Practice Standards for the Imaging of Children and Young People

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Summary

These standards have been produced by the Association of Paediatric Radiographers (APR) in conjunction with the Society and College of Radiographers (SCoR) following research undertaken to establish the provision of imaging services for children in adult and children’s hospitals. SCoR provides this guidance for the improvement of imaging services for children and young people to ensure staff are adequately trained and policies are in place to ensure effective practice.

Foreword

These standards have been produced by the Association of Paediatric Radiographers (APR) in conjunction with the Society and College of Radiographers (SCoR) following research undertaken to establish the provision of imaging services for children in adult and children’s hospitals. Recommendations include that professional bodies should provide guidance for the improvement of imaging services for children and young people to ensure staff are adequately trained and policies are in place to ensure effective practice. The recommendations are reproduced in Appendix A.

The emphasis of this document is to encourage employing authorities, radiography managers, universities and individual radiographers to:

- put the best interests of the child at the forefront of imaging practice
- recognise the unique emotional, psychological and physical requirements of children and young people
- recognise the resources and workforce required to provide a service to children and young people
- ensure the requirements for pre-registration education and training include appropriate education for and exposure to paediatric cases (Healthcare Commission 2007)
- ensure that post registration training is provided to meet the needs of the service
- ensure that knowledge of United Kingdom (UK) and European legislation is current
- observe the minimum requirements to maintain competence in imaging children and young people.
Acknowledgements

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1. Introduction

1.1 Children attending the imaging department are an integral feature of day to day practice and radiographers in the course of their daily work will be required to undertake procedures on children and young people from birth to adulthood in a variety of situations both as in and out patients.

1.2 In the UK, in a typical year, it has been estimated that up to half of infants under the age of 12 months and one quarter of older children will attend an Accident and Emergency Department. In any year, one in eleven children will be referred to a hospital out patients department and one in fifteen will be admitted to hospital. One in ten babies born each year will require admission to a neonatal unit of whom about 2% will require intensive care (DoH 2003). It is therefore highly likely that a radiographer, wherever they work, will be required to image a range of children of all ages.

1.3 It is important that children and young people of whatever age are not treated as ‘smaller’ adults either through the communication strategies used or in terms of radiation doses. Children are three to five times more sensitive to radiation than adults. In this group of patients, cumulative radiation exposure could have adverse effects in the long term, therefore radiation doses must be kept at the minimum required for adequate diagnosis. In the USA, the ‘Image Gently’ campaign, which is an alliance of 13 medical societies focuses on an effort to ensure that medical protocols for imaging children, particularly using Computed Tomography, keep pace with advances in technology. The campaign concludes that the techniques used in paediatric imaging are not necessarily always tailored to children's smaller bodies, resulting in radiation exposures that are greater than needed. http://www.imagegently.org/

1.4 The Kennedy report (1991) following the deaths of children undergoing heart surgery at the Bristol Royal Infirmary in the 1980s found that staff skilled in treating adults had no specific additional training in treating children and that facilities provided bore no relation to the differing needs of small children, older children or adolescents.

1.5 In the UK, children and young people from ethnic minority backgrounds make up approximately 20% of the total population aged less than 19 years; this is a higher proportion than older (ethnic minority) age groups which is approximately 6%. It is important therefore that the design and delivery of services for children and young people reflects this cultural diversity.

1.6 Standards in paediatric imaging are necessary because children and young people make up such a high percentage of patients in imaging that they should not be seen as a specialist requirement. However, it is recommended that a specialist radiographer with a paediatric role should be located in all general departments to co-ordinate the provision of children's facilities, protocols and guidelines and cascade staff update training on imaging children. A specialist radiographer who has completed post qualification education relevant to paediatrics should also undertake or supervise examinations which are complex and which may involve forensic and legal elements.

