Society of Radiographers Forensic and Post-Mortem Radiography Guidance

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SoR
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Contents

Contents

Contents

Contents

Preface

This document provides guidance. Guidance is information which a radiographer has a duty to consider as part of their decision-making processes.

Throughout the document, the use of the word 'must' indicates a legal and/or regulatory requirement and describes a mandatory action and/or behaviour.

The use of the word 'should' indicates behaviours and/or actions that would be expected to occur in all normal circumstances.

Each section of this guidance carries equal weight and the document is not ordered in any priority. If a radiographer deviates from the guidance in this document, the clinical judgment for doing so should be justified and carefully recorded.

Radiographers should comply with this practice guidance and other guidance issued by the Society and College of Radiographers (SCoR), and must comply with any statutory requirements applicable to their forensic and PM imaging practice. Failure to do so may put their Health and Care Professions Council (HCPC) registration at risk if concerns are raised about their fitness to practise.

The advice in this document applies to all of the United Kingdom where forensic and post-mortem (PM) imaging activities occur, as permitted by relevant laws in each of the home nations separately. The laws may not be comparable across England, Scotland, Wales and Northern Ireland. It is up to the individual to satisfy themselves of the law within the UK country they work and that good governance procedures are in place in their workplace setting. Local laws must and guidance should be adhered to.

In England, Wales and Northern Ireland, a coroner is responsibile for all the deceased in their lawful control. They will investigate deaths occuring within their jurisdiction in their lawful control that are unnatural, violent or of unknown cause. In Scotland this is the responsibility of a procurator fiscal.

1 Introduction

This document is issued by the Society of Radiographers (SoR) to give guidance to radiographers undertaking forensic and PM radiography. This section will introduce the principles of forensic and PM radiography. Subsequent sections will provide guidance on departmental policies, medico-legal issues, education, training and establishing new services.

This document has been produced in association with the International Association of Forensic Radiographers (IAFR) (UK branch (UK IAFR)). It replaces *Guidance for Radiographers providing Forensic Radiography Services* (2014) and *Standards of Radiographic Practice for Post-Mortem Cross-Sectional Imaging (PMC-SI)* (2015), both published by the SoR[1,2].

This guidance sets the standard for radiographers who deliver forensic and PM imaging and should be applicable to all personnel involved in this service. To practice as a radiographer in the UK you must be registered with the HCPC. Radiographers hold the core skills, knowledge and behaviours to deliver clinical imaging, forensic radiography and PM radiography.

This guidance should be read in conjunction with the following resources:

- *Standards of conduct, performance and ethics*, HCPC (2016)
- *Code of Professional Conduct*, SoR (2013)
- *Education and Career Framework*, CoR (2022)
- *Standards of proficiency – Radiographers*, HCPC (2023)
- *Codes of Practice*, Human Tissue Authority (HTA) (2017–2021), for those working in England and Wales
- *Standards for mortuary services*, Scottish Government (2022), and the legislation and guidance specific to Scotland for those working in Scotland
- *IAFR Guidelines for best practice: Principles for radiographers and imaging practitioners providing forensic imaging services*, Doyle et al (2020)
- *Guidelines for post-mortem cross-sectional imaging in adults for non-forensic deaths*, The Royal College of Pathologists (RCPath) and The Royal College of Radiologists (RCR) (2021)
- *The radiological investigation of suspected physical abuse in children*, the Society and College of Radiographers (SCoR) and The Royal College of Radiologists (RCR) (2018), for those working with children

Appropriate communication and consultation with all stakeholders is needed. Stakeholders may include:

- coroner/procurator fiscal
- radiation protection advisor
- medical physics expert
- pathology and mortuary staff

Local policies and protocols must be produced with which all staff members should be familiar. These guidelines may be used as a basis for local policy/protocols but do not constitute a policy/protocol in their own right. It is recommended that local policy/protocols are reviewed and approved in line with local governance requirements and that other relevant local policies and processes are adhered to.

Figure 1 demonstrates the governance requirements for safe forensic and PM imaging practice.

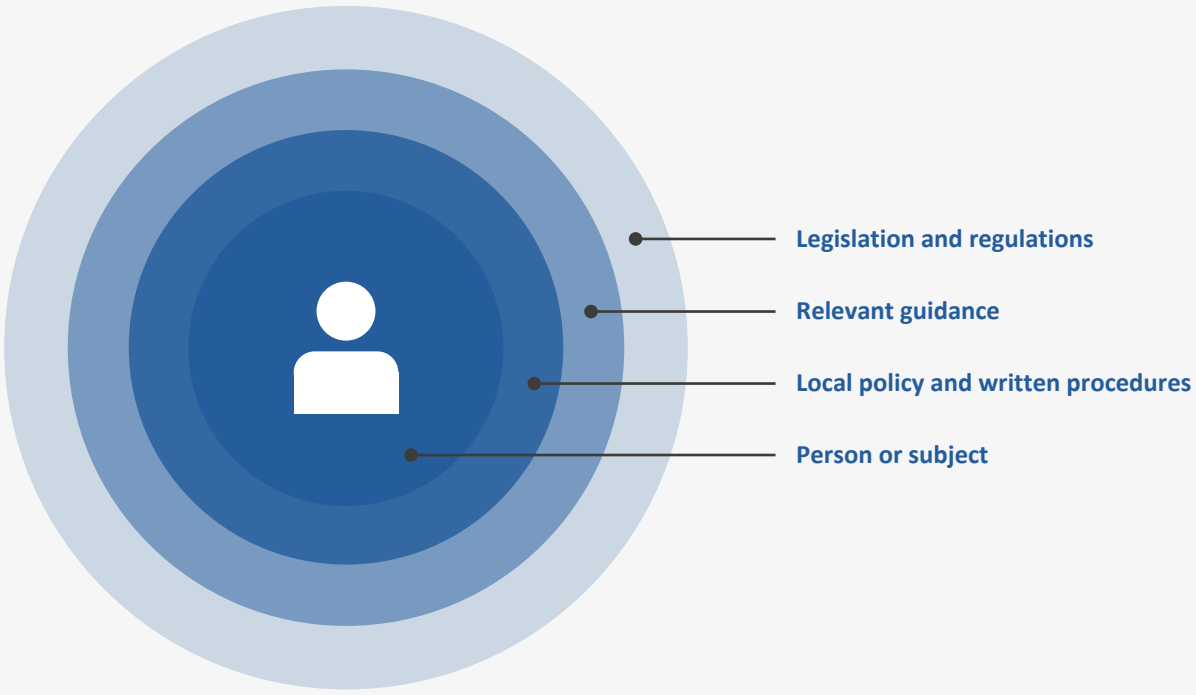

Figure 1. Governance requirements for safe forensic and PM imaging practice.

Any staff involved in forensic and PM radiography should have appropriate training and education relevant to their role. In forensic practice this would include knowledge of the roles and responsibilities of all involved and a good working knowledge of all relevant legislation and guidelines (see section 5: Training and education). Attention should be paid to training and support for the emotional, legal and clinical aspects of this role.

Radiographers undertaking forensic and PM radiography must maintain clinical competence and keep their knowledge and skills up to date, as evidenced by their record of Continuing Professional Development (CPD) required by the HCPC[3]. It is recommended that radiographers involved in forensic and PM imaging maintain membership of appropriate professional bodies, such as the SoR and the IAFR. Involvement in forensic and PM radiography of the deceased may be included as part of a specific job description. In all other circumstances forensic and PM radiography of the deceased should be voluntary. If necessary, any requests may need to be postponed until suitably trained staff are available.

Diagnostic radiographers are expected to perform clinical, live radiographic examinations, which may be forensic cases. These will fall within their contractual hours (e.g. suspected physical abuse (SPA) cases). Education and training in forensic and PM radiography principles, relevant to their role, is therefore essential for all diagnostic radiographers.

1.1 Definitions

Forensic medicine refers to the application of medical knowledge and technologies in the collection of evidence to be used in a court of law. Such evidence may be collected from either living or deceased individuals with the latter presented as either whole cadavers or as pathological specimens.

An autopsy is an invasive internal examination of a body.

Forensic radiography is the use of diagnostic imaging in legal enquiries or court cases. It includes the imaging of adults and children, living and deceased, using any diagnostic imaging modality.

A hospital post-mortem at the request of the family is an example of non-forensic imaging. The imaging is not part of a legal process.

Post-mortem (PM) imaging is a term used internationally, particularly when referring to post-mortem CT (PMCT) and post-mortem MRI (PMMRI) being used to investigate a death. This can be different to forensic imaging because the cause of death may be non-suspicious and, therefore, there is no court hearing (judicial or coronial). 'Post-mortem' (PM) refers to the period after death.

Figure 2. Definitions for forensic and PM imaging.

1.2 Applications of forensic radiography

Forensic radiography has three main components:

- examinations of inanimate objects
- examinations of the living
- examinations of the deceased or any disrupted/fragmented body parts

1.2.1 Forensic examinations of inanimate objects and locating items of forensic interest

These include:

- human narcotic packing detection (also known as drug smuggling or body packing)
- non-human narcotic packing detection (e.g. luggage and vehicle checks at ports for drugs)
- ballistic material (e.g. shotgun pellets, bullets, shrapnel, arrowheads)
- non-ballistic material (e.g. knife blades, needles)
- art and historical artefact fraud

1.2.2 Forensic examinations of the living

These include:

- to diagnose and support the investigation of an individual's injuries (e.g. assault, suspected physical abuse in children and adults)
- to help identify an individual
- to help establish the age of an individual
- to investigate potential ingested or concealed material

1.2.3 Forensic examinations of the deceased

Examinations of the deceased, or any disrupted/fragmented body parts, are conducted to help establish the cause of suspicious death. These may include:

- suspected homicides
- custodial deaths
- road traffic collisions (if someone is suspected of causing the death)

Post-mortem imaging can also be undertaken to support the investigations of unexplained and non-suspicious death. These include:

- road traffic collisions (where no one is suspected of causing the death)
- deaths following medical intervention
- suicide
- sudden or unexplained deaths in children (e.g. a child found deceased in their cot (sudden unexpected death in infancy (SUDI))
- sudden or unexplained deaths in adults (e.g. an adult collapsed and cannot be resuscitated). These cases are sometimes referred to as coroner/procurator fiscal's autopsies or 'routine' autopsies.

Forensic imaging can also be used to assist in identifying the deceased. This may be by:

- comparison of ante mortem (AM) and PM imaging
- identification of unique anatomical or pathological structures
- identification of medical intervention (e.g. joint replacements or pacemakers)
- demonstrating personal effects (e.g. mobile phones, wallets and jewellery)
- enabling anthropological examination to evaluate age, sex and stature
- enabling facial reconstruction
- enabling specialist photo/imaging superimposition/comparison to aid identification (e.g. by odontologists)

1.3 Forensic radiography of children and young people

The forensic imaging of children is a long-established means of helping to ascertain why children have died or, in the living, where there is suspected physical abuse. Children and foetuses of any age can be involved. Imaging may be used alone (e.g. if the parents have only consented to imaging in a hospital PM examination) but is more commonly an adjunct to an invasive autopsy (in coronial or police referrals).

Projectional radiography is the modality recommended for a skeletal survey, particularly in children under two years of age, for both living and deceased children (see Appendix A). CT and MRI scans may also be required[4].

Post-mortem CT can be used and can be particularly useful in some circumstances, for example to identify non-displaced rib fractures and in the investigation of concealed pregnancy (when the mother does not acknowledge or make public their pregnancy and gives birth in secret).

