

Interventional Radiology - How to Request - Full Clinical Guideline

Reference No: CG-T/2023/146

1. Introduction

Interventional radiology Procedures are minimally invasive, targeted treatments which are performed under imaging guidance using fluoroscopy, ultrasound or CT. They play a vital role in both elective and emergency patient care.

Interventional Radiology can be divided into subgroups:

Vascular Intervention (Arterial) – procedures involving the arteries throughout the body such as angioplasty (balloon dilatation of narrowed blood vessels) or embolisation (blocking off blood vessels to tumours or when someone is bleeding internally).

Vascular Intervention (Venous) – procedures involving the veins such as inserting lines into veins, inserting filters to prevent clot travelling around the body (IVC filters) or using devices to suck clot out of blocked veins (thrombectomy).

Non-vascular Intervention – procedures not involving the blood vessels such as unblocking kidneys (nephrostomy) or the liver (PTC), injecting cement into collapsed bones (vertebroplasty) or inserting feeding tubes into the stomach (RIG).

Interventional Oncology – procedures performed for the diagnosis or treatment of cancer such as tumour ablation (killing tumour cells by inserting a needle into a tumour and heating it up) or injecting chemotherapy coated beads into tumours to kill them (TACE).

2. Aim and Purpose

The purpose of this document is to provide sufficient information concerning Interventional Radiological Procedures to enable healthcare professionals to request, prepare and consent for patients for these procedures. To ensure a standardised approach to requesting Interventional Radiological Procedures.

3. Definitions, Keywords

EPR: Electronic Patient Record

IR: Interventional Radiology

IRP: Interventional Radiology Procedure

LocSSIP: Local Safety Standards for Interventional Procedures

Process for requesting an IRP

1. Consent patient, please see guidance below.

2. Emergency IRPs

- **Out of Hours** - should involve discussion between SPR/consultant and on call Interventional Radiologist.
 - **In Hours** - IRPs should be organised through IR Nurse Coordinator (88590)
3. Request made in the EPR (Lorenzo or Meditech)
 4. Patient preparation, please see guidance below for details.
 5. Cessation of any anticoagulation medication, please see guidance below.
 6. Most patients are not required to be nil by mouth unless for specific IRPs requiring sedation, e.g. PTC, or cases on an anaesthetic list (6 hours for food and 2 hours for fluids).

Consent Process

Interventional radiological procedures often involve significant risks. Therefore, it is necessary to seek written consent and it is good medical practice to undertake this as a 2 part process. The clinical team can initiate the first part of the consent by providing relevant information, discussing treatment options, and obtaining the initial patient decision.

The standard consent form provides space for a health professional to provide information to patients and to sign page 2 of the consent form confirming that they have done so. The health professional providing the information must be competent to do so; either because they themselves carry out the procedure or because they have received training or guidance in advising patients about these procedures.

If the health professional providing the information is not competent to undertake the procedure, then a health professional who is capable of undertaking the procedure must complete the confirmation of consent section on page 3 of the form.

The health professional carrying out the procedure i.e. the radiologist, is ultimately responsible for ensuring that the patient is genuinely consenting to what is being done.

In accordance with the Trust Consent Policy and the Trust's Consent Working Group directives it is agreed that for elective and emergency Interventional Radiological Procedures, page 2 of the consent form should be signed by a member of the referring clinical team and that confirmation of consent (page 3) should be signed by the radiologist performing the procedure. This must be completed prior to the LocSSIP Checklist that is undertaken immediately before the procedure (form attached).

When treatment can be given to a patient who lacks the capacity to consent

All decisions made on behalf of a patient who lacks capacity must be made in accordance with the Mental Capacity Act 2005. Treatment can be given to a patient who is unable to consent, only if:

- the patient lacks the capacity to give or withhold consent to this procedure AND
- the procedure is in the patient's best interests.

