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Individuals involved in developing / reviewing / amending this document: (titles only)	
Radiology Quality Governance Team	
Radiology Clinical Services Manager	
Radiology Clinical Director	
Governance Radiologists	
Key staff responsibilities	Post:
Adhere to the agreed and authorised process and protocol detailed in SOP	All non-medical referrers
Ensure referrals adhere to the appropriate protocol within SOP	Radiographers

This guidance does not override the individual responsibility of health professionals to make appropriate decision according to the circumstances of the individual patient in consultation with the patient and /or carer. Health care professionals must be prepared to justify any deviation from this guidance.

Non-Medical Requested Imaging Exams

Introduction

The Ionising Radiation (Medical Exposure) Regulations (IR(ME)R (2017) in Great Britain came into force on 6 February 2018 in concordance with the European Council Directive 2013/59/Euratom (2013).

IR(ME)R identifies four duty holders, each of whom has clearly identified responsibilities under the Regulations:

- The Employer: As a duty holder, is responsible for providing a framework within which professionals undertake their functions. The employer relates to health and safety functions rather than employment matters.

- Referrer: A registered health care professional who is entitled to refer individuals for exposures involving ionising radiation.
- Practitioner: A registered health care professional who is entitled to take responsibility for an individual exposure. The primary role of the practitioner is to justify and authorise exposures.
- Operator: Any person who is trained and entitled to carry out the practical aspects of an exposure.

The Employer has several legal obligations including establishing a framework of written procedures (Regulation 6(1)/Schedule 2) and protocols under which the duty holders work, as well as entitling the duty holders for the tasks they may perform under Ionising Radiation (Medical Exposures) Regulations (IR(ME)R). One of those duty holders is the IR(ME)R Referrer, whose sole role it is to provide relevant clinical information (Regulation 11(b)) within the request (by paper or by electronic means) in order that appropriate justification for the requested examination can take place.

Further developments in the NHS and independent sector over the past decade have led to the ever-increasing role of non-medical health care professionals. Nurses and Allied Health professionals (AHP) work at an advanced level – such as Advanced Nurse Practitioners and Advanced Practice AHPs sometimes referred to as Advanced Clinical Practitioners.

They continue to play a significant role in providing care for many patients delivering both planned and urgent care. Similarly, Allied Health Professionals such as Advanced Practice Physiotherapists, and independent health professionals such as Osteopaths and Chiropractors, frequently deliver a first contact service which requires further diagnostic investigation.

All UK clinical imaging departments (radiology departments) continue to report an increase in diagnostic imaging requests from non-medically qualified referrers, and this has been recognised as a key factor in improving the patient care pathway.

Should these individuals progress to higher levels of practice such as consultants, clinic leads or directors, it is imperative that their local IR(ME)R Referrer entitlement and scope of practice is reviewed and adjusted accordingly.

This policy concentrates on the role of the Referrer in IR(ME)R, focussing on the process for requests from non-medically qualified and registered professionals referred to Worcestershire Acute Hospital Trust (WAHT).

This policy includes advice and good practice recommendations for Health Care Professionals involved in clinical imaging processes, regarding requests for all modalities of imaging procedures (ionising and non-ionising) from non-medically qualified health care professionals. Further IR(ME)R guidance is available from the Department of Health (2017) specifically relating to referrers in section ten.

IR(ME)R

The Ionising Radiation (Medical Exposure) Regulations (IR(ME)R) provide for the health protection of individuals undergoing medical exposures involving ionising radiation, including requirements regarding requests for X-ray examinations.

While these regulations cannot apply to non-ionising radiation (such as ultrasound and magnetic resonance imaging), WAHT have adopted this as a 'good practice model' which we have applied across all clinical imaging procedures, as such all NMRs will need to meet these standards for all radiology requests.

The IR(ME)R referrer must be a registered Health Care Professional (Ionising Radiation Regulations, 2017). Referrers are responsible for referring individuals to the Practitioner for specific medical exposures to be undertaken in accordance with the Employer's referral criteria in regulation 6(5)(a) of IR(ME)R.

Responsibilities under IR(ME)R

The Ionising Radiation (Medical Exposure) Regulations (IR(ME)R) requires employers to provide a framework for radiation protection for medical exposures. The regulations provide clarity on the responsibilities of the Referrer, Practitioner and Operator, as well as the employer.

Within the context of IR(ME)R:

• The Referrer has responsibility for providing sufficient medical history of the patient relevant to the exposure. It is essential that the referrer provides sufficient clinical data in order that the exposure can be justified and adequate demographic data for the patient referred to be correctly identified. This should include full name, date of birth and address.

• The Practitioner (normally a radiographer or radiologist) is responsible for 'justifying' the exposure using the information provided by the Referrer. The Practitioner will decide the most appropriate clinical imaging procedure. In some cases, this may involve a procedure which uses non-ionising radiation, or a decision may be taken that a clinical imaging procedure will provide no additional clinical information.

Eligibility criteria for a referrer – IR(ME)R requirements

1. The Ionising Radiation (Medical Exposure) Regulations (IR(ME)R) define the Referrer as a registered Health Care Professional whose profession is regulated by a body as detailed within Section 25(3) of the National Health Service Reform and Health Care Professions Act (2002).

2. The Referrer must be entitled to act in this capacity by the employer.
The scope of entitlement should also specify which examinations that individual can refer for. Details should be included in the local IR(ME)R Employers Procedures. Under IR(ME)R the term 'employer' is used to mean the clinical imaging service provider, and not necessarily the employer who holds the contract of employment of the Referrer.

3. The Referrer must be aware of their responsibilities under the regulations as a duty holder.

Eligibility criteria for a referrer – professional Requirements

1. The Referrer must be sufficiently competent to assess a patient, in order that medical data can be provided to the Practitioner who 'justifies' the exposure.
Competence in history taking, assessment and decision making skills are essential if pertinent medical data for safe and appropriate referral are to be obtained.

2. The Referrer must understand their professional accountability arising from their Regulatory body's code of conduct or equivalent, and any medico-legal issues related to their scope of practice.

3. The Referrer, if entitled to request examinations using ionising radiation, must have developed their understanding of IR(ME)R through appropriate awareness training and experience, including a perception of the risks of ionising radiation exposure.

4. The Referrer functions under IR(ME)R should be included within the individual's job description or specified scope of practice.

5. The Referrer must engage in continuing professional development and provide evidence of self-audit appropriate to their scope of practice and functions as a referrer (Royal College of Nursing, Health Education England, 2017) as required.

Operational requirements for referrals

• All referrals should be made in accordance with locally agreed referral criteria, which could take into account The Royal College of Radiologists' publication i-Refer (2017).

• The required competence to refer should be agreed with the clinical imaging service provider (normally the Radiology department) and the individual will be required to provide a letter of support from the individuals clinical Lead.

• The use of electronic requesting (ER) systems is widespread and has increased

access to imaging for users. ER can assist the employer to comply with IR(ME)R by:

- Restricting referral access privileges to entitled referrers only
- Providing the referrer with referral guidelines for medical exposures including information on radiation dose
- Ensuring the referrer provides the required information for the practitioner to justify the procedure
- Where electronically available and easily accessible, provide a record of all requested procedures which can assist the audit process.

These systems rely on a user log-in to identify the referrer rather than a signature. It is not professional (or legal) to request a clinical imaging examination using someone else's log-in just as it is to request a procedure on a pre-signed request card.

• An up-to-date list of individuals entitled by the employer to act as a referrer must be established, maintained and available to the clinical imaging service provider. This entitlement may be by name or professional group and must include the individual's assigned protocol number. The protocols are included within this policy and list referrals that may be made by each. The protocols are assigned on ICE so that the individual will only have access to those exams within their protocol.

• Specific details regarding referral processes must be agreed locally with the clinical imaging service provider and articulated within a protocol. Where possible, protocols should be standardised to ensure a consistent and clear approach.

• Awareness training to support the clinical imaging referral process should be provided in conjunction with the local clinical imaging service provider and where possible should include input from the respective medical physics department.

• Regulation 8(3) of IR(ME)R requires the employer to establish a system for recording analyses of events involving or potentially involving accidental or unintended exposures. Guidance (Royal College of Radiologists, 2019), which includes a coding system, has been published which supports UK clinical imaging departments to review errors and near misses. Coding relating to Referrers is included in the system.

• The suitability and impact of referrals should be audited on a regular basis and action taken to address issues that could compromise the overall quality of patient care. If, following the results of audits, it is highlighted that a referrer or referrers continue to make errors or near misses in the referral process (which are picked up by radiology), the clinical imaging provider may impose some form of sanction (i.e. disentitle of that referrer(s) for a period). This would normally mean that further referrer awareness training would need to be given before the individual is re-entitled to refer.

• All processes regarding referral should be reviewed on a 3-year basis or sooner should and specific concerns be identified. The nature of this evaluation should be determined locally.

Autonomy

The Referrer, as the autonomous non-medical professional, must ensure that following the clinical evaluation (i.e. the report) of the medical radiation exposure that a decision is

made by him/her about the ongoing management of the patient based on the results of the report. The decision and ongoing action in support of the patient must be recorded and discussed with the patient. This is to ensure that an action is taken by the Referrer following each medical exposure.

High Dose Examinations

High dose examinations such as CT and PET/CT should only be made as part of a multi-disciplinary team or consultant led care pathway.

Referrals for MRI & Ultrasound

Although there are no statutory regulations covering referrals to MRI and ultrasound, best practice is to follow the principles set out for referrals for examinations involving radiation.

The Medicines & Healthcare products Regulatory Agency (MHRA) recommends in the Safety Guidelines for Magnetic Resonance Imaging Equipment in Clinical Use (March 2015) that referrals should only be accepted from a registered medical practitioner, dental practitioner or other health professional who is entitled in accordance with the employer's procedures to refer individuals for MRI.

An NMR undertaking MRI referrals should undergo training in MRI safety to ensure they are aware of the hazards associated with MRI. All NMR MRI referrals must include the relevant clinical information, enabling the accepting clinician to determine whether there are any additional safety considerations associated with the examination.

Requests:

Requests historically have been made using a handwritten request and only carried out when signed by the referring clinician usually a doctor or other suitable trained, and IR(ME)R trained, registered health professional. The way requests are now made has changed and most if not, all requests are made electronically using the ICE system.

Radiology Requesting from ICE – Referrals are made on ICE, electronic requesting system, on behalf of a lead Medical Clinician by Non-Medical Staff “Requesting on behalf of” (ROBO).

There are processes in place to ensure that electronically generated requests for imaging procedures are made only by authorised individuals according to this policy and in keeping with Royal College of Radiologists guidance *https://www.irefer.org.uk/*

Using ICE is normally uncomplicated, as the cl Non-Medical Referrer is granted an electronic password to access the system to refer patients for radiological examinations. The Non-Medical Referrer makes the request by entering this data into the ICE system.
Radiology receives the information electronically this will indicate who is the responsible consultant and who has entered the data into ICE.

Requesting on behalf of (ROBO)

All medical practitioners other than consultants and GPs request on behalf of the consultant / GP who is the senior medical clinician responsible for the episode of care at the time of referral. This

ensures that any urgent findings are alerted directly to the patient's consultant / GP and also that the consultant / GP views all results, ensures any action has been taken and then files the results. A backup safety net process exists for urgent and significant unexpected findings which are alerted by email to the consultant / GP and nominated contacts according to the "Policy for the communication of Critical and Urgent Radiology Reports"

Referrals by non-medical referrers must also be requested on behalf of the consultant /GP who is responsible for the patient in the same way as non-consultant/GP junior medical staff as above. The non-medical referrer clinically assesses the patient and then decides on the appropriate imaging referral within their protocol / scheme of work. Non-medical referrers can view the radiology report results and take any appropriate actions within their scope of practice.

Non-Medical Referrers

Competencies Required (ROBO)
This role typically applies to the following staff groups

- Specialist practitioners and out of hours practitioners in Medicine, Surgery, Trauma and Orthopaedics, Theatres and Pre-assessment Specialist Nurses / Nurse practitioners / Advance Clinical Practitioners / Adavanced physiotherapy practitioners
- Critical Care Outreach Team
- Qualified nurses, working in Accident & Emergency, Medical Assessment Unit, Coronary Care and Minor Injury Units across Worcestershire Acute Hospitals NHS Trust.
- GP Nurse Practitioners

All non-medical referrers requesting imaging exams must have successfully completed an appropriate training programme either recognised by the Trust or supported by the Training and Development team and appropriate clinicians. All practitioners will be registered on the Trust list of referrers as per IR(ME)R procedure (b).

All staff completing the programme will be expected to:

- Read Trust policy including individual protocols for nursing and non-medical staff requesting x-rays
- Complete elf-healthcare IR(ME)R module - Ionising Radiation (Medical Exposure) Regulations- IR(ME)R 2017 & provide certificate to radiology on completion
- Complete refresher module every 3 years - elf-healthcare IR(ME)R module - Ionising Radiation (Medical Exposure) Regulations- IR(ME)R 2017 & provide certificate to radiology on completion
- Adhere to locally agreed SOW for the individual referrer or referrer group
- Professional accountability and responsibility as outlined in the NMC Scope for Professional Practice and the individual professions' Codes of Professional Conduct
- Ensure that the knowledge required to request and review x-rays is part of an individuals Continued Professional Development (radiology can provide assistance)

Dependent on individual's role, staff may also be required to:

- Provide academic evidence of patient assessment and management

- Evidence of training on how to clinically evaluate the X-rays they are requesting, in order to prioritise the need for clinical intervention
-

Please note that all non-medical requests must satisfy these criteria and review by radiology governance and clinical director. Imaging requesting rights according to the policy are tailored to specific roles and clinical scenarios. For example, a stroke CNS seeing acute stroke patients can request CT for ? stroke in the acute setting as per their protocol but not request a CT head for an outpatient? dementia.

In addition, requesting rights do not travel with an individual moving between jobs, roles or posts and each NMR has a responsibility to inform radiology if their role changes. They are determined by the process and team they are working in. For example, if a cancer CNS working as a key team member of a cancer specialty in the Trust and having specified CT requesting rights as per an agreed protocol does not then keep those requesting rights on moving to a new job in primary care.

Application of requesting rights is shown in Appendix B – ICE clinicians list

Transcribing on behalf of (TOBO)

Some clinicians, due to workflow, may ask radiology, that named specific non-medical staff, for example, eg. nursing staff T&O pre-op assessment clinics or admin staff for antenatal ultrasound examinations are granted access to enter the request into ICE, following protocol or clinical assessment of the patient by the clinician (TOBO). or the documented evidence that it is the clinician who has made the decision that future imaging is required. For example, a patient seen by a consultant in outpatients may dictate their letter stating that they will see the patient in six months with a repeat chest x-ray on arrival. Documented evidence by a consultant or GP in the patient's medical notes that is then transcribed on behalf of that clinician is in place in limited circumstances.

Where these arrangements are in place with no evidence of risk or error they will be maintained. However, it is deemed best practice for clinicians to make the request on ICE in the usual way thus reducing the risk of a transcription error. This is the most common practice across the Worcestershire healthcare economy and is strongly encouraged from a governance perspective and future ionising radiation requests excluding P3 for TOBO **will not be granted.**

Where TOBO persists as a process the non-medically qualified requestor should input this into ICE with the abbreviation "TOBO" followed by Consultant/GP name. This identifies that the non-medically qualified requestor is not assessing the patient but simply inputting the consultant's instructions. If the consultant requires additional imaging on the day, then he/she should request that themselves on ICE.

Requirement: For named staff to do this, ensure compliance with IR(ME)R and maintain governance this will only be agreed on completion of a written procedure. (Appendix A - Transcribing on behalf of (TOBO)
The purpose of this form is to ensure that the individuals (the clinician and non-medical staff) fully understand the issues and have both signed to enable their ICE access for radiology requesting, to be activated.
Once signed please photocopy for you own records and return to, Quality Lead / Governance Radiographer. Electronic signature will be accepted. Radiology will then amend your settings. You will be advised when this has been carried out.

Staff will be expected to be familiar with the PACS / ICE / SUNRISE system.

Patients covered under the Non-medical referrer policy

Patients covered under this policy will vary according to the practitioner's role or area of work – see separate protocols (appendices). Each protocol is specific to the role.

Special Points

Imaging exams must only be requested when the results, either positive or negative may have the potential to alter patient management.

Imaging involving medical exposure to radiation on women of child – bearing age that are known to be or may be pregnant needs to be carefully considered. Any concerns regarding this can be discussed with the Radiographers / Radiologists for appropriate guidance

If the Radiographer considers that the imaging request is not clinically justified, he/she will address any queries to the referrer and if necessary, the radiographer will seek advice from a radiologist.

Where the individual practitioner is requesting a CXR, every effort must be made to ensure that the patient has not had a recent CXR within the last 6 weeks (excluding some patients within the acute settings – if in doubt please discuss with radiology.)

Where the individual practitioner is requesting a pre-operative orthopaedic x-ray, every effort must be made to ensure that the patient has not had an x-ray of the same body part within the last 6 months. Images can be transferred from most Trusts in the UK. Where this is the case the PACS team should be contacted via the web link on PACS to arrange transfer of the images (Mon-Fri 9-5). Exceptions to this are new onset symptoms or tube placement

Nurse practitioners working in minor injury and accident & emergency departments are responsible for clinically evaluating their own images and the radiology report if available or ensuring a medical review and recording the results in the patient's medical record.