In the case of concealed pregnancy, the child may be stillborn or a victim of infanticide; therefore, it is essential to determine if the baby took their first breath. Example protocols can be provided by UK IAFR.

Post-mortem MRI can also be used and can be particularly useful in diagnosing soft tissue pathologies. Example protocols can be provided by UK IAFR.

Ultrasound is not widely used in forensic and PM radiography. It can be useful in perinatal/neonatal deaths but is operator dependant and can be compromised by foetal maceration[5].

1.4 Forensic radiography of adults

Skeletal survey and fluoroscopy have been used to assist in the forensic examination of adults for many years.

Post-mortem CT has become more widely used in the last 20 years. It can be used as an adjunct to invasive autopsy in forensic cases and also to replace autopsy in some non-suspicious deaths. Example protocols can be provided by UK IAFR.

Post-mortem MRI may be used and can be beneficial in diagnosing soft tissue injury or pathology.

Ultrasound is rarely used.

1.5 Roles and responsibilities

Everyone involved should be clear about the roles of all staff and their individual and joint responsibilities. This should include who is responsible for the deceased during transfers between the mortuary and the imaging department.

1.5.1 Imaging staff

Imaging staff are responsible for the deceased when they are undergoing imaging investigations. Radiographers will provide the imaging and should be supported by other suitably trained staff. Consideration should be given to training dedicated administrative support staff, to ensure the efficient and secure running of the service.

Participation by any staff member in forensic and PM imaging of the deceased is voluntary unless agreed as part of a contractual job description. Individuals must be able to withdraw from participation in this work.

1.5.2 Lead forensic radiographer

There should be a dedicated lead forensic radiographer who will be responsible for:

- producing and updating local forensic and PM imaging policies
- agreeing local procedures with the relevant parties (e.g. coroner/procurator fiscal, pathologists, radiologists, mortuary managers, radiology managers)
- producing and updating risk assessments for forensic and PM imaging
- training radiographers new to forensic and PM imaging
- ensuring the imaging standards are maintained

1.5.3 Forensic radiographers

Radiographers agreeing to undertake forensic and PM imaging must:

- abide by SoR and local forensic and PM imaging policies and protocols
- produce all forensic and PM imaging to the highest standard
- have knowledge of the legislation pertaining to forensic and PM imaging and abide by it

- agree to undertake forensic and PM imaging training and maintain the skills and knowledge through CPD activities (see section 5: Training and education)
- supervise any assistant practitioners involved in PM imaginge

1.5.4 Assistant practitioners

Assistant practitioners (APs) are non-registered practitioners who have been educated, trained and assessed as competent to perform a limited range of examinations under the supervision of a HCPC registered radiographer. In recent years they have become an integral part of many radiology departments.

The SoR recommends the range of APs responsibilities be defined within locally agreed protocols to best address local service needs[6].

With increasing expertise in PM imaging for non-suspicious death investigation being gained in the UK, there are increasing demands for organisations to provide these services. An appropriately trained AP working directly with a radiographer in non-suspicious PMCT scanning could support such a service.

Post-mortem examinations must be carried out by 'a suitable practitioner', as stated in the Coroners and Justice Act 2009 c 25[7]; radiographers have been designated as 'suitable' by the Chief Coroner[8]. Forensic imaging, where there are suspicious circumstances, should only be conducted by appropriately trained radiographers.

1.5.5 Clinical support workers

Suitably educated and trained support workers may assist with transfers, administration procedures and other tasks.

1.5.6 Radiologists

All forensic and PM imaging needs to be reported by a radiologist with appropriate training and experience (see point 2.10: Reporting). Paediatric imaging should be reported by radiologists with paediatric training and experience of SPA[4]. Radiologists working in forensic and PM imaging should have an awareness of the legislation pertaining to forensic cases.

A lead paediatric and adult (as appropriate locally) radiologist should be appointed to agree policies and protocols, help manage the department and support radiographers. Feedback on imaging quality should be provided to the radiographers and CPD sessions would be advantageous[9].

1.5.7 Pre-registration radiography students

Forensic and PM radiography, and particularly the use of PMCT scans in non-suspicious death investigation has become the norm in some organisations. Radiographers, once qualified, may be required to perform forensic examinations of the living, such as in cases of SPA. Therefore, pre-registration education should provide adequate underpinning knowledge to prepare radiographers for such future roles.

Post-mortem and forensic imaging is not an explicit HCPC standard of proficiency for diagnostic radiographers. Where exposure to PMCT or standard PM examination (autopsy) forms part of the education programme, the Higher Education Institution (HEI) takes responsibility for delivering the appropriate theoretical education and the students' welfare.

Where pre-registration education programmes include exposure to PM (or PM specimen) examinations, the HEI holds the responsibility for adequately preparing and supporting students. This should be discussed and agreed upon by the clinical department where the exposure takes place (see Appendix B).

Should a student choose to opt-out of exposure to PM (or PM specimen) examinations, they should be offered support and suffer no detriment for this preference. Students should be encouraged to develop their theoretical knowledge of forensic and PM imaging without a requirement for exposure to the techniques. As a minimum requirement, pre-registration radiography students should appreciate the legal process, the specific confidentiality of these examinations and the need to treat the deceased with dignity and respect.

If a student arranges an elective placement to see PM imaging, the HEI is still responsible for their welfare. This should be discussed and agreed upon with the clinical department, and documented. A point of contact at the HEI should be provided in case the clinical department has any concerns for the welfare of the student whilst they are attending the placement (see Appendix B).

In accordance with guidance[8] only radiographers should conduct forensic imaging. Pre-registration radiography students are not permitted to support or undertake any forensic imaging but can assist in non-suspicious death PM imaging.

1.5.8 Mortuary and pathology staff

The mortuary staff, specifically anatomical pathology technologists (APTs), have a wealth of experience in dealing with the deceased and are responsible for the deceased in the mortuary. Pathology staff, including pathologists, can be consulted for advice and support in developing working practices or policies for imaging services.

It is recommended that, if involved, pathologists have a central co-ordinating role[9]. In some centres there may not be any pathologists; imaging services are advised to establish processes with their local coroner/procurator fiscal.

2 Departmental forensic and PM imaging policies / protocols

The Human Tissue Authority (HTA) dictate there must be written policies and standard operating procedures (SOPs) covering all mortuary related procedures[10]. This includes the transfer of the deceased to radiology and those entering the mortuary. It is advised that the names of the people transferring the deceased and those completing the imaging are recorded (see point 6.2.1.3: Transfers between mortuary and imaging).

Forensic and PM radiography should be carried out in accordance with a written policy/protocol, which should address local service needs and adhere to the organisation's policy/protocol for writing such documents. It is recommended that the forensic and PM radiography policy/protocol is developed in consultation with all key stakeholders who may include, but are not limited to:

Internal stakeholders

- lead forensic radiographer
- department lead/governance lead
- lead forensic radiologists for adults and paediatrics (as required) or clinical lead
- organisation's pathologists for each speciality as required (e.g. forensic, paediatric and non-suspicious autopsy pathologists)
- mortuary manager (if the mortuary is hospital based)
- organisation's emergency planners (to link any plans with the organisation's major incident plans)
- organisation's safeguarding team for adults and children
- organisation's lead for Trauma Risk Management (TRiM)/debriefs/occupational health
- other parties from within the organisation as appropriate (depending on local hierarchy and structure)

External stakeholders

- the coroner/procurator fiscal
- lead pathologists for each speciality as required (e.g. forensic, paediatric and non-suspicious autopsy pathologists)
- police if they are going to be referring work directly to imaging services. This may not be required if the forensic pathologist is going to refer cases
- mortuary manager (if the mortuary is not based in the hospital)
- local authority mortuary service lead (if the mortuary is not based in the hospital)
- local resilience forum, if involved in mass fatality planning and response (see section 4: Disaster victim identification and mass fatality incidents)
- IAFR
- SoR, including special interest groups

The structure of the forensic and PM radiography policy/protocol may include:

- statement of intent
- implementation and review
- scope of local service
- referral pathways
- roles, responsibilities and interprofessional relationships
- the list of trained radiographers providing the service
- relevant contact details
- training/education
- welfare of staff
- charges for each type of work and report

- payments for the radiographers
- any contractual or service-level agreements
- quality control and audit (including quality assurance of all equipment used)

The subsequent paragraphs provide guidance on specific issues relating to the scope of the local service, referral pathways and roles and responsibilities. It is recommended that the local forensic and PM radiography policy/protocol refers to all these areas.

The organisation is responsible for the security and continuity of all imaging evidence until formally handed over to the police.

2.1 Requests for radiographic examinations of the living

Radiographers should be aware that any radiographic examination could potentially be forensic in nature and subject to scrutiny in a court of law.

Radiographers undertaking forensic examination of live subjects should comply with the provisions set out in the relevant codes of professional conduct and must comply with all relevant regulations for diagnostic imaging and the safe and efficient use of ionising and non-ionising radiation.

Radiographers undertaking forensic and PM examinations should be aware of and comply with the local protocol for forensic and PM imaging which should address the following specific issues:

- authorised referrers
- consent and confidentiality
- continuity of evidence
- clinical protocols for specific examinations, such as SPA
- requirements of particular care pathways, e.g. care of the elderly, child protection

2.1.1 Consent for radiographic examinations of the living

The policy/protocol for forensic and PM imaging must consider the issues of consent. The organisation's policies on consent, mental capacity and safeguarding should inform the production of the forensic and PM policy/protocol. The SoR guidelines on consent should also be adhered to[11].

Forensic requests on live individuals, e.g. for drug packing, are classified as non-medical imaging exposures. Consent must be gained for these examinations.

Non-medical imaging (NMI) exposures are defined as exposures that do not give a direct health benefit to the individual undergoing the exposure. Ionising Radiation (Medical Exposure) Regulations (IR(ME)R) 2017[12,13] applies to NMI exposures performed using medical radiological equipment designed and installed with the intention of being used for medical diagnosis, treatment or screening of individuals. Some forensic radiography examinations will be classed as NMI, e.g. abdominal imaging for drug packing.

Where NMI exposures are performed, there must be an employer's procedure (IR(ME)R 2017 Schedule 2(m)) describing the process to be followed by the duty holders involved with these exposures.

Non-medical imaging exposures using medical radiological equipment must follow the IR(ME)R 2017 framework, requiring referral by a registered healthcare professional, justification and authorisation. Exposures need to be optimised, taking into account the specific objectives of the examination, such as a reduction in the number of views required. The availability of previous imaging should be considered as part of the justification process. IR(ME)R 2017 states that the employer, where it is practicable (there are enough of these examinations performed), must establish local dose reference levels (LDRLs) for standard NMI exposures (Regulation 6(5)(c)(iii)). Additionally, the employer is required to ensure that written protocols are in place for every type of standard NMI exposure carried out by the organisation (Regulation 6(4)). Consideration should also be given to including a description of how NMI exposures may be identified by the operator (e.g. using a specific code on the Radiology Information System (RIS)).

Although the law does not require consent to be written, forensic radiography is an area of practice where validity of consent may be questioned and, therefore, to obtain written consent would be considered best practice. Confirmation that written consent has been taken by the referrer and that the person providing consent still agrees should be confirmed verbally prior to the examination.

