Pathway



Management of Upper GI bleeding

¹ Octreotide IV infusion (give an initial bolus of 1 micrograms/kg (max 50 micrograms) over 5 minutes then 1-3 micrograms/kg/hour (max 50 micrograms/hour))

500micrograms Octreotide in 40mls of 0.9% sodium chloride gives you 1ml/hr = 12.5 micrograms/hr

² Omeprazole IV (2mg/kg/day; maximum 40mg/day)

³ Esomeprazole IV (1-11 years (body weight up to 20kg): 10mg od; 1-11 years (body weight over 20kg): 20mg od; 12-17 years: 40mg od)

⁴ Ranitidine IV (>1 month old: continuous infusion of 200 micrograms/kg/hr or 1mg/kg every 6 hours; maximum 50mg every 6 hours)

⁵ Vitamin K (phytomenadione) IV (300micrograms/kg IV; maximum 10mg)

4. MONITORING ARRANGEMENTS

This guideline should be reviewed on a yearly basis. Staff will be offered training on how to use the drugs and the logistics of the guideline. Reporting of clinical incidents will help to improve the current guideline.

5. REFERENCES

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NICE clinical guideline 141: Acute upper gastrointestinal bleeding: management; Issued: June 2012 last modified: April 2015

6. VERSION CONTROL STATEMENT

| Version | Date | Author | Status | Comment |
|---------|----------------------------|---------------------|----------|---------|
| 1 | 9 April 2014 | Vickramsingh Jutton | Original | |
| 2 | 12 th June 2015 | Aparna Manou | Updated | |

Suggested Audit Points:

1. Mobilisation time
2. Assessment of salient factors predicting need for endoscopy.