2. Definition of the child

The UN Convention on the Rights of the Child (CRC) defines the age of a child to be from 0-18 years [with certain exceptions] (UN CRC 1990). In England, Wales and Northern Ireland, a child is legally a
person who has not yet attained 18 years of age. However, under Section 8 of the Family Law Reform Act 1969, children aged 16-17yrs are deemed capable and competent to give consent to surgical, medical and dental examinations (including imaging) in the same way as a competent adult (SCoR 2006). In many other European countries, including Scotland, children are only accepted into children's hospitals up to 16 years or even less in some European countries (EACH 2008)

**Terminology**

Throughout this document, the term ‘paediatric’ is used in addition to the terms children and young people. The term ‘children’ is used to include babies and young children and the term ‘young person’ is used to include older children and young adults.

In general, the term ‘children’ or the term ‘paediatric’ is often used to cover all those under 18 years or age.

‘safeguarding children’ is now a preferred term to ‘child protection’.

### 3. Rights of the Child

The UN Convention on the Rights of the Child (UN CRC) which came into force in September 1990 and was ratified by the UK government in 1991, consists of 54 articles in all with 42 articles proclaiming within them the entitlement for special care and assistance of the human person in childhood. “Articles 43-54 are about how adults and governments should work together to make sure all children get their rights” UNICEF 2007.

### 4. Background

These standards make reference to the following SCoR publications:

- Guidance for Radiographers providing forensic radiography services (2008)
- Skeletal survey for suspected NAI, SIDS and SUDI: Guidance for Radiographers (2009)

And other relevant publications:

- Standards for radiological investigations of suspected NAI (RCR & RCPCH 2008)
- Safeguarding children and young people: roles and competencies for health care staff (RCPCH 2006)
- European Association of Children in Hospital Charter (2008)
- Improving Services for children in hospital (2007)
- Coming out of the Shadows: a strategy to promote participation of children and young people in RCPCH activity (2005)

Readers are also referred to the Self-evaluation model and tool on the respect of Children’s Rights in Hospital produced by the Task Force on Health promotion for Children and Adolescents in and by Hospitals (HPH-CA) available via the EACH website: http://www.each-for-sick-children.org/
5. Standard Requirements

5.1 The expectations of the professional body are that all radiographers registered with the Health Professions Council are competent to carry out imaging procedures on children of all ages from birth to adulthood. However, there are circumstances whereby supervision may be necessary when the radiographer lacks experience in a specific imaging procedure.

5.2 Post registration education and clinical training in paediatric imaging must be undertaken by any radiographer who might be required to undertake imaging in relation to examinations which are complex and which may involve forensic and legal elements.

5.3 Training leading to Safeguarding Children (previously known as Child Protection) at Level 2 for radiographers must be provided as part of an induction programme upon appointment and updated on a regular basis. Training at Level 3 will be required for specialist paediatric radiographers with managerial or full time responsibilities with children (SCoR Child and the Law 2005; RCPCH 2006).

5.4 Student radiographers should, if possible, undertake imaging procedures on children of all ages. During the procedure, the student radiographer must be directly supervised and monitored throughout by a qualified member of staff.

5.5 Assistant practitioners must not undertake any imaging procedures on a child of any age unless appropriate direct supervision safeguarding the child is in place. The imaging of children frequently requires adaptation of technique and therefore this would preclude the assistant practitioner from independently undertaking the Examination (SCoR The Scope of Practice of Assistant Practitioners in Clinical Imaging 2007).

5.6 Assistant practitioners and radiography helpers should be encouraged to participate by supporting the radiographer during the imaging of children or young people.

5.7 The development of evidence based protocols and guidelines involving multi-disciplinary teams and patient groups together with NICE appraisals and guidelines that apply to children will be instrumental in achieving high standards of care for children and young people (DoH 2003).

5.8 Multi-disciplinary child-specific clinical audits should be undertaken in all specialties in which children are treated (DoH 2003).

