



Emergency Embolisation for Bleeding Protocol

This procedural document supersedes: PAT/EC 6 v.1 – Emergency Embolisation for Bleeding Protocol



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Date written/revised:	November 2017
Approved by:	Clinical Directors and Medical Director Patient Safety Review Group Policy Approval and Compliance Group
Date of approval:	20 June 2018
Date issued:	18 September 2018
Next review date:	June 2021
Target audience:	Clinical staff, Trust-wide

Amendment Form

Please record brief details of the changes made alongside the next version number. If the procedural document has been reviewed **without change**, this information will still need to be recorded although the version number will remain the same.

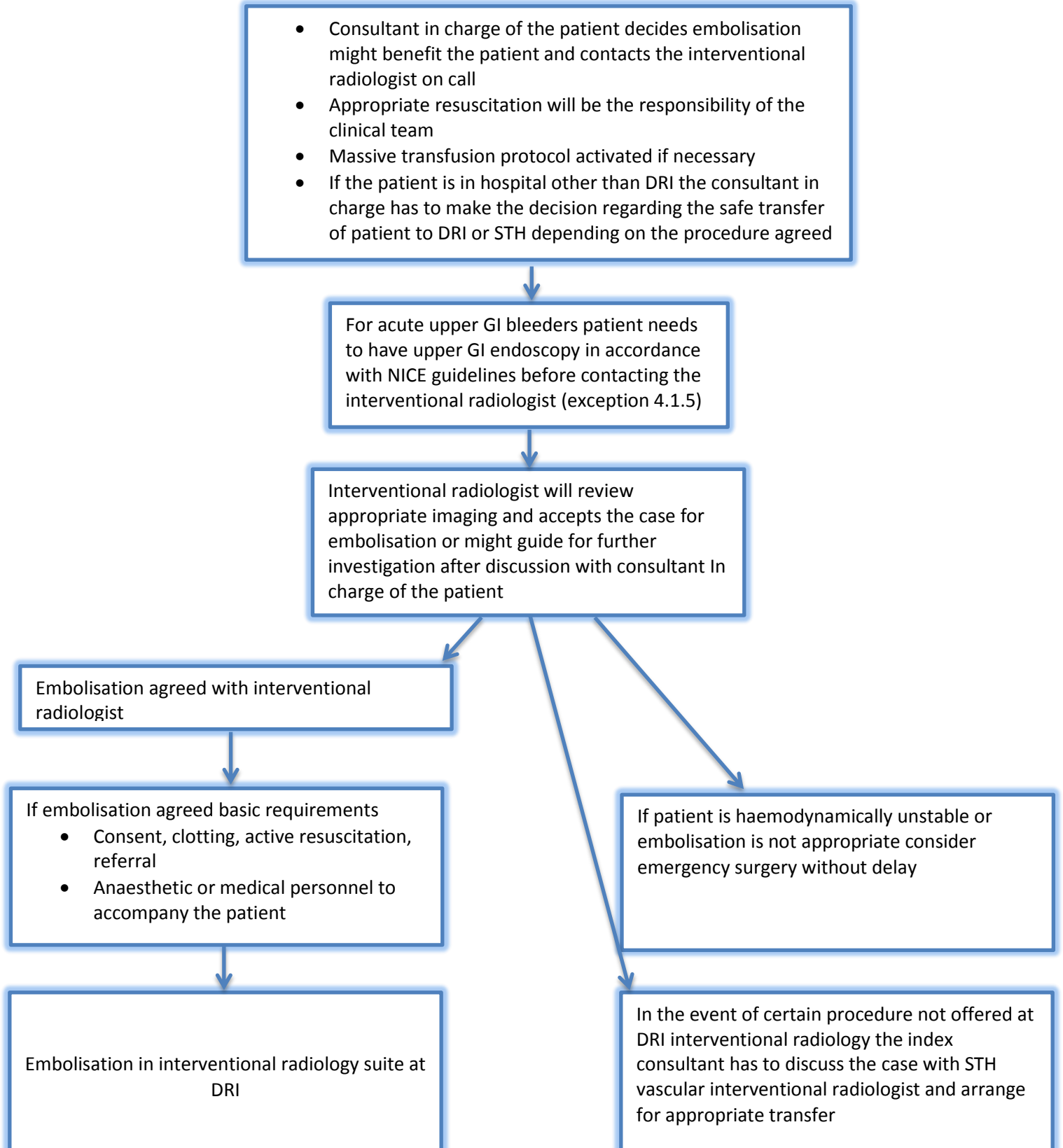
Version	Date Issued	Brief Summary of Changes	Author
Version 2	18 Sept 2018	<ul style="list-style-type: none"> • Pathway does not involve the vascular surgeons directly in contrary to the previous policy • Clear guidance on upper GI endoscopy prior to the GI bleed referrals • Basic procedures to be performed before taking the patient to DSA for embolisation. 	G Williams P Kumar
Version 1	November 2012	<ul style="list-style-type: none"> • This is a new procedural document, please read in full 	Duncan Drury Willy Pillay

