NHSSCOTLAND SHARED SERVICES NATIONAL RADIOLOGY PROGRAMME

BUSINESS CASE - APPENDICES

NATIONAL INFORMATION TECHNOLOGY (IT) CONNECTIVITY

NATIONAL RADIOLOGY INFORMATION AND INTELLIGENCE SOLUTION (NRIIP)

NATIONAL WORKFORCE SOLUTIONS

CONTENTS

APPENDIX 1 - THE NATIONAL RADIOLOGY MODEL

Rationale

Current service is unsustainable

The Vision

A collegiate solution

Ability for radiology staff to work across Scotland

Agreed national:
- HR contracts
- clinical governance
- QA

Integrated compatible IT Systems supporting:
- image acquisition, transfer and requests
- data sets and definitions
- transfer of reporting
- agreed patient pathways and protocols
- workforce optimisation
- de-coupling of image capture and reporting
- separation of scheduled and

Objectives

Sustainability of service

Increased resilience of Service

National Radiology Model

Benefits

Cross boundary reporting

Improved waiting time performance

Co-ordinated approach to out of hours

Support for remote and rural boards in hours reporting

National approach to radiology reporting

More effective use of the workforce

Ability to identify demand, capacity and equipment

Reduced shortfall in reporting capacity

Achieving the recognised standard for radiology reporting

Improved quality of service planning by availability of comparable data

Flexibility to adapt to emerging clinical service change

Increased throughput and quality due to de-coupling of scheduled/ unscheduled reporting of images

Sustain image acquisition close to patient

Sustain expert radiology opinion to local clinicians

Cost avoidance

Constraints/ Dependencies/Risks

Constraints/Dependencies

Agreed data sets

Agreed data definitions

National RIS functionality

Ability to report cross boundary

Production of national:
- HR policy
- clinical governance model
- QA model
- integrated comparable IT systems
- patient pathways/protocols

Risks

Unsustainable radiology services

Mismatch between demand and capacity

Inability to meet waiting times

Increased costs of private sector for reporting

Recruitment, retention issues

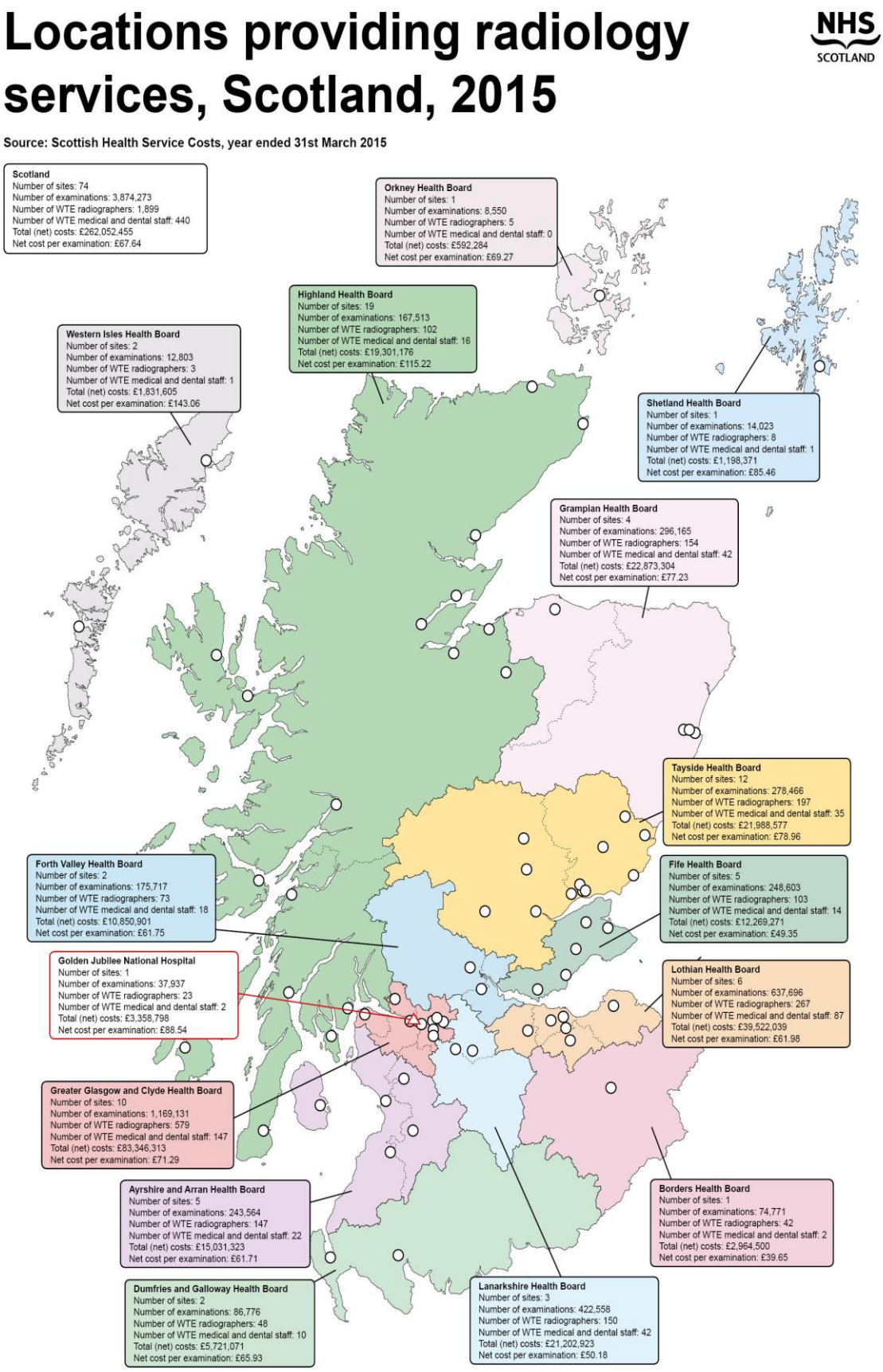
Radiology Model Implementation Costs

	£(m)
Capital	**0.67**
Revenue (Non-recurring)	**2.45**
TOTAL	**3.1**

Desired Outcomes

Ensure continuing good outcomes for patients. Sustainable, equitable, access to robust, timely services

APPENDIX 2 - RADIOLOGY SERVICES LOCATIONS MAP



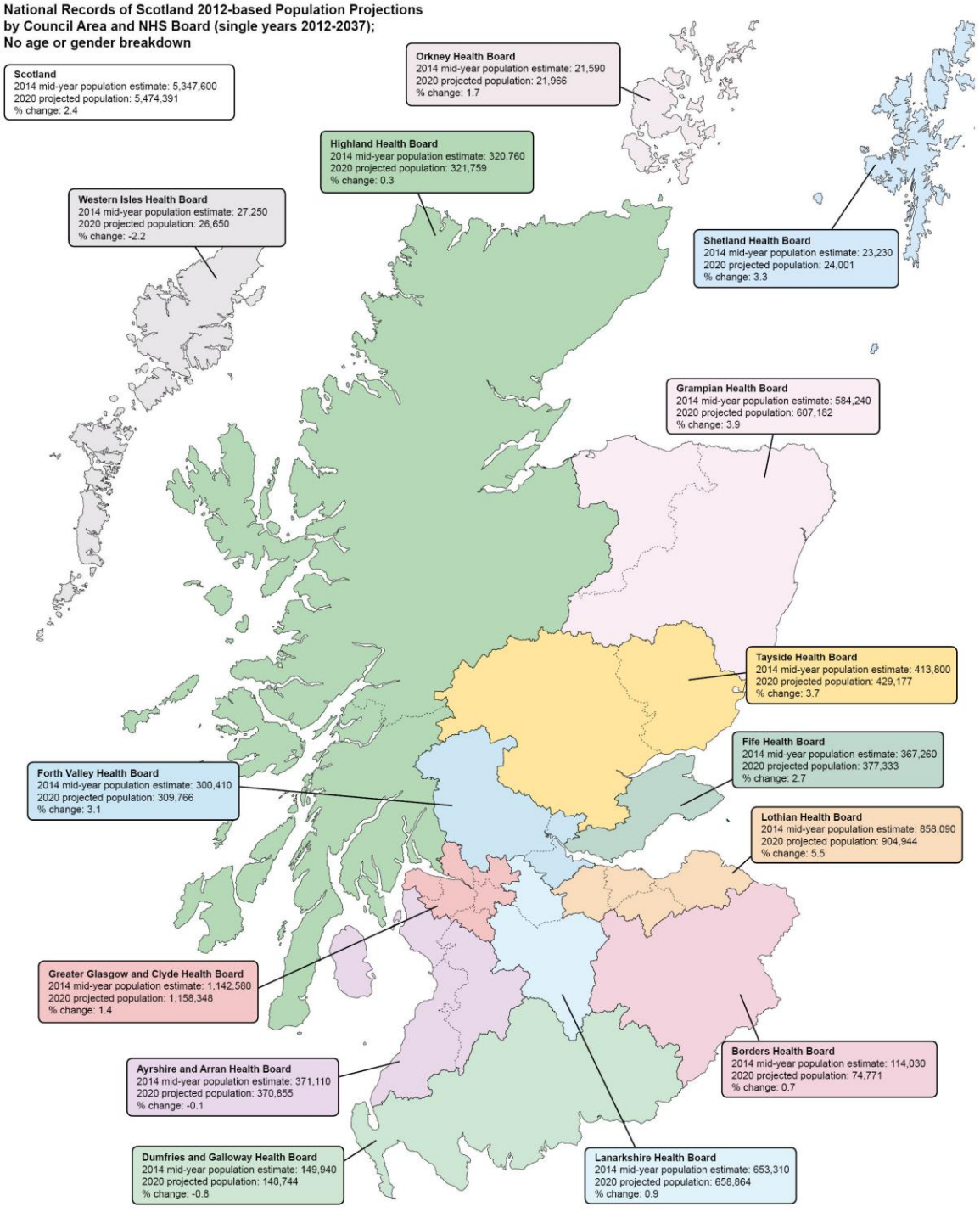
APPENDIX 3 – SCOTTISH POPULATION ESTIMATES AND PROJECTIONS

Scottish Population Estimates and Projections

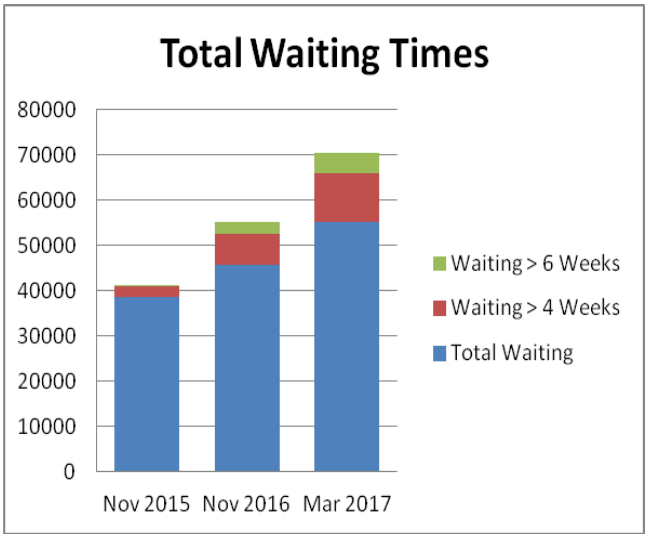
NHS SCOTLAND

Source: National Records of Scotland mid-2014 Population Estimates by Council Area and NHS Board, gender and 5 year age band

National Records of Scotland 2012-based Population Projections by Council Area and NHS Board (single years 2012-2037); No age or gender breakdown

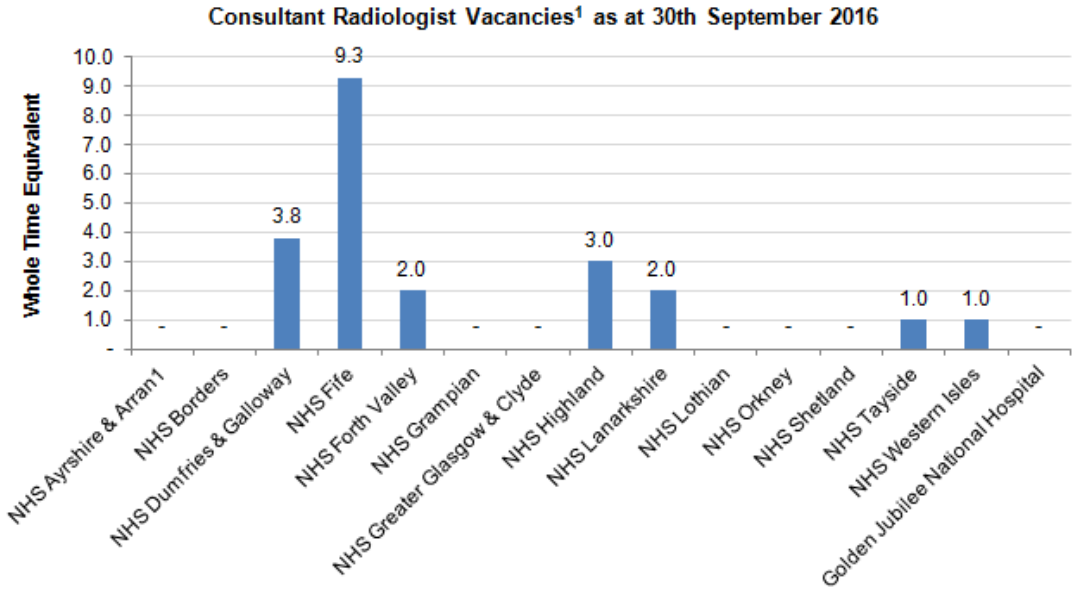


APPENDIX 4 – PATIENTS WAITING FOR FOUR KEY DIAGNOSTIC RADIOLOGY TESTS – NHSSCOTLAND NOV 2015-MAR 2017



	Nov 2015	Nov 2016	Mar 2017
Total Waiting	38583	45753	55157
Waiting > 4 Weeks	2248	6679	10678
Waiting > 6 Weeks	329	2630	4565

APPENDIX 5 - CONSULTANT RADIOLOGIST VACANCIES BY NHS BOARD AND BY PERCENTAGE OF ESTABLISHMENT

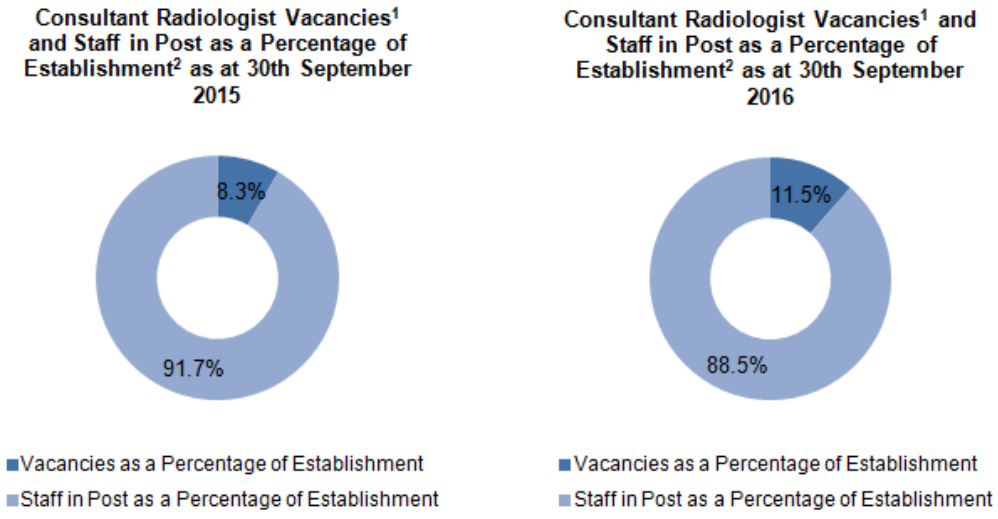


Source: NSS Shared Services Radiology Data Capture

1. The definition includes all vacancies not just those cleared for advert. Includes vacancies with the following approval to recruit: person appointed, recruitment process in progress, plan to start recruitment process, unclear whether to recruit or post to be given up as efficiency.