The registered practitioner must have undergone an appropriate training program devised for their role agreed by the practitioner's clinical director and achieved the necessary competencies before commencing practice. The radiology department will maintain the non-medical referrer register which lists approved referrer names and dates of IR(ME)R training including 3 yearly refresher update.

Guideline

The clinical need for an imaging exam must be established through the clinical history obtained and clinical assessment of the patient.

Once the need for an imaging exam has been established informed consent should be obtained from the patient whenever possible. For young patients where protocol allows, please seek informed consent of parents or guardian. This includes informing the patient of the potential risks as well as the possible benefits of undertaking the investigation. This should be approached in realistic terms depending on the circumstances e.g., this would not be realistic in emergency circumstances. Appropriate alternative imaging, if available should be discussed at this point utilising iRefer guidance if necessary.

The imaging request must contain all relevant information, so that the Radiology practitioner can justify the request including:

Patient identifiable data Any known infection Status
Pregnancy/breastfeeding status
Clinical presentation
Current symptoms
Relevant past history
The clinical question e.g. ? Fracture / ? infection / ? obstruction

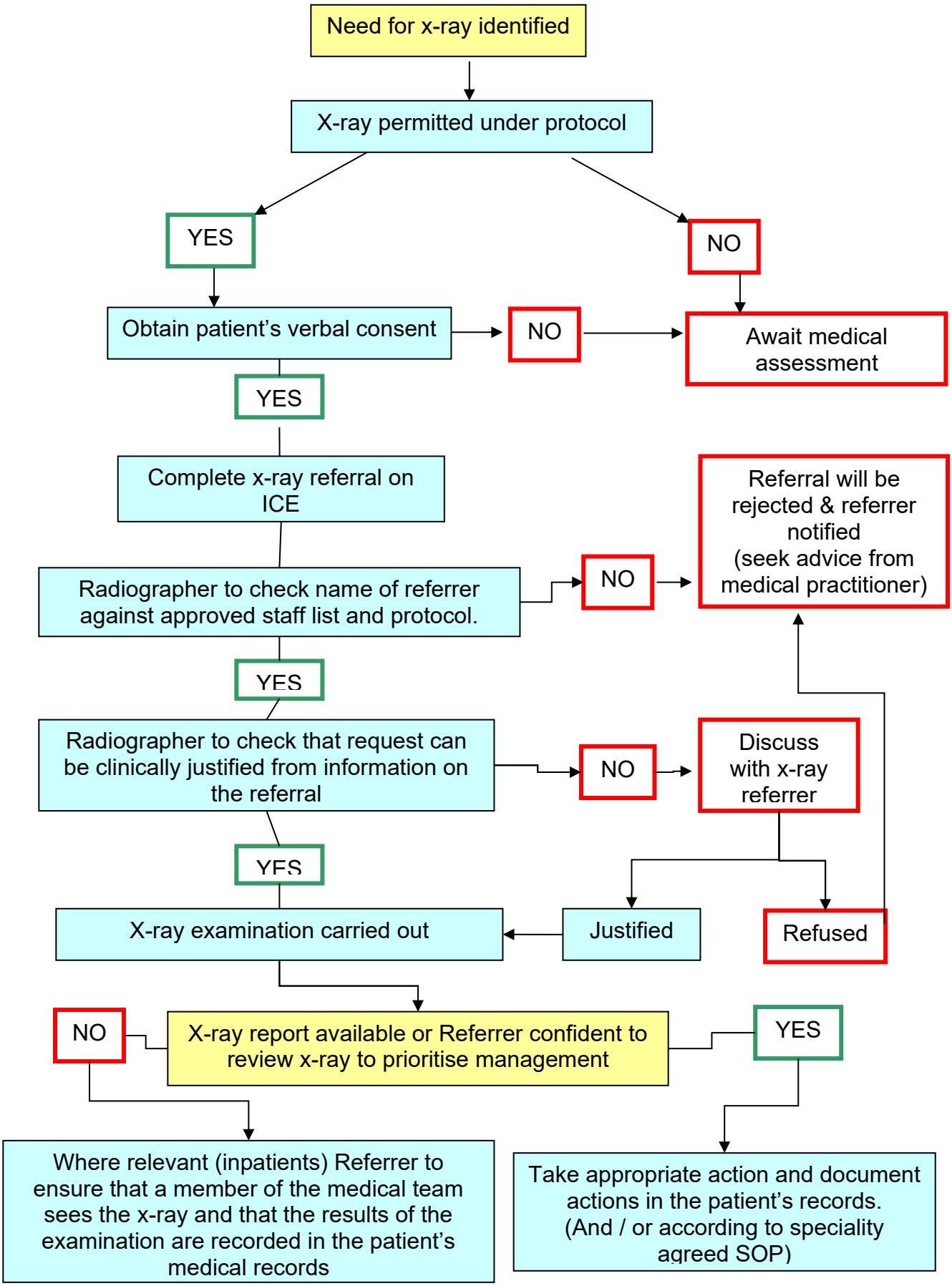
The request must be submitted via ICE, the Trust electronic requesting system,
When this is not possible requests must be legible, signed, have the requester's name printed and a contact bleep/telephone number.

All x-ray requests must be in line with:

- The Royal College of Radiologists *Making the best use of Clinical Radiology* *https://www.irefer.org.uk/*
- Locally agreed protocols for the individual referrer
- As per IRMER Procedure B and responsibilities of the referrer:
- Please see SoR 'Have you paused and checked?' An IRMER referrers check list to ensure all requirements have been met

Please Note: If an x-ray has been done but cannot be located on PACS please contact Radiology before requesting a repeat exam.

For more information, please see our 'Guidance for Radiology Referrals'
http://www.treatmentpathways.worcsacute.nhs.uk/referenceguides/radiology-information-portal/radiology-information-portal/ > Radiology referrals


Need for x-ray identified
X-ray permitted under protocol
YES
NO
Obtain patient's verbal consent
NO
Await medical assessment
YES
Complete x-ray referral on ICE
Referral will be rejected & referrer notified (seek advice from medical practitioner)
Radiographer to check name of referrer against approved staff list and protocol.
NO
YES
Radiographer to check that request can be clinically justified from information on the referral
NO
Discuss with x-ray referrer
YES
X-ray examination carried out
Justified
Refused
NO
X-ray report available or Referrer confident to review x-ray to prioritise management
YES
Where relevant (inpatients) Referrer to ensure that a member of the medical team sees the x-ray and that the results of the examination are recorded in the patient's medical records
Take appropriate action and document actions in the patient's records. (And / or according to speciality agreed SOP)

When images are clinically evaluated by the NMR in the absence of a report or medically qualified clinician to instigate immediate management, eg. MIU, a process must be in place to check, action and file results on ICE. For images where there is an agreement with radiology to auto-report images eg. T&O / urology, there must be a process in place for images to be reviewed by a medical practitioner and findings documented in patient's notes.

- Allerton J, Justham D (2000) Nurse practitioners and the Ottawa Ankle Rules: Comparisons with medical staff in requesting x-rays for ankle injured patients. **Accident & Emergency Nursing** 8, 110-115
- Department of Health (1999) Making a Difference, London, DOH
- Department of Health (2000) The NHS Plan, London, DOH
- Lee K M, Wong T W, Chan R, Lau C C, Fu Y K, Fung H (1996) Accuracy and efficiency of x-ray requests initiated by triage nurses in an Accident & Emergency department **Accident & Emergency Nursing** 4, 179-181
- Lindley –Jones M, Finlayson B J (2000) Triage nurse requested x-rays – the results of a national survey **Journal of Accident & Emergency Medicine** 17: 108-110
- Parris W, McCarthy S, Kelly A M, Richardson S (1997) Do triage nurse initiated x-rays for limb injuries reduce transit time? **Accident & Emergency Nursing** 5, 14-15
- Royal College of Radiologists **Making the best use of a Department of Clinical Radiology – Guidelines for Doctors**
- **http://www.rcr.ac.uk/publications.aspx?PageID=310&PublicationID=362**
- Ward W (1999) Key issues in nurse requested x-rays **Emergency Nurse** Vol 6 No 9 19-23

CONTRIBUTION LIST

Key individuals involved in developing this policy	Circulated to the following individuals for comments
CD Radiology	Consultant Radiographer
CSM Radiology	RPS
Quality Governance Leads	Consultant ED - ENP lead
Circulated to the following Committee / Group	
Radiology Directorate Governance Meeting	

REQUESTING – CLINICIANS LIST

Job Role	Pathology Requesting rights	Radiology Requesting rights	Notes	Request in own name
General Practice				
GP	Yes	Yes		Yes
Locum GP or registrar level	Yes	Yes		Yes
FY doctors	Yes	No		No
Physicians Associate (PA)	Yes	No		No
Non-medical health professional	Yes	No	Requires radiology approval	No
Admin staff	Yes	No	Requires radiology approval to transcribe requests onto the system and a clear protocol. Existing processes in place will be permitted but this will not be extended to others in the future	No
TRUST: Acute & Health & Care staff				
Consultant	Yes	Yes		Yes
Locum consultant	Yes	Yes		Yes
Radiologists at any level	Yes	No		No
Dentist	Yes	Yes		Yes
Associate Specialist	Yes	Yes		Yes
Registrar / FY doctors	Yes	Yes		No
ANPs in GP practice ANP in GP practice can be added to the clinicians list to be able to request in their own name for pathology only as agreed with PCN (see below)	Yes	Yes	Requires radiology approval to transcribe requests onto the system and a clear protocol. Existing processes in place will be permitted but this will not be extended to others in the future.	No
Non-medical health professional	Yes	No	Requires radiology approval to transcribe requests onto the system and a clear protocol. Existing processes in place will be permitted but this will not be extended to others in the future.	No
Physicians Associate (PA)	Yes	No		no
Admin staff	Yes	No	Requires radiology approval to transcribe requests onto the system and a clear protocol. Existing processes in place will be permitted but this will not be extended to others in the future.	No

There are PCN SOPs in place – this permits ANPs at GP in practice only to be added to the clinicians list to receive their pathology results directly to their inbox via Docman. There are not added to the CRIS referrer list.

1. **PRIMARY CARE NON-MEDICAL REFERRERS (NMRS) ACCESS TO PATHOLOGY TESTS**
2. **PRIMARY CARE NON-MEDICAL REFERRERS (NMRS) ACCESS TO CLINICAL IMAGING**

Non-medically qualified registered health professionals are permitted to request radiology imaging according to their protocol provided:

1. They provide registration details
2. They completed IR(ME)R training
3. The individual would need to be aware of their responsibility not only in requesting but also on acting on the report
4. They are supported by the relevant consultant / clinical lead / GP (including locum GP) as requiring the need to request. An email or letter of support is required for radiology records.

References

- Allerton J, Justham D (2000) Nurse practitioners and the Ottawa Ankle Rules: Comparisons with medical staff in requesting x-rays for ankle injured patients. **Accident & Emergency Nursing** 8, 110-115
- Department of Health (1999) Making a Difference, London, DOH
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- **http://www.rcr.ac.uk/publications.aspx?PageID=310&PublicationID=362**
- Ward W (1999) Key issues in nurse requested x-rays **Emergency Nurse** Vol 6 No 9 19-23

Protocol 1

Out of Hours Practitioners/Specialist Practitioners/Perioperative Practitioners X-ray Protocol

For adult patients aged 16 years or above

Following appropriate clinical examination and assessment the following investigations may be requested

Imaging exam	Clinical problem/Criteria
Chest X-ray PA (AP view if unable to do PA)	Acute exacerbation of chronic obstructive airways disease Pulmonary embolism Pericarditis/pericardial effusion Pneumonia Pleural effusion Haemoptysis Acute exacerbation of asthma with either chest pain, clinical signs of pneumothorax, pyrexia or raised WCC Life threatening asthma- PEF < 33% predicted or best, or SpO2 < 92% or PaO2 <8 Kpa. Pneumothorax Central chest pain? Myocardial infarction. Chest pain ? aortic dissection Post insertion of central venous access devices (CVAD) to confirm position. Post insertion of peripherally inserted central catheters (PICC) to confirm position. Post insertion of a chest drain to confirm accurate tube placement. Acute onset of shortness of breath? Left ventricular failure or worsening heart failure. Post removal of a chest drain – provided competencies associated with chest drain removal have been completed. Post cardiac arrest and successful resuscitation to:- - Confirm correct siting of tracheal tube, gastric tube, central venous line. - To exclude left ventricular failure - To exclude pulmonary aspiration - To exclude pneumothorax To establish size and shape of heart Post insertion of a fine bore nasogastric feeding tube with guide wire or jejunostomy tube to confirm placement. See Trust policy NURSING GUIDELINE FOR NASO-GASTRIC FEEDING TUBE INSERTION AND CARE
Erect Chest x-ray, (AP view if unable to do PA)	Acute abdominal pain? Perforation or obstruction.

Supine abdominal x-ray	

Imaging exam	Clinical problem/Criteria
Abdominal x-ray	Acute exacerbation of inflammatory bowel disease of colon.
Forearm/wrist/hand/scaphoid	Mechanism of Injury, Focal bony tenderness and Loss of function.
Elbow	Mechanism of Injury, Focal bony tenderness and loss of function
Humerus	Mechanism of Injury, Focal bony tenderness, loss of function
Shoulder	Mechanism of Injury with restriction of shoulder movements/loss of function on movement
Clavicle	Mechanism of injury, Focal bony tenderness, Obvious deformity.
X-ray pelvis with lateral x-ray hip	Fall with inability to weight bear – patients over 65
Femur	Fall with inability to weight bear – patients over 65
Ankle	Mechanism of Injury– refer to the Ottawa ankle rules and document on request
Knee	Mechanism of Injury– refer to the Ottawa knee rules and document on request
Foot including toes	Mechanism of Injury, Focal bony tenderness, loss of function
Tibia/Fibula	Mechanism of Injury, Bony tenderness, non-weight bearing, bony deformity
CT/MRI	Requests may only be initiated by a consultant. Any request submitted following this request must have the following: Documented decision in medical notes. Documented in clinical history stating "transcribed /TOBO on behalf of ……..."
US pelvis	Gynaecology pathology – as requested by Gynae team on referral
US abdo	cholecystitis/gallstone/CBD pathology
US KUB	AKI ? Cause Hydronephrosis/obstruction Haematuria
US doppler leg ULLCL ULLCR	? DVT a wells score +/- D-dimer must be provided Requests may only be initiated by a consultant. Any request submitted following this request must have the following: Documented decision in medical notes. Documented in clinical history stating TOBO (transcribed on behalf of ……..)

Protocol 2

Rapid Diagnostic Pathway for Non-Specific Symptoms (to exclude cancer)

Referrals by CNS in NSS triage team

For adult patients aged 40 years or above
Following appropriate clinical examination and assessment the following investigations may be requested in accordance with the NSS pathway

Imaging Exam	Clinical problem/Criteria
CCHAPC (CT – chest, abdomen & pelvis with contrast)	• New unexplained and unintentional weight loss (either documented >5% in three months) • New unexplained constitutional symptoms of four weeks or more. Symptoms include loss of appetite, fatigue, nausea, malaise, bloating; • New unexplained vague abdominal pain of four weeks or more; • New unexplained, unexpected or progressive pain, including bone pain, of four weeks or more;
CCHESC (CT thorax with contrast)	• completion scan if recent CT ABDO / PELVIS within previous 2/12
CABPEC (CT abdo & pelvis with contrast)	• completion scan if recent CCHESC within previous 2/12

Protocol 3

Pre-operative/Perioperative Assessment Nurses X-ray Protocol

For adults aged 16 years or above

Imaging Exam	Clinical problem/Criteria
Total Hip replacement	To have AP pelvis and lateral hip within 6 months of operation
Revision Hip replacement	To have AP pelvis and lateral hip to include the whole prosthesis within 6 months of operation
Total knee replacement	AP weight bearing knee and lateral knee within 6 months of operation
Ankle replacement	AP & Lateral within 6 months of operation
Other knee surgery	AP weight bearing, lateral skyline views within 6 months of operation
Lumbar spinal decompression/fusion	AP and lateral lumbar spine – if not done in previous 3 years
Total shoulder replacement	Shoulder AP within 6 months of operation
Rotator Cuff repair	Shoulder AP within 6 months of operation
Impingement	Shoulder AP within 6 months of operation
Shoulder instability	Shoulder AP within 6 months of operation
Removal of metal work	Up to date x-ray showing all metalwork

Imaging Exam	Clinical problem/Criteria
Cervical spine Lateral and AP	In patients with rheumatoid arthritis or Downs Syndrome x-rays may be used to evaluate spinal instability. Cases must be discussed individually with the surgeon and anaesthetist.

Imaging Exam	Clinical problem/Criteria
Erect Chest X-ray	Pre-operative chest x-ray should be taken for: • All patients with acute chest disease. • All immigrants (persons arriving in the country within the last 6 months) from areas with endemic TB, if no previous CXR available • Patients who following history, examination or pathology may have lung/heart disease • All patients with a known primary malignancy if no x-ray within last 6 months • All patients undergoing cardiac/chest surgery if no x-ray within last 6 months

Protocol 4

Emergency Department Nurse X-ray Protocol

For adults and children age 5 or above

Registered nurses in A&E, who have successfully completed the Trust training programme and competency, may request x-rays on patients attending A&E with traumatic injuries when there is clinically a very high suspicion of a fracture i.e. deformity, swelling, severe pain, bony tenderness or loss of function.