The consent process will confirm that the consenting individual has been informed about and understands a range of issues that include, but are not limited to:

- the purpose of the examination
- the nature of the examination

- the duration of the examination
- the risks and benefits of the procedure (including clinical and radiation risk)
- the persons involved
- how to withdraw their consent and the consequences of doing so
- their dignity and privacy

There are no circumstances when implied consent is acceptable. For individuals unable to give consent, appropriate arrangements will be made to obtain recognised third-party authority. Examples include, but are not limited to:

- parents
- legal guardians
- individuals appointed by the courts

For children and minors, such third-party consent may be requested from an alleged abuser. Appropriate sensitivity should be considered for obtaining such consent but the parent or guardian must be fully informed.

Third-party consent cannot be given by the referrer.

For individuals with language or communication barriers, appropriate services will be required (e.g. translation/signing support).

When consent is withheld, the examination cannot be undertaken. This may lead to circumstances whereby:

- children and other vulnerable individuals may be appointed wards of court and third-party consent obtained from the legal guardian
- psychiatric patients may be sectioned under the relevant mental health legislation and limited powers given to the clinician
- narcotics traffickers may develop clinical symptoms of toxicity and become clinical emergencies

Writen consent should be recorded in the imaging record or on the RIS.

2.2 Suspected physical abuse (SPA)

All examinations for SPA are forensic examinations.

A protocol specific to SPA is required for clinical examinations and should detail the recommended imaging[4]. Any such policies/protocols should both recognise the forensic nature of SPA imaging and cross-refer to the forensic and PM imaging policy/protocol.

For living examinations, written consent should be obtained from the person with parental responsibility prior to imaging. The process should be documented in the SPA policy/protocol. If consent is refused by the person with parental responsibility or there is no one with parental responsibility, a court order to conduct the examination would need to be applied for[4].

The imaging protocols recommended for clinical SPA examinations can be found in the publication *The radiological investigation of suspected physical abuse in children*[4]. An exemplar protocol can also be found in Appendix A.

Requests for skeletal survey examinations are usually secondary to a primary investigation. These exposures are forensic in nature and require particular consideration to ensure they are justified and optimised (IR(ME)R regulation 12(8)(a)).[14]

For all radiographic skeletal surveys, anatomical side indicators must be physically present within the primary radiation beam, but not overlying any body parts[4,15]. Where an image is satisfactory, except for the visibility of anatomical markers, radiographers should consider whether a repeat exposure is necessary[4]. Where it is absolutely clear that right and left can be identified there is normally no need for repeat imaging. Decisions regarding this should be documented in the clinical record. All annotations, including 'left' and 'right' markers added after image acquisition, should be recorded within the examination document; an exemplar initial skeletal survey check form can be found in Appendix D of the publication *The radiological investigation of suspected physical abuse in children*[4]. Before this is used, professionals should ensure that it complies with the local healthcare provider's protocols and make any necessary amendments.

2.3 Requests for radiographic examinations of the deceased

A coroner/procurator fiscal must have authorised investigation of a death for imaging to be considered. This may be stated on the examination request or agreed in a written policy/protocol. The referrer requesting the imaging does so on the coroner's/procurator fiscal's behalf.

A request for imaging must be made through an agreed process documented in the policy/protocol.

The same imaging protocols recommended for live paediatric cases should be used[4]. If PMCT is used then a local protocol should be followed. Example protocols can be provided by UK IAFR.

2.3.1 Consent for radiographic examinations of the deceased

The following applies to both paediatrics and adults.

Imaging completed at the request of the coroner/procurator fiscal (or their representative) does not require the consent of the family or legal guardian(s).

However, consent is required for PM examinations that do not originate from a coroner/procurator fiscal's referral, e.g. stillbirth/intrauterine death or when a medical certificate of cause of death has been issued but the family request a PM examination. Consent is also required when PM imaging forms part of a research study.

The consenting process and paperwork should meet the HTA's code of practice, detailed in Code A: Guiding Principles and the Fundamental Principle of Consent[16]. The HTA also have post-mortem model consent forms on their website.

For paediatric cases, consent is needed from the person with parental responsibility. Model consent forms and advice on gaining consent for radiographic examination following paediatric deaths can be found on the Sands website.

For adults, consent should be gained from the next of kin. Advice can be found in the HTA's code of practice[16].

When consent is needed it should be obtained prior to requesting the imaging, by an individual trained to do so and in an appropriate location.

2.4 Subject identity

Everyone having a forensic or PM imaging examination must be identified prior to the examination starting.

Live examinations should be identified, as for a clinical examination, with a minimum three-point identity check[17].

The deceased may be identified via a standard three-point check, where this information is available and present, or can be imaged using their name and other identity information available on the name band assigned in the mortuary.

If the identity is not known or the identity needs to be anonymised, a unique identification number or code may be assigned. This may be a police evidence number, hospital incident number or a locally agreed coding system. This identification number or code will need to be recorded on all records and paperwork.

Subject identifiers must be recorded on all images using primary identification systems such as Digital Imaging and Communications in Medicine (DICOM) headers/examination data sets.

Locality identifier and date/time of examination must be recorded on images using primary identification systems such as DICOM headers/examination data sets.

2.5 Confidentiality, dignity and respect

Clinical principles of confidentiality must be maintained in accordance with all relevant standards of professional conduct.

Forensic cases will always be regarded as *sub judice* (the case is currently under trial or being considered by a court of law or a coroner/procurator fiscal's court) and must, therefore, never be discussed outside the court with any person not directly involved in the case until the investigation or inquest has been completed.

Furthermore, where the coroner/procurator fiscal has referred a case for consideration by a court of law, the principles of client confidentiality will continue to apply throughout the proceedings.

All codes of practice and standards should be strictly adhered to. Dignity is a key point and the dignity and privacy of all deceased should be maintained at all times. All staff involved with forensic and PM imaging should treat the deceased with the utmost respect.

2.6 Health and safety

Employers have a legal duty under the Health and Safety at Work Act 1974 c 37[18] to protect employees from hazards.

Legislation, national guidance and the employing organisation policies will inform practice for radiation protection, infection prevention and control for staff and patients, Control of Substances Hazardous to Health (COSHH), care and handling of the deceased, and physical and mental well-being.

Local mortuary and pathology health and safety policies should inform the production of the forensic and PM imaging policy/protocol.

There may be concerns if the deceased are brought to the imaging department, for the welfare of staff, patients and visitors. Some people are uncomfortable around the deceased. This is a concern and measures should be taken to minimise the risk.

Risk assessments are recommended.

2.6.1 Radiation protection

Radiation protection should be considered at the design phase of any new facility or upgrade of an existing facility.

Radiation protection advisors and medical physics experts should be consulted to ensure that construction is legally compliant and local rules and employers' procedures are in place. These should be followed at all times.

2.6.2 Infection prevention and control

Local infection prevention and control guidance should be followed at all times. Advice, specific to managing infection when dealing with the deceased can be obtained from the Health and Safety Executive (HSE).

All deceased should be treated as a potential infection risk to staff. The forensic and PM imaging policy/protocol should address appropriate precautions to minimise any risks of cross-infection during forensic and PM radiography examinations.

When forensic and PM imaging is completed in the imaging department, appropriate care should be taken to minimise the risk of cross-infection. Documented risk assessments are recommended.

Examinations should be managed by prior agreement with a local referral pathway in place.

A conventional autopsy is an aerosol-generating procedure that increases the risk of infection to the mortuary and pathology staff. Sometimes, PMCT scans may be used instead of an autopsy to minimise this risk.

Post-mortem CT may be requested for patients with a known infection (such as hepatitis, COVID, tuberculosis). In these cases, the deceased should be taken to the scanner in a body bag which should not be opened. A process to ensure the correct identification of the deceased should be in place before the deceased leaves the mortuary. A list of risks is available in Appendix 1 of the HSE publication *Managing infection risks when handling the deceased*[19].

The COVID-19 pandemic has introduced further guidance which should be considered when writing and updating the forensic and PM imaging policy/protocol. These include, but are not limited to, the HSE guidance on handling the deceased with suspected or confirmed COVID-19.

Infection risk can be increased when dealing with decomposing deceased. As a minimum, the deceased must be in a body bag. Consideration must be given to the smell of decomposition and its impact on others in the imaging department. There are means of sealing the deceased in a body bag that contain all contents, to prevent seepage and smells (e.g. Cadseal Repatriation Foil). Although metallic looking, this material does not cause artefacts on PMCT.

2.6.3 COSHH

The COSHH Regulations apply to body fluids and cleaning fluids or gases used during forensic and PM imaging. COSHH requires a risk assessment with control measures in place to protect employees, along with appropriate education, training and information to keep workers safe. Monitoring of the environment should take place to make sure the control measures are adequate.

2.6.4 Care and handling of the deceased

It is imperative that the dignity of the deceased is maintained at all times. When possible, the deceased should be lying on their back and should be dressed, either in their own clothing or a shroud. They should be wrapped in a clean sheet or in a body bag to ensure their dignity is preserved.

Transfers between trolleys and imaging tables must be dignified.

Those handling the deceased must do so in a respectful manner.

The deceased should be transferred in an appropriate body concealment trolley which will be used in a dignified and professional manner, even when empty.

Advice on caring for the deceased can be sought from the local mortuary and last offices protocol.

2.6.5 Manual handling

All local manual handling policies should be followed when moving the living and deceased. The mortuary may have its own, which can help inform the forensic and PM imaging policy/protocol.

The principles and processes used when moving clinical patients should be followed, including but not limited to:

- ensure the brakes are on the trolley before starting to move a body
- ensure the height of both the trolley and scan table are appropriate
- four people should complete the transfer

All manual handling equipment should be used as appropriate, including but not limited to:

- slide sheets should be used when transferring all deceased from the body movement trolley to the scanner and back again
- a sheet can be wrapped around the deceased and body bag and tied top and bottom to help enable a smooth transfer (the plastic body bag may not slide smoothly on the scan table, especially if a table topper is in place)
- a mortuary scoop can make transferring larger deceased easier. The scoops are plastic and do not need to be removed for scanning. They can make rolling the deceased during PMCT angiography (if required) more difficult

2.6.6 Mental well-being

Employers should be aware of the potentially distressing nature of some aspects of forensic and PM practice. This can be stressful for the radiographers undertaking the examination and could lead to post-traumatic stress which, if ignored, may develop into post-traumatic stress disorder (PTSD).

The forensic and PM imaging policy/protocol must include staff welfare and this should contain, but is not limited to:

- information regarding the symptoms and common feelings experienced with post-traumatic stress
- basic advice on coping strategies
- details of local support mechanisms (e.g. occupational health, Trauma risk Management (TRiM), counselling services)
- information on operational debriefs after an incident
- education and training requirements

The emphasis should be on primary prevention and it is recognised that training and education is an integral aspect in minimising post-traumatic stress.

It is recommended that debriefs covering all aspects of any stressful incident are undertaken. These should be facilitated by appropriately qualified personnel, such as a TRiM practitioner. Such debriefs should not focus on the stressful incident alone and should adhere to guidance laid out by the National Institute of Health and Care Excellence (NICE)[20].

UK IAFR is available for further advice on welfare issues and can be contacted via their website.

2.7 Involvement of assistant practitioners

To enable the integration of APs into any PM imaging service, a local policy/protocol will be needed and should be agreed by internal and external stakeholders. This should delineate the APs role, responsibilities and scope of work (see point 1.5.4: Assistant practitioners).