Capacity

A person lacks capacity if they have an impairment or disturbance (for example, a disability, condition or trauma, or the effect of drugs or alcohol) that affects the way their mind or brain works which means that they are unable to make a specific decision at the time it needs to be made. It does not matter if the impairment or disturbance is permanent or temporary. A person is unable to make a decision if they cannot do one or more of the following things:

- Understand the information given to them that is relevant to the decision.
- Retain that information long enough to be able to make the decision.
- Use or weigh up relevant information
- Communicate their decision - this could be by talking or using sign language and includes simple muscle movements such as blinking an eye or squeezing a hand.

You must take all steps reasonable in the circumstances to assist the patient in taking their own decisions. Capacity is 'decision-specific': a patient may lack capacity to take a particular complex decision but be able to take other more straightforward decisions or parts of decisions. Capacity can also fluctuate over time, and you should consider whether the person is likely to regain capacity and if so whether the decision can wait until they regain capacity.

Interventional Radiological Procedures

Below are the Interventional Radiological Procedures for which the clinical team may be expected to initiate consent and complete page 2 of the consent form:

- Arteriogram, angioplasty/stent and embolisation procedures
- Renal angiogram, angioplasty/stent
- Fistulogram +/- fistuloplasty
- IVC filter insertion/removal
- SVC stenting
- Peripherally inserted central catheter (PICC line)
- Hickman line insertion
- Thrombin injection (for pseudo aneurysms)
- Lung biopsy
- Chest/pleural drain insertion
- Nephrostomy insertion / change
- Ascitic drain insertion (paracentesis)
- Radiological inserted gastrostomy (RIG)
- Percutaneous transhepatic cholangiogram / biliary drain insertion
- Liver / general tissue biopsy
- Abdominal / pelvic drain insertion (for abscesses)
- Prostate biopsy

There are detailed patient information leaflets for all these procedures which explain the nature of the procedure and the complications. These leaflets are usually available on the ward, in outpatient clinics, the Imaging Department or on the hospital intranet (using Net-i click 'Imaging-Business Unit' from 'A-Z of services', then 'Patient leaflets for Imaging' [Patient leaflets | Adults | UHDB Trust | University Hospitals of Derby and Burton NHS](#)). These leaflets may be given to the patient to provide them

with information regarding the procedure to facilitate the consent process. The trainee should be familiar with the contents of these leaflets before obtaining consent.

It is advisable that trainees come to the Imaging Department to witness interventional procedures for which they will be frequently taking consent.

For more complex interventional cases, the individual Radiologist may consent the patient prior to the procedure.

If there are outstanding queries regarding a procedure either from the trainee's or patient's perspective, please discuss with an Interventional Radiologist (office phone numbers attached).

Patient Preparation

Documents are enclosed below which will guide you with regards to appropriate preparation of a patient for these procedures:

1. Preparation for Interventional Radiological Procedures

This document gives detailed information with regards to how a patient should be prepared prior to specific interventional procedures.

2. Medication in Patients Undergoing Interventional Radiological Procedures

This document gives more detailed advice with regards to anticoagulants and Metformin. Specifically when these medications should be stopped and started before and after radiological procedures. It should provide guidance to both nursing and medical staff.

3. Patient Record of LocSSIP checklist (STOP Moment)

This document is completed immediately before the procedure to confirm patient ID, procedure site and side and to check relevant blood results are available

4. Contact Numbers

List of office phone numbers for the consultant interventional radiologists who are happy to discuss any queries.

1. PREPARATION FOR ALL INTERVENTIONAL PROCEDURES

Please follow the grid for the required preparation for the procedure booked
If you have any questions, contact the X-ray Department on 88590 and ask to speak to one of the Nursing Staff