Consultant Radiologist vacancies as at September 2016

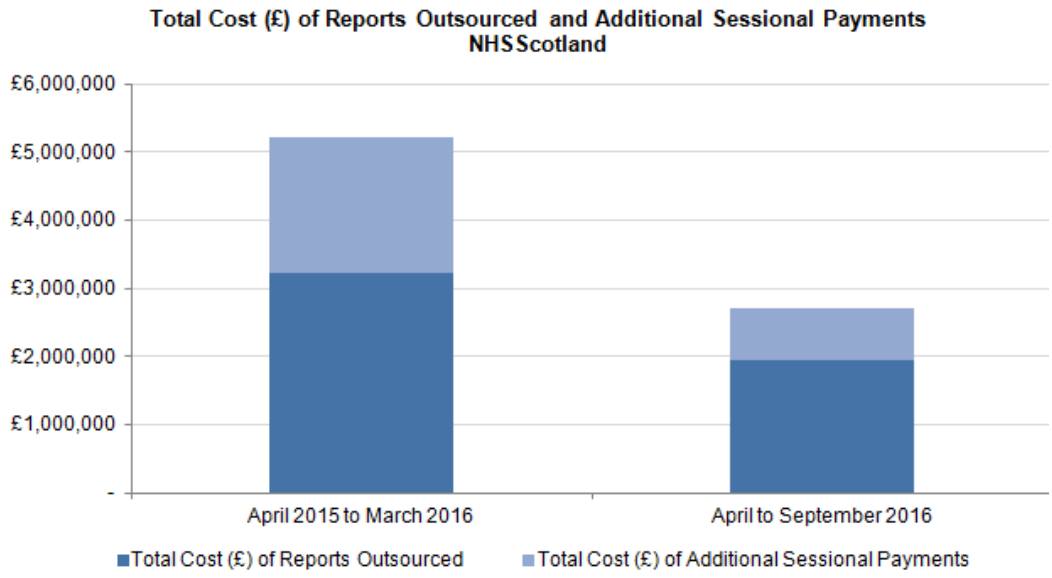
Below charts demonstrate the WTE Consultant vacancies as a percentage of establishment and highlights that the vacancy rate has increased by **38%** in one year. In other words, the number of staff members in post has decreased by **38%** of the establishment.



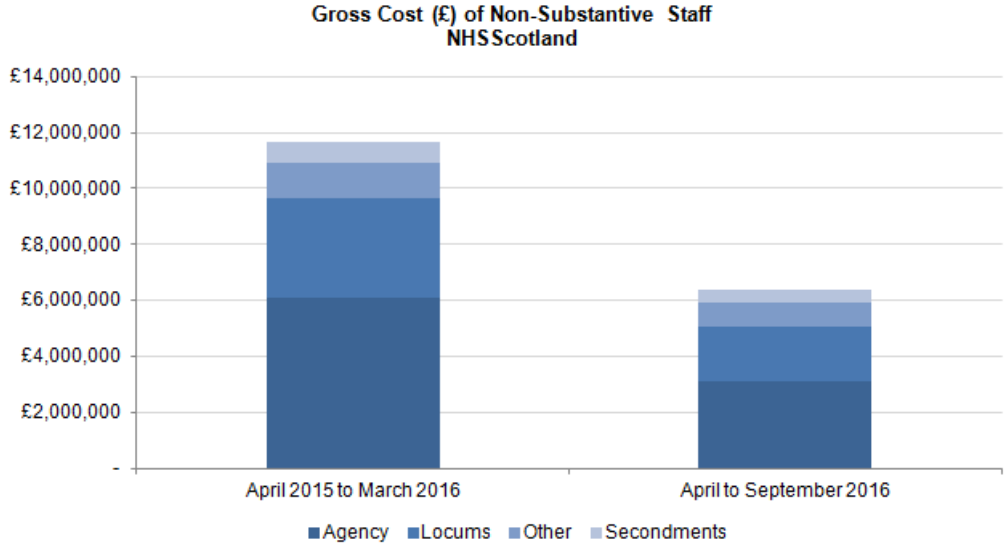
Source: ISD Scotland National Statistics Publication - 6th December 2016

1. A vacancy is defined as a post which has been cleared for advert after being through the redeployment process (internal or external advert) and remains a vacancy until an individual starts in the post.
2. Establishment is calculated by adding the number of staff in post to the number of vacant posts.

APPENDIX 6 - TOTAL COST OF REPORTS OUTSOURCED, ADDITIONAL PAYMENTS AND COST OF NON-SUBSTANTIVE RADIOLOGY STAFF NHSSCOTLAND 2016

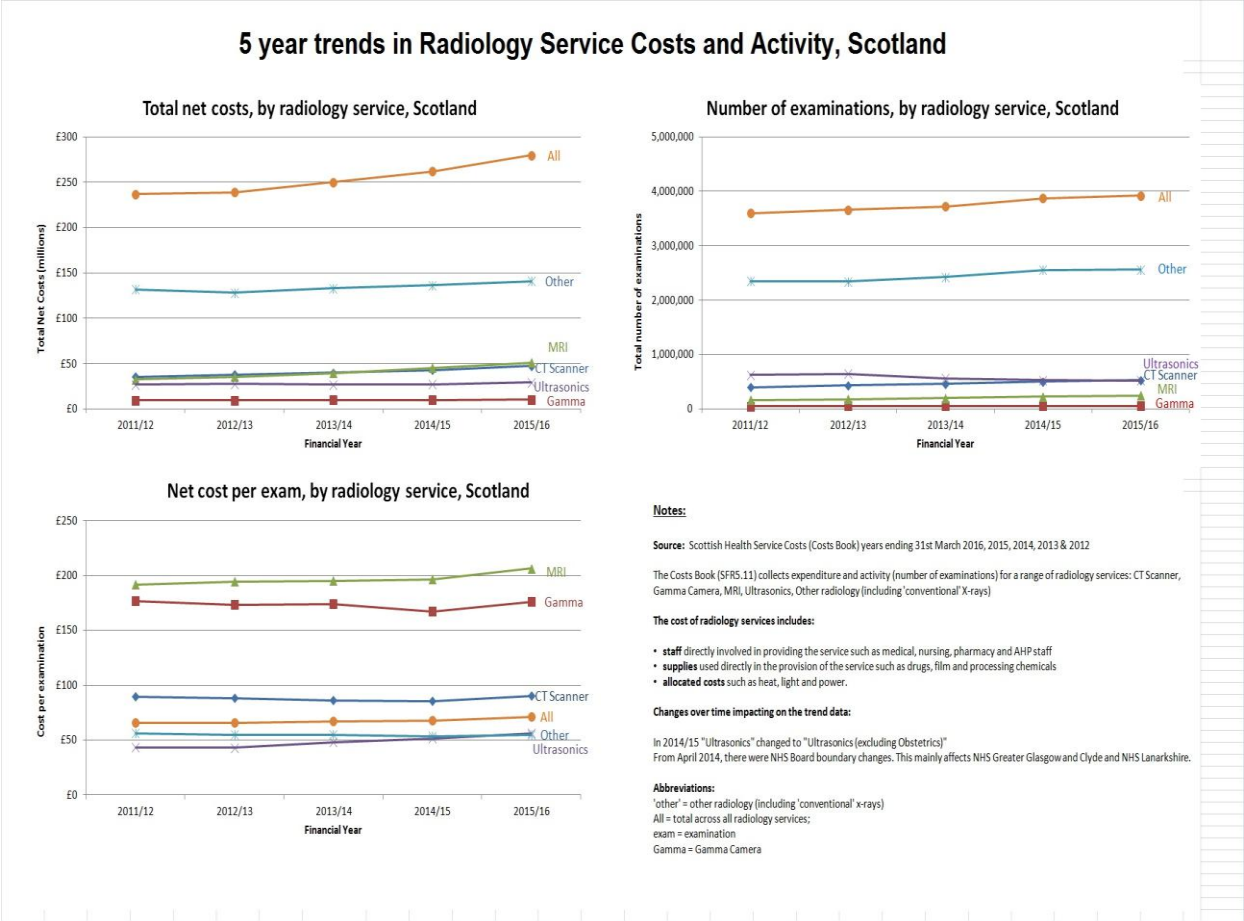


Source: NSS Shared Services Radiology Data Capture



Source: NSS Shared Services Radiology Data Capture

APPENDIX 7 - FIVE YEAR TRENDS IN RADIOLOGY SERVICE COSTS AND ACTIVITY, SCOTLAND



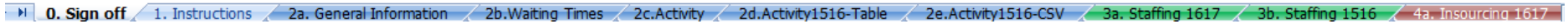
APPENDIX 8 - NATIONAL BASELINE DATA CAPTURE SPREADSHEET

Radiology Data Template - Sign off

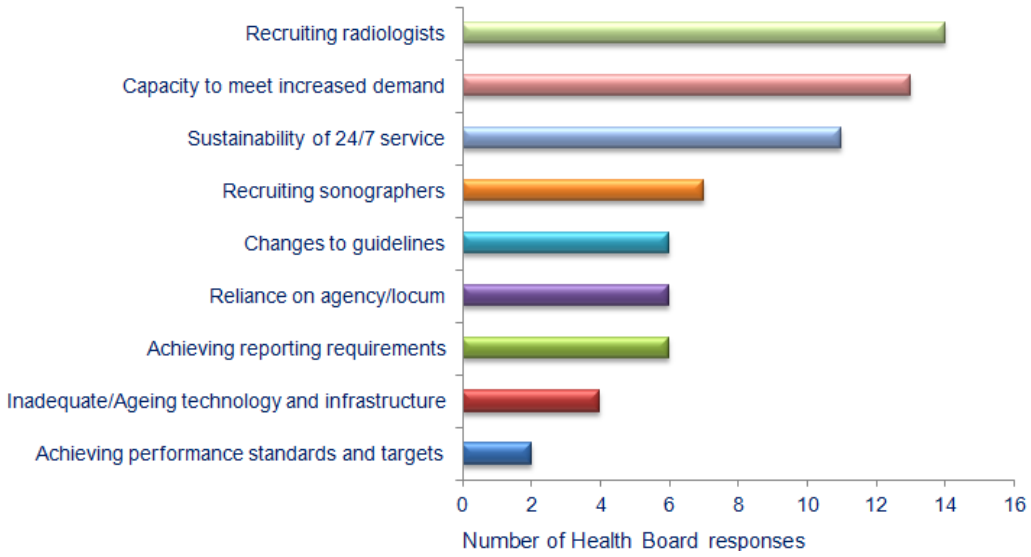
Board	
Radiology Dept	

I confirm that the data and information included in this spreadsheet is accurate and complete

	Name	Date
Radiology Service Manager		
Director of Finance		



APPENDIX 9 - MAIN CHALLENGES FOR RADIOLOGY SERVICES



APPENDIX 10 - RADIOLOGY OPERATIONAL REQUIREMENTS AND IT CONNECTIVITY ITT

NHS National Services Scotland

INVITATION TO TENDER

FOR THE PROVISION OF A CONTRACT FOR AN

RADIOLOGY IT CONNECTIVITY

APPLICATION AND RELATED SERVICES

CLOSING DATE FOR SUBMISSION:

Noon on Monday 5th June 2017.

OJEU REFERENCE

2017/S 059-109871

INDEX

INTRODUCTION

1. NHS National Services Scotland (NSS) is letting this contract on behalf of all entities constituted pursuant to the National Health Service (Scotland) Act 1978 as amended and the Public Bodies (Joint Working) (Scotland) Act 2014 (“Authorities").

2. This procurement is for Radiology Software (the “Software”) and related services (the “Services”) (the Software and the Services together being referred to as the “Solution”) to provide support to the Radiology Community in NHS Scotland.

3. NSS will enter into the contract in the form contained in Appendix 4. It is intended that the Contract will be awarded for a three year term to a single supplier. The contract will have the flexibility to be extended up to a period when the new National PACS contract and solution is in place.

4. The Solution must be able to perform as outlined in the NHS National Services Scotland (NSS) Requirement. Details of the NHS National Services Scotland (NSS) Requirement are annexed at Appendix 1.

5. NSS advertised the requirement for the Solution in the OJEU Reference number **2017S 059-109871.** NHS National Services Scotland (NSS) therefore invites tenders for the provision of the Solution (“Tenders”) from those economic operators who were short listed by NHS National Services Scotland (NSS) following evaluation of their responses to the European Single Procurement Document (ESPD) issued by NHS National Services Scotland (NSS) for the supply of the Solution as required by the Authorities (“Contractors") on the basis detailed in this Invitation to Tender.

DISCLAIMER

1. The information in this Invitation to Tender is provided for information only. No representation, warranty or undertaking, express or implied, is or will be made and NHS National Services Scotland (NSS) shall have no responsibility or liability as to or in relation to the accuracy or completeness of this Invitation to Tender or any other written or oral information made available to any Contractor or their advisers. No information contained in this Invitation to Tender will form the basis of any warranty or representation made by or on behalf of NHS National Services Scotland (NSS) to any Contractor.
2. No response made by or on behalf of NHS National Services Scotland (NSS) to any response to this Invitation to Tender shall constitute an agreement or contract between NHS National Services Scotland (NSS) and any Contractor unless expressly stated to that effect by NHS National Services Scotland (NSS).
3. All Contractors responding to this Invitation to Tender do so at their own cost and expense and no reimbursement shall be made by NHS National Services Scotland (NSS) whether or not an award of contract is made.

FREEDOM OF INFORMATION

Contractors must note that NHS National Services Scotland (NSS) shall apply the principles of the Freedom of Information (Scotland) Act 2002 (the "Act") to all information provided by Contractors pursuant to this procurement process. All information provided by Contractors may therefore be made publicly available by NHS National Services Scotland (NSS) at the end of the procurement process except such limited information as the Contractor considers is sensitive commercial information in respect of which there may be an adverse effect on the Contractor's commercial position if disclosed. To avoid doubt, it is for NHS National Services Scotland (NSS) in its sole discretion to determine whether or not any exemptions to disclosure under the Act may be applied. Examples where NHS National Services Scotland (NSS) shall accept that confidentiality in terms of aforesaid is justified are trade secrets and sensitive personal information. Any information Contractors consider should be kept confidential on the basis set out above should be clearly identified as such in their Tender or such information should be detailed, together with the justification for withholding such information by completing Appendix 3.

CONDITIONS OF TENDER

Conditions

1. These Conditions relate to the Tender for the provision of the Solution to Authorities in Scotland.

2. Every Tender received by NHS National Services Scotland (NSS) shall be deemed to have been made subject to these Conditions unless NHS National Services Scotland (NSS) shall previously have expressly agreed in writing to the contrary. Any alternative Conditions offered on behalf of a Contractor shall, if consistent with these Conditions be deemed to have been rejected by NSS.

Canvassing

3. Any Contractor who directly or indirectly canvasses any official of NHS National Services Scotland (NSS) concerning the award of the contract for the provision of the Solution or who directly or indirectly obtains or attempts to obtain information from any official concerning any other Tender or proposed Tender for the Solution will be disqualified.

Collusive Tendering

4. Any Contractor who:

   (a) fixes or adjusts the amount of this Tender by or in accordance with any agreement or arrangements with any other person; or

   (b) communicates to any person other NHS National Services Scotland (NSS) the amount or approximate amount of his proposed Tender (except where such disclosure is made in confidence in order to obtain quotations necessary for the preparation of the Tender for insurance); or

   (c) enters into any agreement or arrangement with any other person that he shall refrain from tendering or as to the amount of any Tender to be submitted; or

   (d) offers or agrees to pay or give or does pay or give any sum of money, inducement or valuable consideration directly or indirectly to any person for doing or having done or causing or having caused to be done in relation to any other Tender or proposed Tender for the Software and associated Services;

   shall without prejudice to any other civil remedies available to NHS National Services Scotland (NSS) (and without prejudice to any criminal liability which such conduct by a Contractor may attract) be disqualified.

Acceptance

5. NHS National Services Scotland (NSS) is not bound to accept the lowest or any Tender and NHS National Services Scotland (NSS) shall be free to abandon the procurement pursuant to which this Invitation to Tender is issued at any time.

Form of Contract

6. The successful Contractor will be required to enter into a formal contract based on the Contract contained in Appendix 4 to this Invitation to Tender. Subject always to paragraph 7 below, any Contractor wishing to propose any clarification to the Contract which they wish NHS National Services Scotland (NSS) to consider must complete and upload Appendix 5 detailing any proposed clarification. Please note that only minor clarification will be considered. It is expressly stated that NHS National Services Scotland (NSS) shall not be bound to accept any such minor clarification.