6. Standards for paediatric imaging

Standard 1 EDUCATION:

Radiographers must be educationally prepared and clinically competent to undertake examinations on any child or young person between birth and adulthood.

Student radiographers within pre-registration education must develop competencies in knowledge, understanding and skills in paediatric imaging.

These must be in the following areas:

- Safeguarding children and promoting the welfare of children; students need to be trained, updated, supported and supervised
- physical, psychological and emotional development stages in childhood
- common paediatric pathologies and their radiographic manifestation
• paediatric radiation protection, radiobiological risk factors and dose reduction strategies
• awareness of national as well as local guidance and procedures on child protection
• communication skills with children of different ages
• developing listening skills including those specific to children with special needs
• use of appropriate strategies to handle fearful and uncooperative children
• distraction techniques and how to use them to good effect
• rationale and application of immobilization
• rights and responsibilities of the child (UNCRC)
• awareness of professional accountability to take appropriate action in reporting concerns
• childcare policies and techniques within a paediatric module and through clinical experience by attendance on a student placement (or an elective) at a specialist paediatric centre where possible.

RECOMMENDATION

It is recommended that:

1. undergraduate programmes should include a recognized component dedicated to issues relating to children and young people including communication, rights and legal issues
2. students undertake paediatric experience over the length of the radiography undergraduate course by undertaking a paediatric clinical placement if at all possible.

Post-registration education. In addition to the above, individuals must seek to maintain competence and to develop specific skills relevant to child protection issues including:

• CPD related to paediatric practice and the sharing of knowledge and practice with others
• further knowledge and understanding of child protection issues
• education and training in non accidental imaging (NAI) techniques
• education and mentoring of students
• professional and ethical leadership in matters relating to paediatric imaging
• undertaking Safeguarding Children training at level 2/3.

This standard conforms to:

Part Two Quality & Safety of Care Provided Standard for Hospital Services, National Service Framework (NSF) for Children which states that:
Children and young people should receive appropriate high quality, evidence-based hospital care developed through clinical governance and delivered by staff who have the right set of skills.

Article 8 of the European Association of Children in Hospital (EACH) Charter which states that:
Children shall be cared for by staff whose training and skills enable them to respond to the physical, emotional and developmental needs of children and families.

Article 24 of the UN Convention on the Rights of the Child (UNCRC) which states that:
Children have the right to good quality healthcare.

Standard 2 PRACTICE:

Paediatric practice must be of the highest standard to aid diagnosis. A high quality service must be provided through the safe and accurate performance of a deliberate plan of action. This must be based on an ethical approach and an understanding of the increased sensitivity of a child to ionising radiation.

The radiographer must:
ensure that all relevant information is available and collected concerning the patient’s clinical history and that the request for imaging is reviewed in that light to ensure appropriateness of the examination to be undertaken

• have knowledge of paediatric imaging techniques and radiographic manifestations of pathologies affecting the full age range of children

• decide on the most appropriate projections and modality dependent on agreed protocols

• utilise technical parameters to minimise dose, including exposure factors and reference to Diagnostic reference levels (DRLs)

• utilise appropriate radiation protection devices for the child and accompanying parent/guardian

• allow sufficient time for the procedure

• be cogniscent of procedures to be followed in cases of suspected child abuse

• be aware of safeguarding issues

• encourage the parent/guardian to be with the child during the procedure, where and when appropriate and if this is in MRI that the standard departmental safety check list is completed for the parent/guardian

• in MRI, ensure that the standard departmental safety checklist is completed for the child and that the use of medicines to sedate children must only be a last resort

In addition, the evaluation of the procedure at its completion is an integral part of any examination and includes any variation from the original plan and the reasons, the images and the patient and guardian’s satisfaction.

The radiographer must:

• evaluate the resultant images in terms of diagnostic quality

• evaluate and record any issues of concern regarding the child and/or the parent/guardian. The record must be factual and based on evidence, not opinion and must have due regard to data protection and confidentiality.