Procedures	IV Cannula	Consent	Blood results within 1 month FBC INR	Blood results within last 3 days FBC INR U+E	Blood results within last 3 days FBC INR LFT	Group & Save	Antibiotic Cover	Empty Bladder	Nil by mouth 6 hrs solids 3 hrs fluid	Warfarin stop for 5 days prior	Clopidogrel stop 7 days prior	Prophylactic Enoxaparin omit for 12 hrs prior	Therapeutic Enoxaparin omit for 24 hrs prior	Aspirin stop for 5 days prior	IV Heparin infusion stop for 2 hrs prior
Insertion of Nephrostomy	✓	✓		✓			✓		✓	✓	✓	✓	✓		✓
Change of Nephrostomy	✓	✓	✓				✓			✓	✓	✓	✓		✓
Fistulogram / Fistuloplasty		✓		✓						✓	✓	✓	✓		✓
Hickman Line	✓	✓		✓					✓	✓	✓	✓	✓		✓
Permacath	✓	✓		✓			✓		✓	✓	✓	✓	✓		✓
Liver Biopsy	✓	✓			✓					✓	✓	✓	✓	✓	✓
Pleural / Lung* Biopsy	✓	✓	✓							✓	✓	✓	✓		✓
Omental / Tissue Biopsy	✓	✓		✓						✓	✓	✓	✓		✓
Abdominal / Ascitic Drain	✓	✓		✓						✓	✓	✓	✓		✓
Chest / Pleural Drain	✓	✓	✓							✓	✓	✓	✓		✓
Percutaneous Transhepatic Cholangiogram / Biliary Drain	✓	✓			✓		✓		✓	✓	✓	✓	✓	✓	✓
Radiologically Inserted Gastrostomy	✓	✓		✓			✓		✓	✓	✓	✓	✓		✓
Antegrade Ureteric Stent	✓	✓		✓			✓	✓		✓	✓	✓	✓		✓
Prostate Biopsy		✓	✓				✓	✓		✓	✓	✓	✓		✓
IVC Filter Insertion / Removal	✓	✓		✓						✓	✓	✓	✓		✓
SVC Stent	✓	✓		✓		✓				✓	✓	✓	✓		✓
Arteriogram/Angioplasty/Stent/Embolisation	✓	✓		✓		✓				✓	✓	✓	✓		✓

* Include lung function test

2. MEDICATIONS IN PATIENTS UNDERGOING INTERVENTIONAL RADIOLOGICAL PROCEDURES

The following is for guidance only and individual cases should be treated on their own clinical merits and risks.

Warfarin (+Acenocoumarol (*Sinthrome*) + Phenindione)

INR (International Normalised Ratio) should be equal to or less than 1.4 before a moderate or high risk procedure is performed. Dosage should usually recommence after 24 hr or as specified by the Interventional Radiologist.

Rivaroxaban, Apixaban, Edoxaban (and other DOACS - Direct Oral Anticoagulants)

Should be stopped for 48 hours prior to most moderate and high risk procedures (72 hours if renal impairment). Please refer to Trust Guidelines for individual drugs:

- *Rivaroxaban: Bleeding, Surgery and Overdose - Full Clinical Guideline Reference No: CG-T/2014/166*
- *Dabigatran: How to Manage Bleeding, Surgery and Overdose - Full Clinical Guideline - DERBY Reference No: CG-T/2014/165*
- *Apixaban: Bleeding, Surgery and Overdose - Full Clinical Guideline Reference No.: CG-T/2014/212*
- *Edoxaban: Bleeding, Surgery and Overdose - Full Clinical Guideline Reference no.: CG-T/2014/212*

Heparin

Intravenous heparin should be stopped for at least 2 hours before a procedure and recommenced after 24 hours

Enoxoparin (*Clexane*)

- 1) Prophylactic dosage - should be omitted on the day of the procedure and for at least 12 hr before
- 2) Therapeutic dosage - should be omitted for at least 24 hr before

Both doses can be reintroduced at least 24 hr post procedure.

Clopidogrel (*Plavix*) + Prasugrel

Should be stopped for at least 7 days before an elective procedure and recommenced after 24 hr.

Cilostazol (*Pletal*)

Should be stopped for 4 days before a procedure is performed and recommenced after 24 hr.