Contents

Internal Pathway for Patients Needing Vascular Embolisation at Doncaster and Bassetlaw Teaching Hospitals NHS Foundation Trust [\(here\)](#)

	Page No.
1 INTRODUCTION	5
2 PURPOSE.....	5
3 DUTIES AND RESPONSIBILITIES.....	5
3.1 Specialities Involved	5
3.2 Staff Involved.....	6
4 PROCEDURE	6
Spectrum of Diseases	6
4.1 Pre-Embolisation	6
4.2 Embolisation.....	8
4.3 Post Embolisation.....	9
5 TRAINING	9
6 MONITORING COMPLIANCE WITH THE PROCEDURAL DOCUMENT	9
7 DEFINITIONS	10
8 EQUALITY IMPACT ASSESSMENT	10
9 REFERENCES.....	10
APPENDIX 1 – INTERNAL PATHWAY FOR PATIENTS NEEDING VASCULAR EMBOLISATION AT DONCASTER AND BASSETLAW TEACHING HOSPITALS NHS FOUNDATION TRUST	11
APPENDIX 2 – EQUALITY IMPACT ASSESSMENT - PART 1 INITIAL SCREENING	12

INTERNAL PATHWAY FOR PATIENTS NEEDING VASCULAR EMBOLISATION AT DONCASTER AND BASSETLAW TEACHING HOSPITALS NHS FOUNDATION TRUST



1 INTRODUCTION

Emergency embolisation for bleeding provides a minimally invasive treatment option for patients that are usually unwell.

In some patients, embolisation will be unsuccessful, and open surgery or conservative management will need to be considered. Because of the potential for rapid decompensation, senior input into the decision to attempt embolisation, and when to stop is essential. Adequate support for the interventionalist is essential, both to attend to the unstable patient (whilst the interventionalist focuses on identifying and occluding the offending vessel/s), and to assist with the decision-making in an evolving clinical scenario.

Often the lack of visible haemorrhage does not invoke the same degree of urgency afforded to patients haemorrhaging on an operating table. The procedure of embolisation should be planned and executed in a manner similar to that of open surgery. Often a failed attempt at embolisation may require rapid conversion to open surgery.

2 PURPOSE

There is evidence that there is an unmet need for embolisation, when compared to other populations. This protocol is an attempt to formalise (and advertise the service), and thereby increase the number of patients undergoing successful embolisation.

This protocol is prepared in accordance with NICE guideline and applies to Doncaster and Bassetlaw Teaching Hospitals NHS Foundation Trust which supports an in-house 24/7 rota. Please ensure you have the most up to date policy to refer the patient to the correct personnel.