Special Points

- Nurses will only request X-rays on children when there is parental consent.
- Patients who require parenteral analgesia will be referred for medical advice
- All images must be reviewed by a medical practitioner in A&E before the patient leaves unless there is a radiology report immediately available.

Imaging exam	Clinical problem/Criteria
Finger/thumb	Mechanism of Injury, Focal bony tenderness and Loss of function
Forearm/wrist/hand/scaphoid	Mechanism of Injury, Focal bony tenderness and Loss of function. post plaster
Elbow	Mechanism if Injury, Focal bony tenderness and loss of function / post plaster
Humerus	Mechanism of Injury, Focal bony tenderness, loss of function
Shoulder	Mechanism of Injury with restriction of shoulder movements/loss of function on movement
Clavicle	Mechanism of injury, Focal bony tenderness, Obvious deformity.
Ankle	Mechanism of Injury– refer to the Ottawa ankle rules. post plaster
Knee	Mechanism of Injury– refer to the Ottawa knee rules
Foot including toes	Mechanism of Injury, Focal bony tenderness, loss of function
Calcaneum	History of trauma, bony tenderness and loss of function
Tibia & fibula	Mechanism of injury, bony tenderness, non-weightbearing, bony deformity. post plaster
Femur	Patients aged 65 or above with mechanism of injury e.g. fall with non-weight bearing and loss of function.
Foreign bodies	To exclude foreign bodies when there is a clear history of penetration by a foreign body made of metal, stone or glass. X-rays to exclude foreign bodies are restricted to the areas in the ED Nurse protocol

NHS Worcestershire Acute Hospitals NHS Trust

Protocol 5

Emergency Nurse Practitioner - Emergency Departments and Minor Injury Units

For adults and children aged 3 or above

Special point

- Non-medical referrers can review patient images if trained to do so. If this is not within their scope of practice or if any doubt, images must be reviewed by a medical practitioner prior to patient discharge.

Investigation	Criteria
Finger/thumb	Mechanism of Injury, Focal bony tenderness and Loss of function
Forearm/wrist/hand/scaphoid	Mechanism of Injury, Focal bony tenderness and Loss of function. post plaster
Elbow	Mechanism if Injury, Focal bony tenderness and loss of function post plaster.
Shoulder/Scapula	Mechanism of injury with restriction of shoulder movements/loss of function on movement OR Suspected calcific tendinitis
Humerus	Mechanism of Injury, Focal bony tenderness, loss of function. post plaster **Osteomyelitis** To assess for bone infection when there overlying soft tissue infection or suspected septic arthritis. X-rays to assess for osteomyeltitis are restricted to the areas in the ENP protocol
Clavicle	Mechanism of injury ,focal bony tenderness and obvious deformity
Foot including toes	Mechanism of injury, bony tenderness and loss of function
Ankle	History of trauma – refer to the Ottawa ankle rules. post plaster
Calcaneum	History of trauma, bony tenderness and loss of function. post plaster
Knee	History of trauma – refer to the Ottawa knee rules
Tibia/Fibula	Mechanism of injury, bony tenderness, non weight bearing, bony deformity. post plaster **Osteomyelitis** To assess for bone infection when there overlying soft tissue infection or suspected septic arthritis. X-rays to assess for osteomyeltitis are restricted to the areas in the ENP protocol
Pelvis and lateral hip	Patients aged 65 or above with mechanism of injury eg. fall with suspected fractured neck of femur, non-weight bearing and loss of function. Patients under the age of 65 following discussion with ED consultant or ED registrar with mechanism of injury, suspected fractured neck of femur, non-weight bearing and loss of function
Femur	Patients aged 65 or above. Mechanism of injury eg. fall with suspected femoral fracture, non-weight bearing and loss of function

	Osteomyelitis To assess for bone infection when there overlying soft tissue infection or suspected septic arthritis. X-rays to assess for osteomyeltitis are restricted to the areas in the ENP protocol
Facial views	Age ≥ 16: Mechanism of injury, swelling and focal bony tenderness
OPG	Age ≥ 16: Suspected dental abscess OR Mechanism of injury, focal bony tenderness, reduced mouth opening
Foreign bodies	To exclude foreign bodies when there is a clear history of penetration by a foreign body made of metal, stone or glass. X-rays to exclude foreign bodies are restricted to the areas in the ENP protocol
CXR	Age 3 – 16: To exclude metal FB Metal detector activating above diaphragm OR Metal detector not activating with good history of swallowed metal FB OR Suspected button battery or magnet ingestion Age < 65, mechanism of injury, focal bony tenderness of < 3 rib spaces and clinical signs of pneumothorax/haemothorax
CT HEAD	According to NICE guideline (adults only) • But only for patients who are taking Warfarin or any DOAC (direct oral anti-coagulants) Other cases that meet the NICE guidelines should be discussed with ED seniors and then can be requested by the ENPs after discussion

Protocol 6

Nurse Practitioner in Trauma & Orthopaedics

For adults over 16 years

Special Points

- For patients with orthopaedic and trauma conditions seen in pre-admission clinics, pre-operatively and postoperatively as an inpatient or in follow up clinics

Imaging exam	Clinical problem/Criteria
Knee – AP, Lateral views and skyline views Feet - AP, Lateral and Medial views Full leg -AP and lateral views Forearm -AP and Lateral views Wrist -AP and lateral views Humerus and shoulder -AP, lateral, Oblique views Pelvis- AP Hip - Lateral Lumbar spine - AP and lateral	Patients presenting with pain, deformity, unexpected swelling. Patients following surgery Inpatients and outpatients Check of position History of injury
Erect Chest X-ray	Post insertion of a fine bore nasogastric feeding tube, (radio-opaque or with guide wires inserted), or jejunostomy tube to confirm placement See Trust policy NURSING GUIDELINE FOR NASO-GASTRIC FEEDING TUBE INSERTION AND CARE
Erect Chest X-ray (AP view if unable to do PA)	Pulmonary embolism
Erect Chest X-ray (AP view if unable to do PA)	Pneumonia
Erect Chest X-ray	Pre-operative chest x-ray should be taken for : • All patients with acute chest disease. • All patients with chronic chest disease if no CXR for 6 months • All immigrants (persons arriving in the country within the last 6 months) from areas with endemic TB, if no previous CXR available • Patients who following history, examination or pathology may have lung/heart disease • All patients with a known primary malignancy

Protocol 7
Dating/Nuchal scan requesting during Antenatal Care by non-registered staff

This protocol includes First Trimester Ultrasound Screening scans offered to all pregnant women.

Imaging Exam	Clinical problem/Criteria
US Nuchal UODNU	• For dating scan during First Trimester booking scan • Attendance to include Nuchal translucency screening test offered to all Women on first attendance

Protocol 8

Respiratory Specialist Nurses

For adults aged 16 years or over

Imaging exam	Clinical problem/Criteria
Erect Chest X-ray PA & lateral if required (AP view if unable to do PA)	Post PICC line insertion to confirm position
Erect Chest X-ray PA & lateral if required (AP view if unable to do PA)	Acute exacerbation of bronchiectasis
Erect Chest X-ray PA & lateral if required (AP view if unable to do PA)	Acute exacerbation of chronic obstructive airways disease
Erect Chest X-ray PA & lateral if required (AP view if unable to do PA)	Acute exacerbation of asthma with either chest pain, clinical signs of pneumothorax, pyrexia or raised WCC
Erect Chest X-ray (AP view if unable to do PA)	Life threatening asthma- PEF < 33% predicted or best, or SpO2 < 92% or PaO2 <8 Kpa.
Erect Chest X-ray PA & lateral if required (AP view if unable to do PA)	Follow up for known malignancy - excluded if recent x-ray (within 6 weeks) available, unless request based on clinical presentation of patient e.g., exacerbation of symptoms
Erect Chest X-ray PA & lateral if required (AP view if unable to do PA)	Follow up after thoracic surgery- if clinical presentation indicates a need.
Erect Chest X-ray PA & lateral if required (AP view if unable to do PA)	Screening for tuberculosis contacts
Erect Chest X-ray PA & lateral if required (AP view if unable to do PA)	Outpatients follow –up COPD, Sarcoid, Pulmonary fibrosis, Pneumonia, Asthma
CT/MRI	Requests may only be initiated by a Consultant. Any request submitted following this request must have the following: Documented decision in medical notes. Documented in clinical history stating "Requested on behalf of ……."

Protocol 9
ANP Vascular Nurses

For adult patients aged 16 or over

Investigation	Criteria
Erect Chest X-ray	Pre-operative chest x-ray should be taken for: All patients with acute chest disease. All patients with chronic chest disease if no CXR for 6 months All immigrants (persons arriving in the country within the last 6 months) from areas with endemic TB, if no previous CXR available Patients who following history, examination or pathology may have lung/heart disease All patients with a known primary malignancy
Feet and or Calcaneum	? osteomyelitic changes
Ankle Knee Feet Pelvis Lumbar spine Tib & Fib	Patients presenting with pain, deformity, unexpected swelling.to differentiate musculo-skeletal problem from vascular problem. Patients following surgery Inpatients and outpatients History of injury
CT/MRI	Any decision for CT/MRI should be made by consultant and discussion clearly documented in the medical notes with the request clearly stating, in the request text, which Consultant made the decision. "Following discussion with……" &TOBO (transcribed on behalf of)
Venous Ultrasound: US Doppler upper limb veins Lt, US Doppler upper limb veins Rt US Doppler vein map upper limb Lt, US Doppler vein map upper limb Rt US Doppler lower limb veins Lt, US Doppler lower limb veins Rt US Doppler superior mesenteric vein US Doppler marking long saphenous vein Lt, US Doppler marking long saphenous vein Rt US Doppler Popliteal fossa Lt, US Doppler Popliteal fossa Rt	Patients presenting with possible venous disease Patients undergoing surgery where vein is required to bypass

Arterial Ultrasound: US Doppler carotid artery both, US Doppler carotid artery Lt, US Doppler carotid artery Rt US Doppler vertebral artery Lt, US Doppler vertebral artery Rt US Doppler superior mesenteric artery US Doppler upper limb arteries Lt, US Doppler upper limb arteries Rt US Doppler for dialysis access US Abdominal aorta, US abdomen US Doppler liver & portal system US Doppler renal both, US Doppler renal Lt, US Doppler renal Rt US Doppler aortoiliac US Doppler iliac & femoral artery Lt, US Doppler iliac & femoral artery Rt US Doppler temporal artery both US Doppler lower limb arteries Lt, US Doppler lower limb arteries Rt US Ankle & brachial pressure index US Doppler femoropopliteal artery Lt, US Doppler femoropopliteal artery Rt US Arterial, US Doppler US Graft surveillance	Patients presenting with arterial disease Patients presenting with aneurysms Patients presenting with TIA symptoms Post-op surveillance of bypass grafts and EVAR stents Surveillance of aneurysms Assessment of endoleaks

Protocol 10
X-ray protocol for Rheumatology Nurse Practitioners

For adult patients aged 16 or over

Xray	Criteria
Erect Chest X-ray	Baseline investigation prior to commencing treatment with disease modifying agents where previous x-ray more than 6 months ago
Upper Limb	Baseline investigation to determine progressive/degenerative changes where previous x-ray more than 6 months ago
Lower Limb	Baseline investigation to determine progressive/degenerative changes where previous x-ray more than 6 months ago
Peripheral joints	Baseline investigation to determine progressive/degenerative changes where previous x-ray more than 6 months ago.
Ultrasound +/- guided injections	
Upper Limb Lower limb Peripheral joints.	Patient with a known inflammatory arthritis, experiencing symptoms despite treatment, to delineate between synovitis/tenosynovitis or other cause.
Upper limb Lower limb Peripheral joints	Patients referred to rheumatology to assess if there is subclinical synovitis/tenosynovitis or musculoskeletal cause for symptoms.

Protocol 11
Midwives - Antenatal Care

This protocol is to be used by all Registered Midwives who request antenatal Ultrasound scans as part of their patient care roles

Imaging Exam	Criteria
UODNU	• For dating scan during First Trimester booking scan • Attendance to include Nuchal translucency screening test offered to all Women on first attendance
UODAT	• Women attending for dating outside of screening timescale
UDAVY	• Women attending that have no FH detected on sonocaid
UODA	• For Mid-Trimester scan offered to all women between 18-20+6 weeks of Pregnancy
UOFG	• For Growth scans as required through Pregnancy under SGA protocol, Saving Babies Lives directive. • For concerns in relation to reduced growth • If first plot at 24-26 weeks on SFH is below 10th centile • If SFH measurements cross centiles • IF SFH is above 90th centile and becomes steeper than curve • Fetal Renal Reviews where fetal hydronephrosis has been diagnosed
UODOP	• For presentation with reduced liquor <2cm SDP. • For reduced fetal movements • For changes in growth pattern that cross a centile or significantly reduce within a centile • If AC measurement has dropped below previous centiles • For fetuses under 10th/3rd centile
UOCLT	• 18/40 and 22/40 scans as required for cervical competency scanning for Pre-term loss clinic
U03T	• For Presentation of Fetus if ? Breech at 36/40
UAUTB	• For Ladies under SGA protocol
UOLR	• For presentation with reduced liquor • For presentation with Polyhydramnios >8cm SDP (no increased code available)
UPLAC	• For Placental assessment from 32/40 if previously low lying at 20/40. • After 32/40 scan if still low and maternal history requires a further scan.
UAUTB	• Uterine artery Doppler following SGA Guidance
UMULT	• To be booked following consultant Care plan or as part of regular serial scanning as per department protocol
UMPDO	• To be booked following Consultant Care Plan

Protocol 12

X-ray protocol for Specialist Oncology and Haematology Nurses

For adult patients aged 16 or over

Investigation	Criteria
Chest X-Ray	Post insertion of peripherally inserted central catheters (PICC) to confirm position Post insertion of central venous access devices (CVAD) to confirm position Screening for neutropenic patients with respiratory symptoms Prior to CTPA to exclude other causes that will help inform the clinical pathway (to exclude infection, pleural effusions, metastases etc.)
Abdomen X-Ray	Bowel obstruction Potential ischaemic or infective colitis and including post-neutropenic abdominal pain (with signs of obstruction, fever, reduced bowel motion or bowel sounds and change in bowel habit) Post-antibiotics if pseudomembranous colitis is suspected clinically
Pelvis / Hip X-Ray	Known cancer patients complaining of bony pain or symptoms suggestive of bony metastases
Femur X-Ray	Known cancer patients complaining of bony pain or symptoms suggestive of bony metastases
Humerus X-Ray	Known cancer patients complaining of bony pain or symptoms suggestive of bony metastases
Spine X-Ray	Known cancer patients complaining of bony pain or symptoms suggestive of bony metastases
Knee X-ray	Known cancer patients complaining of bony pain or symptoms suggestive of bony metastases
CT/MRI	Any decision for CT/MRI should be made by Consultant and discussion clearly documented in the medical notes with the request clearly stating, in the request text, which Consultant made the decision. "Following discussion with……"

PICC line insertion	Prior to intravenous systemic anti-cancer therapies Poor venous access
PICC line exchange	Non-functioning PICC line / occluded / routine date exchange
US upper & lower limb	? DVT
US abdomen	For purposes of assessment of the volume of ascites and for US guided marking prior to consideration of drainage of ascites post-US.

Protocol 13 X-ray protocol for Diabetic Specialist Nurses /Podiatrists/Tissue Viability Nurse

For adult patients aged 16 or over

Imaging exam	Clinical problem/Criteria
Foot, toes and calcaneum X-ray	To exclude or monitor osteomyelitis, charcots joints and foreign bodies.

Protocol 14 - Extended practice ACP (ED)

For patients aged 3 years or above with the exception of CT/MRI.