Assistant practitioners involvement should:

- be voluntary (unless defined within a job description)
- be under the direct supervision of a HCPC registered radiographer
- work to the standards that support College of Radiographers accreditation, with registration on the voluntary register

2.8 Involvement of pre-registration radiography students

Imaging departments should consider the legal implications of pre-registration radiography students witnessing forensic examinations and should not allow them to be involved with or witness forensic

imaging including live SPA examinations[4]. A means of differing PM (non-suspicious) and forensic imaging needs to be in place and clear for all involved (see point 1.5.7: Pre-registration radiography students). The rationale behind this and the process must be documented in the local policy.

2.9 Out-of-hours services

In certain circumstances, such as suspected homicide (among other reasons), the imaging may be required as soon as possible. This should not impact on clinical work and so radiographers may need to be called in from home.

Local policies/protocols should address the provision and process of an out-of-hours service. The process needs to be agreed with the pathologists and/or police and the mortuary staff, at a minimum.

The need for an out-of-hours reporting service should be decided between stakeholders locally.

Further guidance on the provision of an out-of-hours service can be obtained from UK IAFR.

2.10 Reporting

Forensic and PM imaging are specialities and it is essential that any person carrying out interpretation or reporting of forensic and PM images is trained and competent to do so. The Chief Coroner states this must be a specially trained radiologist or a pathologist with specialist training[8] (paragraph 15). Training for radiologists who are experienced in CT reporting is provided by some established PM imaging centres; further advice can be sought from UK IAFR.

Radiographers may be asked to provide a professional opinion on forensic and PM imaging that they produce. It is imperative that the radiographer practices within the scope of their competence. Any radiographer interpretation should be clearly labelled as a radiographer opinion and not a formal report.

The coroner/procurator fiscal may request that the radiology report does not appear on a RIS. A PM examination for the coroner/procurator fiscal is for them alone and so must not be available to anyone else. A system of reporting offline is highly recommended with a procedure in place for secure storage of these reports.

The forensic and PM imaging policy/protocol should consider how to protect or prevent inappropriate access to records and images. Arrangements should be made for the security of original imaging and secure secondary storage of digital images, such as on picture archiving and communication systems (PACS). Such images constitute evidence and may require additional

procedures to be put in place to ensure that the evidence is not misplaced or open to interference.

3 Medico-legal guidance

3.1 Introduction

Clinical medico-legal processes and procedures need to be followed when imaging the living.

The HTA regulates organisations that undertake PM examinations and store deceased bodies/body parts.

A mortuary must be licenced by the HTA to undertake PM examinations and specifically for the removal and storage of tissue.

Radiology departments do not require licensing to complete PM imaging. If they perform image-guided biopsies, an HTA licence is required[10].

It is possible for the licence acquired for the mortuary to cover the entire hospital and so include the radiology department. The organisation's HTA Designated Individual would be able to provide this information.

Imaging created during a forensic or PM examination should not be deleted[21]. This includes any images repeated which should be marked 'repeated' and saved with the rest of the imaging. Any deletion of images, intentionally or accidentally, may be the subject of a legal 'challenge' or debate during any prosecution[21].

It is paramount that all PM and forensic imaging is completed to the highest of standards. It is therefore recommended that, when possible, two radiographers (or a radiographer and AP) should undertake the imaging. For SPA imaging this must be two radiographers[4].

3.2 Evidence

Evidence from forensic imaging may include both images and imaging reports.

All evidence to be submitted to court must be legally admissible. The evidence may be the imaging, a statement from those who completed the imaging or an imaging report.

To be admissible, the evidence must be properly authenticated and continuity of evidence must be demonstrated. The radiographer should be able to attest:

- that a specific image was produced by them at the date and time indicated
- that the imaging is of the identified individual or evidence
- that the imaging has not been tampered with during, or after the image production

3.3 Continuity of evidence

Continuity of evidence must be ensured for known forensic cases, for both the deceased and the living. Radiographers undertaking forensic imaging should be mindful of this if they are required to leave the subject. The subject must be secured, left in the presence of a separate witness or returned to the care of the mortuary.

All forensic imaging examinations must be observed by a witness. A witness can be another radiographer, a registered healthcare professional, police officer or coroner's officer (or officer of the procurator fiscal in Scotland).

Any witness must have a scope of practice and training that includes an understanding of the legislation surrounding forensic imaging and be able to give evidence in court if required. All actions and communications should be documented by the radiographer and the witness at the time of the examination or shortly after. All actions should be guided by written protocol.

The identities of the radiographers and witness must be recorded in the RIS and the initials of the radiographers and witness must appear on any imaging evidence as proof of authenticity. Initials or identification can be on the images, added as a post-processing action or added into the DICOM header as part of the comments.

The radiographers will follow the policy/protocol to ensure the security and continuity of all imaging evidence until formally handed over to the police, who must sign to confirm that it has been received.

In some situations images are transferred to another forensic specialist. This should only be done at the request of the forensic pathologist or police and with the coroner/procurator fiscal's permission. For example, dental radiographs may be needed by an odontologist who uses the images to help identify individuals. The rules of continuity still apply and a record should be kept of the initial request, the coroner/procurator fiscal's permission and the method of transfer. Secure digital transfer (for example Image Exchange Portal) is recommended.

3.4 Digital imaging

This section is based on the Defence Science and Technology Laboratory (Dstl) publication *Digital Imaging and Multimedia Procedure v3.0*[21]; Dstl form part of the Ministry of Defence and this section has been developed following their advice, specifically on the storage of forensic and PM imaging and providing imaging data to the police.

With advances in technology, digital data can take many forms and be stored in many formats. Whether on a stand-alone or networked computer, a server (e.g. PACS) or any other type of storage medium, data must be stored with adequate security against unauthorised and unrecorded access with appropriate traceability[21].

There is no requirement for a physical copy of forensic or PM imaging if the secure storage conditions can be met. Networked or cloud storage solutions would need to meet NHS, General Data Protection Regulation (GDPR) and/or national data storage guidance[21].

As it is now possible to make exact copies of imaging data, in evidential terms, there is no distinction between the original data and the copy because the data are the same and have the same evidential weight[21].

One copy of any forensic imaging can be provided to the police, on request, via a transfer medium (usually a CD or DVD) in a 'write once, read many' (WORM) format[21]. Encrypted USB storage devices are also an acceptable transfer medium. The copy of the imaging should be provided to the police who will designate it as a master/working copy when it is under police control[21].

The copy must be:

- labelled with the patient/deceased details or police/evidence number
- saved in a format, with any software required, so the imaging can be viewed, or provided with details of how the software can be obtained
- stored securely prior to giving to the police

If a copy is not produced at the time of imaging, a local process should be established to produce a copy from PACS .

In future, it may be possible to transfer imaging to the police over a secure network but work is needed to enable this to happen. The SoR and UK IAFR are assisting with this development.

If the copy is not encrypted it should be collected by or delivered directly to the police, not posted. The name of the person collecting or accepting delivery of the copy should be recorded.

A record should also be kept to demonstrate who was involved in the production of the imaging and the preparation and storage of the copy. This can be written or electronic (e.g. in RIS). This may be requested at the time of handing over the copy or later as a witness statement and should include:

- the name(s) of radiographer(s) completing the imaging
- the name of any witness to the imaging, if applicable
- the name of the person that created the copy
- where the imaging was completed
- date of the imaging
- start and end times of the imaging examination

Departments that undertake forensic and PM imaging should retain all imaging and related documentation for 30 years. This period commences on 31 December of the year in which the imaging was completed[22].

3.5 Records

All records must comply with legislation and should follow national and local guidelines, including NHS England's *Records Management Code of Practice*[23], for maintenance, storage of confidential health records and data protection.

Records, defined in the written local protocol, will be kept of all forensic and PM radiography examinations. Where a forensic radiographer keeps their own written documentation, this will be held confidentialy as a personal record of the examination(s).

4 Disaster victim identification and mass fatality incidents

A mass fatality incident is defined as "any incident where the number of fatalities is greater than normal local arrangements can manage"[24]. The identification of the victims is the most important part of a mass fatality investigation and is achieved through the process of disaster victim identification (DVI) with specific DVI paperwork[25,26]. The Civil Contingencies Act 2004 c 36[27] defines the roles and responsibilities of all agencies involved in civil emergencies, such as mass fatalities.

Local Resilience Forums (LRFs), including the coroner/procurator fiscal, are responsible for emergency planning and should consult with mortuary, pathology and imaging services when designing any response to mass fatalities. It is recommended that organisations ascertain that this has taken place. Further information may be obtained from the UK IAFR website.

Imaging services should be involved in writing/reviewing their organisation's emergency plans and should liaise with LRFs, as needed, to ensure they are properly integrated.

Mass fatality incidents may be dealt with by the UK DVI radiography team. This is a national team of radiographers, members of UK IAFR, with accredited training and experience in radiography for forensic purposes and mass fatalities radiography. This team has the capacity to provide a co-ordinated response to mass fatality incidents and advise national, regional and local authorities on radiography issues when planning for such incidents.

It is recommended that the UK DVI radiography team is contacted in the event of a mass fatality incident. Where a local radiographic service is approached, they should have the education and training to deliver the imaging to the same standards.

5 Training and education

Forensic and PM radiography is only to be undertaken by staff with specific training and education to ensure a thorough knowledge of legislation and regulations appropriate to their role. Training requirements should be detailed in the department's forensic and PM imaging policy/protocol. See Appendix C for examples of how training can be recorded. Staff should have relevant and up-to-date knowledge and experience. This should be regularly documented as part of a CPD portfolio. This should include but not be limited to:

- attendance at multidisciplinary team (MDT) meetings relevant to forensic and PM imaging
- participation in audit, service and quality improvement activities
- appropriate imaging techniques to meet the requirements of radiography for forensic purposes
- specialist modality imaging, such as paediatric SPA radiography
- anatomy and common pathologies seen in SPA, forensic and non-suspicious deaths
- medico-legal issues relating to the admissibility of evidence
- national and local health and safety regulations, particularly with regard to the handling of deceased subjects

- different cultural and religious sensitivities associated with the deceased and their relatives
- appropriate communication skills for dealing with subjects who have undergone a traumatic experience
- statutory legislation, government, professional and local guidelines related to radiography for forensic purposes
- knowledge of raising concerns, especially for their department
- mandatory training in safeguarding to at least level 2, and at least level 3 where involved full time or significantly within paediatric radiography or SPA[28]

5.1 Radiographers

Radiographers working in forensic and PM radiography should follow the guidance in the CoR's *Education and Career Framework (ECF)* for enhanced, advanced and consultant-level practice[29].

There should be a designated lead radiographer for forensic and PM imaging services in a sufficiently senior position to influence and implement service change and support forensic radiographers. They may be in an enhanced, advanced or consultant radiographer role and should meet the criteria defined in the *ECF*[29], i.e. Master's (level 7) qualification in forensic imaging practice, plus development in the four pillars of practice focused on forensic and PM radiography.

All radiographers who undertake forensic and PM imaging should undertake Master's level post-registration education and training relevant to their forensic radiography scope of practice.

All radiographers must undertake CPD for their forensic scope of practice which could include study days and webinars by a recognised expert organisation, such as IAFR or in-house with a suitably qualified person. All CPD must be recorded as defined by the HCPC standards for continuing professional development[30].

5.2 Assistant practitioners

Imaging APs may be assisting the radiographer for certain examinations and will require department training as listed at the start of this section. This training could be carried out by the lead forensic radiographer in the imaging department.