7. Until the execution of such Contract, the successful Tender, together with NHS National Services Scotland (NSS) written acceptance, will form a binding agreement between NHS National Services Scotland (NSS) and the successful Contractor upon the basis of the Contract contained in Appendix 4

Parent Company Guarantee

8. In the event that any Contractor is a subsidiary company (within the meaning of section 1159 of the Companies Act 2006 as amended), and a parent company guarantee is required by NHS National Services Scotland (NSS) following evaluation of the Contractor's financial standing, it must as part of its Tender submission provide confirmation that the parent company will provide a parent company guarantee.

Tender Due Diligence and Clarification

9. Contractors must undertake such due diligence as they consider appropriate by the date of submission of their tender. NHS National Services Scotland (NSS) shall facilitate due diligence by providing further information where requested. All requests for further information, clarification or interpretation must be made via the Q&A facility on the Public Contracts Scotland website. NHS National Services Scotland (NSS) shall respond to such questions and/or requests and each Contractor should note that the questions and answers are viewable by all Contractors. Therefore, Contractors should not provide any proprietary or otherwise confidential information in any questions.

TENDER SUBMISSIONS

Submission of Tenders

1. Contractors must submit their tenders via the PCS Portal by Noon on **Monday 5th June 2017..**

2. Tenders must be received by NHS National Services Scotland (NSS) by the date above. NHS National Services Scotland (NSS) may, in its absolute discretion, extend the closing date and time specified above. Contractors must ensure they allow sufficient time to upload their tender response as the PCS Portal will not allow submissions beyond the deadline.

3. No variant bids will be accepted.

Format and Content of Tenders

4. All Contractors must provide all the information required in this Invitation to Tender and must submit their Tenders in the manner prescribed in this Invitation to Tender and within the NHS National Services Scotland (NSS) Requirement. Any Tender containing gaps or omissions are likely to be disqualified.

   (a) All Contractors must respond to each item/requirement in the NHS National Services Scotland (NSS) Requirement set out in Appendix 1 providing a description of the basis upon which their solution meets the particular requirement and how compliance is or will be achieved.

   (b) Where a Contractor's solution includes optional items in addition to the NHS National Services Scotland (NSS) Requirement these must be separately identified in their Tender together with clear information on timescale and resource or other dependencies.

   (c) A written and full explanation and description of how the Contractor proposes to provide the Solution should be provided in response to the request for a Summary in Appendix 1. This information should include:-

   - ♦ all information required in the NHS National Services Scotland (NSS) Requirement;
   - ♦ details of any element of the Solution which the Contractor proposes to sub-contract and details of any proposed sub-contractors.

   (d) The basis upon which Contractors are to price for licences of the Software and provision of the Services relative to installation, commissioning and acceptance and support of the Software should be provided in Appendix 2 to this Invitation to Tender. All Contractors **MUST** complete Appendix 2 proposing their various charges.

   (e) All Contractors must provide details of Public Liability and any Professional Indemnity Insurances they have effected together with any other insurances relevant to the nature of the Solution being provided.

   (f) Any Contractors wishing to propose clarifications to the Contract contained in Appendix 4 should upload Appendix 5 with details of the proposed clarifications.

   (g) All Contractors should provide a description of the Contractor's staff and resources proposed to be employed in supply of the Solution.

   (h) All Contractors should provide confirmation that, from the date of submission of the European Single Procurement Document (ESPD) until the date of submission of its Tender, neither the Contractor nor its directors nor any other person who has powers of representation, decision or control has been convicted of any of the offences detailed in Regulation 58(1) of The Public Contracts (Scotland) Regulations 2015 (the "Regulations") and that the grounds detailed in Regulation 58(8) of the Regulations do not apply to the Contractor.

   (i) All Contractors must complete and upload Appendix 6 listing any matters which they

consider should be the responsibility of Authorities in relation to the delivery and implementation of the Solution together with any environmental requirements for the proposed solution.

(j) All Contractors must provide an Implementation Plan in respect of installation of the solution covering also integration with other systems,, configuration and training.

(k) All Contractors must confirm that if required by NHS National Services Scotland (NSS) following evaluation of response to ESPD a Parent Company Guarantee will be provided.

(l) All tenders must be submitted on the basis that Contractors have completed the extent of due diligence Contractors consider is required to allow tenders to be submitted.

Time for Acceptance

5. All Tenders must be held open for acceptance for six (6) months from the deadline set out in this Invitation to Tender for receipt of tenders.

Interpretation

6. Should any party be in doubt as to the interpretation or meaning of any part of this Invitation to Tender communication on this must be made via the Q&A facility on the Public Contracts Scotland website.

TENDER EVALUATION

1. **Evaluation Process**

   The procurement is being run under the restricted procedure pursuant to The Public Contracts (Scotland) Regulations 2015.

2. The first stage will be a submission of a Tender by Contractors invited to bid after evaluation of ESPD responses.

3. **Evaluation**

   Tenders will be evaluated against the criteria set out below. Evaluation of Tenders will be undertaken by a panel consisting of representatives from NHS National Services Scotland (NSS) and other Key NHS stakeholders. These individuals shall be suitably skilled and experienced to undertake the evaluation of relevant sections of each Tender.

   Each member of the evaluation panel will independently score responses to the NHS National Services Scotland (NSS) Requirement then the evaluation panel will meet to agree on a consensus basis, the score to be allocated to each element of each Contractor's Tender. If any member of the evaluation panel dissents from the score to be allocated this will be recorded by the chair of the evaluation panel together with the reasons for such dissent.

   Contractors are advised that if any Software demonstrations are to be made these will be scheduled for week commencing date **Monday 26th June 2017** which is subject to change.

4. **Software Demonstrations**

   Software demonstrations are at the discretion of NHS National Services Scotland (NSS). If these are carried out they will not be scored but will be used to clarify Tender responses.

5. **Site Visits**

   Visits by NHS National Services Scotland (NSS) to Contractors' customer sites are at the discretion of NHS National Services Scotland (NSS). If these are carried out they will not be scored but will be used to clarify Tender responses.

6. **Award Notification**
   The successful and unsuccessful Contractors will be notified of the outcome of their Tender submission as soon as possible after completion of evaluation.

7. **Evaluation Criteria**

   Although cost is important, the functionality of the Software and the standard of the Services and whether they fulfil the NHS National Services Scotland (NSS) Requirement are more important and accordingly the criteria which will be applied, together with their weightings to determine the most economically advantageous Tender shall be:

	Criteria	Weighting
1.	Response to NHS National Services Scotland (NSS) Requirement	70%
2.	Price	30%

8. **Evaluation of Response to NHS National Services Scotland (NSS) Requirement**

   The NHS National Services Scotland (NSS) Requirement has two scored Sections with the weightings set out in Table 1 (Section Weighting) below:

Table 1 – Section Weighting

Section	Weighting
Software Functionality Requirements	40%
Non-Functional Requirements	30%
Total	70%

The two scored Sections within the NSS Requirement each comprise a number of detailed scored requirements (each with their own weightings) as per Table A (Software Functionality Requirements) and Table B (Non-Functional Requirements) below:

Table A - Software Functionality Requirements

Detailed Software Functionality Requirements		
Reference	**Section Title**	**Weighting**
6.2	**General**	**11.12**
6.3	**Worklist**	**11.11**
6.4	**Reporting**	**11.11**
6.5	**Cross Border Activity**	**11.11**
6,6	**Workflow**	**11.11**
6.7	**Quality Assurance**	**11.11**
6.8	**Urgent Report Alerting**	**11.11**
6.9	**Business Intelligence**	**11.11**
6.10	**Usability**	**11.11**
	Total	**100**

Table B - Non-Functional Requirements

Detailed Non-Functional Requirements		
Reference	**Section Title**	**Weighting**
7.1	**Professional Guidance and Confidentiality**	**5.0**
7.2	**Technical Requirements**	**5.0**
7.3	**Software Solution**	**5.0**
7.4	**Hardware**	**5.0**
7.5	**Security**	**5.0**
7.6	**Performance**	**5.0**
7.7	**Scalability**	**3.75**
7.8	**Access**	**3.75**
7.9	**Audit**	**5.0**
7.10	**Environments**	**3.75**

7.11	**Interfaces**	**5.0**
7.12	**Documentation**	**5.0**
7.13	**Archiving/Back up**	**5.0**
7.14	**Maintainability**	**5.0**
7.15	**Hosting**	**5.0**
7.16	**Testing**	**5.0**
7.17	**Implementation**	**5.0**
7.18	**Training**	**3.75**
7.19	**Support and Maintenance**	**5.0**
7.20	**Strategic Roadmap**	**5.0**
7.21	**eHealth Architecture and Design**	**5.0**
	Total	**100**

Contractors are required to complete each of the questions within the NSS Requirement providing their response where indicated. Where a Contractor has been asked for information it should be given or a suitable explanation provided for its exclusion. All Tender responses concerning compliance with the NSS Requirement must be accompanied by evidence to demonstrate understanding of and confidence in the answers being given. Failure to provide this will result in lower scores. Contractors should note that simple Yes/No answers are not acceptable and will be scored accordingly.

Each detailed scored requirement (as identified in Table A (Software Functionality Requirements) and Table B (Non-Functional Requirements) above) comprises a number of individual specific requirements, each of which have an equal sub-weighting. Each Functionality requirement shall be scored 0, 1, 3 or 5 (with each of those scores having the meanings ascribed to them in the table below) and then multiplied by the sectional sub weighting applied.

Each specific requirement is marked (P), (HD) or (D):

- each specific requirement marked (P) represents requirements which are critical to the operation of the service. These requirements if not met could result in the rejection of a proposal. The Contractor must, where the reference statement implies, provide sufficient information to show how each P requirement would be met. Primary requirements will be scored on the 0-5 basis as outlined below.
- each specific requirement marked (HD) represents requirements which are not critical to the organisation but would provide significant advantage or significant improvement to the service, the provision of which would be taken into account in the selection of a proposal. The contractor must provide sufficient information to show how each HD requirement might be met. Highly Desirable requirements will be scored on the 0-5 basis as outlined below.
- each specific requirement marked (D) represents requirements which are not critical to the organisation but would provide some advantage or improvement to the current service, the provision of which would be taken into account in the selection of a proposal. The contractor must provide sufficient information to show how each D requirement might be met. Desirable requirements will be scored on the 0-5 basis as outlined below.

The Evaluation Panel reserves the right to recommend that if any Primary requirements score is “0”, that the Contractor bid be rejected. That is they reserve the right to veto a Contractor if it does not meet at all that requirement.

NHS National Services Scotland will evaluate compliant Tender responses on the basis of

the quality of the proposed solution against the overall specific requirement.

Each specific requirement shall be scored 0, 1, 3 or 5 (with each of those scores having the meanings ascribed to them in the table below) or Pass/Fail, as appropriate. Once scored, the score for each specific requirement within each weighted section shall be added together and then the total will be divided by the number of requirements within each weighted section and then multiplied by the allocated weighting as outlined in Tables A and B above to give an overall score for each detailed weighted section. The Overall total for each weighted section will then be applied in accordance with Paragraph 10 (Total Scores) below.

SCORE	DESCRIPTION
0	Not answered **OR** does not meet requirement **OR** demonstrates no understanding
1	Insufficient Information **OR** only partially meets requirement **OR** demonstrates partial understanding
3	Meets requirement **OR** demonstrates understanding
5	Provides additional features beyond the requirement **OR** demonstrates complete understanding and provides additional relevant information

9. **Evaluation of Price**

Contractors must complete and upload the template form of Pricing Model, which forms Appendix 2 to this Invitation to Tender. **Please send your Pricing Model as a separate document when submitting your proposal.**

The scoring of Price will be undertaken by the Financial Adviser appointed by NSS. For the purpose of evaluation, Price will be considered as the total cost for the three year term based on the NHS National Services Scotland Requirement in Appendix 1, on the assumption that Software licences are required together with implementation and support Services. Prices will be scored according to the table below. Bidders must therefore provide prices as outlined in Appendix 2.

Contractors must include prices for all elements necessary for delivery of their solution, e.g. underlying database costs or integration software costs. Failure to provide full costs shall render a Tender non-compliant and the Tender will not be considered.

Scoring will be performed for each of the above criteria, making a maximum total of thirty percentage points, using the points method described below:

VALUE	**SCORE**
Lowest priced tender	30
Up to 5% > Lowest priced tender	28
Between 5% and 9.99% > Lowest priced tender	26

Between 10% and 14.99% > Lowest priced tender	24
Between 15% and 19.99% > Lowest priced tender	22
Between 20% and 24.99% > Lowest priced tender	20
Between 25% and 29.99% > Lowest priced tender	18
Between 30% and 34.99% > Lowest priced tender	16
Between 35% and 39.99% > Lowest priced tender	14
Between 40% and 44.99% > Lowest priced tender	12
Between 45% and 49.99% > Lowest priced tender	10
Between 50% and 54.99% > Lowest priced tender	8
Between 55% and 59.99% > Lowest priced tender	6
Between 60% and 64.99% > Lowest priced tender	4
Between 65% and 69.99% > Lowest priced tender	2
70% and over the Lowest priced tender	0

1.1 TOTAL SCORES

For each detailed scored requirement listed in Table A (Software Functionality Requirements) and Table B (Non-Functional Requirements) above, the relevant weight will be multiplied by the score achieved by the Contractor to achieve a overall score for each Section of the NHS National Services Scotland (NSS) Requirement. The weightings for each Section (as shown in Table 1 (Section Weighting) above) shall then be applied to provide an overall score for Response to the NHS National Services Scotland (NSS) Requirement. Pricing scores will be allocated as indicated in the Pricing table. These will be added and carried forward to the box below to indicate the final scores for each Contractor.

CRITERIA	SCORE	WEIGHT-ING%	TOTAL (Weight x score)
NSS Requirement (70%) split:			
Software Functionality Requirements		40	
Non-Functional Requirements		30	
Price		30	
Total		**100**	

APPENDIX 1 NHS NATIONAL SERVICES SCOTLAND (NSS) Requirement

The NHS National Services Scotland (NSS) Requirement is a separate document and can be downloaded from PCS Portal.

APPENDIX 2: PRICING

Price Information/ Pricing Model

All prices quoted should be exclusive of VAT. Please use the notes column to record any information that NHS National Services Scotland (NSS) should be aware of when considering the Contractor's prices. Please also fully detail any other cost that an Authority would be expected to pay which are not covered in the headings below against the entry marked 'Other'.

PRICING TABLE

This procurement is being run under the Restricted procedure so prices forwarded at this stage are FINAL PRICES and will not be subject to negotiation at a later stage in the process. All prices quoted should be exclusive of VAT. Please use the notes column to record any information that NHS National Services Scotland should be aware of when considering the Contractor's prices. Please also fully detail any other cost that NHS National Services Scotland would be expected to pay which are not covered in the headings below against the entry marked Additional Services.

Pricing Tables

Contractors must complete the table below.

	Price Item	One off	Year 1	Year 2	Year 3
1) Licence – **Unlimited User National Licence**					
2) Implementation					
	Project Management				
	Implementation Support				
	Training				
	Hardware				
	Software (3rd party)				
	Integration to other systems				
	Development				
	Data migration				
	Other (specify)				
3) Support					
	Maintenance and Support				
	Supplier Hosting				
	Other (specify)				
4) Additional Services					
	Training (day rate)				
	Project management (day rate)				
	Consultancy (day rate)				
	Development (day rate)				
	Tester (day rate)				
	Other (please specify)				

Notes.

1) Contractors must provide licence, implementation and support costs over the three year term. There is flexibility in the contract to extend this agreement up to when there is a new National PACS Contract and solution in place. Evaluation will be on the basis of an unlimited User National Licensing model.

2) Please detail all elements of implementing the system.

3) Contractors are required to provide costs for the support model as outlined in Schedule Part 2 of the contract. Contractors must confirm that if the contract is extended the support costs would continue on the same basis as the support costs outlined in Year 3. Please provide a costs for supplier hosting.

4) In the Additional Services please provide the day rates inclusive of expenses.

5) Please provide additional notes to explain any cost which isn't clear in your response.

6) All prices/costs quoted must be exclusive of value added tax.

7) Please provide all costs based on expenses being included.

8) For the purposes of evaluation the bid shall be based on a Supplier hosted solution.

9) **For clarity evaluation of pricing will be on the following basis:**

1) Licensing costs

2) Any Index related increases as outlined in the Contract will not form part of the evaluation of proposals.

3) Ten days per Additional Services category (Section 4 in pricing table above) per year for the 3 year term will also be part of the Evaluation process. For the avoidance of doubt, any costs provided against the heading “Other” under section 4 (Additional Services) shall not be reviewed as part of the scoring evaluation.