CT/MRI >18yrs with documented name of ST4 or above

Following appropriate clinical examination and assessment the following investigations may be requested

Investigation	Clinical problem/Criteria
Erect Chest X-ray PA (AP view if unable to do PA)	Acute exacerbation of chronic obstructive airways disease Pulmonary embolism Pericarditis/pericardial effusion Pneumonia Pleural effusion Haemoptysis Acute exacerbation of asthma with either chest pain, clinical signs of pneumothorax, pyrexia or raised WCC Life threatening asthma- PEF < 33% predicted or best, or SpO2 < 92% or PaO2 <8 Kpa. Pneumothorax Central chest pain? myocardial infarction. Chest pain ?aortic dissection Acute onset of shortness of breath? Left ventricular failure or worsening heart failure.
Erect Chest x-ray, (AP view if unable to do PA) Supine abdominal x-ray	Acute abdominal pain? Perforation or obstruction.
Facial / Mandible X-Ray	Mechanism of Injury, Focal bony tenderness and loss of normal function
Forearm/wrist/hand/scaphoid /fingers	Mechanism of Injury, Focal bony tenderness and Loss of function.
Elbow	Mechanism of Injury, Focal bony tenderness and loss of function
Humerus	Mechanism of Injury, Focal bony tenderness, loss of function
Shoulder	Mechanism of Injury with restriction of shoulder movements/loss of function on movement
Scapula	Mechanism of injury, Focal bony tenderness
Pelvis and Hip	Patients with mechanism of injury (eg. Fall) with suspected fractured neck of femur, fractured pubic rami and/or any other suspected pelvic fracture and who are non-weight bearing with loss of function. Suspected Perthes' disease or SUFE in children with hip/groin pain

Ankle	Mechanism of Injury– refer to the Ottawa ankle rules and document on request
Knee	Mechanism of Injury– refer to the Ottawa knee rules and document on request
Foot, Toes	Mechanism of Injury, Focal bony tenderness, loss of function Imaging for injury to toes other than big toe is not recommended unless dislocation is suspected
Tibia/Fibula	Mechanism of Injury, Bony tenderness, non-weight bearing, bony deformity
Spine	Cervical – age less than 65 years, refer to Canadian C-Spine rules on request Thoracolumbar – mechanism of injury and focal bony tenderness.
CT/MRI	Requests should be made following discussion with the Emergency Physician in charge (Cons / or ST4 clinician or above) so that they are aware of the indications for imaging and have an awareness of the overall number of patients waiting for CT in the ED. Any request submitted following this request must have the following: Documented decision in medical notes. Documented in clinical history stating "Discussed with ……."

Protocol 15 X-ray protocol for Specialist Urology Nurse/Rapid Access Urology Clinic Nurses- Trust Wide

Investigation	Criteria
Plain abdominal X-ray (KUB)	As part of the protocol for these clinics to assess skeleton for sclerotic metastases, and for renal tract calculi
Ultrasound KUB	Patients attending out patient clinic as a new referral or proven malignancy
Plain x-rays of Chest, Pelvis, Spine (depending on bone scan report)	For patients with proven urological cancers
Plain x-ray of Chest	For diagnosis & staging of urological cancers
Trans rectal ultrasound guided biopsy of prostate gland	For diagnosis of prostate cancer
CT/MRI	Any decision for CT/MRI should be made by Consultant and discussion clearly documented in the medical notes with the request clearly stating, in the request text, which Consultant made the decision. "Following discussion with……"
US KUB US TESTES	haematuria
US Prostate (UPROS)	Volume assessment
NM Whole Body Bone Scan	Biopsy proven prostate cancer with raised PSA > 20 ng/ml A diagnosis of prostate cancer with symptomatic bone pain querying bony metastases Possibility of bony metastasis is raised on a CT or MRI scan report and a bone scan is specifically needed to clarify the matter

Protocol 17 X-ray protocol for Specialist Breast Care Nurse (CNS)
For Patients aged 16 and over

Investigation	Criteria
Mammogram	• Follow up annual screening for women over 40 years of age considered to be at moderate risk of developing breast cancer as a result of their family history – patients' age 35-40 yrs - requests only after discussion with consultant. • Annual post-surgical follow up of patients treated for breast cancer • New patients attending '2 week wait clinic', for mammography as component of triple assessment
Dexa scans	• Patient has been diagnosed with a primary breast cancer. • Patient is post- menopausal. • The histopathology of the cancer has been identified as oestrogen receptor positive. • Patient has been commenced on an aromatase inhibitor.
Breast and axillary ultrasound scan	• New patients attending '2 week wait' clinic, as component of triple assessment • Post-surgical patients who present with new symptoms requiring investigation Follow up patients with change/abnormality noted on surveillance imaging
Ultrasound guided FNA/core biopsies breast and axilla	• New and follow up patients following clinical assessment. • Follow up patients with abnormality noted on routine surveillance imaging
Stereotactic core biopsies	• New patients attending ' 2 week wait' clinic Surgical follow up patients with change/abnormality noted on routine surveillance imaging
Breast MRI	• As per agreed protocol – following MDT discussion ; • Patients with invasive lobular carcinoma for sizing • Patients undergoing neo adjuvant chemotherapy (to assess response to treatment) • To assess breast implant integrity • 'High risk' Family History patients (as per protocol)
Ultrasound guided insertion of marker clip	• New and follow up patients for; • Neo adjuvant chemotherapy • Surgery for impalpable lesions
Vacuum Assisted Biopsy and excision	• Following discussion at MDT
Contrast enhanced mammography	• Following discussion at MDT

Protocol 18 **X-ray protocol for Specialist TB Nurse**

Imaging exam	Clinical problem/Criteria
Erect Chest X-ray	As according with TB screening form – details to be documented on request.

Worcestershire NHS
Acute Hospitals NHS Trust

NAME:
NHS NO:
HOSP NO:
DOB:
GENDER: MALE ☐ FEMALE ☐

Tuberculosis Screening Form

Date:

Patient Details
Address:
Contact Tel No:
Patient Occupation: Place of Work:
GP Details
Name: GP:
Surgery Address:
Tel No:
Ethnicity & Travel Details
Patient Ethnicity:
Country of Birth:
Date of entry to UK:
Recent Travel abroad: Yes / No Destination: Date(s): Time Period(s):
Medical History
Any medical conditions? Yes / No Details:
Current Medication: Yes / No
Current Health:
Previous BCG? YES / NO
HIV Status: Positive / Negative / Unknown

Index case details
Hospital / NHS No: Site of TB: Culture Status:
Referral Details
Source of Referral: **Reason for Screening:** Contact / New Entrant / BCG / Bovine/ Occupational Screening / Pre-Biological Treatment Other (Specify)
Contact with Index Case: Close / Casual / Occupational /Other (please specify)
Any past history of TB? Yes / No Details: Treatment:
Any family history of TB in last 5 years? Yes/ No Details:

Symptoms	Yes/No	Details
Cough		
Sputum		
Haemoptysis		
Malaise		
Fever		
Night Sweats		
Unplanned Weight Loss		
Unresolved Swollen Glands		

Further Information:

Worcestershire NHS
Acute Hospitals NHS Trust

NAME:
NHS NO:
HOSP NO:
DOB:
GENDER: MALE ☐ FEMALE ☐

Tuberculosis Screening Form

Date:

TB Screening / BCG Vaccine Consent

I.....give consent for myself/ my child..... to be screened for TB using Mantoux SSI, I have been made aware this product is unlicensed in the UK but it is used widely throughout Europe, and if required, to be vaccinated against TB with BCG vaccine. I have been given the opportunity to read and discuss the patient information leaflet.

TB Nurse Specialist.....

Date.....

INITIAL SCREENING DETAILS

Mantoux Test

Date	Batch No.	Result

BCG Required? YES / NO

CXR

Date	Result

IGRA / T SPOT

Date	Result

SPUTUMS

	Date Sent	Result
1		
2		
3		

SCREENING OUTCOME

FOLLOW UP/ REPEAT SCREENING DETAILS

CXR 2

Date	Result

IGRA / T SPOT 2

Date	Result

SPUTUMS 2

	Date Sent	Result
1		
2		
3		

SCREENING OUTCOME

***Referral to Respiratory Consultant Required?**

Consultant name:

Date Referral sent:

Consultant appointment date:

Treatment issued: YES / NO

Treatment Type:

Length of Treatment:

Date Treatment Commenced:

GP notified: YES / NO Date:

Date Treatment Completed:

GP notified: YES / NO Date:

Date of Discharge:

Protocol 20

X-ray protocol for Osteoporosis/Fracture Liaison Specialist Nurse

For adult patients aged 16 or over

Imaging exam	Clinical problem/Criteria
Dexa scan	Investigation following NICE guidelines (TA160 & TA161) and Worcestershire guidelines for osteoporosis, where patient has risk factors, in order to determine treatment options

Protocol 21

ACP Protocol MAU / MSSU / AEC / ED

For adult patients aged 16 years or above

Following appropriate clinical examination and assessment the following investigations may be requested

Investigation	Clinical problem/Criteria
Chest	Acute exacerbation of chronic obstructive airways disease Pulmonary embolism /Pericarditis/pericardial effusion Pneumonia / Pleural effusion / Haemoptysis Acute exacerbation of asthma with either chest pain, clinical signs of pneumothorax, pyrexia or raised WCC Central chest pain ? myocardial infarction ?aortic dissection Pneumothorax Post insertion of a fine bore nasogastric feeding tube with guide wire or jejunostomy tube to confirm placement See Trust policy NURSING GUIDELINE FOR NASO-GASTRIC FEEDING TUBE INSERTION AND CARE Acute abdominal pain ? Perforation Post insertion of central venous access devices (CVAD), peripherally inserted central catheters (PICC), drains to confirm position. Acute onset of shortness of breath ? Left ventricular failure or worsening heart failure. Post removal of a chest drain Post cardiac arrest, ET tube position
Abdomen	? obstruction Acute exacerbation of inflammatory bowel disease of colon
Humerus	Mechanism of Injury, Focal bony tenderness, loss of function
Shoulder	Mechanism of Injury with restriction of shoulder movements/loss of function on movement
Elbow	Mechanism of Injury, Focal bony tenderness and loss of function
Finger/thumb	Mechanism of Injury, Focal bony tenderness and loss of function
Forearm/wrist/hand/scaphoid	Mechanism of Injury, Focal bony tenderness and Loss of function.
Clavicle	Mechanism of injury, Focal bony tenderness, Obvious deformity.
Pelvis and Hip	Patients aged 65 or above with mechanism of injury e.g. fall with suspected fractured neck of femur, non-weight bearing and loss of function

Ankle	Mechanism of Injury– refer to the Ottawa ankle rules and document on request
Knee	Mechanism of Injury– refer to the Ottawa knee rules and document on request
Foot including toes	Mechanism of Injury, Focal bony tenderness, loss of function
Tibia/Fibula	Mechanism of Injury, Bony tenderness, non-weight bearing, bony deformity
Femur	Mechanism of Injury, Bony tenderness, non-weight bearing, bony deformity
US doppler upper limb	? DVT A wells score +/- D-dimer must be provided Requests may only be initiated by a Consultant. Any request submitted following this request must have the following: Documented decision in medical notes. Documented in clinical history stating TOBO (transcribed on behalf of ……..)
US abdo	Cholecystitis/gallstone / CBD pathology / ascites / abnormal LFT's / hepatosplenomegaly / metastases / pancreatitis / ascending cholangitis / ?collection
US KUB	New HTN , Renal colic, Requests initiated by a consultant. Any request submitted following this request must have the following: Documented decision in medical notes.
Us Thyroid	Goitres, abnormal thyroid function Requests initiated by a consultant. Any request submitted following this request must have the following: Documented decision in medical notes.
CT CTPA CCHAPC CABPEC CT thorax / HRCT CT Head CTV (CT venogram)	Requests may only be initiated by a Consultant. Any request submitted following this request must have the following: Documented decision in medical notes. Documented in clinical history stating "Requested on behalf of ……." CT head requesting can include suspicion of SOL (discussion if patient is under 50 years old), suspected CVA, CT venogram (discussion if patient is under the age of 50 years) and post head injury for intracranial bleeds and SAH
MRI head MRI spine	Requests may only be initiated by a Consultant. Any request submitted following this request must have the following: Documented decision in medical notes. Documented in clinical history stating "Requested on behalf of ……."

Protocol 22
GP Nurse Practitioners

For Patients aged 16 and over

Special points

Following trauma, if a fracture is the clinical question, patients should be sent directly to ED to avoid delay in management and where the appropriate immediate management can be made

Imaging exam	Clinical problem/Criteria
Chest	• Cough persisting >3/52 • Persisting breathlessness • Abnormal chest examination in the absence of infective symptoms or persisting after treatment for infection.
Finger/thumb	• Infection - XR is the initial investigation but may be normal in early osteomyelitis • Bone Pain - XR gives a dedicated view of the symptomatic area. • Arthropathy - XR of the affected joint may be helpful to establish cause, although erosions are a relatively late feature.
Forearm Wrist Hand & Scaphoid	• Infection - XR is the initial investigation but may be normal in early osteomyelitis • Bone Pain - XR gives a dedicated view of the symptomatic area. • Arthropathy - XR of the affected joint may be helpful to establish cause, although erosions are a relatively late feature.
Elbow	• Infection - XR is the initial investigation but may be normal in early osteomyelitis • Bone Pain - XR gives a dedicated view of the symptomatic area. • Arthropathy - XR of the affected joint may be helpful to establish cause, although erosions are a relatively late feature.
Shoulder	• XR is used as a preoperative assessment. Impingement is clinically diagnosis. XR is indicated for persistent shoulder pain that is unresponsive to conservative treatment to exclude calcific tendinitis and diagnoses unrelated to the rotator cuff. • Infection - XR is the initial investigation but may be normal in early osteomyelitis • Bone Pain - XR gives a dedicated view of the symptomatic area. • Arthropathy - XR of the affected joint may be helpful to establish cause, although erosions are a relatively late feature. • Instability - Plain XRs may show characteristic bony lesions in the humeral head and glenoid.
Foot including toes	• Infection - XR is the initial investigation but may be normal in early osteomyelitis • Bone Pain - XR gives a dedicated view of the symptomatic area. • Arthropathy - XR of the affected joint may be helpful to establish cause, although erosions are a relatively late feature. • Hallux Valgus - XR is useful to guide surgery only
Ankle	• Infection - XR is the initial investigation but may be normal in early osteomyelitis

	• Bone Pain - XR gives a dedicated view of the symptomatic area. • Arthropathy - XR of the affected joint may be helpful to establish cause, although erosions are a relatively late feature. • X-rays are **not** Indicated for calcaneal spurs
Knee	• Symptoms frequently arise from soft tissues, which will not show on XR. Osteoarthritic changes are common. XR is needed when considering surgery. Sudden onset or exacerbation of pain is a good indication for imaging, as is pain persisting for more than 6 weeks in young adults. • Infection - XR is the initial investigation but may be normal in early osteomyelitis • Bone Pain - XR gives a dedicated view of the symptomatic area. • Arthropathy - XR of the affected joint may be helpful to establish cause, although erosions are a relatively late feature. • Painful Prosthesis - XR is useful to detect established loosening
Tibia and Fibula	• Infection - XR is the initial investigation but may be normal in early osteomyelitis • Bone Pain - XR gives a dedicated view of the symptomatic area.
Pelvis and Hip	• XR of the pelvis is indicated for persistent pain. It may demonstrate focal bony pathology, erosive joint changes, dysplasia and anatomical features associated with femoroacetabular impingement. XR is abnormal in established avascular necrosis but is frequently normal within first 6-9 months. • Painful Prosthesis - XR is useful to detect established loosening • Infection - XR is the initial investigation but may be normal in early osteomyelitis • Bone Pain - XR gives a dedicated view of the symptomatic area. Please note this is a High Radiation Dose study
Foreign Bodies	• Refer to ED: To exclude foreign bodies when there is a clear history of penetration by a foreign body made of metal, stone or glass. X-rays to exclude foreign bodies are restricted to the areas in the Emergency nurse practitioner protocol
Soft tissue masses	• X-ray not indicated - US is useful as the first investigation to evaluate cystic and solid masses, and to distinguish them from pseudotumours. It is also useful to monitor benign masses (e.g., haematomas) and to assess for local recurrence of soft tissue sarcomas. These examinations MUST be requested by a GP

Protocol 23 Cardiology Specialist Nurses

For Patients aged 16 and over

Special points

- To enable requesting of imaging investigations by cardiology specialist nurses under the supervision and behalf of cardiology consultants in Rapid Access Chest Pain Clinic (RACPC).

- Internal assessments will determine support for those applying for requesting rights.
- Full SOP is available & can be provided by radiology governance team when application is approved

Investigation	Criteria
1) CT Coronary Angiography	For Low and Intermediate Risk patients. Requests for CTCA will be made by the specialist nurse with the nominated consultant stated on all requests. Requests should state "Requested on behalf…"
2) CXR	• Chest pain • Breathlessness • Pneumothorax • Post device (ppm)

Protocol 24
Stroke Clinical Nurse Specialist

For Requesting CT Brain Scans / Carotid Doppler US for Patients aged 18 and over

EXAMS	
CSKUH	CT HEAD
CAICN	CT INTRACRANIAL ANGIOGRAM
CACDB	CT CAROTID ANGIOGRAM AND ARCH
UDCAL	US DOPPLER CAROTID ARTERY LEFT
UDCAB	US DOPPLER CAROTID ARTERY BOTH
UDCAR	US DOPPLER CAROTID ARTERY RIGHT
CXR	?aspiration, ?infection ? pulmonary oedema, NG tube check

Conditions or Situations to Which the Policy Applies

- Adult patients with a sudden neurological deficit within 4.5 hours of onset being considered for treatment with thrombolytic drugs for the treatment of acute ischaemic stroke.
- Patients who have a positive ROSIER score and/or the clinical picture compatible with stroke or TIA who have been reviewed by a Stroke Physician and deemed to require a CT brain scan. In this case the CT brain scan will be requested on behalf of the Stroke Physician

Training

In order for the Stroke CNS to be considered for CT head / Carotid Doppler requesting they must meet the following criteria:

- Have worked as a stroke CNS for a minimum of 6 months.
- Have achieved certification in the NIHSS.
- Have completed both stroke workbooks (Acute Stroke Care) & (Hyper Acute Stroke Care).
- Have attended at least the 5 day health assessment course at the Worcester University.
- Undertake Ionising Radiation Medical Exposure (IRMER) training and complete the competencies outlined by the Trust.