3 DUTIES AND RESPONSIBILITIES

3.1 Specialities Involved

1. Interventional Radiology
2. Anaesthetics
3. GI Surgery
4. Head & Neck Surgery
5. Vascular Surgery
6. Urological surgery
7. Respiratory Medicine
8. Orthopaedics
9. Obstetrics & Gynaecology
10. Emergency medicine (A&E)
11. GI Medicine

3.2 Staff Involved

1. **Consultant Vascular Interventional Radiologist**
 - Responsible for undertaking embolisation
2. **Radiographer**
 - Operator of medical imaging equipment
3. **Radiology Nurse**
 - Assists radiologist and surgeon in performing actual procedure
4. **Senior Anaesthetist/Anaesthetic support**
 - Responsible for managing airway, pain and anxiety, and leading resuscitation
5. **Consultant for Index Team**
 - Assists with patient resuscitation
 - Involvement in decision to abandon embolisation, and when to convert to open surgery, with due consideration given to the CURRENT status of the patient.

4 PROCEDURE

Spectrum of Diseases

1. Upper GI bleed (e.g. Bleeding DU, haemosuccus)
2. Lower GI bleed (e.g. Angiodysplasia, diverticular disease, haemorrhoid)
3. Trauma
4. Obstetric bleed (e.g. post caesarean-section)
5. Haemoptysis (e.g. cystic fibrosis)
6. Retroperitoneal bleed (e.g. patients on Warfarin)
7. Iatrogenic trauma (e.g. bleeding following liver or renal biopsy, chest, renal or biliary drain insertion)
8. Splenic/liver rupture or injury with or without active bleeding
9. Any other arterial bleed either related to trauma or spontaneous.

4.1 Pre-Embolisation

1. The decision to consider embolisation should be taken by a senior member of the clinical team (usually a consultant) managing the patient. Patients on Critical Care should have direct input from the named consultant or on-call consultant of the index specialty.
2. Patients from emergency department should have named admitting consultant who takes decision with surgical or medical specialities and there should be clear post procedure plan for the patient care (Ward/ICU).
3. Senior input is necessary to ensure that all options of treatment are considered (including non-intervention), and in the event that embolisation is chosen, to consider at what point prolonged attempt at embolisation should be abandoned in favour of open surgery or a decision to withdraw treatment.

4. Where various specialties are involved in the care of the patient (e.g. poly trauma), senior members need to liaise with each other to ensure that a joined-up management plan is agreed as well as any alternative plan. Where multiple procedures are necessary, consideration should be given to the order in which they will be performed. This will be informed by the underlying condition, status of the patient, core temperature, coagulopathy and the possible need to adopt a damage limitation strategy.
5. All upper GI bleeders should have upper GI endoscopy in according with NICE guidelines. When endoscopy is needed primary clinician needs to discuss the case with endoscopist (24/7 on call) and has to organise the procedure to be done. Primary clinician / endoscopist have to contact the interventional radiologist for the embolisation to be undertaken, if needed. In the event of upper GI endoscopy not available, clinician in charge of patient has to discuss with interventional radiologist on call regarding further steps of management (performing CTA/catheter angiography or patient to transferred to centre where therapeutic endoscopy option available).
6. Where endoscopy has been attempted for GI bleeding, the placement of metal clips at the site of bleeding is useful when attempting to localise the offending vessel at angiography.
7. Where bleeding is encountered after drain insertion or at the time of biopsy, the drain or trocar should not be removed, but rather clamped or closed while awaiting definitive treatment. The foreign body may tamponade any bleeding. A trocar may allow arrest of haemorrhage by placement of Gelfoam sponge down the lumen into the site of injury.
8. A senior member of the index team should liaise directly with the interventionalist to discuss;
 - a. The NEED for embolisation.
 - b. The overall PROGNOSIS of the patient
 - c. OTHER treatment options.
 - d. THRESHOLDS for treatment and options in the event of an unsuccessful attempt at embolisation.
9. Should embolisation be considered, then rapid consideration should be given to:
 - a. Early involvement of the emergency anaesthetic team (most patients, by the nature of the problem, should already have this in place, see 2 and 3 above). The interventional radiology team is not able to manage problems with the airway, hypotension, pain etc.
 - b. The need for and availability of a bed in the Department of Critical Care.
 - c. A full set of blood results including clotting. In discussion with Haematology (and

in some instances using the policy for massive haemorrhage), blood and blood products need to be available.