APPENDIX 3: CONFIDENTIALITY

Contractors should list here any information forming part of their bid which they consider is confidential giving reasons why it should be withheld in response to a Freedom of Information Act request.

APPENDIX 4: CONTRACT

The Contract for Radiology IT Connectivity Software is a separate document and can be downloaded from PCS Portal.

APPENDIX 5: PROPOSED CLARIFICATIONS TO CONTRACT

APPENDIX 6: AUTHORITY RESPONSIBILITIES

APPENDIX 7 - CERTIFICATE OF BONA FIDE TENDERING

COLLUSIVE TENDERING, CERTIFICATE OF BONA FIDE OFFER

The essence of selective tendering is that NHS National Services Scotland (NSS) ("NHS NSS") shall receive bona fide competitive tenders from all persons tendering. In recognition of this principle:

We, the undersigned, certify that this Tender is made in good faith and that we have not fixed or adjusted the amount by or under or in accordance with any agreement or arrangement with another person. We also certify that we have not and we undertake that we will not;

1) until the Contract has been awarded:

   (a) communicate to any person other than the person inviting these offers the amount or approximate amount of offer or proposed offer, except where the disclosure, in confidence, of the approximate amount of the offer was necessary to obtain insurance quotations required for the preparations of the offer;

   (b) enter into any agreement or arrangement with any other person that he shall refrain from making an offer or as to the amount of any offer to be submitted.

2) pay, give or offer or agree to pay or to give any sum of money or other valuable consideration directly or indirectly to any person for doing or having done or causing or having caused to be done in relation to any other offer or proposed offer for the Services any act or thing of the sort described in 1) (a) or (b) above.

We acknowledge that if we have acted or shall act in contravention of this certificate, NHS National Services Scotland (NSS) will be entitled to cancel the Contract and to recover from ourselves the amount of any loss and expense resulting from such cancellation.

In this certificate, the word "person" includes any persons and any body or association, corporate or unincorporated, "any agreement or arrangement" includes any transaction, formal or informal, and whether legally binding or not.

Signed (1)……
Status……

Signed (2)……
Status……
For and on behalf of……
Date……

APPENDIX 8 – FORM OF TENDER

FORM OF TENDER FOR THE PROVISION OF RADIOLOGY IT CONNECTIVITY SOFTWARE AND ASSOCIATED SERVICES

Having examined the Invitation to Tender issued by NHS National Services Scotland (NSS) and being fully satisfied as to our abilities and experience in all respects to provide the Solution to meet the requirements set out in the NHS National Services Scotland (NSS) Requirement (contained in Appendix 1 of this Invitation to Tender)

We……

Address……

……

……

hereby offer to provide, on the basis of the Contract (as defined in the Invitation to Tender) the Solution specified therein, at the Price shown in the completed Appendix 2 to the Invitation to Tender.

If our Tender is accepted and we sign and return to NHS National Services Scotland (NSS), the duplicate of the letter of award referred to in paragraph 3 of Section 6 of the Invitation to Tender, we undertake forthwith to enter into a binding agreement with NHS National Services Scotland (NSS) based on the said Contract.

Unless and until the binding agreement referred to above is prepared and executed, NHS National Services Scotland (NSS) Invitation to Tender and this Tender together with any written acceptance thereof submitted by NHS National Services Scotland (NSS) shall form a binding agreement between us and NHS National Services Scotland (NSS).

Signed (1)……..

Status……

Signed (2)……

Status……

For and on behalf of…….

APPENDIX 9 - FOI

CONTRACTOR'S LIST OF PROPOSED CONFIDENTIAL INFORMATION AND JUSTIFICATION FOR WITHHOLDING

Contractors should list here any information forming part of their bid which they consider is confidential giving reasons why it should be withheld in response to a request for information pursuant to the Freedom of Information (Scotland) Act 2002.

If none, Contractors should return Appendix 9 marked "NONE" with their Tender.

APPENDIX 10 – CERTIFICATE AS TO CANVASSING

We, the undersigned, hereby certify that we have not canvassed or solicited any member, officer or employee of NHS National Services Scotland (NSS) in connection with this Tender or any other tender or proposed tender for the Solution and that no person employed by us or acting on our behalf has done any such act.

We further hereby undertake that we will not in the future canvass or solicit any member, officer or employee of NHS National Services Scotland (NSS) in connection with this Tender or any other tender or proposed tender for provision of the Solution and that no person employed by us or acting on our behalf will do any such act.

Signed(1)……

Status……..

Signed(2)……

Status……..

For and on behalf of……..

Date…….

Radiology I.T. Connectivity

Operational Requirements

This version is final
25 April 2017

Introduction

Purpose

The purpose of this document is to specify the requirements for an NHSScotland Shared Services, Radiology Programme, National Radiology Information Technology (IT) Connectivity software and services solution: hereinafter referred to as the "IT solution".
This document is being managed and released by NHS National Services Scotland. Queries regarding the content and process should be directed to Jim Binnie via the Question and Answer facility which will be attached to the Stage 2 Notice on Public Contract Scotland procurement portal.
It is acknowledged that the IT Solution will require to interface with existing NHS Scotland eHealth products as well as providing seamless integration with existing NHS Health Board IT Systems.

Glossary of Terms

Picture Archiving and Communication System (PACS) image display systems
PACS is an IT system used to transfer, display and manipulate radiology images using a standardised digital imaging and communication in medicine (DICOM) format.
Radiology report creation systems (radiology information systems – (RIS))
The RIS is an IT system used to generate radiology reports, linked to PACS images. It is also used to schedule radiology examination appointments. Transmission of reports and other information occurs via Health Level 7 (HL7) observation result (ORU) messaging.
Health Level-7 or HL 7 refers to a set of international standards for the transfer of clinical and administrative data between software applications used by various healthcare providers including RIS applications.

HL7 ORM is a general Order message that is used to transmit information about an order (electronic request). An order can be defined as a 'request for service' that is sent between healthcare IT applications.

HL7 ORU is an Observation ResUlt (ORU) that provides clinical observations. Clinical observations can include: clinical laboratory results, reporting of imaging studies (that is, text) electrocardiogram (ECG) results, pulmonary function studies and so on.

Digital imaging and communications in medicine (DICOM) is a standard for handling, storing, printing and transmitting information in medical imaging. It includes a file format definition and a network communications protocol. It applies predominantly to imaging data.

Web access to DICOM object (WADO) is a standard that specifies a web-based service for accessing and presenting DICOM persistent objects such as images and medical imaging reports. WADO is intended for the distribution of results and images to healthcare professionals.

Open database connectivity (ODBC) is a standard application programming interface (API) for accessing database management systems (DMS). This could be used to query data items within a database using criteria for the query.

Scope of this version

This document contains requirements related to the IT Solution in support of the National Radiology Model (hereinafter referred to as "The Model") which has been designed in collaboration with national radiology stakeholders.

Bidder Instructions

Please provide details on how each of the following requirements will be achieved. If you are unable to address the points fully, please advise to what extent you are able to achieve compliance. Please include any alternative solutions your company will be able to offer.

P - Primary	Requirements are critical to the operation of the service. These requirements if not met, could result in the rejection of a proposal. The Bidder must, where the referenced statement implies, provide sufficient information to show how each P requirement would be met. Primary requirements will be scored on a **0-5** basis as outlined in the classification table within the ITT document.
HD - Highly Desirable	Requirements which are not critical to the organisation but would provide a significant advantage or significant improvement to the service, the provision of which would be taken into account in the selection of a proposal. The bidder must provide sufficient information to show how each HD requirement might be met. Highly desirable requirements will be scored on a **0-5** basis as outlined in the classification table within the ITT document.
D – Desirable	Requirements which are not critical to the organisation but would provide some advantage or improvement to the current service, the provision of which would be taken into account in the selection of a proposal. The bidder must provide sufficient information to show how each D requirement might be met. Desirable requirements will be scored on a **0-5** basis as outlined in the classification table within the ITT document.
S - Statement	Statement of fact which requires no response from the bidder. No scoring classification.

Important Instruction to Bidders

Note that adherence to the response format laid out in this section is mandatory and failure to conform may lead to elimination from further consideration. Each question must be individually responded to in the Bidder's response to this operational requirement.

Response format

The following sets out the manner in which Bidders must respond to the document:

Bidders must reply explicitly to each requirement reference. Bidders are required to produce in their proposal both the question and their response to it

Where information is requested, full details as to how the requirement is to be met must be provided. Please provide sufficient detail to explain how your system provides the functionality outlined in the following questions. A failure to provide this information will result in a lesser score than if the information had been provided

All responses must be given in the positive i.e. ‘does’ ‘can’ or ‘will’, thereby providing a categorical statement of the current capabilities of your solution in relation to the requirements

Bidders should note that either **(i)** failure to reproduce every question and their response to it, **(ii)** a response to a referenced statement in the subjective tense, or **(iii)** failure to provide adequate information when requested to do so may result in a lower ranking on these aspects than if the instructions on response were followed.

If a Bidder’s proposed solution does include any future developments or optional items/methods these must be separately identified in the relevant section(s) of their response with any timescale, resource or other dependencies clearly stated.

Any information which does not directly address this procurement must be clearly labelled as such, and enclosed separately from the main response.

Business Objectives and the Service Landscape

Background to the Operational Requirement

The NHSScotland Shared Services Radiology Programme has worked comprehensively with key radiology stakeholders from across Scotland to establish The Model. In August 2016, the NHS Chief Executive Group mandated NHS National Services Scotland to implement The Model on a regional and national basis.

There are a number of key requirements needed to underpin The Model. One of these is an IT Solution which includes the ability to request and report upon images across NHS Health Board boundaries and for that report to be returned to the originating host NHS Board RIS. This may be achieved by maximising functionality of existing software, or a new software platform solution.

Please refer to the NHSScotland Shared Services Portfolio Website and the National Radiology Model Strategic Document for an overview of the current programme.
http://www.sharedservices.scot.nhs.uk/media/1364/national-radiology-strategic-document-v10.pdf
Whilst it is recognised that there is a re-procurement process underway for the PACS which will also consider the requirement for cross boundary requesting and reporting, the re-procurement period is three years henceforth and due to pressing national radiology operational issues, there is an urgent need for a solution. The Shared Services Radiology Programme has been tasked with leading on the solution.

Requirements Summary

NHSScotland seeks a Bidder who is able to deliver a complete National IT Solution. NHSScotland wishes to procure an IT Solution which is the most efficient in terms of software functionality and non-functional services, and that maximizes workflow for existing clinical processes.
The IT Solution will be a single national approach linking all PACS and RIS systems to support image acquisition and reporting, and the adoption of uniform procedures, processes and standards.
The expectation is that implementing an IT Solution will link existing PACS/RIS systems and will provide a comprehensive real-time, unified information system. This will enable workers to work collaboratively on a national basis across traditional hospital and health board boundaries.

Therefore, interested parties should be able to demonstrate how they would be able to overcome common difficulties in implementing including:

- **Compliance** - staff are familiar working within current processes and systems. What experience does the company have to support staff in the transition and engagement with change processes and new ways of working?
- **Compatibility** - systems when introduced need to integrate into existing infrastructure e.g. PACS and/or RIS, IT security etc. How will bidders ensure that existing systems will function with existing hardware and software which can vary across the Boards?
- **Timescales** - how will the bidder remain within tight project timescales with initial limited knowledge of individual local procedures and systems
- **Benefits realisation** - how can the bidder ensure that the expectations that are part of the business case are realised in line with anticipated ongoing costs.

Assumptions

The following assumptions have been made:

- The IT Solution should maximise existing NHSScotland IT solutions where appropriate

- The successful party will provide embedded report dictation and voice recognition capability, where required.

- The bidder must be able to provide a 24/7 support service

- Not all locations within Scottish NHS Boards will have Ordercomms and be capable of electronic requests via HL7 ORM. Scanned and/or emailed paper requests need to be considered.

- The IT Solution must be able to integrate the existing PACS functionality for image retrieval and prior image history.

- Once the study is reported, the report must be returned to the local RIS via the HL7 interface and the study marked as reported or verified depending on the site's preferred workflow. This will allow the option of checking some or all of the offsite reporting. Typically, however, the studies are set to a verified status and any onward transmission of the report e.g. to PAS, PACS etc. carries on as if it had been reported by a reporter in the Hospital.

- If the external reporting provider performs an audit and decides to issue an addendum, this must be passed back to RIS and the addendum added as if it had been created by an internal user, but with the reporter's details from the external reporting company. The original report and addendum would then be transmitted to "downstream" systems as if the addendum had been added internally.

- The originating Hospital may have many external providers and the users must be able to manually choose which to use. Alternatively, an automatic option should be provided.

- PACS connects with The Solution using standards-based,DICOM query retrieve (QR) messaging.

- Each RIS implementation connects with The Solution via standards-based HL7 order messaging (ORM) and ORU messaging.

- The long-term archives of images and reports are the RIS- PACS systems.

- The standards listed in section 7.2.1 will be followed by the bidder

Business environment

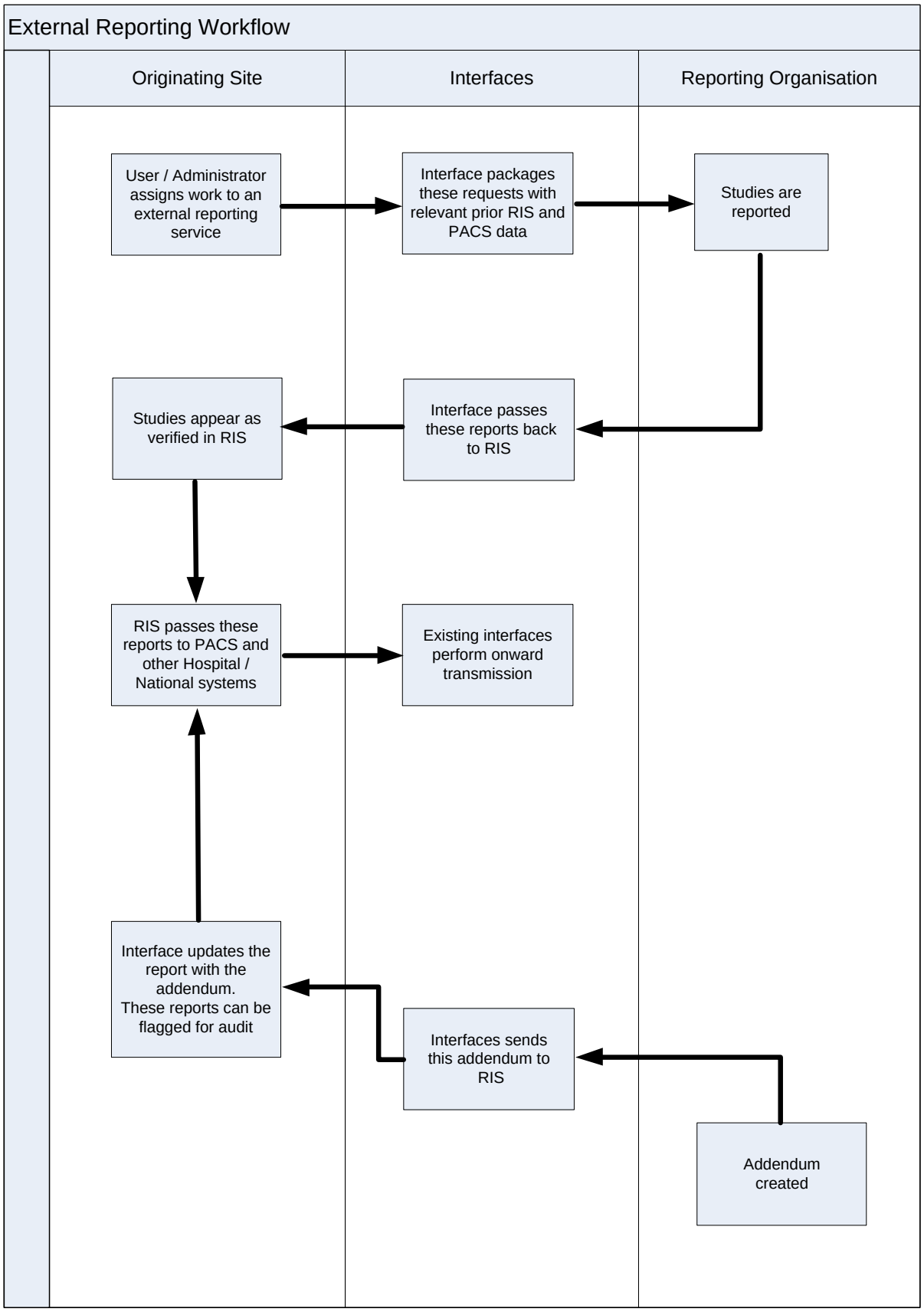
Existing IT Solution

The current radiology IT Solution comprises a national PACS which captures radiological images and reports. However, it should be understood that there are disparate RIS' which store waiting lists, requests, bookings and order comms data as well as the reports on individual radiological images.
In addition, cross-boundary reporting between NHSScotland Health Boards is not achievable due to the lack of a national IT Solution. The Bidder will need to be aware of bespoke solutions introduced within some boards due to operational pressures, however they will not deter the implementation of a national IT Solution to all NHS Health Boards in Scotland.

