

## TITLE: Procedure for the Treatment and Management of Vascular (IV) Contrast Medium Extravasation in the Radiology Department

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This procedure is intended for use at Sherwood Forest Hospitals NHS Foundation Trust (SFH). It applies to all patients (adults and paediatrics) attending the radiology departments at King's Mill Hospital (KMH) and Newark Hospital (NH).

It applies to intravenous (IV) contrast used in the radiology departments at KMH and NH.

ALL staff who perform cannulations and administer IV contrast medium within SFH radiology departments should read this document.

The aim of this procedure is to provide a concise summary for the recognition, treatment and management of contrast extravasation. This should be applied when IV contrast extravasation occurs.

Contrast extravasation is a recognised complication of IV contrast enhanced imaging examinations.

Although extravasation occurs most commonly in the antecubital fossa (this is the most common cannulation site for radiological procedures), it can occur at other sites.

Extravasation is a rare occurrence; the incidence has been reported nationally as 0.25-0.9% of CT examinations using pump injections.

Automated power injections used for most CT examinations may result in the extravasation of large volumes of contrast due to the high flow rates employed.

Signs and symptoms following contrast extravasation include pain, swelling, and erythema. Less commonly blistering, skin ulceration or discolouration and rarely, compartment syndrome may occur.

Most signs and symptoms resolve with conservative management shortly after they occur.

If treatment is required, an ice pack or cold compress applied to the site and elevation of the affected limb are usually sufficient. A follow up by telephone is arranged for 24 hours post event.

At some institutes, all cases of contrast extravasation receive a plastic surgery consultation whilst at other there is stratification so plastics only review those with specific signs or symptoms.

Plastic surgery review should not be dependent on the volume of contrast extravasation but rather on patient signs and symptoms such as blistering/ ulceration or compartment syndrome.

All incidents of extravasation are recorded on the CRIS system and a DATIX submitted

This procedure is in place to ensure the highest standard of care delivery to patients. Failure to comply with this policy may be regarded as misconduct and dealt with in accordance with the Trust's disciplinary procedures and potentially the practitioner's regulatory body.

## 2 Scope of Document

This clinical document applies to:

### Staff group(s)

- All diagnostic radiographers who work in the imaging departments within SFH and can administer IV contrast media.

### Clinical area(s)

- This applies to the radiology departments at KMH and NH.

### Patient group(s)

- Any patient receiving intravenous contrast media attending the radiology department at KMH or NH

### Exclusions

- There are no exclusions.

### Related Trust policies and guidelines and/or other Trust documents

- Policy for the Care of the Patient Undergoing Intravenous Therapy.
- Policy for Consent to Examination, Treatment and Care.
- Medicines Policy.
- Standard Operating Procedure Infection Prevention and Control ICP 1.
- Hand hygiene policy ICP 17.
- Medical Device Management Policy.
- IV medicines administration training.
- Aseptic technique A1 (ANTT)
- Removal of peripheral cannula C26
- Protocol for Bionector® use (Bionectors® are referred to as needle free connection devices within this policy)
- Clinical guideline for the treatment of suspected sepsis.

## 3 Definition / Abbreviations

- 3.1 IV: intravenous: within a vein
- 3.2 Contrast medium: a liquid that is approved for the use in radiological procedures
- 3.3 Extravasation: the inadvertent and unintentional administration of vesicant medication or solution into the surrounding tissue instead of into the intended vascular pathway.
- 3.4 Vesicant solution: agent that has the potential to cause blistering or tissue necrosis
- 3.4 Pain: discomfort/ache/soreness.
- 3.5 Erythema: redness of the skin.
- 3.6 Blistering: fluid filled bubbles on the skin surface.
- 3.7 Ulceration: disintegration/discontinuity of the skin surface.
- 3.8 Skin discolouration: different from expected hue, includes mottling, venous/arterial skin changes.
- 3.9 Cold compress: paper/dressings infiltrated by cold water.
- 3.10 Ice packs: bags containing ice.
- 3.11 Elevation: above the level of the heart.
- 3.12 Numbness: loss of feeling.
- 3.13 Compartment syndrome: elevation of pressures within the tissues, which impair perfusion and function.
- 3.14 Datix: web-based patient safety software for healthcare risk management applications

3.15 CRIS: computerised information-recording system. The system used within radiology to record examination information.

3.16 ED: Emergency Department

## 4 Roles and Responsibilities

**Extravasation co-ordinator** - this will be the lead radiographer for the clinical area in which the incident occurred or nominated radiographer in their absence.

Out of hours the radiographer on-call for the clinical area in which the incident occurred, will act as the extravasation co-ordinator and pass on relevant information to the lead radiographer the next working day.