Continuing Professional Development

The Stroke CNS's will keep up to date with advances in Stroke diagnosis and treatment by:

- Attending relevant study days pertinent to diagnosis and treatment of acute stroke and TIA.
- Attend in-house stroke teaching sessions.
- Maintain competence in assessing and scoring patients using the NIHSS.
- Be involved in clinical decision making with the Stroke Physician with reflective practice.

The Stroke CNS will also complete:

- Annual PDR with line manager.
- Satisfy current Nursing & Midwifery Code of Practice with regard to revalidation.

Clinical Governance

- CT brain scans / CT angiogram / Carotid Doppler US will be requested on ICE by the Stroke CNS under the Stroke Physician's name with the request stating "requested on behalf of the Stroke Consultant" (Monday – Friday, 9am – 5pm) .
- Scan results will be reported to the Stroke Physician named on the request.
- Outside of these hours CT brain scan and CT angiogram requests by the Stroke CNS will be made only for potential thrombolysis and thrombectomy patients in agreement with the on-call stroke consultant or on call stroke network consultant.

Monitoring Compliance and Effectiveness

- CT brain scan/ CTA / Carotid Doppler US requests can be viewed and monitored via the ICE system. Any requests deemed 'inappropriate' by the Radiologist or Radiographer should be discussed with the Stroke CNS and Clinical Lead for Stroke.

Protocol 25

MRI Radiographers

For Patients aged 16 and over

Special points:

- MRI radiographer names will be added to the master IR(ME)ER list on the intranet with a named protocol allocated to them.
- To enable requesting of imaging investigations by MRI Radiographers and behalf of referring consultants
- SOP is available on key documents site (standard operating procedure (SOP) for patients requiring MRI examinations & who are unconscious / confused / lack mental capacity)

Imaging exam	Clinical problem /Criteria
	For Patients unable to answer their pre MRI safety screening forms due to lack of mental capacity at the time of MRI scan Requests for x-rays will be made by MRI radiographers with the referring consultant stated on all requests. • All x-ray requests will be made on ICE • All images will be reported by the duty radiologist or reporting radiographer prior to the scan.
Lateral Skull	To identify any metallic object which could be a contra-indication to MRI
Chest X-Ray	To identify any metallic object which could be a contra-indication to MRI
Abdomen X-Ray	To identify any metallic object which could be a contra-indication to MRI
For Patients who are able to answer their pre MRI safety screening forms	
Orbits	To exclude the possibility of metal in the eye which has been identified during the MRI safety checklist and in the absence of a request by the referring clinician.

Protocol 26

T&O Nurse Practitioners (NP)

For Patients aged 16 and over

MRI, US & DEXA exams

Special points:

T&O Nurse Practitioners (NP) will request radiology examinations on behalf of T&O consultants and in accordance with the agreed standard operating procedure which includes a scheme of work for each individual.

Modality **Ultrasound**	**Conditions**	**Clinical reason**
	Tibialis Posterior Tendonitis	To assess state of tendon? for reconstruction ? for non-operative treatment
	Tibialis Posterior Rupture/ partial tear	To determine surgical treatment
	Growing soft tissue swelling	Diagnosis
	Achilles Tendonitis	To assess state of tendon? For reconstruction? for non-operative treatment
	Achilles tendon partial rupture or tear	To determine surgical treatment
	Peroneus brevis Tendonitis	To assess state of tendon ? for reconstruction ? for non-operative treatment
	Mortons neuroma	Patients with pain in more than 1 site and or have refused or not responded to steroid injection
	Multi-locular Ganglion	To assess size and origin
	Tendon rupture/ tendinopathy	To confirm patella rupture / quads rupture/ patella tendonitis/ tendinopathy
Doppler studies	Deep Vein Thrombosis	To rule out DVT and or determine treatment

MRI ankle	Ankle pain	To confirm diagnosis such as osteochondral defects, talar defects such as AVN Ligamentous injury Loose bodies, syndesmosis injury, posterior impingement syndrome Growing soft tissue mass. Non-union of fractures. Osteomyelitis.
MRI foot	Hind foot pain and deformity	To look Calcaneal injuries, Subtalar pain, Tibialis posterior tendonitis, tear and rupture, tarsal coalition Non-union of fractures To assess the state of the joints. Osteomyelitis. Plantar fasciitis Subtle stress fractures.
MRI foot	Midfoot pain	Mid foot pain for OA , Lis franc injury, Accessory Navicular, Tibialis anterior tendonitis To assess the state of the joints Non-union of fractures Osteomyelitis.
MRI foot	Forefoot pain	Subtle stress fractures. Non-union of fractures Osteomyelitis Plantar plate injuries Suspicious lesion on plain x-ray
MRI	Metal on metal hip pain	Patients with pain and high cobalt and chromium levels to look for metallosis and pseudo tumours. (if MARS sequences not available on CT)
MRI Lumbar and thoracic Spine	Back pain with neurology	New presentation with ?cauda equina/ suspected nerve compression Spinal fractures which require MRI to determine extent of injury
MRI Knee	Acute Knee Injury Knee pain / instability/ suspicious lumps	? ACL /PCL rupture and / or acute meniscal pathology Osteochondral defects Osteonecrosis To confirm failed ACL reconstruction / failed meniscal repair

		To confirm patella tendonitis / tendinopathy /patella Alta / Look at TTTG distance if considering distalisation surgery ? multi -ligament injury / unexplained pain/ Fracture To confirm osteochondritis dissecans Any suspicious bony lumps / lesions lower limb.
MRI hip	Hip Pain	To assess extent of chondral damage / labral tears/ cam lesions/ unexplained pain To confirm hip fracture if x-ray unclear Trochanteric bursa if resistant symptoms to confirm diagnosis
MRI Femur	To rule out osteomyelitis / Pathological lesions	To rule out osteomyelitis / Pathological lesions for theatre planning
DEXA	For patients with fragility fracture	To determine treatment following fall resulting in fragility fracture
	Severe osteopenia on xray	To determine treatment and prevent fragility fracture

Plain X-ray	
Imaging exam	**Clinical problem /Criteria**
Knee – weight bearing AP, Lateral views and skyline views+ Rosenberg view	Mechanism of Injury– refer to the Ottawa knee rules and document on request. Assess new patients referred to outpatients with knee pain. Patients following surgery.

Feet – weight bearing and non-weight bearing AP, Lateral and Medial views/oblique/ calcaneal views/ broden views	Patients presenting with pain, deformity, unexpected swelling. Patients following surgery
Full leg femur / tibia / fibula -AP and lateral views	Inpatients following surgery / trauma and on referral to outpatients
Full leg length alignment views	Preop Planning when considering osteotomy surgery. Post op views if required post osteotomy surgery.
Ankle	Mechanism of Injury– refer to the Ottawa ankle rules and document on request, pain, deformity, loss of function
Foot including toes	Mechanism of Injury, Focal bony tenderness, loss of function
Tibia & fibula	Mechanism of Injury, Bony tenderness, non-weight bearing, bony deformity
Forearm/wrist/hand/scaphoid	Mechanism of Injury, Bony tenderness, non-weight bearing, bony deformity, pain
Humerus and shoulder -AP, lateral, Oblique views	Mechanism of Injury, Focal bony tenderness and loss of function
Elbow	Mechanism of Injury, Focal bony tenderness and loss of function
Shoulder	Mechanism of Injury with restriction of shoulder movements/loss of function on movement / pain
Clavicle	Mechanism of injury, Focal bony tenderness, Obvious deformity.
C Spine views/ swimmers view	Trauma
Pelvis / Hip	Fall with inability to weight bear due to pain. Patients seen in outpatients with pain and restriction of movements. Post-op or follow up THR.
Lumbar spine – lateral	XR is only indicated if presentation suggests osteoporotic collapse in the elderly. Lateral XR of the thoracic and lumbar spine is the first investigation in suspected osteoporotic collapse. In the elderly, fracture on XR is adequate to establish a diagnosis and DEXA is unnecessary unless monitoring of treatment is required
Chest X-ray	Post insertion of a fine bore nasogastric feeding tube, (radio-opaque or with guide wires inserted), or jejunostomy tube to confirm placement See Trust policy NURSING GUIDELINE FOR NASO-GASTRIC FEEDING TUBE INSERTION AND CARE

Chest X-ray	Pulmonary embolism Pneumonia Pneumothorax ? abdominal obstruction Pre-operative chest x-ray should be taken for : trauma and elective patients (in accordance with SOP) • All patients with acute chest disease. • All patients with chronic chest disease if no CXR for 6 months • All immigrants (persons arriving in the country within the last 6 months) from areas with endemic TB, if no previous CXR available • Patients who following history, examination or pathology may have lung/heart disease All patients with a known primary malignancy
Chest (erect) Supine abdomen	Acute abdominal pain? Perforation or obstruction
Fluoroscopy	
Mobile image intensifier	Referrals for hip injections

Protocol 27

GP Nurse Practitioner (Specific role)

For Patients aged 16 and over

Special points

- Asthma Diploma
- Lead practice nurse for IUCD fittings & follow up Lead nurse specialising in women health and undertaking IUCD fittings and removals. To assess suitability of IUS fittings for menorrhagia with fibroids or IUT problems with lost threads
- Following trauma, if a fracture is the clinical question, patients should be sent directly to ED to avoid delay in management and where the appropriate immediate management can be made

Imaging exam	Clinical problem /Criteria
Finger/thumb	• Infection - XR is the initial investigation but may be normal in early osteomyelitis • Bone Pain - XR gives a dedicated view of the symptomatic area. • Arthropathy - XR of the affected joint may be helpful to establish cause, although erosions are a relatively late feature.
Forearm Wrist Hand & Scaphoid	• Infection - XR is the initial investigation but may be normal in early osteomyelitis • Bone Pain - XR gives a dedicated view of the symptomatic area. • Arthropathy - XR of the affected joint may be helpful to establish cause, although erosions are a relatively late feature.
Elbow	• Infection - XR is the initial investigation but may be normal in early osteomyelitis • Bone Pain - XR gives a dedicated view of the symptomatic area. • Arthropathy - XR of the affected joint may be helpful to establish cause, although erosions are a relatively late feature.
Shoulder	• XR is used as a preoperative assessment. Impingement is clinically diagnosis. XR is indicated for persistent shoulder pain that is unresponsive to conservative treatment to exclude calcific tendinitis and diagnoses unrelated to the rotator cuff. • Infection - XR is the initial investigation but may be normal in early osteomyelitis • Bone Pain - XR gives a dedicated view of the symptomatic area. • Arthropathy - XR of the affected joint may be helpful to establish cause, although erosions are a relatively late feature. • Instability - Plain XRs may show characteristic bony lesions in the humeral head and glenoid.
Foot including toes	• Mechanism of Injury, Focal bony tenderness and Loss of function X-rays are not indicated for suspected toe fractures unless there is an open wound or deviation of the toe. The exception to this is the great toe. • Infection - XR is the initial investigation but may be normal in early osteomyelitis • Bone Pain - XR gives a dedicated view of the symptomatic area.

	• Arthropathy - XR of the affected joint may be helpful to establish cause, although erosions are a relatively late feature. • Hallux Valgus - XR is useful to guide surgery only
Ankle	• Infection - XR is the initial investigation but may be normal in early osteomyelitis • Bone Pain - XR gives a dedicated view of the symptomatic area. • Arthropathy - XR of the affected joint may be helpful to establish cause, although erosions are a relatively late feature. • X-rays are **not** Indicated for calcaneal spurs
Knee	• Symptoms frequently arise from soft tissues, which will not show on XR. Osteoarthritic changes are common. XR is needed when considering surgery. Sudden onset or exacerbation of pain is a good indication for imaging, as is pain persisting for more than 6 weeks in young adults. • Infection - XR is the initial investigation but may be normal in early osteomyelitis • Bone Pain - XR gives a dedicated view of the symptomatic area. • Arthropathy - XR of the affected joint may be helpful to establish cause, although erosions are a relatively late feature. • Painful Prosthesis - XR is useful to detect established loosening
Tibia and Fibula	• Infection - XR is the initial investigation but may be normal in early osteomyelitis • Bone Pain - XR gives a dedicated view of the symptomatic area.
Pelvis and Hip	• XR of the pelvis is indicated for persistent pain. It may demonstrate focal bony pathology, erosive joint changes, dysplasia and anatomical features associated with femoroacetabular impingement. XR is abnormal in established avascular necrosis but is frequently normal within first 6-9 months. • Painful Prosthesis - XR is useful to detect established loosening • Infection - XR is the initial investigation but may be normal in early osteomyelitis • Bone Pain - XR gives a dedicated view of the symptomatic area. • Please note this is a High Radiation Dose study
Foreign Bodies	• Refer to ED: To exclude foreign bodies when there is a clear history of penetration by a foreign body made of metal, stone or glass. X-rays to exclude foreign bodies are restricted to the areas in the Emergency nurse practitioner protocol.
Soft tissue masses	• X-ray not indicated - US is useful as the first investigation to evaluate cystic and solid masses, and to distinguish them from pseudotumours. It is also useful to monitor benign masses (eg, haematomas) and to assess for local recurrence of soft tissue sarcomas. These examinations MUST be requested by a GP
Chest X-rays	• Can ONLY be requested by Nurse Practitioners with extended scope of practice in Chest Pathology - i.e. COPD Nurse, Heart Failure Nurse
US Pelvis	• Within the role in women health for referrals when a scan is required for reasons specific to IUCDs

Protocol 28
GP Nurse Practitioners including CXRs

For Patients aged 16 and over

Special points

Following trauma, if a fracture is the clinical question, patients should be sent directly to ED to avoid delay in management and where the appropriate immediate management can be made

Investigation	Criteria
Finger/thumb	- Infection - XR is the initial investigation but may be normal in early osteomyelitis - Bone Pain - XR gives a dedicated view of the symptomatic area. - Arthropathy - XR of the affected joint may be helpful to establish cause, although erosions are a relatively late feature.
Forearm Wrist Hand & Scaphoid	- Infection - XR is the initial investigation but may be normal in early osteomyelitis - Bone Pain - XR gives a dedicated view of the symptomatic area. - Arthropathy - XR of the affected joint may be helpful to establish cause, although erosions are a relatively late feature.
Elbow	- Infection - XR is the initial investigation but may be normal in early osteomyelitis - Bone Pain - XR gives a dedicated view of the symptomatic area. - Arthropathy - XR of the affected joint may be helpful to establish cause, although erosions are a relatively late feature.
Shoulder	- XR is used as a preoperative assessment. Impingement is clinically diagnosis. XR is indicated for persistent shoulder pain that is unresponsive to conservative treatment to exclude calcific tendinitis and diagnoses unrelated to the rotator cuff. - Infection - XR is the initial investigation but may be normal in early osteomyelitis - Bone Pain - XR gives a dedicated view of the symptomatic area. - Arthropathy - XR of the affected joint may be helpful to establish cause, although erosions are a relatively late feature. - Instability - Plain XRs may show characteristic bony lesions in the humeral head and glenoid.
Foot including toes	- Infection - XR is the initial investigation but may be normal in early osteomyelitis - Bone Pain - XR gives a dedicated view of the symptomatic area. - Arthropathy - XR of the affected joint may be helpful to establish cause, although erosions are a relatively late feature. - Hallux Valgus - XR is useful to guide surgery only - X-rays are **not** indicated for suspected toe fractures unless there is an open wound or deviation of the toe. The exception to this is the great toe.
Ankle	- Infection - XR is the initial investigation but may be normal in early osteomyelitis - Bone Pain - XR gives a dedicated view of the symptomatic area. - Arthropathy - XR of the affected joint may be helpful to establish cause, although erosions are a relatively late feature. - X-rays are **not** Indicated for calcaneal spurs
Knee	- Symptoms frequently arise from soft tissues, which will not show on XR. Osteoarthritic changes are common. XR is needed when considering surgery. Sudden onset or exacerbation of pain is a good indication for imaging, as is pain persisting for more than 6 weeks in young adults.

	- Infection - XR is the initial investigation but may be normal in early osteomyelitis - Bone Pain - XR gives a dedicated view of the symptomatic area. - Arthropathy - XR of the affected joint may be helpful to establish cause, although erosions are a relatively late feature. - Painful Prosthesis - XR is useful to detect established loosening
Tibia and Fibula	- Infection - XR is the initial investigation but may be normal in early osteomyelitis - - Bone Pain - XR gives a dedicated view of the symptomatic area.
Pelvis and Hip	- XR of the pelvis is indicated for persistent pain. It may demonstrate focal bony pathology, erosive joint changes, dysplasia and anatomical features associated with femoroacetabular impingement. XR is abnormal in established avascular necrosis but is frequently normal within first 6-9 months. - Painful Prosthesis - XR is useful to detect established loosening - Infection - XR is the initial investigation but may be normal in early osteomyelitis - Bone Pain - XR gives a dedicated view of the symptomatic area. - Please note this is a High Radiation Dose study
Foreign Bodies	Refer to ED: To exclude foreign bodies when there is a clear history of penetration by a foreign body made of metal, stone or glass. X-rays to exclude foreign bodies are restricted to the areas in the Emergency nurse practitioner protocol
Soft tissue masses	X-ray not indicated - US is useful as the first investigation to evaluate cystic and solid masses, and to distinguish them from pseudotumours. It is also useful to monitor benign masses (eg, haematomas) and to assess for local recurrence of soft tissue sarcomas. These examinations MUST be requested by a GP
Chest X-rays	Can ONLY be requested by Nurse Practitioners with extended scope of practice in Chest Pathology - i.e. COPD Nurse, Heart Failure Nurse, Asthma
US PELV/UPETV (Transabdominal and transvaginal ultrasound pelvis)	PMB on HRT - Following gynaecology pathway for post-menopausal bleeding only.
US Doppler Leg ULLCL ULLCR	?DVT a wells score +/- D-dimer must be provided Requests may only be initiated by a GP. Any request submitted following this request must have the following: Documented decision in medical notes. Documented in clinical history stating TOBO (transcribed on behalf of ……..)