Physical infrastructure

The current PACS system is hosted and managed by NHS National Services Scotland and all NHS Health Boards.
There are a number of different implementations locally captured in the table below. The IT Solution will require to operate fully with each variation and comply with national eHealth Architecture and Design reference material that is published on the eHealth website at http://www.ehealth.scot.nhs.uk/. This material changes from time to time and is version controlled. Please indicate in your response, which version you have used as reference. Please refer to Appendix A.

Region	NHS Health Board	PACS supplier	RIS Supplier	Bespoke Reporting
SEAT	Lothian	**Carestream PACS**	**Intersystems TRAK**	
	Fife	**Carestream PACS**	**HSS CRIS**	
	Tayside	**Carestream PACS**	**HSS CRIS**	
	Borders	**Carestream PACS**	**Carestream RIS**	**Y**
North	Grampian	**Carestream PACS**	**Carestream RIS**	**Y**
	Highland	**Carestream PACS**	**Carestream RIS**	
	Western Isles	**Carestream PACS**	**Carestream RIS**	**Y**
	Orkney	**Carestream PACS**	**Carestream RIS**	
	Shetland	**Carestream PACS**	**Carestream RIS**	
West	Greater Glasgow and Clyde	**Carestream PACS**	**HSS CRIS**	
	Forth Valley	**Carestream PACS**	**Carestream RIS**	
	Ayrshire and Arran	**Carestream PACS**	**Carestream RIS**	
	Dumfries and Galloway	**Carestream PACS**	**Carestream RIS**	**Pending**
	Lanarkshire	**Carestream PACS**	**Carestream RIS**	
	Golden Jubilee Hospital	**Carestream PACS**	**Carestream RIS**	**Y**


External Reporting Workflow
Originating Site
Interfaces
Reporting Organisation
User / Administrator assigns work to an external reporting service
Interface packages these requests with relevant prior RIS and PACS data
Studies are reported
Studies appear as verified in RIS
Interface passes these reports back to RIS
RIS passes these reports to PACS and other Hospital / National systems
Existing interfaces perform onward transmission
Interface updates the report with the addendum. These reports can be flagged for audit
Interfaces sends this addendum to RIS
Addendum created

Human resource infrastructure

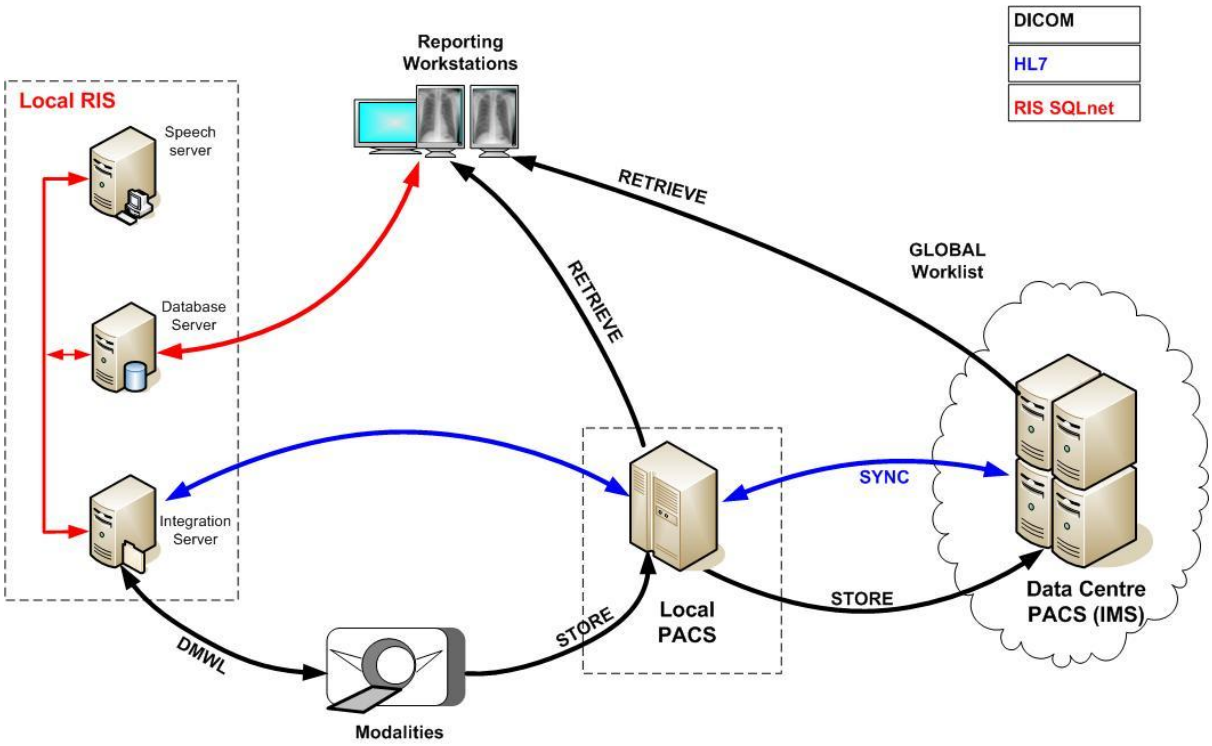
There are a number of clinical and business resources which will be involved in the delivery of Radiology in Scotland. Although not exhaustive, this list includes:

- Radiologists
- Radiographers
- Sonographers
- Service Managers
- Trainee Radiologists
- Trainee Radiographers
- Business Administrators
- RIS and PACS Managers

For further information please refer to the Royal College of Radiologists ocument "*Who Shares Wins*": [who-shares-wins-efficient-collaborative-radiology-solutions]

Business Process and Information Flow

The flowchart below shows a high level overview of the typical IT pathway for Radiology Patient Imaging in NHSScotland. Studies are routinely shared across the NHS Scotland network and delivery through a 'Global Worklist' system.



Functional Requirements

Introduction

This section introduces the functional requirements of the IT Solution.

Bidders are asked to respond to each system requirement in the following sub-sections. Please refer to section 2 above for detailed bidder instructions.

General Requirements (GR)

Ref	Requirement	Priority
GR01	The provision of a cross boundary radiology image reporting system.	**P**
BIDDER RESPONSE		
GR02	The provision of an order sharing and vetting/justification of referral system.	**HD**
BIDDER RESPONSE		
GR03	The vetting/justification system must allow two way communications with the requesting clinician.	**HD**
BIDDER RESPONSE		
GR04	The Solution needs to comply with : • the local Health Board implementation requirements • local and national data reporting requirements. • the multiple interfaces required e.g. PACS and RIS and potentially PAS/PMS.	**P**
BIDDER RESPONSE		
GR05	The solution must allow for: • Information Governance • Clinical Governance • Quality assurance • Discrepancy management • Peer review secondary reporting • Urgent Report Alerting	**P**
BIDDER RESPONSE		
GR06	It is desirable that the Solution could in future be extended to support cross-boundary appointment booking and image acquisition.	**D**
BIDDER RESPONSE		
GR07	It is desirable that the Solution can access other relevant information such as blood, histopathology results and	**D**

	electronic patient record (EPR) information.	
BIDDER RESPONSE		

Worklist Requirements (WR)

Ref	Requirement	**Priority**
WR01	Allow for the creation of reporting worklists for reporters locally or in other sites/health boards, on a regional, specialist and national basis. This must allow for the definition of multiple worklists from multiple sites.	**P**
BIDDER RESPONSE		
WR02	Enable reporting clinicians to report from these worklists.	**P**
BIDDER RESPONSE		
WR03	The Solution needs to be able to manage reporting capacity and schedule worklists against declared reporting capacity.	**P**
BIDDER RESPONSE		
WR04	Reporting Clinicians must be able to filter, sort and prioritise their reporting worklists using the following data items on The Solution. • Urgency (Clinical Priority) – sent in OBR:27.6 or ORC:7.6 • Clinical Pathway • Referring clinician (surname) – sent in ORC:12.2 • Referring specialty – sent in ORC 12.7 • Patient location type (A&E, inpatient, outpatient and GP) – sent in ORC 13.6 • Date of request – sent in ORC:9 • Date and time of examination completion – sent in ORC:7.4 or OBR:27.4 • National examination description – sent in OBR:4 • Modality – sent in OBR:24 • Intended reporter (or assigned radiologist) – sent in OBR:32 (to allow for both pooled allocation and individual allocation for reporting radiographer/departmental agreements) • Referring institution (where examination was acquired) – sent in PV1:3	**P**
BIDDER RESPONSE		
WR05	Reporting Clinicians must be able to save and reapply common filter combinations from the options detailed in WR04 above.	**P**
BIDDER RESPONSE		

WR06	As exams are reported, they drop off all reporting worklists. This means that an originating site within a Health Board can assign work to the national worklists, knowing that once any reporting clinician reports upon it, the exam is not visible on other worklists to avoid double reporting.	**P**
BIDDER RESPONSE		
WR07	The Solution must retain a history of reported examinations. Individual reporters must be able to review their reporting history including images.	**P**
BIDDER RESPONSE		
WR08	The solution will allow for the creation of autogenerated reporting worklists based on business rules including but not limited to modality, RISCode, time, site.	**HD**
BIDDER RESPONSE		
WR09	The solution will allow for the creation of bespoke autogenerated reports, for example for those required for Fracture Clinics	**HD**
BIDDER RESPONSE		

Reporting Requirements (RR)

Ref	Requirement	**Priority**
RR01	The reporting system should allow two way communications with the referring clinician. This should be available both within The Solution and using the existing RIS implementations.	**HD**
BIDDER RESPONSE		
RR02	The Solution will provide the ability for all users to issue urgent alerts/flags related to any reporting activity as required. In particular it will be necessary for urgent alerts/flags within the system to be available between the referring clinician and the reporting clinician. There are two types of urgencies, the event urgency so that the reporting radiologist can prioritise workload based on the clinical urgency of the exam and there is the urgency assigned at the reporting stage to flag to the referring clinician as an urgent report useful.	**P**
BIDDER RESPONSE		
RR03	The Solution will provide the ability to transmit the report directly to the referring clinician and confirm receipt of the report.	**D**

BIDDER RESPONSE		
RR04	The Solution needs to be able to allow for full operation with both paper referrals and electronic order comms as per local Health Board requirements.	**P**
BIDDER RESPONSE		

RR05	When a image is transmitted via The Solution, the following data items must be included:
	
	• Patient demographics:
	  ○ Name
	  ○ DOB
	  ○ Sex
	  ○ Address
	  ○ CRN number
	  ○ CHI number
	  ○ Patient location at request
	  ○ Location description
	• Location type: A&E, inpatient, outpatient or GP
	• Requesting responsible consultant/GP
	• ID – Registration number (GMC, HCPC)
	• Name
	• Job role (as defined by the NHS data dictionary)
	• Main specialty (as defined by the NHS data dictionary)
	• Employing institution (as defined by the NHS data dictionary)
	• Unique numbers
	• Accession number – unique scheduling number issued by RIS
	• Order number – unique number issued by Ordercomms/electronic requesting system (RIS for paper requests)
	• Reporter (primary +/- secondary)
	• ID – Registration number (GMC, HCPC)
	• Name
	• Job role of reporter (as defined by the NHS data dictionary)
	• Main specialty (as defined by the NHS data dictionary)
	• Employing institution (as defined by the NHS data dictionary)
	• Examination completed – date/time (when image acquisition was completed)
	• Examination room and institution (which owns the machine where the image acquisition took place). (Mobile scanners should be identified).
	• Date and time of primary report authorisation
	• Additional dates for corrections and report addenda, if issued, should also be included with the narrative text of the report.
	• Priority: urgent, routine
	• Clinical Pathway e.g FastTrack CT, Detect Cancer (PPC), One stop clinic
	• Patient category: NHS, private, category II (medico legal)
	• Modality e.g. CR, CT, MRI etc.
	• Examination description – using national examination codes
		P

	and descriptions • Where/to whom, copies of reports were sent (if reports need to be sent to someone other than referrer) • Report type • Primary final report • Appended report (additional information is added but previous information is unchanged) • Corrected report (report content is changed) • Failsafe alert • No alert • Alert present • This should be communicated using OBX:8. A= Abnormal flag (either null or A when an alert is present) • Narrative report text • Primary report: This should contain the narrative clinical content of the report. • Corrected report: When the report is corrected, then the date and time of change, and person who edited the report should be included in the report text along with the clinical content. • Appended report: When the report content is added to the original report, then the date and time of change, and person who edited the report should be included in the report text along with the clinical content.	
BIDDER RESPONSE		
RR06	HL7 (refer to Glossary in section 1.2) status definitions listed below must be utilised and fully integrated into the Solution. Report status is transmitted in OBR: 25 (result status). • Registered (R): Status transmitted as '(R) registered'. However narrative report content is not transmitted by HL7 ORU message. These may be authorised reports (following transcription) or trainee reports (awaiting supervision). Hence, the report is not visible to the requester/other clinicians, but they are aware that the report exists in the RIS or the Solution. • Provisional/interim/preliminary (P): Provisional report content sent out via HL7 ORU. (The report is visible to the requester/other clinicians). This is subsequently replaced by the final report. User-level permission will decide whether a trainee can issue provisional reports or not. When a provisional report is sent out it must be prefixed with the following sentence –*'Beware: This is a provisional report and will soon be replaced by the finalised report, which may differ in content'.* • Final report (F): Final or verifiedreport. • Corrected report (C): Report content is corrected after a final status but no additional content is added (if a grammatical or spelling mistake is made, it allows a report to be corrected/edited with tracked changes kept in the report creator system for audit trail purposes). It should only be	**P**

	possible for the radiologist who created the original content of the report to edit/correct the report. When a report is corrected then it should be prefixed by the following sentence – *'Please note this report has been edited after the initial report was issued on (date)'.* • Appended report (B): Additional report content, possibly from another radiologist, is added, but the original report content is left unchanged. When additional content is added the report should be prefixed with – *'Please note that additional content has been added by Dr (..) on (date)' The original report(s) is/are unchanged'.* • Deleted report (D): If a report has been issued in error, then it should be deleted and content removed from the receiving systems. Audit trails in the report creator system must show the report that was issued and also who deleted the report and when.	
BIDDER RESPONSE		
RR07	**HL7 fields for reporters** OBR: 32 – should contain the GMC/HCPC number, name, job role, specialty and employing institution of the primary reporter or trainee radiologist. OBR: 33 – should contain the GMC number, name, job role, specialty and employing institution of the supervising radiologist.	
BIDDER RESPONSE		
RR08	The Solution must ensure user customisation applied via desktop integration with existing PACS/RIS systems, is maintained when utilising The Solution.	
BIDDER RESPONSE		
RR09	The Solution must allow access for reporting by non-radiology disciplines who report on studies. For example Paediatric Surgeons who report on cystometrograms	
BIDDER RESPONSE		

Cross Border Activity Requirements(CBAR)

Please note the current default position concerning PACS/RIS at local Health Board level enables user permissions only within their own Health Board.

Ref	Requirement	**Priority**
CBAR01	Access controls must be included to ensure access is only permitted to those with appropriate permissions in existing systems. Controls must be available to apply against individual users and access granted or restricted in line with local business need.	**P**

	All controls must be business definable and dynamic.	
BIDDER RESPONSE		
CBR02	The Solution must have the ability to set and comply with existing rules for sharing between organisations.	**HD**
BIDDER RESPONSE		
CBR03	The Solution must have the ability to create worklists for Multi-disciplinary Team (MDT) meetings locally, between sites, regions and nationally. The Solution must allow cases to be allocated to specific MDT worklists by date and time. Must allow reporting of MDT outcomes (including whether a case was reviewed or not) locally, between sites, regions and nationally. Must allow desktop integration with PACS to allow display of images at MDT. Identified users will be targeted for MDT distribution and must be flexible to the requirements of individual meetings.	**D**
BIDDER RESPONSE		

Workflow Requirements (WR)

The below describes a step-by-step workflow for the required activity around cross-boundary reporting and should be supported in full by the Solution provided.