- d. Arranging junior support from the index team to be available to assist with ongoing fluid resuscitation, and support.
 - e. Placement of an indwelling Foley urinary catheter to help monitor resuscitation, and also make the procedure more comfortable for the patient. Large volumes of intra-vascular contrast initiate diuresis, and patients will be required to remain lying flat for a few hours post intervention (advice will be given by the interventional radiologist who has performed the procedure and also by the DSA staff).
 - f. CONSENT for embolisation, with a discussion about alternatives and possible outcomes. Often consent may include the possibility and risks of open surgery should embolisation be unsuccessful. Risks of embolisation include amongst others:
 - i. Damage to access artery
 - ii. Contrast-induced nephropathy (especially if there is pre-existing renal dysfunction)
 - iii. Failure of the procedure
 - iv. Inadvertent occlusion of non-target vessel with resultant ischaemia of distal organ (e.g. stroke, bowel ischaemia, skin necrosis, limb threat)
 - v. Damage to artery at site of embolisation.
10. Role of pre-embolisation intravascular contrast-enhanced CT scan.
- a. IV contrast enhanced arterial phase CT scanning demonstrates the site of bleeding in a large number of cases.
 - b. This provides a guide to the interventionalist when selecting vessels to interrogate for potential bleeding, and should improve the overall efficiency of embolisation.
 - c. In patients with poly trauma, whole-body-CT should be considered early in the resuscitative phase. Arterial phase contrast enhancement may detect occult bleeding early, preventing late decompensation and delayed treatment.

4.2 Embolisation

1. Full monitoring and resuscitation facilities need to be available, along with access to drugs, fluids and blood/products.
2. Senior anaesthetic and clinical team members should be present at the embolisation, in order that decisions about when to abandon embolisation, and when to convert to open surgery are made with due consideration given to the CURRENT status of the patient. The interventional radiologist is unable to make decisions about resuscitation

and other options of treatment, without the presence of senior members of the teams involved with the patient.

4.3 Post Embolisation

1. Appropriate monitoring should be available. Patients may re-bleed, bleed from another site, or have ongoing venous bleeding (e.g. trauma).
2. Correction of coagulopathy, anaemia, hypothermia and volume deficit should continue.
3. Repeat embolisation may occasionally be necessary, and the process should follow a pattern similar to that outlined above.

5 TRAINING

The Training requirements of staff will be identified through a training needs analysis. Role specific education will be delivered by the service lead.

This policy will be circulated to the trust-wide medical and clinical staff.

6 MONITORING COMPLIANCE WITH THE PROCEDURAL DOCUMENT

- **Outcomes of the procedures** being monitored,
- **Interventional radiology in liaison with clinical team managing the patient** - responsible for carrying out the monitoring,
- **Relevant cases will be discussion in three monthly interventional radiology meeting,**
- **Interventional radiology team including the nurses and radiographers will address the issues that might be related to the procedures under the guidance of lead interventional radiologist.**

What is being Monitored	Who will carry out the Monitoring	How often	How Reviewed/ Where Reported to
Outcome of the procedures in close liaison with clinical team	Emergency and surgical care group as well as diagnostic and pharmacy care group	Mortality and morbidity meeting	Datix reports
Departmental review with interventional meeting in radiology	Diagnostic and pharmacy care group	Three monthly	Complication register/Datix reports

7 DEFINITIONS

Embolisation: The therapeutic introduction of a substance into a vessel in order to occlude it.