5.3 Pre-registration radiography students

The CoR's *Education and Career Framework*[29] recommends that diagnostic radiography practitioners

should have a basic awareness of the principles of forensic and PM imaging. Education should be provided by a suitably qualified person as part of the HEI teaching team or can be provided by UK IAFR.

5.4 Other staff

All staff involved in forensic and PM imaging should have sufficient training to deliver their roles. This may include:

- good practice when involved in forensic and PM imaging
- medico-legal aspects of forensic and PM imaging
- manual handling of the deceased
- role-specific training (e.g. for anyone witnessing imaging (see section 3.3: Continuity of evidence)

6 Establishing services

6.1 Where to start

If considering setting up a forensic or PM imaging service, initial agreements will need to be sought with appropriate personnel. Defining the service is crucial before consulting others whose advice or input may be required, as detailed below.

Imaging in a clinical department will have different considerations than in a dedicated PM imaging unit/facility.

The following points explain who to consult and why.

6.1.1 The coroner / procurator fiscal

The coroner/procurator fiscal is responsible for the deceased in their jurisdiction in their lawful control. No one can proceed with an investigation without their permission, including the police. The coroner/procurator fiscal has the authority to determine who examines the deceased (and who may not) and what that examination will involve.

Contacting the coroner/procurator fiscal at the start of the process is essential and their advice and approval should be sought throughout setting up and running a service.

6.1.2 Pathologists

Forensic imaging service

Forensic pathologists must be registered with the Home Office, the Crown Office (Scotland) and State Pathologist's Department (Northern Ireland), depending on where they are working.

They will have agreements to work in local mortuaries and may have honorary contracts in NHS mortuaries. Some forensic pathologists are keen to have imaging as an adjunct to an autopsy. Others are less so.

Paediatric imaging service

Paediatric pathologists investigate most non-suspicious deaths of children, but for suspicious deaths will need to work with a forensic pathologist. Most paediatric pathologists find imaging a useful adjunct to autopsy.

Non-suspicious death (PM imaging) service

Pathologists who complete non-suspicious ('natural death') autopsies may be employed by hospitals and complete autopsies as part of their job. Others may work solely as private autopsy practitioners or be employed as histopathologists and complete autopsies as private practice.

6.1.3 Mortuary / pathology

The mortuary management and staff have a wealth of knowledge and skills that can be helpful when setting up PM imaging services. Infection prevention, health and safety and manual handling can be different when dealing with the deceased. The mortuary team may advise imaging staff on issues to consider when setting up a service.

When starting discussions on a PM imaging service, the imaging team should be mindful of the service impact on the mortuary staff and service.

A PM imaging service will directly impact on mortuary work and so establishing a relationship with the mortuary/pathology management early in the process can be hugely beneficial.

6.1.4 Senior management / organisational management

Setting up PM imaging services in a clinical department may be perceived as a threat to clinical service capacity. Consideration of equipment, staff and service capacity alongside costs and income generation will need to be explored with senior imaging managers and the executive team.

A dedicated unit within a hospital mortuary will have different considerations to a non-hospital-based facility.

For non-hospital-based facilities senior management need to be aware of the regulation and governance relating to the use of ionising radiation or high strength magnetic fields.

6.1.5 Physics provision

Physicists must be involved in any new service development. Existing clinical services should consult their Radiation Protection Advisor (RPA) and Medical Physics Expert (MPE) for advice on extending service delivery to PM imaging. Where MRI is to be delivered a relevant Magnetic Resonance Safety Expert (MRSE) should be consulted. New facilities whether hospital based or not will need to consult a radiation service at initiation of the project to ensure all aspects of radiation protection and regulation are considered at the design phase.

6.2 Next steps / how will the services run

6.2.1 Staffing: roles and responsibilities

Agreement should be reached regarding the roles of all staff involved and their responsibilities.

6.2.1.1 Pathology and mortuary staff

Pathology and particularly mortuary staff have a wealth of experience in dealing with the deceased. Training is needed for preparing the deceased for PMCT angiography and ventilation.

Mortuary staff are responsible for the deceased in the mortuary.

It is recommended that, if involved, pathologists have a central co-ordinating role[9]. In some centres there may not be any pathologists. The imaging department is advised to establish processes with their local coroner/procurator fiscal, as radiologists may be responsible for providing the cause of death.

6.2.1.2 Clinical imaging staff

Radiographers are responsible for the deceased when they are in the imaging department. Radiographers should perform the forensic and PM imaging and may be supported by APs when undertaking PM imaging.

Consideration should be given to dedicated administrative support, with appropriate training, to ensure the efficient and secure running of the service.

6.2.1.3 Transfers between the mortuary and imaging departments

The agreed and documented process for those completing the transfers between the mortuary and imaging departments should include:

- correctly identifying the deceased
- responsibilities of those transferring the body
- relevant documentation recording the staff involved

A log of who has completed the transfer is required by the HTA. An example transfer form is provided in Appendix D.

6.3 Referral pathways

Services can operate in diverse ways depending on local requirements. The information below gives examples of how services could operate.

It is recommended that the coroner/procurator fiscal agrees the process for the forensic and PM imaging service, along with the pathology and imaging departments. Some coroners/procurator fiscals may wish to lead the service and determine which examination each deceased will have. Others may want to have the pathologists or radiologists decide.

Ideally, referral pathways for the forensic and PM imaging service should reflect clinical referrals; however, it is important to note that access to radiology systems is not universal and alternative referral methods may be needed.

Agreement should be made as to how the deceased will be recorded on hospital and radiology electronic records and if anonymisation is needed.

6.3.1 Basic referral pathway

A basic referral pathway is shown in Figure 3. Attendance can be recorded on a RIS and the imaging completed from the RIS list, ensuring all the information is correct. In the absence of a RIS list, the identifying data will need to be recorded manually. Care must be taken to enter the data accurately.

Modern PACS systems support secure storage and limited access. If the coroner/procurator fiscal has asked for the imaging to be reported offline, an auto-report can be set up explaining this. The report generated is written only for the coroner/procurator fiscal and should not be available for anyone else to access.

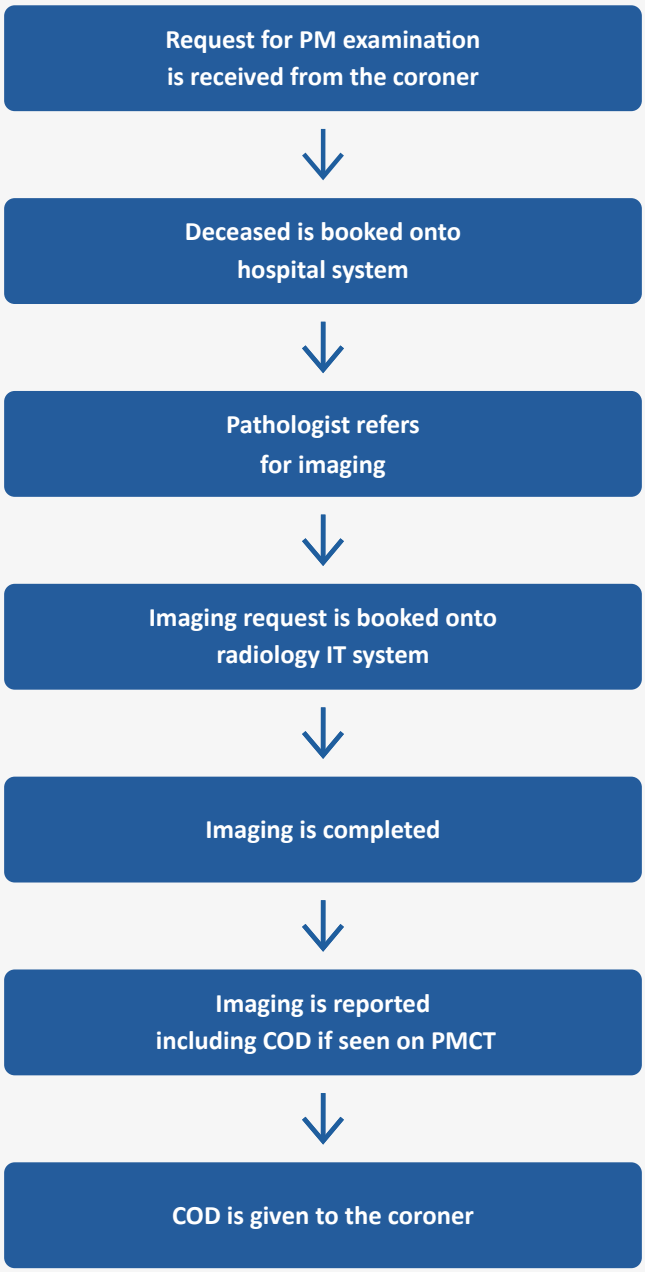

Figure 3. A basic referral pathway. (COD = Cause of death).

This process may not work in all cases and other considerations are explained below.

6.3.2 Forensic or paediatric pathway

Forensic requests are unpredictable and may occur in or out of hours. A suggested pathway is shown in Figure 4. There should be a point of contact identified for all times of the day and night. These contacts should be identified by named role, e.g. secretary/administrator, forensic lead, nominated radiographer, manager on call.

It is unlikely forensic and paediatric pathologists will be NHS employees so referrals may not be possible through radiology systems. Paper request forms could be an option and an example is provided in Appendix E. The forensic or paediatric pathologists may not be on-site to complete a form and it is recommended to obtain the imaging request before the deceased arrives in the department; consideration could be given to accepting requests by email.

Referrals may be made verbally by telephone. An email or formal request must be provided at the earliest opportunity. The process for referrals and requesting images will be described in a standard operating procedure (SOP).

Emails must be encrypted or from an email compatible with NHS security and verifiably from the referrer, e.g. using a work email address. For further information see NHS Digital's Guidance for sending secure email. If a formal referral is not immediately available, all the information that is required should be provided before the deceased arrives in the department.