Metformin (*Glucophage*)

When patients taking metformin are identified as being at high risk of CI-AKI, referring clinicians should discontinue their patient's metformin for 48 Hrs after intravascular iodinated contrast agent administration:

- Intravenous administration: Discontinue metformin for patients with an eGFR <30 ml/min/1.73m² or <45 ml/min/1.73m² with other risk factors.
- Intra-arterial administration: Discontinue metformin for patients with an eGFR <45 ml/min/1.73m².

Referring clinicians should check eGFR before recommencing metformin.

3. IR LocSSIP checklist (STOP Moment)

STOP MOMENT					
Affix Patient ID Label			Affix Attendance Label <small>To be stuck on after the case has been entered onto CRIS with correct procedure codes</small>		
Staff present:		Ward:			
Radiologists:					
Nurses:					
Radiographers:					
Other:					
ID, Contrast and Allergy Checks					
Name <input type="checkbox"/>	Hosp Number <input type="checkbox"/>	Address <input type="checkbox"/>	Date of Birth <input type="checkbox"/>	Wrist Band: <input type="checkbox"/>	Request Form: <input type="checkbox"/>
ReSPECT Form: Y / N CPR: Yes <input type="checkbox"/> No <input type="checkbox"/>		Contrast checks: <input type="checkbox"/>	Allergies:		
Site & Procedure Checks:					
Radiographer Checks:					
Correct Patient selected? <input type="checkbox"/>	Daily checks completed? <input type="checkbox"/>	Staff wearing Radiation dosimeters? <input type="checkbox"/>	All staff wearing lead protection? <input type="checkbox"/>		
Intended Procedure:		Elective <input type="checkbox"/>	Emergency <input type="checkbox"/>		
Left <input type="checkbox"/>	Right <input type="checkbox"/>	Bilateral <input type="checkbox"/>	N/A <input type="checkbox"/>	Patient confirms procedure <input type="checkbox"/>	Consent Form (corresponds intended procedure) <input type="checkbox"/>
Is the necessary equipment available? Yes <input type="checkbox"/> No <input type="checkbox"/>		Requests (verified & corresponds intended procedure) <input type="checkbox"/>		Relevant Imaging <input type="checkbox"/>	
Pre procedure medication: N/A <input type="checkbox"/>		Is the Patient Diabetic? Yes <input type="checkbox"/> No <input type="checkbox"/>		Metformin or Glucophage? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	
		IV Access: Yes/flushed <input type="checkbox"/>		N/A <input type="checkbox"/>	
Is the patient NBM? Yes <input type="checkbox"/> No <input type="checkbox"/>		Food: HH / MM	Clear Fluids: HH / MM	N/A <input type="checkbox"/>	
Is the patient pregnant? Yes <input type="checkbox"/> No <input type="checkbox"/>		N/A <input type="checkbox"/>	LMP: ___/___/___	Overruled by: _____	
Bloods					
FBC: <input type="checkbox"/>	Date <input type="checkbox"/>	Hb: <input type="checkbox"/>	Plt: <input type="checkbox"/>	Infection Control Precautions (Inc. Covid 19):	
Coagulation: <input type="checkbox"/>	Date <input type="checkbox"/>	INR: <input type="checkbox"/>	APTT ratio: <input type="checkbox"/>		
U&Es: <input type="checkbox"/>	Date <input type="checkbox"/>	eGFR: <input type="checkbox"/>	K+: <input type="checkbox"/>		
Checked by: <input type="checkbox"/>	Date <input type="checkbox"/>	Name: <input type="checkbox"/>			
Antiplatelets/Anticoagulants					
Does the patient take anticoagulants or antiplatelets? Yes / No		Notes & Electronic Prescribing Checked: Yes / No			
Date, Time & Dose given:		Drug: <input type="checkbox"/>	Dose: <input type="checkbox"/>	Date: <input type="checkbox"/>	Time: <input type="checkbox"/>
		Drug: <input type="checkbox"/>	Dose: <input type="checkbox"/>	Date: <input type="checkbox"/>	Time: <input type="checkbox"/>
		Drug: <input type="checkbox"/>	Dose: <input type="checkbox"/>	Date: <input type="checkbox"/>	Time: <input type="checkbox"/>
Pre Procedure Observations					
BP: <input type="checkbox"/>	Pulse: <input type="checkbox"/>	SpO ₂ : <input type="checkbox"/>	Resps: <input type="checkbox"/>	Temp: <input type="checkbox"/>	
STOP moment completed by:					
Site and side confirmed immediately before needle/scalpel to the skin? No <input type="checkbox"/> Yes <input type="checkbox"/>					
Printed	Signature			Date	

TRACEABILITY SHEET FOR VASCULAR IR PROCEDURE					
Vascular Needle	Spinal	Standard Wire	Stiff Terumo		
Blade	Filter	Start:	Angled Terumo	Run No:	
Taps	Orange	Finish:	Half/Stiff Terumo		1
Sutures	Green	018/014 Wires			2
Instruments					3
Puncture Needles / Dilators					4
					5
					6
					7
Sheaths		035 Wires			8
					9
					10
					11
					12
Catheters		Stents / Filter / Coils / Indwelling Catheters			13
					14
					15
					16
PTA Catheters					17
					18
					19
					20
					21
					22
					23
					24
					25
					26
					27
					28
					29
					30
Injector Filled by		Total Volume of			32
Operated by		Contrast Used			33
Contrast Labels		Steris/Kimal Pack Stickers			34
					35
					36
					37
					38
					39
					40
Drugs:					
Lidocaine 1% in 5ml			0.9% Saline	500mls	1000mls
Lidocaine 1% in 5ml			Buscopan 10 OR 20mg/1ml		
Lidocaine 1% in 5ml			Heparin 50u in 5mls		
Lidocaine 1% in 5ml			Nitronal 5mg/5mls		
Heparin 5000u in 1ml			Heparin 5000u in 1ml		

Sign Out - Post Procedure Checks					
Retained Foreign Objects					
No. of Instruments at end of case		Checked By Scrub Nurse (initial):			
Confirmed all swab / sharp / instruments / wires / wires / clamps counts are correct and tray list complete?		Yes <input type="checkbox"/>	Checked By second nurse / radiographer (initial):		
Procedure Performed:					
CRIS codes checked with radiologist?	Checked by:		Yes <input type="checkbox"/>	N/A <input type="checkbox"/>	
Cannula has been flushed with 0.9% Sodium Chloride?	Flushed by:		Yes <input type="checkbox"/>	N/A <input type="checkbox"/>	
Have details of the procedure been recorded including drugs?	Recorded by:		Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Have all specimens been labelled and the correct form filled out?	Checked by:		Yes <input type="checkbox"/>	N/A <input type="checkbox"/>	
Has the Metformin/Glucophage letter been given to the patient/recovery or day case staff?	Handover by:		Yes <input type="checkbox"/>	N/A <input type="checkbox"/>	
Patient & notes handed over to recovery or day case staff	Handover by:		Time		
Radiographer Checks:					
Skin dose triggered?		Yes <input type="checkbox"/>	No <input type="checkbox"/>		
Initiate skin dose follow-up?		Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>	
X-Rays disabled		Yes <input type="checkbox"/>	No <input type="checkbox"/>		
Images transferred?		Yes <input type="checkbox"/>	No <input type="checkbox"/>		
Sign Out					
Dap Reading	Screening Time	Air Kerma			
Debrief					
Does any member of the team feel a formal debrief is necessary?		Yes <input type="checkbox"/>	No <input type="checkbox"/>		
Discussion / Case Comments					

Imaging – Vascular IR		
	Case Number	
Contrast Agent Pre-Examination Checks for Vascular Cases		
Hospital Sticker	Completed CRIS Sticker	
Question	Response	Comment
1. Have you had an injection of contrast agent before?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
2. If yes, did you have a reaction to the contrast agent? <small>10-fold increase in risk of a serious reaction.</small>	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	
3. Has a blood relative had a serious reaction to contrast agent? <small>14-fold increase in risk of a serious reaction</small>	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	
4. Do you have Asthma?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
5. If yes, is your Asthma well controlled? <small>If no: 6-fold increase in a serious reaction</small>	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	
6. Are you allergic to anything?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
7. If yes, are you allergic to more than one thing? <small>3-5-fold increase of a serious reaction</small>	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	
8. Do you have renal failure or kidney problems?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Are you diabetic?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Do you take metformin or glucophage for diabetes or other reasons?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Do you have heart problems?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
Cardiovascular disease? (Angina, MI, stents etc)	Yes <input type="checkbox"/> No <input type="checkbox"/>	
If the patient answers yes to any of the above questions the Radiographer or Nurse must inform the Radiologist before the examination/procedure proceeds.		
Name and designation of the person performing contrast agent pre-examination checks:	Sign: _____	Print: _____
Checked by (if initial checks are not performed by a Radiographer or Nurse):	Sign: _____	Print: _____
Patient Signature: <small>I confirm that, to the best of my knowledge, the information above is correct; and where possible that I have been provided with information on the risks and benefits of having this examination/procedure, including the risks from Contrast Agent and X-rays. If the patient is unable to sign this, please fill in the box below.</small>		
Signature: _____ Date: _____		
Do not proceed with contrast agent administration unless the above information is fully completed and signed by both the Radiographer or Nurse and the Patient.		
<small>Please record why it has not been possible to provide the patient with information on the risks and benefits of the procedure or why they could not sign. (For example, if the patient is from ED or an emergency procedure)</small>		

4. CONTACT NUMBERS

NAME	DESIGNATION	SPECIALTY	SITE	CONTACT
INTERVENTIONAL CONSULTANTS				
Dr Peter Bungay	Consultant Radiologist	Vascular	RDH	87664
Dr James Kirk	Consultant Radiologist	Vascular	RDH	83230
Dr Flora Kovacs	Consultant Radiologist	Vascular	RDH	83228
Dr Graham Pollock	Consultant Radiologist	Vascular	RDH	89457
Dr Pete Thurley	Consultant Radiologist	Vascular GI	RDH	88570
Dr Rajeev Singh	Consultant Radiologist	GI	RDH	89455
Dr Basel Jaber	Consultant Radiologist	GI	RDH	88572
Dr Abhinav Ranwaka	Consultant Radiologist	GI	RDH	83216
Dr Rathe Kirk	Consultant Radiologist	Gynae Urology	RDH	83562
Dr Agnes Lee	Consultant Radiologist	Urology	RDH	89459
Dr Alistair Gummow	Consultant Radiologist	Chest	RDH	86304
Dr Louise Haines	Consultant Radiologist	Chest	RDH	87618
Dr Gill McCulloch	Consultant Radiologist	Chest	RDH	83226
Dr Kumares Athiyappan	Consultant Radiologist	Chest	QHB	87621
Dr Neil Cozens	Consultant Radiologist	Head & Neck	RDH	87616
Dr Joe Chan	Consultant Radiologist	Head & Neck	RDH	87615
Dr Shaun Neal	Consultant Radiologist	Head & Neck	RDH	07384457841
Medical Secretaries Fax: 88589				
Beverley Allkins/ Chrissie Hartley	Medical Secretary			83215
Jacqui Bennett / Michelle Salloway	Medical Secretary			86388

4. References

UHDB (2022) Consent and The Mental Capacity Act (Lawful Authority for Providing Examination, Care or Treatment)

Mental Capacity Act 2005 Code of Practice -

www.gov.uk/government/publications/mental-capacity-act-code-of-practice

Documentation Controls

Development of Guideline:	Dr James Kirk, Consultant Radiologist- ACD Interventional Radiology
Consultation with:	Consultant Radiologists, Risk Manager
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Key Contact:	Consultant Radiologist - ACD Interventional Radiology