Ref	Requirement	**Priority**
WR01	If a decision is taken to send a particular examination to The Solution for reporting, the RIS data item – 'intended reporter or assigned radiologist' is changed to reflect the reporter, for example 'Dr Smith' on The Solution. The 'assigned radiologist' may be an individual, a specialist group or a general group. Using a prefix against the assigned radiologist (intended reporter) will trigger the outbound HL7 ORM from the RIS to The Solution.	**P**
BIDDER RESPONSE		
WR02	The intended reporter is assigned in RIS. It is transmitted in OBR:32 of the HL7 ORM message	**P**
BIDDER RESPONSE		
WR03	When the examination is sent to The Solution for reporting, it is essential that a mechanism is provided to avoid double reporting both on the RIS and The Solution.	**P**
BIDDER RESPONSE		
WR04	It is important the radiologists working on The Solution are	**D**

	aware what will be coming for reporting. Hence 'intended reporter' allocation and transmission via HL7 ORM may be allocated when/if required from very early in the workflow by RIS status (scheduled, arrived, started, and completed).	
BIDDER RESPONSE		
WR05	The HL7 message to the Solution should contain ALL relevant data items in the HL7 ORM message.	**P**
BIDDER RESPONSE		
WR06	HL7 ORM status updates of the examination will enable network based reporting clinicians to be aware when the patient has been scheduled, when they have arrived in the department, when the examination has started and when it has been completed.	**D**
BIDDER RESPONSE		
WR07	HL7 ORM status updates of the examination will enable network based reporting clinicians to be aware when the patient has been scheduled, when they have arrived in the department, when the examination has started and when it has been completed.	**D**
BIDDER RESPONSE		
WR08	Work allocation or assignment will be completed by network teams and data items for filtering and sorting as outlined in reporting worklists (section 6.3 above) are essential to facilitate work assignment – whether automated or manual.	**P**
BIDDER RESPONSE		
WR09	It must be possible to change the 'intended reporter' within The Solution at any time, so as to assign the work to another radiologist/reporter when required.	**P**
BIDDER RESPONSE		
WR10	Reports created within The Solution must be transmitted back to the local institution from which the HL7 ORM message was initiated, via an HL7 ORU message. The HL7 ORU message must contain all the data items identified in RR05 above.	**P**
BIDDER RESPONSE		
WR11	Once the report is completed the next examination on the reporting worklist should open for reporting automatically. **THIS** should immediately display the request and reporting window ready for dictation.	**P**
BIDDER RESPONSE		

WR12	The Solution technology should support VR, digital dictation, typing and structured reports as methods of report generation.	**P**
BIDDER RESPONSE		
WR13	The Solution must ensure that examinations are 'locked' (view only access would be permissible) if they are taken up by a radiologist/reporter for reporting. This will ensure that double reporting of the same examination does not take place within The Solution.	**P**
BIDDER RESPONSE		
WR14	Radiographer notes and comments must be available to a reporting radiologist (sent in NTE: 3 of HL7 ORM message).	**P**
BIDDER RESPONSE		
WR15	The clinical history, either electronic or scanned request, must be available to the reporting radiologist/reporter on the same screen as the dictation screen.	**P**
BIDDER RESPONSE		
WR16	Radiologists/reporters should be able to generate addendums on previously reported examinations. They may become aware of more clinical information following discussion with clinicians and they should be allowed to easily add an addendum to a reported study.	**P**
BIDDER RESPONSE		
WR17	The Solution must allow individual examinations that require a second report to be added to a worklist following the initial report.	**P**
BIDDER RESPONSE		
WR18	The Solution will allow a reporter to have a "safety delay", providing the ability to recall a report after authorising within a predetermined time interval e.g. within 5 minutes of signing.	**HD**
BIDDER RESPONSE		

Quality Assurance (QA)

Ref	Requirement	**Priority**
QA01	The supplier should provide an integrated software solution which will allow discrepancy capture in a simple customisable electronic form within the imaging system from but not limited to • Radiologists • Radiographers/ Sonographers • Referrers **1.2**	**P**

BIDDER RESPONSE		
QA02	The supplier should provide a software solution which is expandable and allows customisable categorization of discrepancies to facilitate the improvement in practice of the • Service • Individual reporter **1.3**	**P**
BIDDER RESPONSE		
QA03	The supplier should ensure that the method of discrepancy capture is secure and anonymous.	**D**
BIDDER RESPONSE		
QA04	The supplier should provide a mechanism of identifying abuse of the peer review system.	**HD**
BIDDER RESPONSE	**1.4**	
QA05	The supplier should provide a solution, which allows seamless integration with NHS Scotland Clinical Governance infrastructure.	**D**
BIDDER RESPONSE	**1.5**	
QA06	The supplier should provide a solution which securely records statistical data for • Individual radiologists review • Review by the Service **1.6**	**D**
BIDDER RESPONSE	**1.7**	
QA07	The supplier should demonstrate a solution, which minimises administrative time and associated errors in collection of data for peer review.	**P**
BIDDER RESPONSE		
QA08	The supplier should demonstrate a system, which is integrated into normal reporting workflows allowing for unobtrusive ease of use.	**P**
BIDDER RESPONSE	**1.8**	
QA09	The supplier should demonstrate a system which is part of routine clinical practice by • Using automation to allocate studies for review • Ensuring ease of capture of peer review **1.9**	**P**
BIDDER RESPONSE		
QA10	The supplier should provide a solution which captures peer review to record but not limited to • Agreement	**P**

	• Disagreement and reason • Reviewer categorization of error • Automatic feedback to original reporter • Recommendation of review • Flexible free text entry to original reporter • Allow collaborative review if necessary • Inclusion in departmental/service discrepancy meeting **1.10**	
BIDDER RESPONSE		
QA11	The supplier should provide a solution which allows case to be discussed in departmental/service discrepancy meeting.	**P**
BIDDER RESPONSE		
QA12	The supplier should provide a solution which allows for ease of preparation of a discrepancy meeting by • Creating discrepancy meeting worklist • Providing meeting chair person full access to all captured data • Customisable limitation of display of captured discrepancies for others review and learning • Recording date of review • Recording outcome of majority peer review • Providing record of outcome to individual • Clarity of outcome and actions if required • Allows learning from errors **1.11**	**P**
BIDDER RESPONSE	**1.12**	
QA13	The supplier should demonstrate the use of recorded data to be an informative part of • Appraisal • Revalidation **1.13**	**P**
BIDDER RESPONSE	**1.14**	
QA14	The supplier should provide a solution, which allows reporting against national standards and targets for peer review accounting for reviews from • Ad-hoc consultations • MDT • Systematic review of reporters **1.15**	**P**
BIDDER RESPONSE		
QA15	The supplier should provide a solution which integrates fully within the IHE infrastructure allowing for report addendums to be sent to referrers and allowing for the acknowledgement of receipt and highlight non-receipt for follow-up.	**P**
BIDDER RESPONSE		

Urgent Report Alerting (UAR)

UAR01	The Solution must provide the ability for reports to be marked as urgent and for a corresponding alert to be issued to the referring clinician.	**P**
BIDDER RESPONSE	**1.16**	
UAR02	The Solution must provide the ability for adendums to be marked as urgent and for a corresponding alert to be issued to the referring clinician.	**P**
BIDDER RESPONSE		
UAR03	The Solution must provide visibility to both referring and reporting clinician when urgent communications have been received and accessed e.g. a read-receipt to be available on all urgent communications	**P**
BIDDER RESPONSE		
UAR04	The Solution must highlight if an urgent notification has not been accessed within 24 hours. Specifically, the initiator of the notification should receive an alert to highlight the alert remains unactioned within The Solution.	**P**
BIDDER RESPONSE		

Business Intelligence Requirements (BIR)

The IT Solution must have business intelligence in order to analyse which NHS Health Boards have sent an examination for reporting, and also which Board's reporting clinician has reported that examination.

Ref	Requirement	**Priority**
BIR01	The ability to count activity and relate this to an accounting and billing mechanism which records the reporting activity and applies a cost to the host NHS Board. The process will record the specific reporting activity of each reporting clinician in order that they can be paid for the activity undertaken	**P**
BIDDER RESPONSE		
BIR02	The Solution will facilitate the ability to produce a monthly invoice to the originating NHS Board in line with activity undertaken.	**P**
BIDDER RESPONSE		
BIR03	Data items required for billing and cross-charging will include: • Referring institution – NHS Board where the images were required (sent in PV1: 3.4) • Reporting institution – employing institution of	**P**

	reporting radiologist/reporter(sent out in OBR: 32.9) • National examination code, examination description, modality, examination priority (urgent, routine) and time of day report issued	
BIDDER RESPONSE		
BIR04	Radiologists and reporting radiographers must be able to extract information about their workload for a date range both as primary reporter and/orsupervising radiologist, including details of the: • Examination code (or other descriptor) • Modality • Referring specialty • Location type – (A&E, inpatient, outpatient and GP) • Report type – primary or addendum • Reporter type – primary reporter or supervisor • Referring institution • Report date	**P**
BIDDER RESPONSE		
BIR05	The reporting of Key Performance Indicators at National and Local level is critical to monitoring within NHSScotland. The bidder should show how their System will support the existing KPI definitions and show examples of the types of report that can be produced.	**D**
BIDDER RESPONSE		
BIR06	In addition to Key Performance Indicators the System must provide a variety of reports to support Radiology operations. The bidder must list and describe the types of reports available from their system.	**P**
BIDDER RESPONSE		
BIR07	The bidder will provide details regarding the feasibility of producing reports via a 3rd party Business Intelligence solution.	**HD**

BIDDER RESPONSE		
BIR08	Must have the technical ability to interface with Clinical Decision Support Software	**P**
BIDDER RESPONSE		
BIR09	Capacity Management across the wider radiology network is requiredto allow clinicians to query available reporting capacity from elsewhere in the network.	**P**
BIDDER RESPONSE		
BIR10	The Solution must allow for any reporting generated from external sources to be flagged so that these studies can be highlighted for internal audit and error rates monitored for each external provider.	**P**
BIDDER RESPONSE		
BIR11	The Solution must allow full back end SQL access to the data captured to allow data to be utilised in other data intelligence solutions	
BIDDER RESPONSE		

Usability Requirements (UR)

Ref	Requirement	**Priority**
UR01	A user-friendly system can be characterised by: a) Clear and unambiguous help instructions to users. b) Consistent operation across all functions and all modules. c) Easily understood access features for first time users. d) Quick access features for experienced users. The bidder must show how their system is user-friendly and procedures are clear, consistent and easily understood as outlined above. Examples should be provided.	**P**
BIDDER RESPONSE		
UR02	Screens must be uncluttered and there must be no ambiguity about the action that is required to be taken by the user. The bidder must provide details to show their system meets the above requirement. Any differences must be highlighted.	**P**

BIDDER RESPONSE		
UR03	Logging in/out of the System should be a simple process complete with a minimal number of steps. The bidder must provide details on how their system start-up/login and log-off/shutdown procedures and the steps involved.	**P**
BIDDER RESPONSE		
UR04	Having the ability to create and display intelliglble information messages and alerts for system users when defined triggers occur. The bidder should show how it could be possible to display information messages to users that they can be alerted to when they are on the System.	**HD**
BIDDER RESPONSE		
UR05	The bidder should provide details on how their system's GUI would automatically resize to make best use of the screen resolution and if users will have the ability to resize the GUI.	**HD**
BIDDER RESPONSE		
UR06	The system should help the user, where possible, by clearly indicating on the screen or through using the online help when the user is required to respond to a prompt. The bidder should indicate if their system is capable of meeting the above requirement. Examples should be provided.	**D**
BIDDER RESPONSE		
UR07	It is desirable that wherever possible default prompts are used. The bidder should indicate if their system is capable of meeting the above requirement. Examples should be provided.	**D**
BIDDER RESPONSE		
UR08	On-screen help should be easily understood. The bidder should show examples of on-screen help that would be made available to users.	**HD**
BIDDER RESPONSE		
UR09	If a system action will take a while to process, the System should inform the user of this before the process commences, and the user should have the option to cancel. The bidder should indicate if their system is capable of meeting the above requirement. Examples should be provided.	**D**

BIDDER RESPONSE		
UR10	The Solution should allow for user customisation via the use of internal configuration choices, keyboard/mouse/recording device shortcuts, macros etc.	**D**
BIDDER RESPONSE		

Detailed Non-Functional Requirements

This section describes the non-functional requirements which should be demonstrated by the proposed solution. Non-functional requirements are requirements which specify criteria that can be used to judge the operation of a system.

This section outlines the known standards/policies and guidelines that the bidders must adhere to.

Professional Governance and Confidentiality

Ref	Requirement	Priority
PGC01	The system must support the professional code of conduct. See - http://www.sehd.scot.nhs.uk/publications/NHSScotCodesasatFEB200101A.pdf The bidder must provide a statement to acknowledge this requirement.	**P**
BIDDER RESPONSE		
PGC02	The system must support equality and diversity. Bidders should demonstrate how they will meet this requirement, through the production of an Equality and Diversity Impact Assessment. The bidder should provide a statement to acknowledge that they would complete an Equality and Diversity Impact Assessment.	**P**
BIDDER RESPONSE		
PGC03	The system must adhere to data retention protocols as per SGHD "Retention and Disposal of Health Records" National Policy. **SEE** http://www.gov.scot/Publications/2008/07/01082955/0 The bidder should provide a statement to acknowledge this requirement.	**HD**
BIDDER RESPONSE		

Technical Requirements

Ref.	Requirement.	Priority
TR01	The Solution and Services outlined in the proposal must comply with the NHSScotland eHealth Standards **PLEASE SEE:** http://www.ehealth.scot.nhs.uk/standards/	**P**
BIDDER RESPONSE		

Software Solution Requirements

Ref.	Requirement.	Priority
SSR01	The bidder must describe how the System has been developed and platforms it is supported on currently. A road map of future known System updates to support Operating System changes must also be given.	**P**
BIDDER RESPONSE		
SS02	The bidder shall specify all desktop software requirements and dependencies for all parts of solution (e.g. JAVA components requirements, office versions supported and browser versions). Please reference the linked standard below: http://www.ehealth.scot.nhs.uk/wp-content/uploads//NHS-Scotland-Infrastructure-Standard-v1-1.docx	**P**
BIDDER RESPONSE		
SS03	The Internet Explorer V6.0 browser is still in use across some Health Boards in Scotland although work is taking place to move to IE8 within NHSScotland. Higher versions up to IE11 are in common use. Any web based user interface should be compatible with mainstream browsers and not be version-dependant. Describe how the system will operate on web based platform and will support different browsers over the lifetime of the Contract. Bidders must provide a roadmap to ensure the software is compatible with the browser versions and the cease and deploy dates, versions of software to facilitate testing and notification if compliance is expected to be an issue.	**P**
BIDDER RESPONSE		
SS04	The bidder must describe essential operating and other software in detail including but not exclusively the operating system, web browser, database software, client software dependencies (Java, document viewers, acrobat etc.) reporting tools.	**P**
BIDDER RESPONSE		
SS05	The Bidder shall supply, support and maintain the System including hardware (i.e. all core and optional modules). The bidder shall detail in diagrammatic form what is supported as part of the core offering and which software is optional.	**P**
BIDDER RESPONSE		

Hardware

Ref.	Requirement.	Priority.