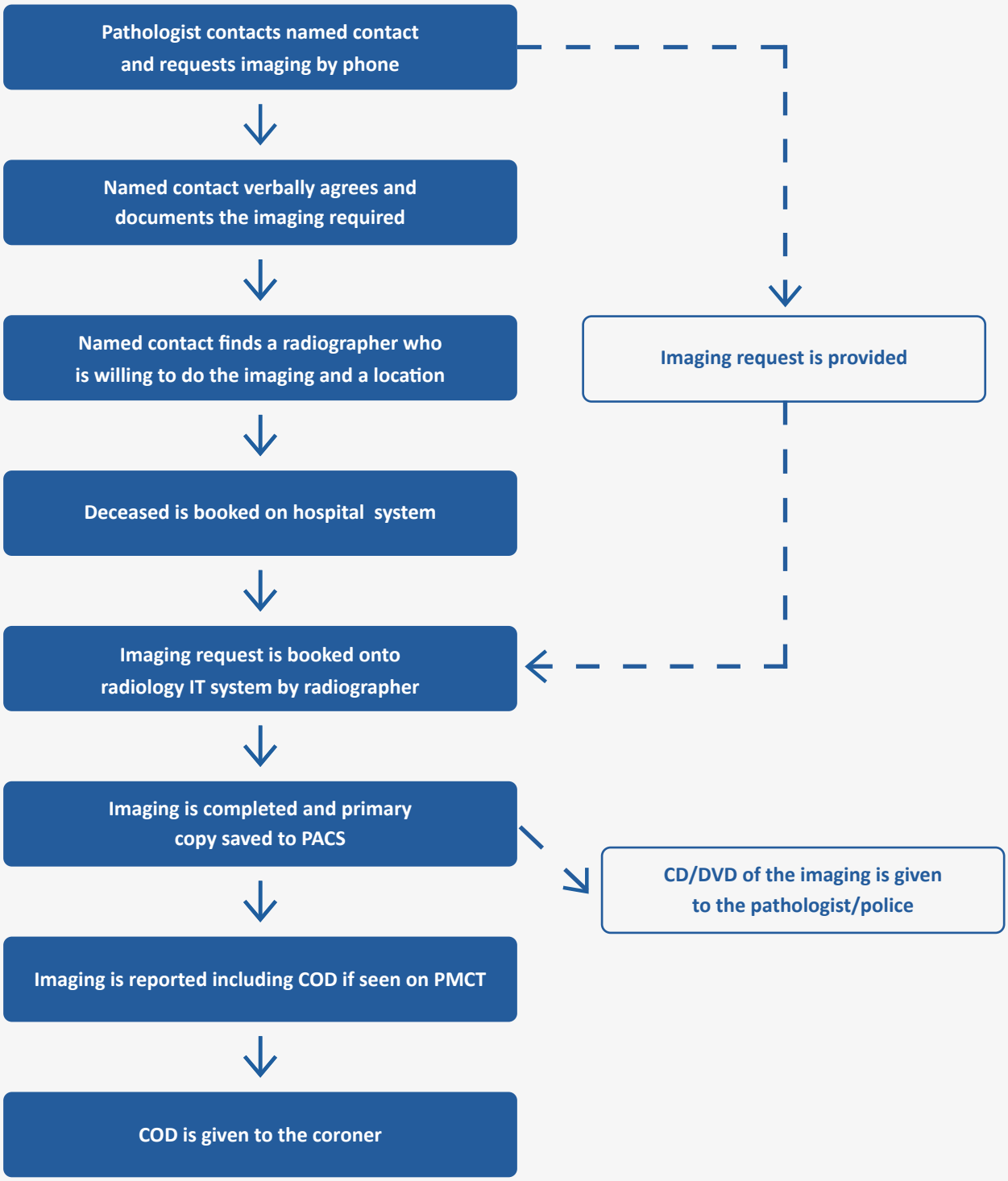

Figure 4. An example forensic or paediatric referral pathway.

6.3.3 PM imaging service

For a non-suspicious coroner/procurator fiscal led service, the coroner/procurator fiscal will decide what examination is completed. An example of how such a service may work is given in Figure 5. An external examination is required prior to imaging. This work should be arranged during normal working hours and should be through an imaging administrator.

The imaging and reporting may be completed during working hours, if there is capacity, or out of hours. The radiologist will report the imaging and provide a report for the coroner/procurator fiscal.

A PM imaging service may also be led by a pathologist, if instructed to do so by a coroner/procurator fiscal. The pathologist will determine what examination they want after completing the external examination. The imaging will be reported by radiologists. The radiology report will be given to the pathologist, who will determine the COD and inform the coroner/procurator fiscal.

Figure 6 shows an example of a pathologist-led pathway.

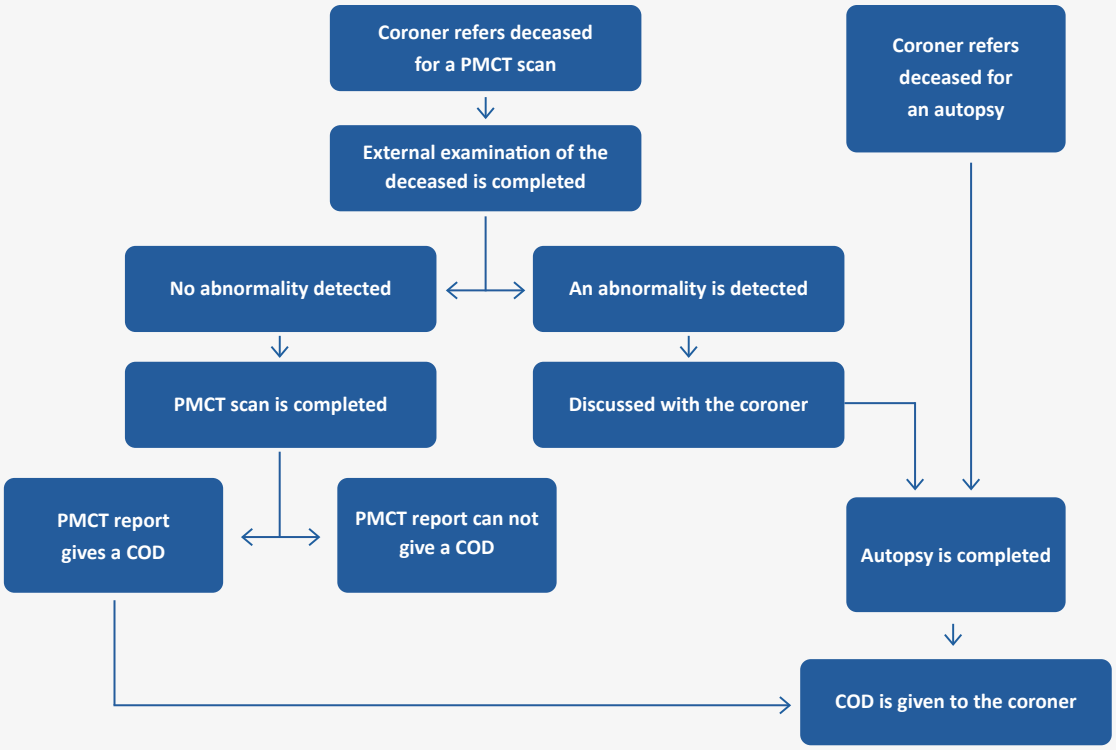

Figure 5. An example of a coroner/procurator fiscal led non-suspicious death service.

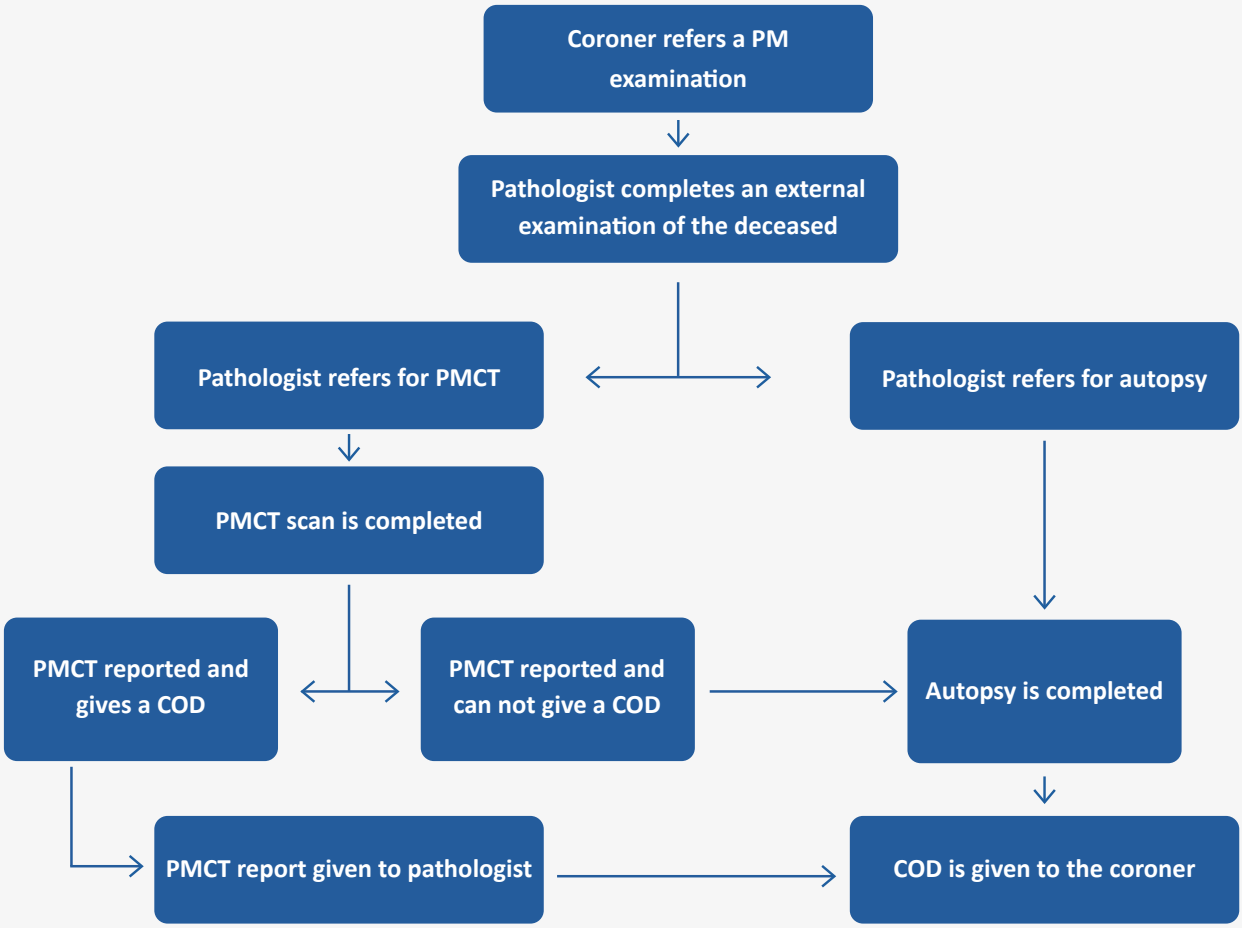

Figure 6. An example of a pathologist led non-suspicious investigation pathway.

6.3.4 Family funded service

Ideally, a PMCT service to replace autopsy in non-suspicious deaths would be funded by the local authority. This is not available in all areas and a family may want to pay for PM imaging to try to avoid an invasive autopsy.

When an imaging department decides to offer a family funded service, information must be available to explain the strengths and limitations of PMCT, the timescale involved, the cost and that an autopsy may still be required.

A clear process must be in place to ensure the service operates efficiently and as quickly as possible, in line with agreed timescales. Families contacting an imaging department to request PM imaging should speak with staff trained to answer the questions and with an awareness of dealing with the deceased. A system to enable families to make payment for the imaging needs to be established.

6.3.5 Priorities and timescales

The forensic pathologist will set the timescale in which the imaging needs to be completed, e.g. if the police have someone in custody. This work may need to given priority over other PM imaging.

Suspected physical abuse in the living may be prioritised if clinical need requires it. It is recommended that the imaging should be completed and reported within 24 hours (and no later than 72 hours) of the request being made[4].

Coronial referrals may need to be prioritised on a case-by-case basis. The coroner/procurator fiscal will direct the prioritisation required. Some non-suspicious imaging can detect unexpected injuries which can mean they need to be escalated to a forensic investigation. This is more common in paediatric cases.

When establishing a new service, timescales, from referral to the cause of death being issued, need to be agreed with service commissioners. These may include:

- receipt of referral for PM examination to booking the imaging
- receipt of referral to imaging
- imaging to report
- report to cause of death being issued

This can help manage the expectations of the service users, the coroner/procurator fiscal, pathologists and ultimately the families of the deceased.

6.3.6 Communicating with families / next of kin of the deceased

It is usual practice for all communication to go through the coroner/procurator fiscal's office. Agreeing a communication strategy with the coroner/procurator fiscal regarding who will speak to the families/next of kin (NoK) of the deceased is recommended. This will help prevent families/NoK being given inaccurate or incorrect information. Information for families/NoK about PM imaging, including timescales, should be available either as a patient leaflet or on a website.