• reflect on the procedure against established policies and protocols.

This standard conforms to:

Part Two Quality & Safety of Care Provided Standard for Hospital Services National Service Framework (NSF) for Children which states that:

Children and young people should receive appropriate high quality, evidence-based hospital care developed through clinical governance and delivered by staff who have the right set of skills.

Part Three Quality of Setting & Environment Standard for Hospital Services National Service Framework (NSF) for Children which states that:

Care will be provided in an appropriate location and in an environment that is safe and well suited to the age and stage of development of the child or young person.

Article 5(2) of the European Association of Children in Hospital Charter which states that:

Every child shall be protected from unnecessary medical treatment and investigation.

Article 2 of the European Association of Children in Hospital Charter which states that:

Children in hospital shall have the right to have their parents or parent substitute with them at all times.

Article 10 of the European Association of Children in Hospital Charter which states that:

Children shall be treated with tact and understanding and their privacy shall be respected at all times.

Standard 3 FACILITIES, EQUIPMENT & ENVIRONMENT:

These must be child friendly and adequate to provide for the care of the child and the
parent/guardian and the quality of the image. Managers should undertake, or appoint a 
paediatric lead radiographer, to assess, procure and monitor the facilities, equipment 
and environment in terms of suitability for paediatric patients.

The manager or lead radiographer in consultation with radiographers and others must:

- determine the appropriateness of equipment during procurement including devices and 
  accessories for paediatric examinations
- seek assistance of NHS purchasing and supply agency in effective specification, sourcing and 
  purchase of equipment and devices suitable for use in the imaging of children
- regularly assess and audit image quality criteria and dose audit including dose reduction 
  techniques and establish Dose Reference Levels (DRL)
- ensure availability of a variety of simple but effective immobilisation devices
- ensure distraction devices are available
- assess the department in relation to provision of a child and adolescent friendly and safe 
  environment
- provide and/or develop booklets or other formats of information for young people about to be 
  imaged
- provide and/or develop booklets or other formats of information for accompanying 
  parent/guardians
- actively seek children’s opinions and involve them in the development of child friendly 
  booklets or other formats of information suitable for a range of different ages
- when possible, book appointments at suitable times which will not incur any additional costs 
  to parent/guardians
- provide appropriate play equipment in waiting areas suitable for a wide range of ages and 
  ability and seek advice to ensure that toys are not an infection risk
- seek to provide a range of play equipment for most ages (except for babies due to increased 
  risk of infection) including non direct contact equipment eg torches and mobiles
- provide appropriate toilets which include nappy changing facilities
- provide appropriate changing facilities which ensure privacy and children’s gowns with a 
  range of sizes
- identify a separate waiting area for families in an adult hospital or a partitioned section within 
  a waiting room.

This standard conforms to:

**Part Three Quality of Setting & Environment** Standard for Hospital Services National Service 
Framework (NSF) for Children which states that:

*Care will be provided in an appropriate location and in an environment that is safe and 
well suited to the age and stage of development of the child or young person*

and recommends that:

*Departments that provide a service to children and young people should ensure that 
there are appropriately equipped, baby and child friendly treatment or imaging rooms 
and that waiting areas have suitable play and recreational equipment. Facilities for 
mothers to breast feed and change babies should be available. The environment should 
be suitable and spacious enough and toys and equipment should be available to meet the 
needs of disabled children.*

This standard conforms to:

**Part One Child Centered Hospital Services** Standard for Hospital Services National Service 
Framework (NSF) for Children which states that:

*Children, young people and parents will participate in designing NHS and social care 
services that are readily accessible, respectful and empowering.*

**Article 3 (2)** of the European Association of Children in Hospital Charter which states that:

*Steps shall be taken to mitigate physical and emotional stress.*
Article 3(1) of the UN Convention on the Rights of the Child (CRC) which states that:  
All organisations concerned with children should work towards what is best for each child.