H01	Indicate the minimum specification required in terms of hardware (PC's and Servers) and operating system for the software. The bidder must provide a list of the operating systems that the software will work with and any limitations.	**P**
BIDDER RESPONSE		
H02	NSS and/or NHS Boards reserve the right to use National hardware and software contracts to purchase as necessary. The Bidder must confirm compliance with this statement.	**P**
BIDDER RESPONSE		
H03	The Bidder shall specify the minimum and recommended desktop specification for the System and detail the approaches, assumptions and testing made in determining this specification.	**P**
BIDDER RESPONSE		

Security

Ref	Requirement	**Priority**
SEC01	Interfaces into and out of PACS/RIS must not undermine the overall security of the applications, for example by providing a backdoor to sensitive material. In this context aspects of security to be addressed include: • Authentication of service, and where relevant user, of that service. • Audit trail • Encryption and other appropriate protection of sensitive information. • Access control – Including privacy, consent and role based access. • Availability of service – measures must be in place to ensure that activity of interfaces or subsequent processes should not be able to impair operational availability or performance, for example through; inappropriate record locking, resource demands, introduction of 'malware', and so forth. • Business continuity – loss of interface services should not result in permanent loss of information.	**P**
BIDDER RESPONSE		
SEC02	The design of the software must recognise that information integrity during data transfer is of paramount importance. The bidder must provide details to show how their system meets the above requirement.	**P**

BIDDER RESPONSE		
SEC03	The data must be validated at time of entry and a meaningful error message should be displayed. The bidder must provide details to show how their system meets the above requirement and how error messages would be monitored and made known.	**P**
BIDDER RESPONSE		
SEC04	The bidder must provide details to show how their system manages access control to the system and how this would be maintained and audited. A full and comprehensive audit trail of all user activity is required.	**P**
BIDDER RESPONSE		
SEC05	The solution must enable a secure audit trail to be created, maintained and reported. This must include a record of the detail of all changes (e.g. what the change is, who made it, when, previous versions). The bidder must provide details to show how their system meets the above requirement.	**P**
BIDDER RESPONSE		
SEC06	The solution must ensure that only the appropriate staff have access to patient information for their NHS Board or, by arrangement, other designated Board areas. An audit trail of all data updates and reporting activity must be maintained by the system. The bidder must provide details to show how their system meets the above requirement.	**P**
BIDDER RESPONSE		
SEC07	The Bidder to state clearly what mechanisms are available to monitor and control any modifications in the System. The bidder must provide details to show how their system meets the above requirement.	**P**
BIDDER RESPONSE		
SEC08	The system must comply with: a) NHSScotland IT Security Policy b) Data Protection Act 1998 c) The new EC Directive on Data Protection and any future legislation d) NHSScotland Data Protection Manual e) MEL(1994)100, entitled 'Protecting the confidentiality of personal health information contained in services being contracted out or market tested' f) The information security management standard BS7799 g) CSAGS "Protecting Patient Confidentiality"	**P**

	h) Scottish Office directive “Protecting and Using Patient Information. A Manual for Caldicott Guardians”. The bidder must provide details/information to show their system will meet the above requirements. Any differences must be highlighted.	
BIDDER RESPONSE		
SEC09	Protection of all data stored on the System from unauthorised access is paramount. The bidder must provide details to show how their system will meet the above requirement. Any differences must be highlighted.	**P**
BIDDER RESPONSE		
SEC10	The system must have a multi-tiered approach to security, controlled by username and password. Bidders should refer to section 2.5 and 2.6 of NHSScotland Authentication Good practice guide May 2012 document See http://www.ehealth.scot.nhs.uk/wp-content/documents/NHSScotland-Authentication-Good-practice-guide-May-2012-_2_.pdf The bidder must provide details to show how their system will meet the above requirement. Any differences must be highlighted.	**P**
BIDDER RESPONSE		
SEC11	Access should be relevant to person/role and context. There should be clearly defined levels of accessibility. The bidder must provide details to show how their system will meet the above requirement. Any differences must be highlighted.	**P**
BIDDER RESPONSE		
SEC12	The system must adhere to ‘NHSScotland Information Security Policy Principles’ See http://www.ehealth.scot.nhs.uk/standards/ The bidder must provide details to show how their system will meet the above requirement. Any differences must be highlighted.	**P**
BIDDER RESPONSE		
SEC13	System password management must comply with the NHSScotland Security Policy. See http://www.ehealth.scot.nhs.uk/standards/	**P**

	The bidder must provide details to show how their system will meet the above requirement. Any differences must be highlighted.	
BIDDER RESPONSE		
SEC14	System encryption must comply with the NHSScotland Security Policy See http://www.ehealth.scot.nhs.uk/standards/ The bidder must provide details to show how their system will meet the above requirement. Any differences must be highlighted.	**P**
BIDDER RESPONSE		

Performance

Ref	Requirement	**Priority**
PER01	In the event of a system failure, it must be possible to perform a disaster recovery procedure capable of rapid restoration to the point of failure, with no loss of data. The bidder must provide details to show their system meets the above requirement. Any differences must be highlighted.	**P**
BIDDER RESPONSE		
PER02	The System must be accessible 24/7, with a robust Business Continuity and Disaster Recovery provision, and administrative and management elements accessible during working hours The bidder must provide details to show how their system will meet the above requirement. Any differences must be highlighted.	**P**
BIDDER RESPONSE		
PER03	The system must ensure adequate response times for all users to allow effective user interaction e.g. quick response to on-line screens to ensure data input, query, reporting and patient management is efficient. The bidder must provide details to show how their system will meet the above requirement. Any differences must be highlighted. Examples and metrics should be provided.	**P**
BIDDER RESPONSE		
PER04	The system must ensure that following its introduction nationally, that no performance impact is observed on existing PACS/RIS implementations.	**P**

	The bidder must provide details to show how their system will meet the above requirement, and minimise any load placed on interactions with PACS/RIS system.	
BIDDER RESPONSE		

Scalability

Ref	Requirement	**Priority**
SR 01	It is possible that during the life-time of the contract the patient pathway may require to be changed due to operational or clinical needs. The bidder should indicate the level of flexibility within their system and what the process would be regarding changes to patient pathways.	**HD**
BIDDER RESPONSE		

Access

AR01	The preferred solution should be able to connect with Microsoft Active Directory and provide pass through authentication including differentiation of user permission levels through AD groups.	D
BIDDER RESPONSE		
AR02	The authentication part of the preferred solution should support multiple LDAP directories.	D
BIDDER RESPONSE		

Ref	Requirement	**Priority**
AR03	The preferred solution should provide a method by which users can 'roam' without interruption to their location appropriate access. Credentials should be securely (FIPS 140-2) held in a central store.	D
BIDDER RESPONSE		
AR04	The preferred solution should be able to authenticate users from multiple VPN (including SSL VPN) solutions using RADIUS protocols.	D
BIDDER RESPONSE		
AR05	For reason of disaster recovery, the authentication server should be able to be deployed in a dual site resilient model, with one server on each site. The servers should be able to operate in live-live mode with mirrored data for authentication.	D
BIDDER RESPONSE		

Audit

Ref	Requirement	Priority
AUD01	A complete audit trail of the system and its interactions with any PACS/RIS systems should be maintained, and available for scrutiny to key users. This audit can either be held as part of or in addition to the applications' main audit trail. As a minimum this audit trail should record: • Source/destination of the interface, for example calling service name. • Nature of the interface, for example update, notification, request. • Date and time stamps. • Record any interface transactions, including; request, acknowledgement and response, and errors. • Information exchanged. • End-user identifier where appropriate for the receiving or transmitting external application. • The system must provide the necessary user interface to access, monitor, report, and roll-back information contained in the audit trail. The bidder must provide a statement to acknowledge this requirement and highlight any differences or shortfalls.	**P**
BIDDER RESPONSE		
AUD02	Audit data will be determined according to the national standards and the system must be capable of producing queries on each parameter stored such that audit of individual data items and work undertaken by users is possible. Examples of the type of audit that can be produced must be given.	**P**
BIDDER RESPONSE		
AUD03	Audit routines within the system must be storable and procedural.	**P**
BIDDER RESPONSE		
AUD04	Lists of active and not active user accounts and associated permissions should be able to be printed or exported as csv or txt files by designated user(s).	**D**
BIDDER RESPONSE		

Environments

Ref	Requirement	Priority
ENV 01	The bidder must provide different solution environments e.g.	**HD**

	Live, Training and UAT/Test. The bidder must list the environments that will be made available and any limitations.	
BIDDER RESPONSE		
ENV 02	The bidder should provide details on how the Training and UAT/ Test environments can be seeded with anonymised and non-live patient data. Bidders should note that throughout the duration of the contract these environments will require reseeding prior to any further release testing.	**HD**
BIDDER RESPONSE		
ENV 03	The system should provide access to the training database which is separate from the production database. This should be approximately 10% of the size of the production application and contain comparable and realistic anonymised data. This training database should contain enough data at a level of detail that will mirror the typical operations of all aspects of the live application. The bidder must provide details to show how their system could meet the above requirement. Any differences or limitations must be highlighted.	**HD**
BIDDER RESPONSE		

Interfaces

INT 01	Within the current PACS and RIS Systems there are interfaces with systems at local level. It is imperative that any new system will provide no barrier to the continued use of these interfaces.	**P**
BIDDER RESPONSE		
Ref	Requirement	**Priority**
INT 02	There is an Electronic Patient Record (EPR) within the NHS web-based SCIstore. It is imperative that any new system will provide no barrier to the continued use of this interface i.e. system must be able to open external resources using web-based services to allow clinical access to open the patient's EPR.	**P**
BIDDER RESPONSE		

Documentation

Ref	Requirement	**Priority**
DOC 01	The bidder must provide details on the documentation to be provided. This must include the frequency of updates, description of the content and any other pertinent information required during the implementation of the system. An example of the type of documents produced must be given.	**P**

BIDDER RESPONSE		
	User friendly documentation is to be made available to all users.	**P**
BIDDER RESPONSE		
DOC 03	The Bidder shall provide full supporting technical documentation for the system and its components including the delivery of an appropriate system “User Manual”. The documentation shall be in electronic format	**P**
BIDDER RESPONSE		
DOC 04	The bidder must supply a description of the proposed “Training package” for the system. Examples should be shown.	**P**
BIDDER RESPONSE		
DOC 05	The bidder must describe and outline any ‘Disaster Recovery’ and contingency planning documentation for the system. Examples should be shown.	**P**
BIDDER RESPONSE		
DOC 06	The bidder must provide detailed and comprehensive ‘Technical Architecture’ documentation for the system. Examples should be shown.	**P**
BIDDER RESPONSE		
DOC 07	The bidder must provide detailed and comprehensive ‘Implementation’ documentation for the system. Examples should be shown.	**P**
BIDDER RESPONSE		

Archiving/Backup

Ref	Requirement	**Priority**
AB01	The bidder must provide information on how the system will archive data based on a given set of business rules which could be subject to change within the lifetime of the contract. Information must also be provided on how archived data can be restored or un-archived for query within the system.	**P**
BIDDER RESPONSE		
AB02	Archived material must include clinical data and should be in industry standard formats which can be read in generic software - not solely in the software which created them.	**P**
BIDDER		

RESPONSE		
AB03	The bidder must provide information on how their system will be backed up. Information on management and frequency of backups and the restoration of backed up data must also be provided. Examples of backup procedures must be included.	**P**
BIDDER RESPONSE		

Maintainability

Ref	Requirement	**Priority**
M01	The system must be adaptable with any sanctioned developments and easily altered to adapt to changing business needs. The ideal window for standard change management would be in the region of 6 months. However, shorter timescales may be required where high priority requirements are given. The bidder must provide details on timescales for changes based on business priorities.	**P**
BIDDER RESPONSE		
M02	The bidder must detail the methodology and any tools that would be used to monitor system performance. System performance monitoring at the application level must be available to key users. It is accepted that system performance at the user level is more difficult to measure but the bidder should outline any system performance monitoring for users that may be available.	**P**
BIDDER RESPONSE		

Hosting

1.17

Ref	Requirement	
HOST01	Any hosting (3rd Party or Bidder) option must adhere to NHSScotland Data and Security Policies and must reference the response in DOC06 above. The Bidder must clearly detail all Technical and Security aspects of their proposal.	**P**
BIDDER RESPONSE		
HOST02	The Bidder must provide comprehensive technical details in respect to hosting of their System. The details shall outline all assumptions and responsibilities of NHSSCOTLAND to host and support the hardware (e.g. LAN connectivity, skills required, service space requirements).	**P**
BIDDER		

RESPONSE		
HOST03	The Bidder must provide a hosting service for their System, they must clearly detail all Technical and Security aspects of their proposal. A supplier hosted model will form the basis of the Evaluation of this procurement. Please provide a cost for providing this. NSS reserve the right to host the solution.	**P**
BIDDER RESPONSE		

Testing

User Acceptance Testing (UAT)

Ref.	Requirement.	**Priority.**
UAT02	The Bidder shall ensure that they develop a UAT Test Strategy as part of the testing process.	**P**
BIDDER RESPONSE		
UAT04	Feedback from the UAT will be categorised into priority levels and the Bidder will action all priorities within the timescales agreed with the NHS Project Board.	**P**
BIDDER RESPONSE		

System Testing

Ref.	Requirement.	**Priority.**
UAT01	The bidder shall detail the testing / QA process they apply before releasing software (major and minor releases) to NHS Boards for UAT.	**P**
BIDDER RESPONSE		
UAT02	The Bidder shall ensure that they develop a Test Strategy as part of the testing process.	**P**
BIDDER RESPONSE		
UAT03	The Bidder will provide system release notes at least 1 month in advance of new releases.	**P**
BIDDER RESPONSE		
ST01	The overall system will be available in a UAT environment for comprehensive testing. NHS Boards will provide resources to conduct UAT. Describe how the Bidder will resource this process.	**P**

BIDDER RESPONSE		
ST02	Describe how the system will be tested for full load and performance when fully operational.	**P**
BIDDER RESPONSE		

Implementation

Ref.	Requirement.	**Priority.**
IMP01	The system will be implemented concurrently in the three NHS regions (i.e. North of Scotland, South East and Tayside and West of Scotland). The bidder must provide an implementation plan and timescales for implementation in both descriptive and Gantt Chart or MS Project form and outline in detail how the system will be deployed.	**P**
BIDDER RESPONSE		
IMP02	Please outline the Bidder's IT staffing profile and planned resource.	**P**
BIDDER RESPONSE		
IMP03	The Bidder shall describe the range of IT skills and experienced resources that they would bring to the project, including the support it would offer to the client during implementation / deployment of the solution.	**P**
BIDDER RESPONSE		
IMP04	The Bidder shall describe how they propose to transfer skills (as required) to NHS Boards or the system specialist for implementation and support.	**P**
BIDDER RESPONSE		
IMP05	Describe what resources the Bidder may require from NHS Boards to implement the agreed solution and quantify to what extent each resource will be required.	**P**
BIDDER RESPONSE		

Training

Ref.	Requirement.	Priority.
T01	The bidder will outline in detail how local onsite and offsite training will be delivered for the system from the initial phase and for the ongoing life of the system.	**P**

BIDDER RESPONSE		
T02	The bidder should outline why they consider their method of training in relation to requirement **T01** is the most efficient way of training users.	**HD**
BIDDER RESPONSE		
T03	Please indicate the style and content of the User documentation in relation to requirement **T01** you would provide to support each user during the term of the contract	**HD**
BIDDER RESPONSE		
T04	Please provide a draft Training Plan in relation to requirement **T01** indicating the different levels of training per user profile and the volume of delegates per training session.	**HD**
BIDDER RESPONSE		

Support and Maintenance

<table>
<tr><th>Ref.</th><th>Requirement.</th><th>Priority.</th></tr>
<tr><td>SM01</td><td>The Bidder must be able to provide a full maintenance and support service for the system which complies with the proposed support service levels which are provided here and in more detail in Schedule Part 2 of the Contract sent out as part of the ITT documentation.