Protocol 29

Advanced Nurse practitioner / Community Hospital

For Patients aged 16 and over

- Nurse practitioners must be able to provide evidence of IR(ME)R training every 3 years
- CT, MRI, Nuclear Medicine, Fluoroscopy, ultrasound and DEXA studies are excluded
- There should be a process in place to ensure that images requested are reviewed by a medical practitioner in a timely manner to avoid delay to patient management or radiology report read if available.

Imaging exam	Clinical problem /Criteria
Erect Chest X-ray PA (AP view if unable to do PA)	• Acute exacerbation of chronic obstructive airways disease • Pericarditis/pericardial effusion • Pneumonia • Pleural effusion • Haemoptysis • Acute exacerbation of asthma with either chest pain, clinical signs of pneumothorax, pyrexia or raised WCC • Chest pain • Breathlessness
Forearm / hand / wrist	• Mechanism of Injury, Focal bony tenderness and Loss of function
Elbow	• Mechanism of Injury, Focal bony tenderness and Loss of function • Infection - XR is the initial investigation but may be normal in early osteomyelitis • Bone Pain - XR gives a dedicated view of the symptomatic area.
Shoulder	• Mechanism of Injury, Focal bony tenderness and Loss of function • Infection - XR is the initial investigation but may be normal in early osteomyelitis • Bone Pain - XR gives a dedicated view of the symptomatic area.
Humerus	• Mechanism of Injury, Focal bony tenderness, loss of function • Follow up of # / prosthesis
Foot including toes	• Mechanism of Injury, Focal bony tenderness and Loss of function • Infection - XR is the initial investigation but may be normal in early osteomyelitis • Bone Pain - XR gives a dedicated view of the symptomatic area. • X-rays are **not** indicated for suspected toe fractures unless there is an open wound or deviation of the toe. The exception to this is the great toe.
Ankle	• Mechanism of Injury, Focal bony tenderness and Loss of function - Ottawa Ankle rules **must** be applied. • Infection - XR is the initial investigation but may be normal in early osteomyelitis • Bone Pain - XR gives a dedicated view of the symptomatic area. • X-rays are **not** Indicated for calcaneal spurs

Knee	• Sudden onset or exacerbation of pain is a good indication for imaging, • Mechanism of Injury, Focal bony tenderness and Loss of function - Ottawa knee rules **must** be applied. • Infection - XR is the initial investigation but may be normal in early osteomyelitis • Bone Pain - XR gives a dedicated view of the symptomatic area. • Painful Prosthesis - XR is useful to detect established loosening
Tibia and Fibula	• Mechanism of Injury, Focal bony tenderness and Loss of function • Infection - XR is the initial investigation but may be normal in early osteomyelitis • Bone Pain - XR gives a dedicated view of the symptomatic area.
Pelvis and Hip	• XR of the pelvis is indicated for persistent pain. • Painful Prosthesis - XR is useful to detect established loosening • Mechanism of Injury, Focal bony tenderness and Loss of function • Infection - XR is the initial investigation but may be normal in early osteomyelitis • Bone Pain - XR gives a dedicated view of the symptomatic area. • Please note this is a High Radiation Dose study

Protocol 30

Advanced Physiotherapy Practitioners – MSK referrals

For Patients aged 16 and over

As agreed in the Commissioning policy below:

Musculoskeletal Surgery and Therapeutic Interventions November 2018

This policy applies to patients for whom the following Clinical Commissioning Groups are responsible:

- NHS South Worcestershire Clinical Commissioning Group (CCG)
- NHS Redditch & Bromsgrove Clinical Commissioning Group (CCG)
- NHS Wyre Forest Clinical Commissioning Group (CCG)

Collectively referred to as the Worcestershire CCGs

Imaging Exam	Special points / Clinical problem /Criteria
PLAIN IMAGING	
Knee skyline views	In the absence of plain radiographs and if the outcome will change the management If there is suspicion of patellofemoral osteoarthritis
Foot including toes	In the absence of plain radiographs and if the outcome will change the management.
Ankle	In the absence of plain radiographs and if the outcome will change the management.
Wrist	In the absence of plain radiographs and if the outcome will change the management.
Hands	In the absence of plain radiographs and if the outcome will change the management.
Elbow	In the absence of plain radiographs and if the outcome will change the management.
Pelvis- AP / Hip - Lateral	In the absence of plain radiographs and if the outcome will change the management.
Shoulder	In the absence of plain radiographs and if the outcome will change the management

SPINE **(following National & CCG MSK guidelines)**	• National Low Back and Radicular Pain Pathway 2017 NHS England • NICE Guideline Low Back Pain and Sciatica Pathway 2016 (NG59) • NICE Clinical Knowledge Summaries Non Specific Neck pain (last revised in April 2015)
Cervical Spine - AP & Lateral Flexion & Extension Views	Only in cases of sudden onset acute pain to assess for the possibility of **acute vertebral collapse in the elderly patient.** The approximate date of onset of pain should be clearly documented on the referral with the clinical query: 'to assess vertebral collapse'. In the absence of plain radiographs and if the outcome will change the management. National recommendations advise that imaging is not necessary unless the outcome will change management and where there are new or changed signs and symptoms which could suggest alternative diagnoses and may be an indication of possible serious underlying pathology. This decision should be made in a secondary/specialist care setting. Requests may only be initiated by a Spinal Surgeon. Any request submitted must document in clinical history stating "Requested on behalf of ……."
Thoracic Spine - AP & Lateral	Only in cases of sudden onset acute pain to assess for the possibility of **acute vertebral collapse in the elderly patient.** The approximate date of onset of pain should be clearly documented on the referral with the clinical query: 'to assess vertebral collapse'. In the absence of plain radiographs and if the outcome will change the management National recommendations advise that imaging is not necessary unless the outcome will change management and where there are new or changed signs and symptoms which could suggest alternative diagnoses and may be an indication of possible serious underlying pathology. This decision should be made in a secondary/specialist care setting
Lumbar spine - AP and lateral Flexion & Extension Views	Only in cases of sudden onset acute pain to assess for the possibility of **acute vertebral collapse in the elderly patient.** The approximate date of onset of pain should be clearly documented on the referral with the clinical query: 'to assess vertebral collapse'. In the absence of plain radiographs and if the outcome will change the management. National recommendations advise that imaging is not necessary unless the outcome will change management and where there are new or changed signs and symptoms which could suggest alternative diagnoses and may be an indication of possible serious underlying pathology. This decision should be made in a secondary/specialist care setting Requests may only be initiated by a Spinal Surgeon. Any request submitted must document in clinical history stating "Requested on behalf of ……."
CT	
CT spine	In the absence of plain radiographs and if the outcome will change the management.
MRI	
MRI knee	Should only be requested if the outcome will change the management; requests will be reviewed by radiology and the appropriate investigation (for the clinical question) will be undertaken

	MRI is rarely indicated for the degenerative knee. Knee MRI may be indicated in selected patients with refractory symptoms or in the presence of 'warning flags' or localised symptoms indicating a rarer disease that needs to be ruled out. These circumstances would be determined by specialist clinicians
MRI shoulder	Should only be requested if the outcome will change the management; requests will be reviewed by radiology and the appropriate investigation (for the clinical question) will be undertaken
MRI Hip	If the outcome will change the management.
MRI spine	Should only be requested if the outcome will change the management; requests will be reviewed by radiology and the appropriate investigation (for the clinical question) will be undertaken
ULTRASOUND	
US shoulder	Should only be requested if the outcome will change the management; requests will be reviewed by radiology and the appropriate investigation (for the clinical question) will be undertaken
US Hip	Should only be requested if the outcome will change the management; requests will be reviewed by radiology and the appropriate investigation (for the clinical question) will be undertaken

Protocol 31

X –ray protocol for Colorectal Clinical Nurse Specialists

For Patients > 18yrs and referred via the Colorectal 2 week wait nurse led triage pathway

Special points:
Associated SOP - SOP for Requesting Radiology Investigations by Colorectal Clinical Nurse Specialists for the Colorectal 2 Week Wait Nurse Led Triage Pathway.

Imaging Exam	Criteria
CVCOY	For patients up to the age of 90 who are unfit for colonoscopy, but are assessed by the CNS as suitable for radiology. For patients with significant unintentional weight loss as indicated on the triage algorithm.
CT Abdomen/Pelvis	For patients who are unfit for CVCOY or colonoscopy & Patients over 90 Patients with a history of significant unintentional weight loss on the triage algorithm
CT Thorax / Abdomen / Pelvis	Cancer follow up as per protocol for patients in remote or clinician-led follow up.

Protocol 32

Hepatology Clinical Nurse Specialist / Out of Hours Practitioner Protocol

For adult patients aged 16 years or above

Following appropriate clinical examination and assessment the following investigations may be requested

Imaging exam	Clinical problem/Criteria
Erect Chest X-ray PA (AP view if unable to do PA)	Acute exacerbation of chronic obstructive airways disease Pulmonary embolism Pericarditis/pericardial effusion Pneumonia Pleural effusion Haemoptysis Acute exacerbation of asthma with either chest pain, clinical signs of pneumothorax, pyrexia or raised WCC Life threatening asthma- PEF < 33% predicted or best, or SpO2 < 92% or PaO2 <8 Kpa. Pneumothorax Central chest pain? myocardial infarction. Chest pain ?aortic dissection. Post insertion of central venous access devices (CVAD) to confirm position. Post insertion of peripherally inserted central catheters (PICC) to confirm position. Post insertion of a chest drain to confirm accurate tube placement. Acute onset of shortness of breath? Left ventricular failure or worsening heart failure. Post removal of a chest drain – provided competences associated with chest drain removal have been completed. Post cardiac arrest and successful resuscitation to:- - Confirm correct siting of tracheal tube, gastric tube, central venous line. - To exclude left ventricular failure - To exclude pulmonary aspiration - To exclude pneumothorax - To establish size and shape of heart Post insertion of a fine bore nasogastric feeding tube with guide wire or jejunostomy tube to confirm placement

	See Trust policy NURSING GUIDELINE FOR NASO-GASTRIC FEEDING TUBE INSERTION AND CARE
Erect Chest x-ray, (AP view if unable to do PA) Supine abdominal x-ray	Acute abdominal pain? Perforation or obstruction.

Imaging exam	Clinical problem/Criteria
Abdominal x-ray	Acute exacerbation of inflammatory bowel disease of colon.
Forearm/wrist/hand/scaphoid	Mechanism of Injury, Focal bony tenderness and Loss of function.
Elbow	Mechanism of Injury, Focal bony tenderness and loss of function
Humerus	Mechanism of Injury, Focal bony tenderness, loss of function
Shoulder	Mechanism of Injury with restriction of shoulder movements/loss of function on movement
Clavicle	Mechanism of injury, Focal bony tenderness, Obvious deformity.
X-ray pelvis with lateral x-ray hip	Fall with inability to weight bear – patients over 65
Ankle	Mechanism of Injury– refer to the Ottawa ankle rules and document on request
Knee	Mechanism of Injury– refer to the Ottawa knee rules and document on request
Foot including toes	Mechanism of Injury, Focal bony tenderness, loss of function
Tibia/Fibula	Mechanism of Injury, Bony tenderness, non-weight bearing, bony deformity
CT/MRI	Requests may only be initiated by a Consultant. Any request submitted following this request must have the following: Documented decision in medical notes. Documented in clinical history stating "Requested on behalf of ……."
US liver	According to CNS protocol
DEXA scan	Monitoring of patients with PBC. (In accordance with National Osteoporosis Guidelines Group (NOGG))

Protocol 33

Clinical Nurse Specialist - Inflammatory bowel Disease

For Patients aged 16 and over

Special points: Clinical Nurse Specialist – inflammatory bowel disease
MRI & CT referrals to be discussed with the Consultant prior to referral and documented that this has been done on the referral in the clinical history.
ie; *d/w Dr Mr xxxx*

Imaging Exam	Clinical problem /Criteria
Abdomen x-ray	video capsule patency
Small bowel MRI	According to Imaging pathway – confirmed IBD
CT abdomen / Pelvis CT Enterography (small bowel)	According to Imaging pathway
Chest x-ray	To rule out active infection prior to certain biologic drugs

Protocol 34

ENDOMETRIOSIS AND CHRONIC PELVIC PAIN CNS

Following appropriate clinical examination and assessment the following investigations may be requested

Imaging Exam	Clinical problem /criteria
US PELV/UPETV (Transabdominal and transvaginal ultrasound pelvis)	Endometriosis and chronic pelvic pain.
US PELV/UPETV (Transabdominal and transvaginal ultrasound pelvis)	• Fertility investigation • Primary or secondary infertility. • ? PCO • ? follicle tracking • Follow up of pathology seen on scan in fertility clinic e.g. ovarian cyst/ endometrial thickness. • ? polyps/fibroids
UDAVY (Transabdominal and transvaginal ultrasound pelvis)	• Viability • Recurrent miscarriage • Poor obs history • Previous missed miscarriage • Bleeding • Pain • PUL • Ectopic • ? Dating/top • PMH of ectopic/molar • Hyperemesis • ? RPOC
US PELV/UPETV (Transabdominal and transvaginal ultrasound pelvis)	PMB

Protocol 35

BARIATRIC CLINICAL NURSE SPECIALIST

For Patients aged 16 and over
Special points

Nurse practitioners must be able to provide evidence of IR(ME)R training

CT, MRI, Nuclear Medicine, Ultrasound and DEXA studies are excluded

The request must be only be made after a sensible discussion either with a Consultant who is in overall charge of the case or at a multidisciplinary bariatric team meeting.

Imaging Exam	Clinical problem /Criteria
Barium swallow	To assess the aperture of the Gastric band. To rule out gastric band slippage, oesophageal dysmotility and oesophageal dilatation
Water soluble contrast swallow	To assess post-operative dysphagic patient Rule out leaking gastric band
Abdominal x-ray	To assess position of the gastric band to rule out gastric band slippage
Fluoroscopic gastric band adjustment	To use x-ray guidance to adjust the gastric band to provide the patient with adequate restriction.

