

Standards for interpretation and reporting of imaging investigations

Introduction

The value of clinical radiology derives from the clear communication of image interpretation to the referrer in a way that adds value to the patient's pathway. The purpose of an imaging report is to provide an accurate interpretation of images in a format that will prompt appropriate care for the patient.

Clinical radiology practice and interaction with referrers in the UK differs from that in many other countries. These reporting standards stipulate the minimum levels expected of all reporters providing services to UK patients. By providing a baseline of standards that all reporters should achieve, the quality and consistency of imaging interpretation can be assured.

These standards are intended for both experienced professionals and those who are joining the reporting community. The standards set out in this document place requirements on employers and employees.

1. Service organisation

- Departments should create standard operating procedures for the following and review them on a regular basis:^{1,2,3}
 - turnaround times^{4,5}
 - communication of unexpected or time-critical findings⁶
 - imaging classification (eg critical, urgent, routine, research trial etc) for reporting priority
 - communication of addenda, including subsequent or multidisciplinary team reviews
 - report acknowledgement.
- Patient safety and optimal outcomes require timely, accurate, actionable reporting of imaging investigations. This should be applied irrespective of the types of healthcare professional reporting the patient's imaging, in both local radiology department and remote reporting settings, including teleradiology.

2. Reporting author

- The report should clearly state the name of the author, their title/ professional status, registration body and registration number. The prefix title 'Doctor' or 'Dr' should only be used to indicate a medically qualified practitioner; non-medical practitioners with a PhD can use this as a post nominal but not use the prefix title 'Dr' on imaging reports.
- Reporters should not include personal contact details in the reports.
- Where multiple authors contribute to the report, their names should be included.
- For radiological and interventional procedures, the author should either be the operator or the assistant and it should be clear who the primary operator was.
- Reporters should be trained in accordance with their professional body's standards and comply with all ongoing continued professional development, registration, audit and revalidation processes.
- Reporters should address stated and implied clinical questions. Reporters should review non-target and adjacent organ systems visible on scans. It is the responsibility of the reporter and

49 the employer to ensure appropriate review if the reporter is unable to assess non-target organs.
50 The resource implication of this should be considered by employers.

- 51 • The individual reporting the examination must be able to evaluate the quality of the images and
52 their suitability for diagnosis as per the Royal College of Radiologists Clinical Radiology
53 Specialty Training Curriculum.⁷ Where images are suboptimal reporters should recognise if this
54 affects the diagnostic accuracy of the examination and the need for a repeat examination or for
55 caveats to be included in the report.
- 56 • Employers have a duty of care to patients and should ensure no reporter is permitted or required
57 to work beyond their level of knowledge and competence or to work without adequate rest.⁸
- 58 • Reporters should maintain professional standards if commenting on referrers, patients, hospital
59 environment or equipment. If scan performance has been compromised then relevant, factual,
60 non-judgemental statements may be included.

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62 **3. Infrastructure**

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64 **Technology support**

65 Quality of equipment for reporting, standards for integrating artificial intelligence (AI) and
66 reformatting capabilities are covered in [Picture archiving and communication systems \(PACS\) and](#)
67 [guidelines on diagnostic display devices](#) and [Integrating artificial intelligence with the radiology](#)
68 [reporting workflows \(RIS and PACS\)](#).^{9,10}

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- 70 • Reporters should have access to a patient's imaging history and reports. Ideally, they should
71 also have access to relevant clinical information, including patient medical records and
72 laboratory results.¹⁰
- 73 • Organisations that have technological capabilities to automatically delay the issuing of reports
74 by a short period of time (eg 2 minutes) are encouraged to enable such delays to allow
75 immediate change or correction of reports.
- 76 • Providers should ensure that reports can be automatically communicated to other information
77 technology systems, including the NHS app for patient access.¹¹

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79 **Voice recognition**

- 80 • Voice recognition software can be an integral part of reporting and is encouraged to enhance
81 workflow. This should be available as standard.
- 82 • Some reporters may prefer typing or other methods of recording report text. Where alternatives
83 are used, they should be no less effective or efficient than quality voice recognition.

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85 **Artificial Intelligence assisted reporting**

86 Artificial intelligence (AI) has the potential to make a significant difference in healthcare settings
87 through its ability to analyse large quantities of complex information.¹² It can aid in optimising the
88 patient journey throughout the pathway including radiology requesting, scheduling, planning,
89 scanning, report sharing and treatment pathway planning.¹³ As AI evolves, the RCR will continue to
90 develop AI-specific standards.

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- 92 • Validated AI tools should be integrated appropriately into the reporter's reporting workflow, so
93 that it makes reporting more efficient and enables safer and actionable reporting.
- 94 • Where an AI product provides content that is included in the report, it should be made clear
95 what content is AI-generated or author-generated.

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99 **Remote reporting (including teleradiology)**

100 The term remote reporting refers to the reporting of imaging examinations at a distance from where
101 these examinations were performed.

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- 103 • Arrangements for remote reporting, including home reporting should not compromise the quality
104 of reporting delivered from comparable in-hospital settings.¹⁴
- 105 • Local or regional network reporting arrangements must comply with the same technical
106 specifications and governance as provider-based reporting. Workflow and handling of report
107 communications should be documented.
- 108 • Local operating policies must include plans to enable continuity of service in case of technical or
109 other operational failures of these services.
- 110 • Teleradiologists working for private providers may be unfamiliar with local patient care pathways.
111 Organisations using their services must ensure that adequate safeguards are in place to
112 mitigate this.
- 113

114 **4. The Report**

116 **General considerations**

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- 118 • Clinical details should form part of the report. Interpretation may be incorrect if referral details
119 are deficient, absent, or misleading; inclusion of the referrer's text is recommended as it may be
120 a consideration in case of error/ discrepancy/ legal challenge.
- 121 • Many radiology information systems generate clinical details from the referrer's text. The
122 reporter should add more detail or context where this impacts scan interpretation.
- 123 • Where past treatment has an impact on image interpretation, treatment history should be
124 recorded.
- 125 • Careful proofreading to prevent 'typos', missed negatives, wrong side attribution and spelling/
126 punctuation errors as well as for the overall message of the report is vital.
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128 **Scan protocol and technical detail**

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- 130 • Reporters may include scan protocol and technical detail in the report if it aids understanding,
131 justifies technical parameters, or adds value to the report or details potential deficiencies in scan
132 performance or acquisition.
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134 **Observations, findings and procedural description**

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- 136 • An observations section, allowing incidental findings to be mentioned and explained, should be
137 included. It might comprise the only report section required.
- 138 • Review of relevant previous imaging should take place where this adds value to the report or
139 explains deductions. If previous imaging is not available and will affect interpretation this should
140 be stated.
- 141 • Technical terms and imaging terminology have utility for specialist readership, to explain why
142 conclusions might have been reached or justify conclusions.
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144 **Standardised and structured reporting**

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- 146 • Reporters will develop their own styles of reporting which will usually reflect the needs of the
147 referrers.

- 148 • Reporters may consider using templates where suitable. Templates are helpful for adequacy of
149 data collection. Specific examples include supporting research using RECIST criteria, for
150 National Cancer Registry data, for audit and quality assurance purposes (e.g. WHO checklist)
151 and trauma reporting. Specific special interest group recommendations are available: eg British
152 Society of Gastrointestinal and Abdominal Radiology, Bowel Cancer Screening Programme for
153 Computed tomography colonoscopy minimum data set.¹⁵
154 • Reporters should use the templates as required to omit fields which are not relevant.
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156 **Report comments and conclusions**

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158 The comments and conclusion section of a report is usually the most important part. The style and
159 content can be a subject of strongly held views: this is intended as good practice guidance. Short
160 reports such as those for plain films, procedures or ultrasound may not require a conclusion.
161

- 162 • A report's comments and conclusion section should:
- 163 ○ answer the clinical question, and where relevant, show interpretation to address implied
 - 164 questions.
 - 165 ○ be tailored to target readership: eg primary/ secondary/ tertiary care and explain
 - 166 radiological technical terms where needed. Reporters should avoid repeating text in the
 - 167 conclusion unless it is required.
 - 168 ○ convey the sensitivity of the test for the question if needed.
 - 169 ○ explain areas of uncertainty within the radiology diagnosis or rank a differential
 - 170 diagnosis.
 - 171 ○ detail if the scan has not addressed something which it needed to. A comment on the
 - 172 need for further tests should be included.
- 173 • State where non-imaging results will potentially alter interpretation and how this might occur.
- 174 • Reporters should aim to reach a single or differential diagnosis and advise how any differential
- 175 diagnoses can be refined.
- 176 • Recommendations should be specific and avoid blanket phrases such as 'clinical correlation
- 177 advised'. Further imaging recommendations are useful but should be used judiciously. Further
- 178 tests should add value to the overall patient's care, and the referrers should be involved in
- 179 deciding their need.
- 180 • Reporters should use guidelines if available for following up or managing incidental findings,
- 181 reference these where helpful or explain why incidental findings do not need further action.
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183 **Interventional radiology reporting**

- 184 • Reports should be written and communicated promptly following completion of the procedure. If
- 185 there are subsequent diagnostic conclusions, these should be captured separately or be
- 186 included as an addendum.
- 187 • Reports should comply with special interest group guidance.¹⁶ If local practice is not to obtain
- 188 written consent for a procedure, verbal consent and complications discussed should form part of
- 189 the report.
- 190 • The interventional radiology practitioner should document relevant narrative of the intervention,
- 191 and where possible its consequences including drug administration, efficacy, and complications,
- 192 or how efficacy should be assessed.
- 193 • Reports should include instructions on aftercare or need for follow up procedures or imaging.
- 194 • There may be a significant variation in the report layout depending on the type of procedure.
- 195 Reporters should consider using proformas as they can assist data completeness for later
- 196 review, or further intervention.
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198 **Patient access**

199 Better access to health information enables patients to become partners in managing their health.
200 Patients may wish to access their radiology report, however immediate access before review by the
201 referrer may create problems for patients and referrers.

- 203 • Reports should include a comment that they represent a medical opinion generated for the
204 clinician managing the patient. Patients should be directed that findings should be discussed
205 with the referrer who will be in the best position to interpret the implications of the report.
- 206 • Referrers should also be aware of guidance produced by other UK professional groups (eg
207 British Medical Ultrasound Society) on patient access to medical imaging reports.¹⁷

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209 **Conclusion**

210 The standards in this document provide a baseline that all reporters should achieve, so that the
211 quality and consistency of imaging interpretation can be assured regardless of the reporter's
212 experience, profession, or geographic location. Adherence to these standards will ensure that image
213 interpretation continues to add value to patient diagnostic and treatment pathways.

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DRAFT

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