Article 7 of the European Association of Children in Hospital Charter which states that:  
Children shall have full opportunity for play, recreation and education suited to their age and condition and shall be in an environment designed, furnished, staffed and equipped to meet their needs.

Standard 4 MEETING THE NEEDS OF THE INDIVIDUAL PATIENT AND FAMILY:

The radiographer assesses the patient’s and the parent/guardian’s needs and decides on a plan of action, aware of the special needs of children. The radiographer must make appropriate adjustments to meet the needs of children of different ages, with different abilities and different medical conditions.

The radiographer must:

- use professional judgement to gauge the ability of the child to co-operate by considering the special needs of the child related to chronological age and physical, psychological, emotional or behavioural ability
- communicate clearly and comprehensively using appropriate language for the age group and level of understanding of the child
- check comprehension of information provided
- recognise fears or concerns of child or parent/guardian
- involve parent/guardians appropriately
- ask the permission of the child and the parent/guardian for a student to be present or be involved in the imaging procedure
- provide a direct telephone number to enable parent/guardians to contact imaging staff prior to and post attendance
- include appropriate verbal, written and audiovisual information supported by models, illustrations or other media presentations
- encourage questions from child and parent/guardian
- provide information in a stress free, safe, secure and private environment
- explain the procedure in an appropriate place and, where necessary, involve the accompanying parent/guardian by defining their roles
- provide the child with some degree of responsibility and choice relevant to chronological age
- ensure care with use of language and words such as ‘slide’, ‘cut’, ‘tube’ as children often make literal interpretations
- check the pregnancy status of both child (if of child bearing potential) and the accompanying parent/guardian if applicable
- respect and promote the needs and rights of children and young people.

This standard conforms to:

Part One Child Centered Hospital Services  
Standard for Hospital Services National Service Framework (NSF) for Children which states that:  
Children and young people should receive care that is integrated and co-ordinated around their particular needs and the needs of the family. They should be encouraged to be active partners in decisions about their health and care and, where possible, be able to exercise choice.

Article 4 (1) of the European Association of Children in Hospital Charter which states that:  
Children and parents shall have the right to be informed in a manner appropriate to age and understanding.

Article 5 (1) of the European Association of Children in Hospital Charter which states that:
Children and parents have the right to informed participation in all decision involving their healthcare.

**Standard 5 TEAM WORKING & SHARING:**

Working together and the sharing of good practice is fundamental to providing a safe and effective service for children and their parent/guardian.

Radiographers must:

- instigate formal links between adult and paediatric hospitals to share policies, practice and documentation and seek advice, including a direct line to children’s hospitals
- work in partnership with children, young people and parent/guardians to plan and shape services
- work closely with paediatric leads in hospitals and departments and with wards as they can be a valuable source of practical help regarding the funding of facilities within the imaging department
- liaise closely with the employing authority’s named individual with responsibility for planning and delivering services for children and young people
- share information with other departments to coincide timings and consultations
- attend and participate in national study days related to paediatric practice
- be involved in sharing good practice to ensure competence and the maintenance of consistent standards of practice
- instigate outreach activities to educate the community and schools
- liaise with play specialists to provide services and education within the department
- become involved in managed local networks as part of a multi-professional/multi-site service delivery

This standard conforms to:

**Part One Child Centered Hospital Services** Standard for Hospital Services National Service Framework (NSF) for Children which states that:

Children and young people should receive care that is integrated and co-ordinated around their particular needs, and the needs of the family.

and recommends that:

The use of play techniques should be encouraged across the multidisciplinary team caring for children, including Accident and Emergency, with play specialists taking a lead in modeling techniques that other staff can then adopt.

**Article 9** of the European Association of Children in Hospital Charter which states that:

Continuity of care should be ensured by the team caring for children.

**Article 3** of the UN Convention on the Rights of the Child (CRC) which states that:

All organisations concerned with children should work towards what is best for each child.

**Standard 6 MANAGERIAL RESPONSIBILITIES:**

Radiography managers act as the arbiter of quality service provision to the satisfaction of staff and the general public and have the ultimate responsibility for providing services, maintaining standards and educating the public. It is the responsibility of senior service managers to ensure a quality paediatric service by appointing a paediatric lead radiographer to undertake managerial responsibilities.

The manager must:

- ensure regular attendance training for safeguarding children (child protection) and Basic Life
Support (BLS) specifically related to babies and children for all radiographers and support staff in the department

- appoint a paediatric lead radiographer to address all aspects of paediatric activity including infection control and the provision of facilities
- during equipment procurement (including devices and accessories) be mindful of protocols determining the appropriateness of paediatric examinations, including radiation dose reduction functions within equipment and monitor facilities
- ensure all equipment used for paediatric imaging has appropriate paediatric settings within its programmes and that they are used; ensure that CR and DR equipment has paediatric algorithms and develop local DRLs for children
- instigate formal links with paediatric hospitals to share policies, practice and documentation
- liaise with play specialists where appropriate to provide advice and/or services and education within the department
- provide training for radiographers and students in paediatric practice to include specific needs of children with physical, learning, behavioural or ethical problems
- encourage and support research activities and regular audits, and be mindful of innovative methods which may be suitable for use by children
- provide leadership, management and support to all staff
- ensure that Criminal Record Bureau checks and registration with Independent Safeguarding Authority are undertaken
- carry out risk assessments with particular reference to paediatric requirements
- monitor facilities to ensure compliance with standards
- document paediatric protocols which should be monitored, reviewed and subject to version control on a regular basis
- obtain views of children, young people and parent/guardian on the service provision including outcomes from the child’s and the parent/guardian’s perspective
- familiarise children with the department and its facilities where possible and/or appropriate, for example, through hospital open days
- carry out a self evaluation of the appropriate elements for the department using the model and tool produced by the HPH-CA [http://www.each-for-sick-children.org/](http://www.each-for-sick-children.org/)

This standard conforms to:

**Part One Child Centered Hospital Services** Standard for Hospital Services National Service Framework (NSF) for Children which states that:

**Children and young people should receive care that is integrated and co-ordinated around their particular needs, and the needs of the family.**

and recommends that:

**The use of play techniques should be encouraged across the multidisciplinary team caring for children, including Accident and Emergency, with play specialists taking a lead in modeling techniques that other staff can then adopt.**

**Part Three Quality of Setting & Environment** Standard for Hospital Services National Service Framework (NSF) for Children which states that:

**Care will be provided in an appropriate location and in an environment that is safe and well suited to the age and stage of development of the child or young person.**

**Article 19** of the UN Convention on the Rights of the Child (CRC) which states that:

**Governments should ensure that children are properly cared for and protect them from violence, abuse and neglect by their parents or anyone else who looks after them.**

**Article 8** of the European Association of Children in Hospital Charter which states that:

**Children shall be cared for by staff whose training and skills enable them to respond to the physical, emotional and developmental need of children and families.**
References & Bibliography


SCoR (2007) Scope of Practice – Assistant Practitioners in Clinical Imaging London: SCoR


UNICEF (2003) Every child matters: the five outcomes and the UN convention on the rights of the child (UNCRC)
Appendix A


- Child centered facilities and policies for imaging children in adult departments be developed and implemented
- Formal links be established between radiographers in children’s hospitals and those in other hospitals in order to establish and maintain good practice
- Radiographers should engage with children to obtain their views on the services they provide. This would adhere to the UK Government’s patient focus public involvement agenda
- Professional bodies should provide guidance for the improvement of imaging services for children to ensure staff are adequately trained and policies are in place to ensure effective practice
- Universities throughout the UK should be encouraged to provide courses in paediatric radiography practice and service provision.