Contrast Induced Nephropathy: Either a greater than 25% increase of serum creatinine or an absolute increase in serum creatinine of 0.5 mg/dL.

8 EQUALITY IMPACT ASSESSMENT

The Trust aims to design and implement services, policies and measures that meet the diverse needs of our service, population and workforce, ensuring that none are disadvantaged over others. Our objectives and responsibilities relating to equality and diversity are outlined within our equality schemes. When considering the needs and assessing the impact of a procedural document any discriminatory factors must be identified.

An Equality Impact Assessment (EIA) has been conducted on this procedural document in line with the principles of the Equality Analysis Policy (CORP/EMP 27) and the Fair Treatment For All Policy (CORP/EMP 4).

The purpose of the EIA is to minimise and if possible remove any disproportionate impact on employees on the grounds of race, sex, disability, age, sexual orientation or religious belief. No detriment was identified. (See Appendix 2)

9 REFERENCES

Walker TG et al. Angiographic evaluation and management of acute gastrointestinal haemorrhage. *World J Gastroenterology*. 2012 Mar 21;18(11):1191-201.

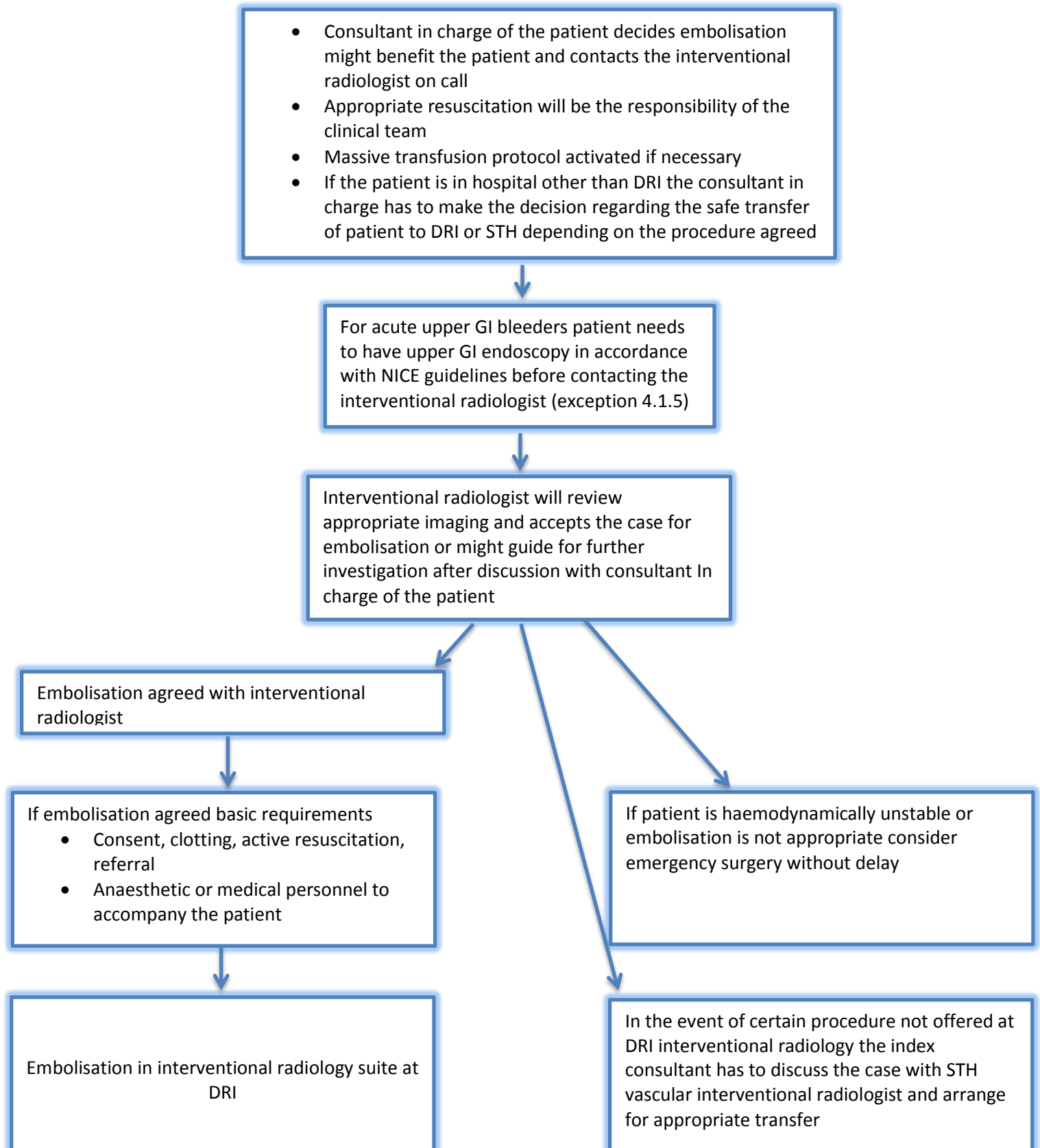
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Mensel B et al. Selective microcoil embolisation of arterial gastrointestinal bleeding in the acute situation: outcome, complications, and factors affecting treatment success. *Eur J Gastroenterol Hepatol*. 2012 Feb;24(2):155-63.