Protocol 36

NURSE ENDOSCOPISTS

For Patients aged 16 and over

Special points:

- Nurse Endoscopists must be able to provide evidence of relevant and up to date IR(ME)R training. Their names should appear on the master IR(ME)R list on the intranet with a named protocol allocated to them .
- All referrals will be requested on behalf of a consultant who is responsible for the patient

Imaging Exam	Clinical problem /Criteria
CTAP	Following endoscopic procedure where suspicion of cancer is identified and pathology obtained for confirmation
Barium swallow/barium meal	Incomplete gastroscopy or as an alternative procedure to endoscopic investigation Where a comprehensive healthcare assessment has been obtained and a gastroscopy is not deemed the investigation of choice due to frailty of patient If patient referred to endoscopy from GP with epigastric mass and no pathology identified at the time of investigation
Erect chest x-ray	following endoscopic investigation where perforation is suspected or suspicion of aspiration has occurred
CT thorax/abdo/pelvis	Staging of suspected cancer identified at endoscopy
CT colonoscopy	Following incomplete lower GI investigation or as an alternative to colonoscopy depending on patient wellness
MRI Rectum	Staging of rectal / anal cancer identified at endoscopy

Protocol 37

WAHT ADVANCED PHYSIOTHERAPY PRACTITIONERS

Imaging Exam	Criteria
C spine	**Clinical indication**
C spine (inclusive of odontoid peg) AP and Lateral C spine Flexion & Extension Views	History of trauma within previous 1 month OA or RA Known/suspected spondylolisthesis/spondylosis. No previous x-ray in the previous 6/12 Rheumatoid arthritis (no x-ray in the last 3 years or worsening symptoms) Requests may only be initiated by a Spinal Surgeon. Any request submitted must document in clinical history stating "Requested on behalf of ……."
Lumbar spine	
AP & lateral Weight bearing AP & lateral Flexion & Extension Views	Spinal pain failed to respond to conservative treatment and suspect pathology other than OA (no film in the last 3 years or worsening symptoms) Bony evaluation of the lumbar spine if reported lumbarisation or sacralisation on MRI Adolescent spinal pain, not responding to conservative treatment > 60 years old with sudden onset spinal pain, not resolving bone pain with history cancer (Suspected origin for lower limb pain i.e. pain referred to hip /knee post-surgery To identify and/or evaluate the presence of spondylolisthesis i.e. pre-surgical assessment spinal alignment to inform surgical technique. Requests may only be initiated by a Spinal Surgeon. Any request submitted must document in clinical history stating "Requested on behalf of ……."
Thoracic Spine	
AP & lateral Weight bearing AP & lateral	> 60 yrs with sudden onset spinal pain Bone pain with a history of cancer To identify and/or evaluate presence of spondylolisthesis i.e. pre-surgical assessment spinal alignment to inform surgical technique Evaluate scoliosis.
Pelvis & Hip	
AP Only	Suspected OA hip

AP and Lat	Pain, swelling and/or deformity post-surgery History of injury with no previous x-ray Sacroiliitis/ suspect inflammatory arthroplasty
Femur	
AP & lat	Suspected periprosthetic #
Tibia	Suspected periprosthetic #
Knee	
AP & Lateral	Suspect OA / Post surgery / Pain, swelling and/or deformity Evaluate extent of OA (WB >50yrs old) / History of injury with no previous x-ray /Suspected bony injury/fracture/osteochondral lesion Osteochondritis dessicans
AP & lateral Weight bearing	OA
Skyline view patellofemoral joint	Patella Mal-tracking
Tunnel view	Loose body
Rosenburg view (PA 30 degrees)	Lateral compartment OA but not showing on WB AP
Long leg alignment	Femoral / Tibial planning for osteotomy
Ankle & Foot including toes	
AP & Lateral standing Non weight-bearing	Suspected bone and/or joint pathology OA
Shoulder	
AP & Lateral	Calcific tendonitis / Pre-injection if >3/12 since last x-ray Pain, swelling and/or deformity / OA / post-surgery trauma/instability
Apical oblique Axillary	Impingement
Sternoclavicular joint (SCJ)	OA suspected SCJ / exclude other bony pathology
Clavicle	Post op # follow up including conservative management Pre and post-op surgery
Humerus **AP and Lateral**	Suspected bone and/or joint pathology
Elbow	Suspected bone and/or joint pathology

Wrist/scaphoid	Pain, swelling and/or deformity Post-surgery History of injury with no previous x-ray Anatomical Snuff Box (ASB) tenderness, pain over scaphoid or as part of traumatic injury secondary to FOOSH (fall onto outstretched hand).
MRI	Clinical indication
MRI spine	Spinal red flags Suspected MSCC MSCC Referral Guideline WAHT-NEU-013 Suspected CES stable over >14 days duration (National Suspected Cauda Equina Pathway October 2023 version 3 (gettingitrightfirsttime.co.uk) Myelopathy Painful fracture >8 weeks duration Single or multiple level nerve root compression with either reduced or absent reflex, myotome, or dermatome not improving; duration longer than natural history recovery, not responding to conservative treatment, positive neural dynamics (SLR, FNS, ULTT). Persistent spinal pain following a history of trauma (with x-ray normal) Suspected spinal stenosis with disabling symptoms affecting function i.e. claudicant leg pain, with or without single or multiple level nerve root compression with either reduced or absent reflex, myotome, or dermatome. Persistent undiagnosed spinal pain +/- referred pain. Is scan 'normal for age'? Update images for surgical opinion because previous scan performed over 6 months ago. AS protocol and inflammatory protocol Spine when suspecting spondyloarthropathy (NICE guidance recognition and referral of spondyloarthropathy)
Hip	Avascular necrosis of the femoral head PMH cancer Psoas abscess Chondral lesion
Arthrogram Hip	Suspected Labral tear
Knee	Knee instability Meniscal Injury Pathological Plica Chondral lesion
Foot & ankle	Complicated fractures i.e. osteochondral fractures, or fractures within a joint e.g. the talar dome.

	Stress fractures - at risk patient, suspected non-union, patients with long term stress fractures Suspected osteomyelitis, preferably to make diagnosis by plain film. Posterior impingement syndrome - if diagnosis not certain after x-ray, or if surgery is being considered, MRI may be useful. Ligamentous injury i.e. Grade 3/instability joint(s)
Shoulder	Avascular necrosis of the humeral head Persistent pain +/- injury with x-ray 'normal' Chronic rotator cuff tears with no migration of humeral head on x-ray - inform surgical decision by evaluating the muscle bulk of the rotator cuff muscles and the extent of any fatty infiltration.
Arthrogram Shoulder	SLAP lesion/Labral tear
Elbow	Biceps tear / tendinopathy
Forearm	Lumps, lipomas, swellings to evaluate underlying cause/ exclude malignancy NOTE: MRI examinations can only be requested following an Ultrasound examination whereby further assessment is required and vetted by an MSK Radiologist.
Upper arm	Lumps, lipomas, swellings to evaluate underlying cause/ exclude malignancy NOTE: MRI examinations can only be requested following an Ultrasound examination whereby further assessment is required and vetted by an MSK Radiologist.
Ultrasound	Clinical indication
Shoulder	Clinical history of recent trauma and clinical evidence of rotator cuff rupture Acute on chronic rotator cuff pathology Shoulder impingement pain that HAS NOT IMPROVED with conservative treatment, and NO evidence of subacromial sclerosis on x-ray Suspect biceps tendinopathy X-ray evidence of sub-acromial sclerosis and suspected cuff tear clinically.
Forearm	Lumps, lipomas, swellings to evaluate underlying cause/ exclude malignancy.
Upper arm	Lumps, lipomas, swellings to evaluate underlying cause/ exclude malignancy.
CT	

Spine	**Only** when contraindicated for MRI & following discussion with a consultant radiologist. It must be documented that this discussion has taken place: with whom, date & time.
Shoulder **ROBO ONLY Mr Knox / Mr Malik**	Pre-op work-up for Total shoulder replacement Pre-op work-up for stabilisation following in shoulder instability patients Pre-op work-up for acute or chronic proximal humeral fractures To assess glenoid retroversion in instability Conservative and pre op work for acute or chronic proximal humeral #
Knee **ROBO Mr Craig (a)** **ROBO Mr Aslam/Mr Pearse (b)**	(a) Pre-op work-up for revision total knee replacement (b) ACL tunnel views pre-op work-up revision ACL surgery
Lower limb **ROBO Mr Craig**	Pre-op work-up revision knee/hip to evaluate and consider position of cement mantle from previous arthroplasty and/or metal work from ORIF within adjacent proximal/distal joints
Hip **ROBO Mr Craig**	Pre-op work-up for revision total hip replacement

Protocol 38

Advanced MSK practitioner sonographer – Rheumatology

Following discussion with Consultant rheumatologist

Imaging Exam	Clinical problem /Criteria
US shoulder steroid joint injection	To relieve pain/aspirate fluid
US elbow steroid joint injection	To relieve pain/aspirate fluid
US wrist steroid joint injection	To relieve pain/aspirate fluid
US hand steroid joint injection	To relieve pain/aspirate fluid
US hip steroid joint injection	To relieve pain/aspirate fluid
US knee steroid joint injection	To relieve pain/aspirate fluid
US ankle steroid joint injection	To relieve pain/aspirate fluid
US foot steroid joint injection	To relieve pain/aspirate fluid
US shoulder	Rotator cuff pathology, bursitis, soft tissue cause?
US upper arm	Muscle tear or soft tissue cause?
US wrist	Synovitis, tenosynovitis, tendon tear, soft tissue cause?
US hip	Tendinopathy, effusion, muscle tear?
US thigh	Soft tissue cause, muscle tear?
US knee	Tendinopathy, effusion, tendon tear, Baker's cyst?
US lower leg	Soft tissue cause/muscle tear?
US Achilles tendon	Tendinopathy, tendon tear, bursitis?
US ankle	Tendinopathy, tenosynovitis, effusion, ligament damage
US foot	Synovitis, tenosynovitis, Morton neuroma/intermetatarsal bursitis?
US soft tissue	Lipoma, ganglion cyst, epidermoid including cysts, others
US Hand	Synovitis, tenosynovitis, tendon tear, soft tissue cause?

Protocol 39

First Contact Practitioners – MSK referrals

For Patients aged 16 and over

As agreed in the Commissioning policy below:

Musculoskeletal Surgery and Therapeutic Interventions November 2018

This policy applies to patients for whom the following Clinical Commissioning Groups are responsible:

- NHS South Worcestershire Clinical Commissioning Group (CCG)
- NHS Redditch & Bromsgrove Clinical Commissioning Group (CCG)
- NHS Wyre Forest Clinical Commissioning Group (CCG)

Collectively referred to as the Worcestershire CCGs

Imaging exam	Special points / Clinical problem /Criteria
PLAIN IMAGING	
Knee skyline views	In the absence of plain radiographs and if the outcome will change the management If there is suspicion of patellofemoral osteoarthritis
Foot including toes	In the absence of plain radiographs and if the outcome will change the management.
Ankle	In the absence of plain radiographs and if the outcome will change the management.
Wrist	In the absence of plain radiographs and if the outcome will change the management.
Hands	In the absence of plain radiographs and if the outcome will change the management.
Elbow	In the absence of plain radiographs and if the outcome will change the management.
Pelvis- AP / Hip - Lateral	In the absence of plain radiographs and if the outcome will change the management.
SPINE (following National & CCG MSK guidelines)	• National Low Back and Radicular Pain Pathway 2017 NHS England • NICE Guideline Low Back Pain and Sciatica Pathway 2016 (NG59) • **NICE Clinical Knowledge Summaries Non Specific Neck pain (last revised in April 2015)**

Cervical Spine - AP & Lateral	Only in cases of sudden onset acute pain to assess for the possibility of **acute vertebral collapse in the elderly patient.** This approximate date of onset of pain should be clearly documented on the referral with the clinical query ' to assess vertebral collapse'. In the absence of plain radiographs and if the outcome will change the management. National recommendations advise that imaging is not necessary unless the outcome will change management and where there are new or changed signs and symptoms which could suggest alternative diagnoses and may be an indication of possible serious underlying pathology. This decision should be made in a secondary/specialist care setting.
Thoracic Spine - AP & Lateral	Only in cases of sudden onset acute pain to assess for the possibility of **acute vertebral collapse in the elderly patient.** This approximate date of onset of pain should be clearly documented on the referral with the clinical query ' to assess vertebral collapse'. In the absence of plain radiographs and if the outcome will change the management National recommendations advise that imaging is not necessary unless the outcome will change management and where there are new or changed signs and symptoms which could suggest alternative diagnoses and may be an indication of possible serious underlying pathology. This decision should be made in a secondary/specialist care setting
Lumbar spine - AP and lateral	Only in cases of sudden onset acute pain to assess for the possibility of **acute vertebral collapse in the elderly patient.** This approximate date of onset of pain should be clearly documented on the referral with the clinical query ' to assess vertebral collapse'. In the absence of plain radiographs and if the outcome will change the management. National recommendations advise that imaging is not necessary unless the outcome will change management and where there are new or changed signs and symptoms which could suggest alternative diagnoses and may be an indication of possible serious underlying pathology. This decision should be made in a secondary/specialist care setting
Shoulder	In the absence of plain radiographs and if the outcome will change the management.

Protocol 40

Geriatric Emergency Medicine Service (GEMS)

Inpatient referrals by ACPs within the GEMS team

The GEMS team will have a consultant/senior registrar as a team member working with the ACPs, who will be able review the images in real-time. The referrals will be made on behalf of the GEMS consultant of the day.

Imaging exam	Clinical problem /Criteria
Finger/thumb	Mechanism of Injury, Focal bony tenderness and Loss of function
Forearm/wrist/hand/scaphoid	Mechanism of Injury, Focal bony tenderness and Loss of function.
Elbow	Mechanism if Injury, Focal bony tenderness and loss of function
Humerus	Mechanism of Injury, Focal bony tenderness, loss of function
Shoulder	Mechanism of Injury with restriction of shoulder movements/loss of function on movement
Clavicle	Mechanism of injury, Focal bony tenderness, Obvious deformity.
Ankle	Mechanism of Injury– Focal bony tenderness, loss of function refer to the Ottawa ankle rules
Knee	Mechanism of Injury– Focal bony tenderness, loss of function refer to the Ottawa knee rules. swelling, redness, pain ? septic arthritis
Foot including toes	Mechanism of Injury, Focal bony tenderness, loss of function
Calcaneum	History of trauma, bony tenderness and loss of function
Tibia & fibula	Mechanism of injury, bony tenderness, non-weight bearing, bony deformity
Femur	Patients aged 65 or above with mechanism of injury e.g. fall with non-weight bearing and loss of function. (Excl. NOF)
Chest	CCF/LRTI; Patients presenting with shortness of breath/cough/evidence of underlying respiratory infection or heart failure on examination.
CT head	CT head will only be accepted if the patient has been reviewed by a consultant. The Consultant's name must be clearly stated in the clinical history. E.g. reviewed by Dr…….. (without this information requests will be declined)

Protocol 41

Neonatal Ultrasound scan of hips by midwives

All Midwives assigned to this protocol must have received specialist training to perform Newborn and infant physical examination (NIPE)

Imaging Exam	Criteria
UHIPB US both hips	
UODNU	• For dating scan during First Trimester booking scan • Attendance to include Nuchal translucency screening test offered to all patients on first attendance
UODAT	• patients attending for dating outside of screening timescale
UDAVY	• patients attending that have no FH detected on sonocaid
UODA	• For Mid-Trimester scan offered to all women between 18-20+6 weeks of Pregnancy
UOFG	• For Growth scans as required through Pregnancy under SGA protocol, Saving Babies Lives directive. • For concerns in relation to reduced growth • If first plot at 24-26 weeks on SFH is below 10th centile • If SFH measurements cross centiles • IF SFH is above 90th centile and becomes steeper than curve • Fetal Renal Reviews where fetal hydronephrosis has been diagnosed
UODOP	• For presentation with reduced liquor <2cm SDP. • For reduced fetal movements • For changes in growth pattern that cross a centile or significantly reduce within a centile • If AC measurement has dropped below previous centiles • For fetuses under 10th/3rd centile
UOCLT	• 18/40 and 22/40 scans as required for cervical competency scanning for Pre-term loss clinic
U03T	• For Presentation of Fetus if ? Breech at 36/40
UAUTB	• For patients under SGA protocol
UOLR	• For presentation with reduced liquor • For presentation with Polyhydramnios >8cm SDP (no increased code available)
UPLAC	• For Placental assessment from 32/40 if previously low lying at 20/40. • After 32/40 scan if still low and maternal history requires a further scan.
UAUTB	• Uterine artery Doppler following SGA Guidance
UMULT	• To be booked following consultant Care plan or as part of regular serial scanning as per department protocol
UMPDO	• To be booked following Consultant Care Plan

Protocol 42

Protocol for Band 6 Vascular Nurse Specialists

For adult patients aged 16 or over

Imaging Exam	Clinical problem/ Criteria
Venous Ultrasound: US Doppler upper limb veins Lt, US Doppler upper limb veins Rt US Doppler vein map upper limb Lt, US Doppler vein map upper limb Rt US Doppler lower limb veins Lt, US Doppler lower limb veins Rt US Doppler superior mesenteric vein US Doppler marking long saphenous vein Lt, US Doppler marking long saphenous vein Rt US Doppler Popliteal fossa Lt, US Doppler Popliteal fossa Rt	Patients presenting with possible venous disease Patients undergoing surgery where vein is required to bypass
Arterial Ultrasound: US Doppler carotid artery both, US Doppler carotid artery Lt, US Doppler carotid artery Rt US Doppler vertebral artery Lt, US Doppler vertebral artery Rt US Doppler superior mesenteric artery US Doppler upper limb arteries Lt, US Doppler upper limb arteries Rt US Doppler for dialysis access US Abdominal aorta, US abdomen US Doppler liver & portal system US Doppler renal both, US Doppler renal Lt, US Doppler renal Rt US Doppler aortoiliac US Doppler iliac & femoral artery Lt, US Doppler iliac & femoral artery Rt US Doppler temporal artery both US Doppler lower limb arteries Lt, US Doppler lower limb arteries Rt US Ankle & brachial pressure index US Doppler femoropopliteal artery Lt, US Doppler femoropopliteal artery Rt US Arterial, US Doppler US Graft surveillance	Patients presenting with arterial disease Patients presenting with aneurysms Patients presenting with TIA symptoms Post-op surveillance of bypass grafts and EVAR stents Surveillance of aneurysms Assessment of endoleaks

Protocol No. 43

ITU NMR protocol

Imaging Exam	Clinical problem/ Criteria
CXR	To assess cause of any reduction in saturations, lung, cardiac pathology or perforation. For adequacy of line and tube position including tracheostomies and drains placed and where complications are being suspected. As required for foreign body assessment prior to MRI in sedated patient if required.
AXR	As required for foreign body assessment prior to MRI in sedated patient if required. Bowel pathology or any cause of abdominal pain (not required if the patient is already having a CT examination).
US abdomen	For any cause of abdominal pain, deranged LFT's, trauma, assessment for collections, aortic, masses or bladder assessment in the case of possible urinary tract obstruction or poor urine output. May still be required even if CT planned if assessing for biliary or liver pathology.
US kidney and bladder	For patients with deteriorating renal function where urinary tract obstruction is being suspected. Suspected renal mass or perinephric collection.
CT Head CTPA CCHAPC CABPEC CCHESC CHRC CTV	Requests may only be initiated by a Consultant. Any request submitted following this request must have the following: Documented decision in medical notes. Documented in clinical history stating "Requested on behalf of ……..."
MRI Head MRI C Spine MRI L Spine	Requests may only be initiated by a Consultant. Any request submitted following this request must have the following: Documented decision in medical notes. Documented in clinical history stating "Requested on behalf of ……..."