The radiographer performing the scan is responsible for initial treatment of the patient and submitting a Datix and recording the incident on CRIS ([Appendix C](#))

All registered healthcare professionals have a duty of care to their patients. This is a legal and professional requirement of state registration that cannot be delegated. All registered healthcare professionals are personally responsible and professionally accountable in ensuring that they are competent in the treatment of patients with extravasation.

## 5 Procedure Details (including Flowcharts)

Follow the 'Flow Chart for the Management of Extravasation of Radiographic Contrast Agents' which is on display in scan rooms ([Appendix A](#)).

- When contrast extravasation has been identified the injection must be stopped immediately.
- Explain to the patient what has happened.
- Aspirate contrast through cannula (if possible).
- Elevate limb (unless vascular compromise).
- Apply cold compress or ice pack and massage area.

For minor extravasation - discharge with appropriate information ([Appendix B](#))

For significant extravasation in an outpatient -

1. Ask the consult radiologist to assess the patient, refer to ED if necessary.
2. Newark patients should be referred to the Minor Injuries Unit.
3. Discharge with aftercare sheet.
4. Follow up with a phone call next day.

For significant extravasation in an in-patient -

1. Inform radiologist.
2. Out of hours – refer to appropriate on-call team
3. Return patient to ward with aftercare sheet.
4. Inform ward.

For all extravasations a Datix must be completed

## 6 Education and Training

Training for dealing with extravasation will be included in the initial training that all radiographers undergo before injecting contrast media.

Radiographers who have been injecting contrast media before this policy was written will be assessed verbally that they are aware of the procedure for treating and recording information for patients who have suffered extravasation.

A training package is in place with assessment for all radiographers to access and all radiographers do a cannulation audit as part of department protocol. All details are recorded on the radiology S drive.

## 7 Monitoring

Contrast extravasation will be audited via the Datix submissions

## 8 Equality, Diversity and Inclusivity and Impact Assessments

### Equality Impact Assessment (EqIA) Form

Name of service/policy/procedure being reviewed: <b>For the treatment and Management of Vascular (IV) Contrast Medium Extravasation in the Radiology Department.</b>			
New or existing service/policy/procedure: New			
Date of Assessment: September 2017			
<i>For the service/policy/procedure and its implementation answer the questions a – c below against each characteristic (if relevant consider breaking the policy or implementation down into areas)</i>			
Protected Characteristic	a) Using data and supporting information, what issues, needs or barriers could the protected characteristic groups' experience? For example, are there any known health inequality or access issues to consider?	b) What is already in place in the policy or its implementation to address any inequalities or barriers to access including under representation at clinics, screening?	c) Please state any barriers that still need to be addressed and any proposed actions to eliminate inequality
The area of policy or its implementation being assessed:			
Race and Ethnicity:	None	None	None
Gender:	None	None	None
Age:	None	None	None
Religion:	None	None	None
Disability:	None	None	None
Sexuality:	None	None	None

Pregnancy and Maternity:	None	None	None
Gender Reassignment:	None	None	None
Marriage and Civil Partnership:	None	None	None
Socio-Economic Factors (i.e. living in a poorer neighbourhood / social deprivation):	None	None	None

What consultation with protected characteristic groups including patient groups have you carried out?

None

What data or information did you use in support of this EqIA?

None – Extravasation is a complication to injection of contrast media

As far as you are aware are there any Human Rights issues be taken into account such as arising from surveys, questionnaires, comments, concerns, complaints or compliments?

None

#### Level of impact

From the information provided above and following EqIA guidance document please indicate the perceived level of impact:

Low Level of Impact

For high or medium levels of impact, please forward a copy of this form to the HR Secretaries for inclusion at the next Diversity and Inclusivity meeting.

Name of Responsible Person undertaking this assessment:

Victoria Smith-West

Signature:

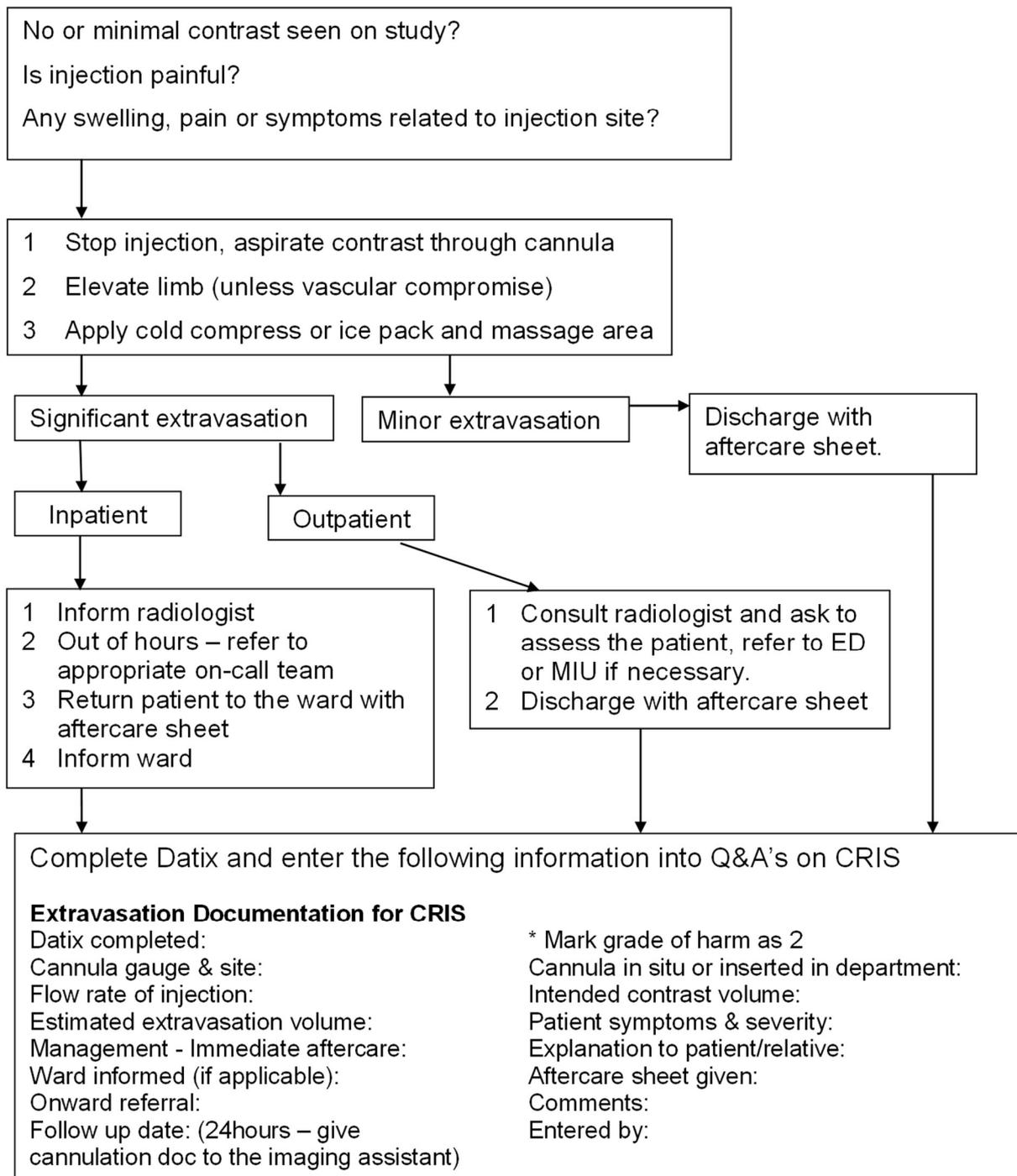
Date:

September 2017

## **8 Appendices**

- Appendix A
  - Flow Chart for the Management of Extravasation of Radiographic Contrast Agents
- Appendix B
  - Patient information leaflet – Minor Contrast Extravasation
- Appendix C
  - Extravasation Documentation for CRIS

## Flowchart for the Management of Extravasation of Radiographic Contrast Agents



Patient ID
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**Minor Contrast Extravasation**

During your visit to the CT Scanning Department today you were given an injection of contrast medium (x-ray dye). This was a necessary part of the examination.

Unfortunately not all of the injection went into the vein; a small amount went into the tissues around your vein.

This is called extravasation.

You may experience some tenderness, swelling or redness around the site of the injection.

Swelling or redness of the injection site can last for 1 to 2 days. It should resolve without any treatment.

There are things you can do to help speed up the recovery.

Keep your arm elevated and gently massage the area to help reduce any swelling.

Apply a cold compress to the area.

We would like to know if you are experiencing any symptoms so we will call you tomorrow.

**Meanwhile if you notice any of the following call the CT Department for advice**

Numbness or tingling of the lower arm or hand.

Increasing redness or blisters at the injection site.

Increased pain that does not get better over time.

Unusual coolness of the lower arm or hand beyond the injection site.

Any increase in the size of your arm.

Appendix C

**Extravasation Documentation for CRIS**

**EEEE**

Datix completed: \* Mark grade of harm as 2

Cannula gauge & site:

Cannula in situ or inserted in department:

Flow rate of injection:

Intended contrast volume:

Estimated extravasation volume:

Patient symptoms & severity:

Management - Immediate aftercare:

Explanation to patient/relative:

Ward informed (if applicable):

Aftercare sheet given:

Onward referral:

Follow up date: (24hours – give cannulation doc to the imaging assistant)

Comments:

Entered by: