

## A Standard Operating Procedure for Radiological Examination Referrals Contact / Lead Shielding in Plain Film and Theatres

<b>For Use in:</b>	Radiology Plain Film
<b>By:</b>	Diagnostic Radiographers
<b>For:</b>	Registered Diagnostic Radiographers
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<b>Compliance links: (is there any NICE related to guidance)</b>	<i>BIR 'Guidance on using shielding on patients for diagnostic radiology application' March 2020</i> <i>IR(ME)R 2017</i>
<b>If Yes – does the strategy/policy deviate from the recommendations of NICE? If so why?</b>	

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**Version and Document Control**

<b>Version No.</b>	<b>Date of Update</b>	<b>Change Description</b>	<b>Author</b>
1	22/07/2021	New Document	Susan Everington

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# **A Standard Operating Procedure for Radiological Examination Referrals Contact / Lead Shielding in Plain Film and Theatres**

## **1. Objectives**

The aim of this document is to provide general guidance on the use of patient contact shielding for patients undergoing diagnostic imaging procedures within plain film radiology and theatres.

Recommendations published by The British Institute of Radiology (BIR), conclude that from the available evidence patient contact shielding is not generally required in diagnostic imaging, with a few exceptions.

These recommendations constitute the best and agreed practise in order to standardise, reduce variations and improve consistency in the Radiology department at NNUHFT.

The recommended cessation of this practise within clinical areas requires the adoption of these guidelines among IRMER operators at NNUHFT has been discussed and agreed by the radiology governance committee and the radiation protection committee.

## **2. Rationale**

The use of patient contact shielding applied to patients has been practised for many years in order to reduce the dose to radiosensitive organs. However, an increasing number of studies have raised concerns regarding the efficiency and effectiveness of patient shielding, rather, it can actually lead to an increase in patient radiation exposure, due to misplacement or movement interfering with diagnosis and therefore requiring repeat examinations.

Technical advances in medical imaging equipment and protocol optimisation have resulted in significant dose reductions. These innovations in technology and dose reduction strategies, suggest that contact shielding provides minimal or no benefit to the patient. It is important, therefore, that IR(ME)R operators should concentrate on other areas of radiation protection which are more effective in optimising patient radiation exposure.

Therefore the overall conclusion from the available evidence is that patient contact shielding is not generally required in diagnostic radiology.

Few exceptions have been identified, but these may occur where a particular patient care pathway requires a number of repeat examinations where patient contact shielding may be applied, particularly in the case of paediatric patients, scoliosis patients and pregnant women.

The overriding consideration throughout this protocol is the patient's needs, both in terms of risk reduction and reassurance. Patients may be completely unaware of this protocol and may be unnecessarily anxious about the risks around radiation exposure. Therefore the absence of measures to protect against them may need to be explained, if they had been used previously.

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### 3. Scope

This guidance is intended to cover radiation protection applied directly to patients undergoing diagnostic imaging procedures in plain film and theatres and excludes ad hoc protection not placed on the patient (e.g. the use of shielding on incubators in neonatal intensive care units, as it does not touch the baby)

### 4. Broad recommendations

Operators should take care to ensure the patient understands the function of shielding as the final element in a comprehensive and individualised dose reduction strategy. Where indicated, it should be integral to the benefit risk conversation with the patient. Operators should be respectful of individual choice and non-judgmental; the operator has a responsibility to keep the patient safe and to take action to prevent harm. Shielding devices should be appropriately used and accurately positioned to provide efficient protection to the relevant body part.

When communicating the benefit and risk of using patient contact shielding the following points should be considered:

- Is the patient/their representative/the referrer asking for patient contact shielding contrary to recommended guidelines? In these circumstances, is the operator confident to respond to challenges regarding the absence of shielding and if not why not?
- Does the evidence support the use of patient contact shielding for this examination?
- Does the patient meet the inclusion criteria?
- Is the operator/trainee adequately trained/supervised to use the shielding?
- Has the application of local procedures for transgender or gender non-conforming individuals been considered?
- Is there anything in the clinical information for this patient that precludes the use of patient contact shielding?
- Is its use justified? (Consider the risk of the patient being unable to comply and the effect on image quality.)
- Is the patient contact shielding fit for purpose? (Approved for use, free from defect, clean and the correct size)
- Will it do any harm to the patient or adversely affect image quality if it is used contrary to local procedures or professional guidance? Decisions made in these circumstances should be documented along with the rationale for doing so.
- Is it safe to delay the examination if the patient is still insisting on the use of patient contact shielding contrary to advice? Is the patient likely to be significantly reassured if patient contact shielding is used, even if it is unlikely to afford them any radiation protection? **It is not recommended that patient contact**

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**shielding is used as a means of reassurance.** This should be addressed through appropriate one to one communication.

A fourteen year old child arrives for a scoliosis X-ray. They are upset and distracted when contact shielding is not used as they are used to a lead skirt to be placed around the hips to protect the ovaries/ gonads.

Historical practice means that for some time there is likely to be a natural expectation that patient contact shielding is used. The operator, who is a radiographer in this case, explains the benefits and risks of the exposure to the child's parent. In accordance with the locally agreed procedure, patient contact shielding is not required for this examination.

The radiographer provides assurance that the potential harm from a repeat exposure is considered a greater risk than the exposure from scattered radiation. They further explain that the priority for optimising the child's exposure is close collimation of the primary beam in order to avoid irradiating organs unnecessarily. The parent is reassured and agrees to the examination proceeding without the use of patient contact shielding.

The risk of patient contact shielding obscuring the area of interest should be balanced against the risk of a repeat exposure and the anticipated benefit from reducing dose from scattered radiation. Appropriate notes regarding concerns and discussion should be noted on RIS.

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**5. Processes to be followed**

**Recommendations for the use of Patient contact shielding in Plain Film Radiology and Theatres**

Scenario	Recommendations	Comments
Patient contact shielding in diagnostic radiology applications	Not recommended	No radiation protective shielding should be routinely applied.
Patients contact shielding for protection of breast	Not recommended	Use PA positioning rather than shielding for spinal and chest examinations where possible.  If using AP projection then a scoliosis lead skirt may be considered if the patient insists on this course of action.
Patient contact shielding for protection of thyroid	Not recommended	Recommended where thyroid is less than 5cm from the primary beam, projection is AP and will not obscure anatomy of interest or interfere with AEC device.
Patient contact shielding for protection of Gonads	Not recommended	Male adult and paediatric patients: May be considered where gonads are less than 5cm from the primary beam.  Female adult and paediatric patients: Not recommended for imaging in the pelvic region due to obscuring diagnostic information or to interfere with AEC function.
Patient contact shielding for protection of eye lens	Not recommended	Use PA skull positioning, no recommendations for shielding

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Pregnant patients	Not recommended	<p>Not required for examinations outside the pelvic region (diaphragm to knees).</p> <p>For examinations within pelvic region, consider non-ionising imaging alternatives.</p> <p>If ionising radiation must be used, carry out as detailed in the Diagnostic Imaging Employers Procedures Trust Docs ID 957.</p>
All dental radiology, protection of brain, salivary gland and lens of the eye	Not recommended	Eyes should not be in the primary beam. Not possible to shield the other organs without obscuring required anatomy.
Dental radiology protection for pregnant patients	Not recommended	<p>For intraoral radiography, use of the parallel technique is recommended. If X-ray beam <b>MUST</b> be directed towards the abdomen then patient contact shielding (e.g. lead apron) covering the abdomen should be considered.</p> <p>May be considered for psychological purposes of reassurance as unlikely to be detrimental to the diagnostic quality of the images.</p>



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### **6. Consent**

It is expected there may be a few specific situations and exceptions where patient contact shielding is justified. In these cases the patient must give permission before they receive any type of medical treatment, test or examination. This includes the placement of patient contact shielding. The patient must be fully informed and provided with adequate information regarding the benefits and risks of using the contact shielding to enable them to make a choice.

IR(ME)R operators should be familiar with the legislation and professional body guidance associated with capacity and consent matters. Decisions made in these circumstances should be documented on RIS along with the rationale for doing so.

### **7. Clinical audit standards and monitoring compliance**

To ensure that this protocol is compliant with the above standards, the following monitoring processes will be undertaken:

- An annual audit to review reject analysis to identify the number of images rejected due to the use of PCS.

The audit results will be sent to Radiation Safety / QA Lead, who will review the audit standards at the review date and make recommendations for further actions

### **8. Summary of development and consultation process undertaken before registration and dissemination**

The authors listed above drafted this document on behalf of Diagnostic Radiography who has agreed the final content. During its development it has been circulated for comment to:

*Louise Reilly, Practice Development and Governance Manager*  
*Seshni Mohammed, Radiology Service Manager*  
*Rayhann Rahaman, Clinical Director, Radiology*  
*Emma Key-Yeomans, Service Manager*  
*Douglas Appleby, Plain Film Lead*  
*Lucy Aston, Plain Film Lead*  
*Joshua Benham, Plain Film Lead*

This version has been endorsed by the Radiology Clinical Governance Committee.

### **9. References**

British Institute of Radiology (BIR). 2020. Guidance on using shielding on patients for diagnostic radiology applications.

<https://www.bir.org.uk/education-and-events/patient-shielding-guidance.aspx>

[Accessed 03/07/2021]

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NPSA (2007) Early Identification of Failure to act on Radiological Imaging Reports,  
Safer Practice Notice 16.

The Society and College of Radiographers, 2018. Obtaining consent: a clinical guideline  
for the diagnostic imaging and radiotherapy workforce.

[https://www.sor.org/sites/default/files/document-versions/obtaining\\_consent\\_170118.pdf](https://www.sor.org/sites/default/files/document-versions/obtaining_consent_170118.pdf)  
[Accessed 05.10.2018].

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**Appendix 1: Monitoring Compliance / Effectiveness Table**

<b>Monitoring Compliance / Effectiveness Table</b>						
<i>Element to be monitored</i>	<i>Lead Responsible for monitoring and</i>	<i>Monitoring Tool / Method of monitoring</i>	<i>Frequency of monitoring</i>	<i>Lead Responsible for developing action plan and acting on recommendations</i>	<i>Reporting arrangements</i>	<i>Sharing and disseminating lessons learned and recommended changes in practice as a result of monitoring compliance with this document</i>
<i>What is it that is going to be monitored?</i>	<i>Name of individual who will monitor it?</i>	<i>How will it be monitored e.g. Audit / review</i>	<i>How often will it be monitored?</i>	<i>Name of individual who will be responsible for developing action plans</i>	<i>Name of the committee or group where monitoring results and action plan progress are reported to</i>	The Lead responsible for developing the action plans will disseminate lessons learned via the most appropriate committee e.g. Clinical Safety Executive Sub-Board, Non-Clinical Safety Executive Sub-Board, Workforce Executive Sub-Board, Executive Board or Trust Board.