Protocol 44

Early Intervention Dementia Service

Imaging Exam	Clinical problem/ Criteria
CT Head In investigation of dementia (referred from dementia team) as a work-up for diagnosis.	To exclude a structural cause (e.g. infarct, tumour or normal pressure hydrocephalus) as a possible cause for the symptoms. To assess for any reversible causes e.g. intracranial haemorrhage (e.g. chronic subdural haemorrhage) or bleeds after known or suspected head injury. To assess for any specific focal lobar atrophy or pattern of atrophy which may correlate with a specific dementia type e.g. Alzheimer's, vascular or fronto-temporal dementia. As part of a confusion screen in those where a cause for confusion is not obvious from other testing. If a recent CT head has been done (within the last 3 months), if there is no new history, the previous imaging can be reviewed by a consultant radiologist on request in order to avoid repeat imaging but in the case of any new clinical features, a repeat CT head would be indicated.
MRI Head	CT requests are preferably for those older patients. MRI brain may be indicated instead in those that are up to 65 years or over, if there is a suspicion of: • Younger onset of dementia • A neurological disorder • A rare dementia variant MRI requests may only be initiated by a Consultant and discussion clearly documented in the medical notes with the request clearly stating, in the request text, which Consultant made the decision. "Following discussion with……"

Protocol 45

Acute Kidney Injury Clinical Nurse Specialists

Imaging Exam	Clinical problem/ Criteria
Ultrasound KUB	AKI unclear cause Suspected Hydronephrosis/ Obstruction Haematuria

Protocol 46

Advanced Practitioners (Nurse / Paramedic)

Special points
• Advanced practitioners must be able to provide evidence of IR(ME)R training

• CT, MRI, Nuclear Medicine, Fluoroscopy, ultrasound (other than included in this protocol) and DEXA studies are excluded

• The request must be provided in the name of one of the Practice GPs in the same way that a Junior Doctor will request. The report will go back to the surgery to the named GP

• Advanced practitioners must have completed MSc in advanced practice (or completed advanced assessment module working towards MSc in advanced practice) in order to request under this protocol.

Imaging Exam	Clinical problem/ Criteria
PLAIN FILM	
Finger / Thumb	• Mechanism of Injury, Focal bony tenderness and Loss of function • Infection - XR is the initial investigation but may be normal in early osteomyelitis • Bone Pain - XR gives a dedicated view of the symptomatic area. • Arthropathy - XR of the affected joint may be helpful to establish cause, although erosions are a relatively late feature.
Forearm Wrist Hand & Scaphoid	• Mechanism of Injury, Focal bony tenderness and Loss of function • Infection - XR is the initial investigation but may be normal in early osteomyelitis • Bone Pain - XR gives a dedicated view of the symptomatic area. • Arthropathy - XR of the affected joint may be helpful to establish cause, although erosions are a relatively late feature.
Elbow	• Mechanism of Injury, Focal bony tenderness and Loss of function • Infection - XR is the initial investigation but may be normal in early osteomyelitis • Bone Pain - XR gives a dedicated view of the symptomatic area. • Arthropathy - XR of the affected joint may be helpful to establish cause, although erosions are a relatively late feature.
Shoulder	

	• XR is used as a preoperative assessment. Impingement is clinically diagnosis. XR is indicated for persistent shoulder pain that is unresponsive to conservative treatment to exclude calcific tendinitis and diagnoses unrelated to the rotator cuff. • Mechanism of Injury, Focal bony tenderness and Loss of function • Infection - XR is the initial investigation but may be normal in early osteomyelitis • Bone Pain - XR gives a dedicated view of the symptomatic area. • Arthropathy - XR of the affected joint may be helpful to establish cause, although erosions are a relatively late feature. • Instability - Plain XRs may show characteristic bony lesions in the humeral head and glenoid.
Foot including toes	• Mechanism of Injury, Focal bony tenderness and Loss of function • Infection - XR is the initial investigation but may be normal in early osteomyelitis • Bone Pain - XR gives a dedicated view of the symptomatic area. • Arthropathy - XR of the affected joint may be helpful to establish cause, although erosions are a relatively late feature. • Hallux Valgus - XR is useful to guide surgery only • X-rays are **not** indicated for suspected toe fractures unless there is an open wound or deviation of the toe. The exception to this is the great toe.
Ankle	• Mechanism of Injury, Focal bony tenderness and Loss of function - Ottawa Ankle rules **must** be applied. • Infection - XR is the initial investigation but may be normal in early osteomyelitis • Bone Pain - XR gives a dedicated view of the symptomatic area. • Arthropathy - XR of the affected joint may be helpful to establish cause, although erosions are a relatively late feature. • X-rays are **not** Indicated for calcaneal spurs
Knee	• Symptoms frequently arise from soft tissues, which will not show on XR. Osteoarthritic changes are common. XR is needed when considering surgery. Sudden onset or exacerbation of pain is a good indication for imaging, as is pain persisting for more than 6 weeks in young adults. • Mechanism of Injury, Focal bony tenderness and Loss of function - Ottawa knee rules **must** be applied. • Infection - XR is the initial investigation but may be normal in early osteomyelitis • Bone Pain - XR gives a dedicated view of the symptomatic area. • Arthropathy - XR of the affected joint may be helpful to establish cause, although erosions are a relatively late feature. • Painful Prosthesis - XR is useful to detect established loosening
Tibia and Fibula	• Mechanism of Injury, Focal bony tenderness and Loss of function

	• Infection - XR is the initial investigation but may be normal in early osteomyelitis • Bone Pain - XR gives a dedicated view of the symptomatic area.
Pelvis and Hip	• XR of the pelvis is indicated for persistent pain. It may demonstrate focal bony pathology, erosive joint changes, dysplasia and anatomical features associated with femoroacetabular impingement. XR is abnormal in established avascular necrosis but is frequently normal within first 6-9 months. • Painful Prosthesis - XR is useful to detect established loosening • Mechanism of Injury, Focal bony tenderness and Loss of function • Infection - XR is the initial investigation but may be normal in early osteomyelitis • Bone Pain - XR gives a dedicated view of the symptomatic area. • Please note this is a High Radiation Dose study
Foreign Bodies	• To exclude foreign bodies when there is a clear history of penetration by a foreign body made of metal, stone or glass. X-rays to exclude foreign bodies are restricted to the areas above in the ACP protocol
Chest	When required to aid diagnosis of: Asthma if diagnosis is unclear or not responding to usual therapy Pneumonia with CRB-65 score 2 or less (If CRB-65 3 for urgent hospital assessment) Pleural effusion Haemoptysis Chronic dyspnoea Age 40 or over with two or more of the following symptoms (or one symptom if they have ever smoked or been exposed to asbestos): Cough Fatigue Shortness of breath Chest pain Weight loss Appetite loss Age 40 and over with any of the following symptoms: Thrombocytosis Persistent or recurrent chest infection Finger clubbing Supraclavicular or persistent cervical lymphadenopathy Chest signs consistent with lung cancer
ULTRASOUND	
Pelvis (Female only)	Pelvic pain Pelvic mass

	Intermenstrual or postcoital bleeding Urinary symptoms Lost coil History of swollen lower limbs Women aged 55 or over with: unexplained symptoms of vaginal discharge who: are presenting with these symptoms for the first time **or** have thrombocytosis **or** report haematuria **or** visible haematuria **and**: low haemoglobin levels **or** thrombocytosis **or** high blood glucose levels. Women aged 18 and over with a Serum CA125 35 IU/ml or greater
Abdomen	Upper abdominal mass consistent with enlarged gall bladder Upper abdominal mass consistent with enlarged liver Right upper quadrant pain suspicious of liver abscess or subphrenic collection Jaundice Persistently abnormal LFTs Ascites
Renal	Chronic loin pain after exclusion of MSK causes Deteriorating renal function to exclude obstruction CKD with ACR >30mg/mmol or eGFR <30 (once only, not required in case of changing renal function unless symptoms of obstruction) Unexplained renal failure with blood and protein in urine
Testicle	Testicular pain Testicular asymmetry Testicular mass Suspected hydrocele Unexplained or persistent testicular symptoms
Thyroid	Unsure if neck lump is thyroid in origin (all other persistent unexplained neck lumps to be referred under head and neck 2ww pathway) Rapid growth of known thyroid nodule or goitre
Lower Limb	Suspected DVT Wells score ≥2 **or** Positive D-Dimer (Point of care or venous sample)
Soft tissue	Unexplained soft tissue lump increasing in size

Protocol 47

Emergency Department Nurse X-ray Band 6/7 Protocol

For adults and children age 5 or above

Registered band 6/7 nurses in A&E, who have successfully completed the Trust training programme and competency, may request x-rays on patients attending A&E with traumatic injuries when there is clinically a very high suspicion of a fracture i.e. deformity, swelling, severe pain, bony tenderness or loss of function.

Special Points

- Nurses will only request X-rays on children when there is parental consent.
- Patients who require parenteral analgesia will be referred for medical advice
- All images must be reviewed by a medical practitioner in A&E before the patient leaves unless there is a radiology report immediately available

Imaging exam	Clinical problem/Criteria
Finger/thumb	Mechanism of Injury, Focal bony tenderness and Loss of function
Forearm/wrist/hand/scaphoid	Mechanism of Injury, Focal bony tenderness and Loss of function. post plaster
Elbow	Mechanism if Injury, Focal bony tenderness and loss of function / post plaster
Humerus	Mechanism of Injury, Focal bony tenderness, loss of function
Shoulder	Mechanism of Injury with restriction of shoulder movements/loss of function on movement
Clavicle	Mechanism of injury, Focal bony tenderness, Obvious deformity.
Ankle	Mechanism of Injury– refer to the Ottawa ankle rules. post plaster
Knee	Mechanism of Injury– refer to the Ottawa knee rules
Foot including toes	Mechanism of Injury, Focal bony tenderness, loss of function
Calcaneum	History of trauma, bony tenderness and loss of function
Tibia and fibula	Mechanism of injury, bony tenderness, non-weight-bearing, bony deformity. post plaster
Femur	Patients aged 65 or above with mechanism of injury e.g. fall with non-weight bearing and loss of function.
Hip and pelvis	Patients aged 65 or above with history of fall/trauma, focal bony tenderness, loss of function, clear deformity (shortened and rotated)
Foreign bodies	To exclude foreign bodies when there is a clear history of penetration by a foreign body made of metal, stone or glass. X-rays to exclude foreign bodies are restricted to the areas in the ED Nurse protocol

Protocol 48

X-ray and US protocol for Advanced Podiatrist Practitioner and Advanced Orthopaedic Practitioner Podiatrist

For adult patients aged 16 or over

Imaging exam	Clinical problem/Criteria
Foot, toes and calcaneum X-ray ANKLE XRAY	To exclude or monitor osteomyelitis, Charcot joints and foreign bodies. TO EXCLUDE, FRACTURE, STRESS FRACTURE, BONY CHANGES/PATHOLOGY, TUMOUR, COALITION, DEFORMITY
US Foot and ankle	Plantar fasciitis - suspect significant tear or ambiguous clinical presentation Soft tissue swellings e.g. plantar fibromas. Tendinopathies: to include Achilles, Tibialis posterior, peroneal, flexor hallucis longer etc.– rupture/tear is suspected, calcific changes, patient responding poorly to conservative treatment, surgery is being considered. Morton's neuroma – conservative treatment failing and surgery/injection therapy is being considered; requires clinical assessment to be confirmed and rule out plantar plate injury. Ligamentous injury – pain/instability, to confirm clinical suspicion and influence management. Plantar plate injuries/capsulitis – to confirm clinical suspicion and influence management.

Protocol No. 49

WAHT Sonographers

Staff on this protocol need to be registered with HCPC / RCN / RCM and hold a minimum of PG Cert in Medical Ultrasound.

Imaging Exam	Clinical problem/ Criteria
Xray abdomen	*IUD / IUS (intrauterine device/ system) cannot be visualised on ultrasound. Same day referral for abdominal xray to confirm if device has been expelled or positioned extrauterine* (Non-Radiographers must have completed IRMER training prior to requesting)
Ultrasound Liver (USRVL)	*Ultrasound of Liver for HCC surveillance. Initial requests to be made by Consultant or Nurse Specialist with 3/6 month surveillance to be requested by sonographers within the screening programme.* (Staff must have completed SOW to request)

Protocol 50 – Specialist Respiratory Physiotherapist/Nurse in Paediatrics Riverbank Ward and Children's Clinic

Chest X-ray for patients aged 1-18 years

Following appropriate clinical examination and assessment the following investigations may be requested.
The results need to be discussed with the on-call paediatric consultant or clinician and actioned by the named consultant.

Investigation	Clinical problem/Criteria
Chest X-ray PA	Persistent wet cough in children. Exclude FB aspiration, other abnormalities Acute exacerbation of bronchiectasis Cystic Fibrosis, as part of annual investigations. Images sent to BCH via PACS for CN scoring Acute exacerbation of Cystic Fibrosis Difficult asthma Acute deterioration of asthma

Reference: Trust Wet Cough/Bronchiectasis in Children Guideline

http://whitsweb/KeyDocs/KeyDocs/DownloadFile/4111

Reference: Trust Cystic Fibrosis in Children Guideline

http://whitsweb/KeyDocs/KeyDocs/DownloadFile/1723

Protocol 51

Audiology Protocol

Imaging Exam	Clinical problem/ Criteria
MRI IAM	1. Unilateral tinnitus 2. Asymmetrical sensorineural hearing loss
CT IAM (where MRI is contraindicated)	1. Unilateral tinnitus 2. Asymmetrical sensorineural hearing loss Details of contra-indication must be noted in the clinical indications

Appendix A

"Transcribing on behalf of" (TOBO)

Please print below your full name and role that this Form applies to:

Name: ……..

Designation: ……

- I will only input radiological requests into ICE following clear written instruction from the consultant who is the referrer, named on this form), who has made a clinical assessment of the patient and the radiological examination(s) required or this is done under protocol identified on this form.
- I understand that I am inputting the request on behalf of the named Consultant(s) and I fully understand that I cannot make an electronic order for a radiological test on my own behalf or for anyone other than the named clinical staff included within this document.
- I will only complete a referral on ICE if the patients' demographic details, the examination being requested and the clinical history is absolutely clear and unambiguous. If it is not, then I will refer this back to the consultant prior to the ICE request being submitted.
- Failure to comply with this would be a breach of IR(ME)R regulations, if the request is for an examination involving X-rays e.g. Chest X-ray, CT scan or Nuclear Medicine study. I understand that failure to comply could bring about prosecution in a Court of Law
- For examinations not involving radiation e.g. MRI and Ultrasound then this would be breach of normal Trust guidelines and practice and may lead to a disciplinary hearing

This form should be signed and returned – email versions will be accepted if forwarded from the consultant's email account.

Signed: …… (non-medical staff member)

Dated: ……

Signed: …… (Consultant 1) Print

Name: ……..

Date: ……

Signed: ……(Consultant 2) Print

Name……Date……

Appendix B

ICE CLINICIANS LIST

Job Role	Pathology Requesting Rights	Radiology Requesting Rights	Notes	Request in own name
General Practice				
General Practitioner	Yes	Yes		Yes
Locum GP	Yes	Yes		Yes
GP Registrar	Yes	Yes		Yes
FY Doctors	Yes	No		No
Physicians Associate (PA)	Yes	No		No
non-medically qualified registered health professional	Yes	No	*Requires radiology approval. Required to work to an agreed scheme of work that is tailored to the current role.*	No
Admin Staff	Yes	No	*Requires radiology approval to transcribe requests onto the system and a clear SOP. Radiology will abide with existing processes but will not extend this further.*	No
Trust : Acute and Health and care staff				
Consultant	Yes	Yes		Yes
Locum Consultant	Yes	Yes		Yes
Dentist	Yes	Yes		Yes
Associate Specialist	Yes	Yes		No
Registrar	Yes	Yes		No
FY Doctors	Yes	Yes		No
non-medically qualified registered health professional	Yes	No	*Requires radiology approval. Required to work to an agreed scheme of work that is tailored to the current role.*	No
Physicians Associate (PA)	Yes	No		No
Admin Staff	Yes	No	*Requires radiology approval to transcribe requests onto the system and a clear SOP. Radiology will abide with existing processes but will not extend this further.*	No

Appendix C

Application for dating/Nuchal scan requesting rights

Please print below your full name and role that this Form applies to:

Name: ……..

Designation: ……

E-mail address: ……

- I will only complete a referral on ICE if the patient's demographic details are clear and the patient has been referred for Trust obstetric care. If it is not then I understand this request will be rejected
- I will only request dating/Nuchal scans following referral for obstetric care
- Where TOBO persists as a process the non-medically qualified requestor should input this into ICE with the abbreviation "TOBO. This identifies that the non-medically qualified requestor is not assessing the patient but simply inputting under instruction.

This form should be signed and returned electronically

Signed: …… (non-medical staff member)

Dated: ……

Signed: …… (Midwife) Print

Name: ……..

Dated: ……