Cano-Valderrama O et al. Endovascular therapy as a treatment for ruptured pancreaticoduodenal artery aneurysms. *Minim Invasive Ther Allied Technol*. 2011 Sep;20(5):296-300.

NICE guideline on management of acute upper GI bleed in >16 yr old patients – 13 June 2012

APPENDIX 1 – INTERNAL PATHWAY FOR PATIENTS NEEDING VASCULAR EMBOLISATION AT DONCASTER AND BASSETLAW TEACHING HOSPITALS NHS FOUNDATION TRUST



APPENDIX 2 – EQUALITY IMPACT ASSESSMENT - PART 1 INITIAL SCREENING

Service/Function/Policy/Project/Strategy	Care Group/Executive Directorate and Department	Assessor (s)	New or Existing Service or Policy?	Date of Assessment
Emergency Embolisation for Bleeding Protocol	Trust wide	Julie Kay	Existing	15/2/18
1) Who is responsible for this policy? Name of Care Group/Directorate: Trustwide –Diagnostic and pharmacy, emergency and surgical care group				
2) Describe the purpose of the service / function / policy / project/ strategy? Who is it intended to benefit? What are the intended outcomes? Provide effective and safe treatment for the patients who are having acute bleeding due to various etiology – team work is the key factor in managing the patient effectively				
3) Are there any associated objectives? Legislation, targets national expectation, standards n/a				
4) What factors contribute or detract from achieving intended outcomes? Communication gap can be important factor that could have an impact on achieving effective outcome – should be addressed with senior clinician involvement				
5) Does the policy have an impact in terms of age, race, disability, gender, gender reassignment, sexual orientation, marriage/civil partnership, maternity/pregnancy and religion/belief? no				
6) Is there any scope for new measures which would promote equality? [any actions to be taken - no				
7) Are any of the following groups adversely affected by the policy? - no				
Protected Characteristics	Affected?	Impact		
a) Age	No			
b) Disability	No			
c) Gender	No			
d) Gender Reassignment	No			
e) Marriage/Civil Partnership	No			
f) Maternity/Pregnancy	No			
g) Race	No			
h) Religion/Belief	No			
i) Sexual Orientation	No			
8) Provide the Equality Rating of the service / function /policy / project / strategy – tick (✓) outcome box				
Outcome 1 ✓	Outcome 2	Outcome 3	Outcome 4	
Date for next review: March 2021				
Checked by: G Williams			Date: February 2018	