Imaging staff should be instructed not to discuss the findings of the imaging with families/NoK and refer them to the coroner/procurator fiscal's office.

6.3.7 Communication in live examinations

For live examinations, imaging staff should be instructed not to discuss the findings of the imaging with families. They should recommend they speak to the referrer.

6.4 Modalities and equipment

The type of service commissioned will dictate what imaging is required.

A paediatric service will require projectional imaging and access to CT scanning. MRI scans are also required to diagnose some pathologies.

Adult services can be operated with fluoroscopy and projectional imaging but this will be as an adjunct to an autopsy. To be able to replace an autopsy, cross-sectional imaging, usually PMCT, is required.

Imaging equipment in use in hospitals in the UK is suitable for forensic and PM imaging. However, if procuring a CT scanner for dedicated forensic and PM imaging, a long scan length is beneficial. Further advice on imaging equipment procurement for forensic and PM work can be provided by UK IAFR.

Departments must have quality assurance and controls in place for all equipment, in line with legislative requirements and regulations. Medical physicists can advise on the requirements.

6.5 Imaging protocols

High-quality imaging is essential to ensure accurate diagnosis. Imaging protocols of the living must abide by IR(ME)R 2017[12,13]. IR(ME)R 2017 does not apply to the deceased and so PM imaging protocols can be designed to maximise image quality.

Imaging protocols should follow national guidelines where available. An example standard imaging protocol that is recognised best practice is provided in Appendix A. Departments setting up new services should consult their radiation protection advisor and radiation safety/medical physics expert for image optimisation and to ensure that radiation protection is adequate for high kVp and high mAs techniques.

All imaging protocols must be agreed with the coroner/procurator fiscal, radiologists and pathologists. Imaging techniques should only be performed when the radiographers have been educated, trained and assessed as competent.

The departmental policy/procedure should identify the job role responsible for ensuring protocols are kept up to date.

Example imaging and scanning protocols are available from UK IAFR.

6.6 Audit and quality assurance / improvement

Good practice suggests that a PM imaging service should be subject to audit[31]. The service should be audited to show improvements to the system, for example:

- staff training
- staff availability
- timescales
- communication
- image quality
- monitoring activity
- benchmarking against other providers/national data (e.g. annual national Coroners statistics)

See Appendix F for mapping to the Quality Standards for Imaging (QSI).

Multidisciplinary team meetings will give pathologists, radiologists and radiographers the opportunity to discuss cases. This is particularly informative if the two groups have not worked together before. Inviting the coroner/procurator fiscal to discuss progress can be helpful.

6.7 Funding the services

Forensic and PM imaging services will be contracted and the employer will usually hold the contract. Radiology service managers should be involved in all discussions where work is being performed using NHS facilities. Funding streams associated with forensic and PM imaging must be established. This may include:

- hardware
- system support
- staff costs
- maintenance and quality assurance (QA)/physics support
- RIS codes/modality fees

Negotiations will cover who is going to pay for the service, e.g. coroner/procurator fiscal, police, local authority. Although all imaging is completed for the coroner/procurator fiscal, they may not pay for it.

All imaging is paid for via the referral routes. This may be by direct invoicing to the coroner/procurator fiscal, local authority, police or referral department. This is by local agreement. There is no NHS tariff rate or standard payment level for forensic and PM imaging work.

6.8 Paying radiographers

Work performed during contractual hours does not accrue an additional fee.

There is no national rate for forensic and PM imaging. When forensic and PM imaging is completed outside of contractual hours there should be a locally agreed rate that takes into account the skill needed, how long it takes to complete the imaging and the time of day it was completed.

7 References

1. The Society of Radiographers. Guidance for Radiographers Providing Forensic Radiography Services. Available from: https://www.sor.org/learning-advice/professional-body-guidance-and-publications/documents-and-publications/policy-guidance-document-library/guidance-for-radiographers-providing-forensic-radi [accessed January 17, 2024].

2. The Society of Radiographers. Standards of Radiographic Practice for Post-Mortem Cross-Sectional Imaging (PMC-SI). Available from: https://www.sor.org/learning-advice/professional-body-guidance-and-publications/documents-and-publications/policy-guidance-document-library/standards-of-radiographic-practice-for-post-mortem [accessed January 17, 2024].

3. The Health and Care Professions Council. Standards of continuing professional development. Available from: https://www.hcpc-uk.org/standards/standards-of-continuing-professional-development/ [accessed January 18, 2024].

4. The Society of Radiographers and The Royal Society of Radiologists. The radiological investigation of suspected physical abuse in children, revised first edition. Available from: https://www.rcr.ac.uk/media/nznl1mv4/rcr-publications_the-radiological-investigation-of-suspected-physical-abuse-in-children-revised-first-edition_november-2018.pdf.

5. Shelmerdine SC., Hutchinson JC., Lewis C., Simcock IC., Sekar T., Sebire NJ., et al. A pragmatic evidence-based approach to post-mortem perinatal imaging. Insights Imaging 2021;12(1):101. Doi: 10.1186/s13244-021-01042-1.

6. The Society of Radiographers. Developing career pathways for diagnostic imaging support worker roles guidance on roles and responsibilities. Available from: https://www.sor.org/learning-advice/professional-body-guidance-and-publications/documents-and-publications/policy-guidance-document-library/developing-career-pathways-for-diagnostic-imaging [accessed January 18, 2024].

7. Coroners and Justice Act 2009. Legislation.Gov.Uk. Available from: https://www.legislation.gov.uk/ukpga/2009/25/contents [accessed January 17, 2024].

8. Chief Coroner's Guidance No.1 The use of Post-Mortem Imaging (Adults). Courts and Tribunals Judiciary. Available from: https://www.judiciary.uk/guidance-and-resources/chief-coroners-guidance-no-1-the-use-of-post-mortem-imaging-adults/ [accessed January 17, 2024].

9. The Royal College of Pathologists and The Royal College of Radiologists. Guidelines for post-mortem cross-sectional imaging in adults for non-forensic deaths. Available from: https://www.rcpath.org/static/666dbf95-de06-44ad-89c3b4e5f1ceab79/G182-Guidelines-for-post-mortem-cross-sectional-imaging.pdf [accessed January 18, 2024].

10. Human Tissue Authority. Code B - Post-mortem examination. Available from: https://content.hta.gov.uk/sites/default/files/2023-06/Code%20B%20-%20Post-mortem%20examination.pdf [accessed January 17, 2024].

11. The Society of Radiographers. Obtaining consent: a clinical guideline for the diagnostic imaging and radiotherapy workforce. Available from: https://www.sor.org/learning-advice/professional-body-guidance-and-publications/documents-and-publications/policy-guidance-document-library/obtaining-consent-a-clinical-guideline-for-the-dia [accessed January 18, 2024].

12. The Ionising Radiation (Medical Exposure) Regulations 2017. Legislation.Gov.Uk. Available from: https://www.legislation.gov.uk/uksi/2017/1322/contents/made [accessed January 17, 2024].

13. The Ionising Radiation (Medical Exposure) Regulations (Northern Ireland) 2018. Legislation.Gov.Uk. Available from: https://www.legislation.gov.uk/nisr/2018/17/contents/made [accessed June 30, 2023].

14. IR(ME)R: Implications for clinical practice in diagnostic imaging, interventional radiology and diagnostic nuclear medicine | The Royal College of Radiologists. Available from: https://www.rcr.ac.uk/our-services/all-our-publications/clinical-radiology-publications/ir-me-r-implications-for-clinical-practice-in-diagnostic-imaging-interventional-radiology-and-diagnostic-nuclear-medicine/ [accessed January 17, 2024].

15. The Society of Radiographers. Use of anatomical side markers. Available from: https://www.sor.org/learning-advice/professional-body-guidance-and-publications/documents-and-publications/policy-guidance-document-library/use-of-anatomical-side-markers [accessed January 17, 2024].

16. Human Tissue Authority. Code A - Guiding principles and the fundamental principle of consent. Available from: https://content.hta.gov.uk/sites/default/files/2023-06/Code%20A%20-%20Guiding%20principles%20and%20the%20fundamental%20principle%20of%20consent.pdf [accessed January 17, 2024].

17. The Society of Radiographers. Preventing Patient Identification Incidents in Diagnostic Imaging, Nuclear Medicine and Radiotherapy – guiding principles for safe practice in the United Kingdom. Available from: https://www.sor.org/getmedia/167b7d6d-c2df-4f5d-ba66-e18f2039cf0f/Preventing-Patient-ID-Errors-Guidance-20052022 [accessed January 17, 2024].

18. Health and Safety at Work etc. Act 1974. Legislation.Gov.Uk. Available from: https://www.legislation.gov.uk/ukpga/1974/37 [accessed January 18, 2024].

19. Health and Safety Executive. Managing infection risks when handling the deceased. Hse.Gov.Uk. Available from: https://www.hse.gov.uk/pubns/priced/hsg283.pdf.

20. National Institute for Health and Care Excellence. Post-traumatic stress disorder | NICE guideline 116. Available from: https://www.nice.org.uk/guidance/ng116/resources/posttraumatic-stress-disorder-pdf-66141601777861.

21. Dstl. Digital Imaging and Multimedia Procedure v3.0. GOV.UK. Available from: https://www.gov.uk/government/publications/digital-investigations-digital-imaging-and-multimedia-procedure/digital-imaging-and-multimedia-procedure-v30 [accessed January 17, 2024].

22. NPCC Retention, Storage and Destruction of Materials and Records relating to Forensic Examination Guidance V1 | FCN. Available from: https://www.fcn.police.uk/node/142 [accessed January 17, 2024].

23. Records Management Code of Practice. NHS Transformation Directorate. Available from: https://transform.england.nhs.uk/information-governance/guidance/records-management-code/ [accessed January 17, 2024].

24. Specialist resources | College of Policing. Available from: https://www.college.police.uk/app/civil-emergencies/civil-contingencies/specialist-resources [accessed January 18, 2024].

25. Disaster Victim Identification (DVI). Available from: https://www.interpol.int/en/How-we-work/Forensics/Disaster-Victim-Identification-DVI [accessed January 18, 2024].

26. Disaster victim identification | College of Policing. Available from: https://www.college.police.uk/app/civil-emergencies/disaster-victim-identification [accessed January 18, 2024].

27. Civil Contingencies Act 2004. Legislation.Gov.Uk. Available from: https://www.legislation.gov.uk/ukpga/2004/36/contents [accessed January 18, 2024].

28. The Royal College of Nursing. Safeguarding Children and Young People: Roles and Competencies for Healthcare Staff. Available from: https://www.rcn.org.uk/Professional-Development/publications/pub-007366 [accessed January 18, 2024].

29. The Society of Radiographers. Education and Career Framework for the Radiography Workforce. Available from: https://www.sor.org/learning-advice/professional-body-guidance-and-publications/documents-and-publications/policy-guidance-document-library/education-and-career-framework-fourth [accessed January 17, 2024].

30. Our standards for CPD |. Available from: https://www.hcpc-uk.org/cpd/your-cpd/Our-standards-for-cpd/ [accessed January 18, 2024].

31. The Royal College of Radiologists. Quality Standard for Imaging (QSI). Available from: https://www.rcr.ac.uk/our-services/management-service-delivery/quality-standard-for-imaging-qsi/ [accessed January 19, 2024].

8 Abbreviations

AM	Ante mortem (before death)
AP	Assistant practitioner
APTs	Anatomical Pathology Technologists
BSPR	British Society of Paediatric Radiology
COD	Cause of death
CoR	College of Radiographers
COSHH	Control of Substances Hazardous to Health
CPD	Continuing Professional Development
CT	Computed Tomography
DI	Designated Individual
DICOM	Digital Imaging and Communications in Medicine
DVI	Disaster Victim Identification
ESPR	European Society of Paediatric Radiology
FR	Forensic radiography
GDPR	General Data Protection Regulations
HCPC	Health and Care Professions Council
HEI	Higher Education Institution
HSE	Health and Safety Executive
HTA	Human Tissue Authority
IAFR	International Association of Forensic Radiographers
IR(ME)R	Ionising Radiation (Medical Exposure) Regulations
ISFRI	International Society of Forensic Radiology and Imaging
LRF	Local Resilience Forum
MPE	Medical Physics Expert
MRI	Magnetic Resonance Imaging
NHS	National Health Service
NICE	National Institute for Health and Care Excellence

NMI	**Non-medical imaging**
NoK	**Next of kin**
PACS	**Picture Archiving and Communication System**
PM	**Post-mortem (after death)**
PMCT	**Post-mortem computed tomography**
PMMRI	**Post-mortem magnetic resonance imaging**
PTSD	**Post-traumatic stress disorder**
QA	**Quality assurance**
QSI	**Quality Standards in Imaging**
RCR	**Royal College of Radiologists**
RCPath	**Royal College of Pathologists**
RIS	**Radiology information system**
RPA	**Radiation Protection Advisor**
SCoR	**Society and College of Radiographers**
SIG	**Special interest groups**
SoR	**Society of Radiographers**
SPA	**Suspected physical abuse**
SUDI	**Sudden unexpected death in infancy**
TRiM	**Trauma Risk Management**
UK IAFR	**UK branch of IAFR**

Appendices

The contents within the appendices of this guidance document are intended for use as examples only and have not been developed by the SoR. Any adaptation of the examples provided here, or use of this content directly, is done so without endorsement by the SoR. This guidance document should be referenced as the source of this information.

Appendix A: A skeletal survey protocol

The following information has been adapted from the publication *The radiological investigation of suspected physical abuse in children*[4].

A skeletal survey should include:

- AP skull
- Lateral skull (including c-spine)
- AP chest
- Bilateral oblique ribs
- AP abdomen (including pelvis)
- Lateral whole spine
- Bilateral AP humeri
- Bilateral AP radiuses and ulnas
- Bilateral coned lateral elbows
- Bilateral coned lateral wrists
- Bilateral DP hands (including wrists)
- Bilateral AP femurs
- Bilateral AP tibias/fibulas
- Bilateral coned lateral knees
- Bilateral coned lateral ankles
- Bilateral DP feet

AP imaging of the whole upper or lower limbs as a single view may be possible in babies. Coned views of the joints would also be required.

Appendix B: An example of a post-mortem imaging placement agreement

The following example has been reproduced with permission from University Hospitals of Leicester NHS Trust.

NHS
University Hospitals of Leicester
NHS Trust

Student's name:

Student's date of birth:

Dates of placement (if known):

We, the University of (name of university), agree to the student named above undertaking a placement at (name of placement) in post-mortem imaging and accept responsibility for the welfare of our student during their placement.

Please provide details of a tutor/lecturer who can be contacted during the placement if there are any concerns for the student's welfare.

Tutor/lecturer name:

Email address:

Mobile number:

Office number:

Signature of person completing the form:

_____

Name:

Position:

Date:

Appendix C: An example of training records

The following examples have been reproduced with permission from Manchester University NHS Foundation Trust.

NHS
Manchester University
NHS Foundation Trust

Post-mortem radiography induction checklist

Radiographers within Royal Manchester Children's Hospital (RMCH) x-ray who wish to provide this service need to have been formally assessed as competent. You will have:

- Observed a minimum of two examinations carried out by an experienced radiographer
- Done a minimum of two full skeletal survey examinations together with an experienced radiographer in which you set the exposures, recorded the images performed, liaised with the consultant radiologist and post processed the examination
- Done a minimum of two full skeletal survey examinations together with an experienced radiographer where you are responsible for patient positioning
- Carried out a minimum of two skeletal survey examinations unassisted but observed

A record of experience should be completed, signed by the accompanying radiographers and then signed by the lead radiographer. A copy of this together with a short reflective piece with regards to the important aspects of paediatric forensic radiography should be given to the radiology department manager.

	Date	Experienced radiographer
Observed		
Observed		
Set exposures etc.		
Set exposures etc.		
Positioning		
Positioning		
Full skeletal survey		
Full skeletal survey		

Signature of lead radiographer:

Date:

NB. Once you have completed your induction you will be added to the list of radiographers who can be contacted out of hours and asked if you are available to come in and carry out an examination.

NHS
Manchester University
NHS Foundation Trust

Skeletal survey induction (SPA/Genetics)

Radiographers within RMCH x-ray will be required to have been formally assessed as competent prior to undertaking skeletal surveys unsupervised. You will need to have:

- Observed a **minimum of two** examinations carried out by an experienced radiographer
- Done a **minimum of two** full skeletal survey examinations together with an experienced radiographer in which you set the exposures, recorded the images performed, liaised with the consultant radiologist, if necessary, and post processed the examination
- Done a **minimum of two** full skeletal survey examinations together with an experienced radiographer where you are responsible for patient positioning
- Carried out a **minimum of three** skeletal survey examinations unassisted but observed – at least **one** of which should be for ?SPA

A record of experience should be completed, signed by the accompanying radiographers and then signed by the lead radiographer. A copy of this together with a short reflective piece with regards to the types of skeletal surveys you may be required to undertake should be given to the radiology department manager.

	Date	Type of survey	Experienced radiographer
Observed			
Observed			
Set exposures etc.			
Set exposures etc.			
Positioning			
Positioning			
Full skeletal survey			
Full skeletal survey			
Full skeletal survey			

Signature of lead radiographer:

Date completed:

Appendix D: An example transfer form

The following example has been reproduced with permission from University Hospitals of Leicester NHS Trust.

NHS
University Hospitals of Leicester
NHS Trust

First name		Mortuary No.	
Family name		Hospital No.	
Hospital No.		Fridge No.	
Date of birth		Imaging date and time	
Home address / place of death			
Case type ☐ Forensic case ☐ Coroner's paediatric case ☐ Coroner's adult case ☐ Hospital post-mortem			
Release from the mortuary To be completed by the mortuary staff performing the identity checks and releasing the deceased			
Name		Porter 1	
Signature		Porter 2	
Date and time		Date and time	
In imaging To be completed by the radiographers			
Radiographer 1		Radiographer 2	
Signature		Signature	
Imaging start time		Imaging end time	
Porter 1		Porter 2	
Return to mortuary To be completed by the mortuary staff performing the identity checks and receiving the deceased			

Name		**Signature**		**Date and time**	

Appendix E: An example forensic request form

The following example has been reproduced with permission from University Hospitals of Leicester NHS Trust.

NHS
University Hospitals of Leicester
NHS Trust

UHL forensic imaging request form

Type of case – forensic / coroner		Referring pathologist
Surname	First name	
Date of birth	Date of death	Police authority
Address		
Case history – or is coroner's history attached? Yes / No		Coroner
Imaging required		
Skeletal survey ☐	Dental imaging ☐	PMCT scan ☐ With angiography ☐
Other imaging / specific instructions		
Pathologist		
Signature	Phone number	Date

Appendix F: Mapping to Quality Standards for Imaging (QSI)

QSI Standard	QSI Statement	SoR FR and PM Guidance	QSI Standard	QSI Statement	SoR FR and PM Guidance	QSI Standard	QSI Statement	SoR FR and PM Guidance
XR-101	Imaging service information	X	XR-201	Service Leadership	X	XR-301	Clinical Scientific and Technical Support	X
XR-102	Procedure specific information	X	XR-202	Local Modality-specific Service Leadership	X	XR-302	Equipment Management	X
XR-103	Contact for Queries, Advice and Aftercare	X	XR-203	Staffing Levels and Skill Mix	X	XR-303	Equipment Quality Control and Quality Assurance	X
XR-104	Respect	X	XR-204	Service Competencies and Training Plan	X	XR-304	Support Services	
XR-105	Privacy Dignity and Security	X	XR-205	Agency Bank and Locum Staff		XR-401	Facilities and Equipment	X
XR-106	Communication Aids		XR-206	On-Call and Out-of-hours Working	X	XR-402	PACS and Radiology IT systems	X
XR-107	Environment		XR-207	Administrative and Clerical Support		XR-403	Moving and Handing Aids	X
XR-108	General Support for Patients and Carers		XR-208	Supporting Staff and Staff Wellbeing	X	XR-404	Equipment for Patients with Obesity	
XR-109	Patient, Carer and Service Partnerships		XR-209	Supporting Staff in Training	X			

QSI Standard	QSI Statement	SoR FR and PM Guidance	QSI Standard	QSI Statement	SoR FR and PM Guidance	QSI Stand-ard	QSI Statement	SoR FR and PM Guidance
XR-501	Referral Management guidelines	X	XR-510	Unexpected Diagnoses and Potential Medical Emergencies		XR-601	Operational Policy	X
XR-502	Consent	X	XR-511	Pathway and Condition-specific Protocols	X	XR-602	Imaging Timescales	X
XR-503	Image Optimisation	X	XR-512	Forensic Imaging	X	XR-603	Risk Management	X
XR-504	Imaging in Pregnancy		XR-513	Management of Medicines and Contrast Media	X	XR-604	Service Improvement	X
XR-505	Imaging of Children and Young People	X	XR-514	Ionising Radiation Safety	X	XR-605	Service Development Plan	X
XR-506	Imaging of Patients with Additional Requirements		XR-515	Hazardous Substances	X	XR-701	Quality Management System	X
XR-507	Infection Prevention and Control	X	XR-516	Health and Safety	X	XR-702	Data Collection	X
XR-508	Imaging Reporting Policy	X	XR-517	Artificial Intelligence / Machine Learning		XR-703	Audit	X
XR-509	Quantification	X				XR-704	Radiology Events and Learning Meetings	X

QSI Standard	QSI Statement	SoR FR and PM Guidance	QSI Standard	QSI Statement	SoR FR and PM Guidance	QSI Standard	QSI Statement	SoR FR and PM Guidance
XR-705	Monitoring of Key Performance and Indicators (KPIs)	X	CT-801	CT Specific Training	X	MR-801	Staffing	X
XR-706	Research	X	CT-802	Contrast Media and Renal Function Protocol	X	MR-802	MR Specific Training	X
XR-707	Review and Learning	X	CT-803	Trauma Management		MR-803	MR Governance	X
			CT-804	Clinical CT Pathways and Protocols	X	MR-804	Quality Assurance	X
			CT-805	Paediatric CT Protocols	X	MR-805	Environment and Equipment	X
To note: IR, US and NM modalities are not mapped. ''All the XR quality standards are applicable for the whole imaging service, including all aspects of general imaging service, projectional radiography fluoroscopy, theatre and mobiles.''[31].						MR-806	Safety Screening	X
						MR-807	Contrast Media and Renal Function Protocol	X
						MR-808	Clinical MR pathways and Protocols	X
						MR-809	Paediatric MR Protocols	X

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