These are:

<table>
<tr><th>Severity Classification</th><th>Definition</th><th>Time to Start Fix</th><th>Resolution Time</th></tr>
<tr><td>1</td><td>Whole solution ceases to function</td><td>[1] hour</td><td>[4] hours</td></tr>
<tr><td>2</td><td>A critical function is inoperable</td><td>[4] hours</td><td>[1] Day</td></tr>
<tr><td>3</td><td>A critical function is operable but in a restricted fashion
OR a non-critical function is inoperable
OR A Problem has been defined where immediate response is not required</td><td>[1] Day</td><td>[3] Days</td></tr>
<tr><td>4</td><td>Problem notification requiring explanation, advice and guidance or additional training</td><td>Mutually agreed</td><td>Mutually agreed</td></tr>
</table>
</td><td>P</td></tr>
<tr><td>BIDDER RESPONSE</td><td></td><td></td></tr>
<tr><td>SM02</td><td>Please provide a comprehensive description of how the Bidder will provide support and maintenance for the proposed software and if this is an MTS, the rest of the environment.</td><td>P</td></tr>
<tr><td>BIDDER RESPONSE</td><td></td><td></td></tr>
<tr><td>SM03</td><td>The Bidder must detail its current practices in regard to</td><td>P</td></tr>
</table>

	software upgrades. Information should be included on the frequency and content of historical upgrades, and how many versions the Bidder will be guarantee support for.	
BIDDER RESPONSE		
SM04	In the event of a failure the system must automatically retain, regenerate and retransmit any missing data and files.	**P**
BIDDER RESPONSE		

Strategic Roadmap

Ref.	Requirement.	Priority.
SR01	The Bidder must outline their technical roadmap for the System they propose for this tender. This must include reference to 3rd party software used including internet browsers, operating systems databases, etc. and also hardware.	**P**
BIDDER RESPONSE		
SR02	The Bidder shall confirm all underlying software, licensing and hardware dependencies (e.g. database engines used), will be supported by the original vendors for the period of the contract. Their development plans for moving to subsequent versions and approach to managing these vendor support timelines (including any sub Contractors) should also be included	**P**
BIDDER RESPONSE		

Policies, Standards and Guidance

The Solution must conform to all current and future NHSScotland Information, Data, eHealth, Technical, Design and Professional standards. In addition the solution must also comply with all relevant laws and statutory regulations that apply within Scotland.

The Bidder shall observe and keep track of NHS and industry standards as such standards evolve and emerge and are issued by the authority.

The Bidder shall ensure that the solution adopts new and existing standards within a reasonable timeframe. The implementation of any upgrades associated with meeting new standards will be in accordance with the Change Control Procedure.

Policies, standards and guidance include but are not limited to:

NHS Waiting Times 18 Weeks referral to treatment (RTT)

http://www.18weeks.scot.nhs.uk

NHS Waiting Times – Diagnostics
http://www.isdscotland.org/Health-Topics/Waiting-Times/Diagnostics/

NHS Scotland eHealth standards
http://www.ehealth.scot.nhs.uk/standards/

BMA Ethical Committee – Access to Health records by Patients (December 2002)
http://www.bma.org.uk/ap.nsf/content/accesshealthrecords

GMC - Confidentiality: Protecting and Providing Information (April 2004)
http://www.gmc-uk.org/guidance/current/library/confidentiality.asp

NHSScotland Code of practice on Protecting Patient Confidentiality (2003)
http://www.confidentiality.scot.nhs.uk/publications/6074NHSCode.pdf

eHealth Architecture and Design

Ref	Requirement	**Priority**
EHAD01	The Bidder shall detail how the System will be compliant with the Scottish Enterprise Architecture for eHealth.	**P**
BIDDER RESPONSE		
EHAD02	Application Programming Interfaces (APIs) shall follow open standards and there shall be no limitations on third parties to use those APIs. The Bidder will provide documentation and suitably skilled staff to assist third parties to develop, test and support integration developments. Access to the application through the API will not give cause for additional charges such as for licensing or raise legal barriers such as for use of intellectual property. The Bidder shall confirm compliance / non-compliance with this statement and provide details on how this will be provided.	**P**
BIDDER RESPONSE		
EHAD03	The Bidder shall maintain continuous awareness of eHealth standards development in NHSScotland and contribute subject matter expertise to the development process where requested. The System shall adopt new and changed standards as directed by Customer Health Boards. Where the Bidder itself wishes to introduce and change standards, this shall follow the standards development process as defined in the standards library. Please confirm your acceptance of these requirements.	**P**
BIDDER RESPONSE		

APPENDIX 11 – IT IMPLEMENTATION COSTS

Radiology Programme – IT Connectivity
Estimate of ITSBU contribution to project management costs of deploying a solution for Scotland

Scope of Work to be Supported

The full scope is as described in the Radiology Programme Business Case. In summary this involves implementation from engagement, deployment, testing, and acceptance to Business as Usual of a project which will connect reporting capacities across NHS Scotland.

Approach

The programme of work will involve close collaboration with suppliers and NHS stakeholders. The suppliers include PACS, RIS and the 'solution' chosen including integration specifications and deployment planning. Deployment will be across all 31 PACS and reporting centres in NHS Scotland and will involve application hosted in data centres. PRINCE2 project management controls and processes would be applied, including:

- Risk and Issue logs
- Highlight reporting
- Project planning/management
- Communication strategy/plan
- Technical Design Authority
- Clinical Assurance Process
- Information Governance controls

IT Connectivity Project Management costs

A Programme Manager with relevant experience should oversee the work with IT Project Managers appointed for the key regions of delivery. The Project Managers would be full time on the Project; however this time commitment will vary as dictated by workload.

The standard NSS day rates will apply, and only time spent on the programme will be billed, up to a maximum of 975 days per year. Contingency and the requirement to have clinical governance and sign off are costs included below. Based on current day rates shown below, the costs would be £426k per year.

Role	Daily rate	Days utilisation / year	Annual Charge
Programme Manager	£422	85	£35,870
Project Manager - West	£324	210	£68,040
Project Manager - East	£324	210	£68,040
Project Manager - North	£324	210	£68,040
Project Support Officer	£227	210	£47,670
Travel & Contingency			£20,000
Total		975	£307,660

NB. These are annual costs and project anticipated to take 18 months

Timescales

A good deal is known about the various IT components of radiology imaging and reporting in NSS and an initial estimate of timescales would be 18 months to have a working solution across the whole country. This estimate is regardless of the eventual solution chosen. So, total Business case costs for this purpose would be in the region of £462k. Most of the effort in these collaborations is expended ensuring all parties, NSS, HBs &, Suppliers are aligned. Testing and clinical acceptance are also significant time overheads.

Conclusion

The resource above is slightly higher than that used in the PACS Programme over the last 10 years – and this has completed two separate PACS implementations in that period. However given

the complexity and reach of this piece of work the above resource and timescales are considered realistic.

Alan Fleming 15TH June 2017

APPENDIX 12 – THE BI/PHI JOINT PROPOSAL FOR IMPLEMENTATION OF THE NRIIP

A Radiology Information and Intelligence Platform for NHS Scotland (NRIIP)

Background

The NSS[1]: Shared Services Programme[2] has been taking forward 'once-for-Scotland' work across a portfolio of NHS functions, including diagnostic radiology services, on behalf of NHS Scotland.

As part of the diagnostic radiology services work, a '*National Radiology Model'* was developed to address the current challenges facing diagnostic radiology services. This model, approved by NHS Scotland Chief Executives in August 2016, describes a future service delivery model where NHS Boards work collegiately. To successfully deliver this model, three key, underpinning requirements were been identified. One of these requirements is for nationally consistent and comparable radiology information & intelligence to:

- Facilitate service planning and operational management at strategic, national, regional and local levels;
- Monitor demand and manage capacity to facilitate timely diagnosis for patients and improve patient outcomes;
- Measure and identify best practice (e.g. via benchmarking).

Radiology data – current limitations

Currently, there is limited national Radiology data available, variation in the quality of the data which is collected and a lack of data definitions. In addition, there is no nationally agreed dataset for radiology. The majority of the information that is available is predominantly held locally and is often cumbersome to access, collate and analyse.[3]

This lack of consistent, quality, robust and comparable information and intelligence on radiology services across Scotland creates a barrier to the implementation of the National Radiology Model. As a result, the need to develop a National Radiology Information & Intelligence Platform (NRIIP) has been identified to facilitate service, operational and strategic planning across NHS Board boundaries in support of the collegiate model.

Radiology business case and purpose of this paper

The NSS Shared Services Programme is producing a business case to secure the necessary approvals and funding for the work to develop the three key, underpinning requirements required to implement the National Radiology Model. This business case will encompass the National Radiology Information and Intelligence Platform (NRIIP).

This paper provides information to support the writing of the business case by Shared Services colleagues, including a description of the proposed NRIIP, the procurement strategy, the implementation plan and outlines the estimated resource requirements.

What the National Radiology Information & Intelligence Platform (NRIIP) will provide:

[1] NHS National Services Scotland (https://nhsnss.org/)

[2] Shared Services (http://www.sharedservices.scot.nhs.uk)

[3] As experienced during the data collection exercise involving all Scottish NHS Boards which was carried out by the Shared Services Radiology Programme.

The NRIIP is described below and shown diagrammatically in the workflow diagram attached in Appendix 1. The NRIIP will provide:

- Nationally consistent, robust, comparable information on radiology services[4] held in a data mart within the NHS Scotland corporate data warehouse (CDW)[5] to:
    - Underpin the National Radiology Model, including service and strategic planning at a national, regional and local level.
    - Support safe, efficient and resilient radiology service delivery across Scotland.

- The solution will provide a BI platform which enables NHS Boards to carry out ad hoc analyses and supplement any national dashboard(s) provided with local dashboards as required to meet local needs

- A solution co-created in collaboration with key stakeholders to ensure it meets their needs.

- Radiology data linked to other datasets of relevance e.g. outpatient (SMR00), inpatient (SMR01), A&E, workforce and costs (N.B. datasets to be included will be determined via Board engagement).

- Information presented in reports/dashboards e.g. Tableau dashboards - The national reports and/or national dashboards required will be determined in collaboration with NHS Boards and will be developed via iterative development. Requirements to be determined via Board consultation but likely to include:
    - The ability to 'drill-down' from national to patient/clinician level (with appropriate permissions) and to different geographical configurations (local, regional and national).
    - A suite of analytics including visual analytics such as maps
    - Key Performance Indicators (KPIs), quality measures & process measures
    - Reports tailored to local needs with the ability for analysts and clinicians to develop additional visualisations and dashboards to meet local needs which can be shared via the national platform.
    - Reports linking into data sets held locally (subject to demand and outcomes of engagement)
    - Options for predictive modelling will also be explored.
- Content and 'look and feel' tailored to NHSScotland's requirements (not 'out the box')

    - A 'wrap around' consultancy and analytical service, similar to the wrap around service provided for NSS Discovery:
    - This will include analytical and interpretive expertise, predictive modelling (if this is not provided under the routine reporting) and routine nationally-commissioned analyses.
    - It will also provide ad-hoc additional commissioned/ bespoke 'wrap-around' data analysis and consultancy.

- Training materials and ongoing support with a range of regular support activities

- Routine maintenance, helpdesk, management of user access

- Ongoing engagement with the user community (e.g. SCIN) to ensure the solution remains fit for purpose and to govern future developments.

The NRIIP will be available to all NHS Boards and will be provided by NSS.

[4] Based on national data definitions developed in collaboration with NHS Boards and mapping of local RIS codes to nationally agreed definitions and codes.

[5] http://www.isdscotland.org/Products-and-Services/Datamarts/

Note:

NHS Greater Glasgow & Clyde (NHS GG&C) and NHS Lothian have a project to pilot an '*Advanced Business Information and Meta Data Analysis system for Radiology*' for six months. It is our understanding that this system will be used to support proactive management and identification of solutions to address current high levels of demand on local radiology services. The NHS GG&C/NHS Lothian system and NRIIP are seen as complementary, however it is acknowledged that there may be some degree of overlap. It should be noted that the NHSGG&C/NHS Lothian system alone does not provide the national radiology information and intelligence solution required to underpin the National Radiology Model. The future of the NHSGG&C/NHS Lothian system will be reviewed after the six month period.

NRIIP procurement strategy – why NSS?

NSS is ideally placed to provide the information and intelligence products, services and expertise required in support of the NHSScotland National Radiology Service Model. This is in line with NHS National Services Scotland's remit and NSS:PHI's proven track record in:

- Developing data marts to store and analyse NHSScotland data (in conjunction with NSS:BI), including providing facilitation and definitional expertise to define and refine data requirements in association with stakeholders
- Developing, capturing, analysing and publishing a wide range of information on health and social care in support of NHSScotland
- Providing information and intelligence consultancy services to NHSScotland.

The skills and expertise available within NSS will be utilised to work with the relevant stakeholders to co-design and define the information required to plan and deliver quality and resilient radiology services in Scotland.

As a result of the above, a decision has been taken not to undertake an external procurement for the NRIIP.

Benefits of developing the NRIIP within NSS

The key benefits associated with developing the NRIIP within NSS are that:

- The resulting solution will provide a 'once-for-Scotland' solution which underpins the national model for radiology.
- It will address the need for robust, comparable information to plan and deliver quality and resilient radiology services in Scotland in line with the radiology service delivery model outlined via the Shared Services work at a national, regional and local level.
- It will provide a package of support to NHS Boards, i.e. it will be more than just an IT solution.
- It will be backed up by national infrastructure and will use nationally agreed data set definitions to ensure data comparability.
- As well as providing the technical platform, the NSS solution will address data quality issues, coding differences etc. to ensure that the data required at local, regional and national level are consistent.
- It will provide the national, regional and local reporting and analytics required to underpin the national model, developed in collaboration with the service.
- It will provide a national data resource which can be used for multiple and secondary purposes (e.g.

routine publications, to support research and researchers, strategic service planning, monitoring, patient pathway work, etc.) and supports the tracking of the benefits of the changes being proposed.

- One of the key benefits of delivering the NRIIP via NSS is that this will provide a national BI platform that NHS Boards will be able use to create bespoke dashboards and visualisations.

- It provides the possibility of linkage to other data sets to facilitate diagnostic analytics and support complex predictive and prescriptive modelling e.g.:

    - Linkage to other data marts within the corporate data warehouse (CDW) (e.g. acute, A&E, waiting time, deaths, workforce (including sickness absence and payroll) and finance).

    - Linkage to common dimensions (reference data) within the CDW to enrich the data by providing details such as patient and population demographics, deprivation categories, rural/urban flags etc.

    - Linkage to other data sets that may be required either now or in future developments.

- It provides the ability to tap into the wider expertise within the wider NSS, e.g.:

    - Expertise in running and supporting existing national networks (NSD)
    - National Information and Intelligence teams (PHI)
    - Data collection, data management and data quality expertise (NSS:PHI's Data Management Service)
    - Information Governance (IG), data protection and data security expertise.
    - Expertise and infrastructure / capacity to support data linkage e.g. linkage of patient-level radiology (imaging/results) data to other patient-level data to illuminate pathways of care, identify quality of care and monitor outcomes and value.
    - Strong links with the electronic Data Research and Innovation Service (*eDRIS*)[6], the Farr Institute in Scotland[7] and the Administrative Data Research Centre for Scotland (ADRC)[8] which will help to facilitate research and knowledge creation.

- It provides the potential for utilisation of future developments in NSS/NHS infrastructure arising from technical modernisation programmes.

National Radiology Information & Intelligence Platform (NRIIP) – developments to date

As part of the initial information & intelligence work, '*Shared Services Health Portfolio, National Radiology Data Requirements (NRDR)'* were developed (with stakeholders) by NSS: Architecture & Consulting in Sep 2016.

A '*National Radiology Information & Intelligence Platform Project'* (NRIIPP) has now been established. Led by NSS:PHI[9], this project will take forward the work to provide a national radiology information and intelligence patform (NRIIP) to underpin the *'National Radiology Model'*. However, please note that, although initial preparatory work towards the delivery of the NRIIP has started, this has been limited to what is required to inform the radiology business case only (details below). Full project initiation will not be implemented until the business case has been approved.

[6] http://www.isdscotland.org/Products-and-Services/EDRIS/FAQ-eDRIS/

[7] http://www.farrinstitute.org/

[8] https://www.adrn.ac.uk/about/network/scotland/

[9] Public Health & Intelligence Strategic Business Unit (https://nhsnss.org/how-nss-works/our-structure/public-health-and-intelligence/)

Progress to date:

- A formal consultation on the national radiology dataset was undertaken. At the time of writing this document it is anticipated that the dataset will be approved by the Scottish Clinical Imagining Network (SCIN) on 31st July 2017 This dataset will ensure the all-Scotland-consistent data and definitions required to support the '*National Radiology Model*' and allow for demand management, shared planning and workload balancing across organisational/geographical boundaries.
- Full engagement with radiology, finance, planning and information staff from across all NHS Boards is currently underway to consult in detail on the information and intelligence products & services required. Seven NHS Boards have been consulted with. It is anticipated that this stage of the engagement will be completed by 31st July 2017 (depending on availability of the relevant representatives from the remaining Boards). eHealth leads are also being kept informed of this work and will be directly engaged in this work during the later stages of the project.

Next steps:

- Commence work to secure the necessary Information Governance approvals for the NRIIP work to progress.
- Identify data mapping required to map local RIS data to national dataset agreed by SCIN following consultation (see above).

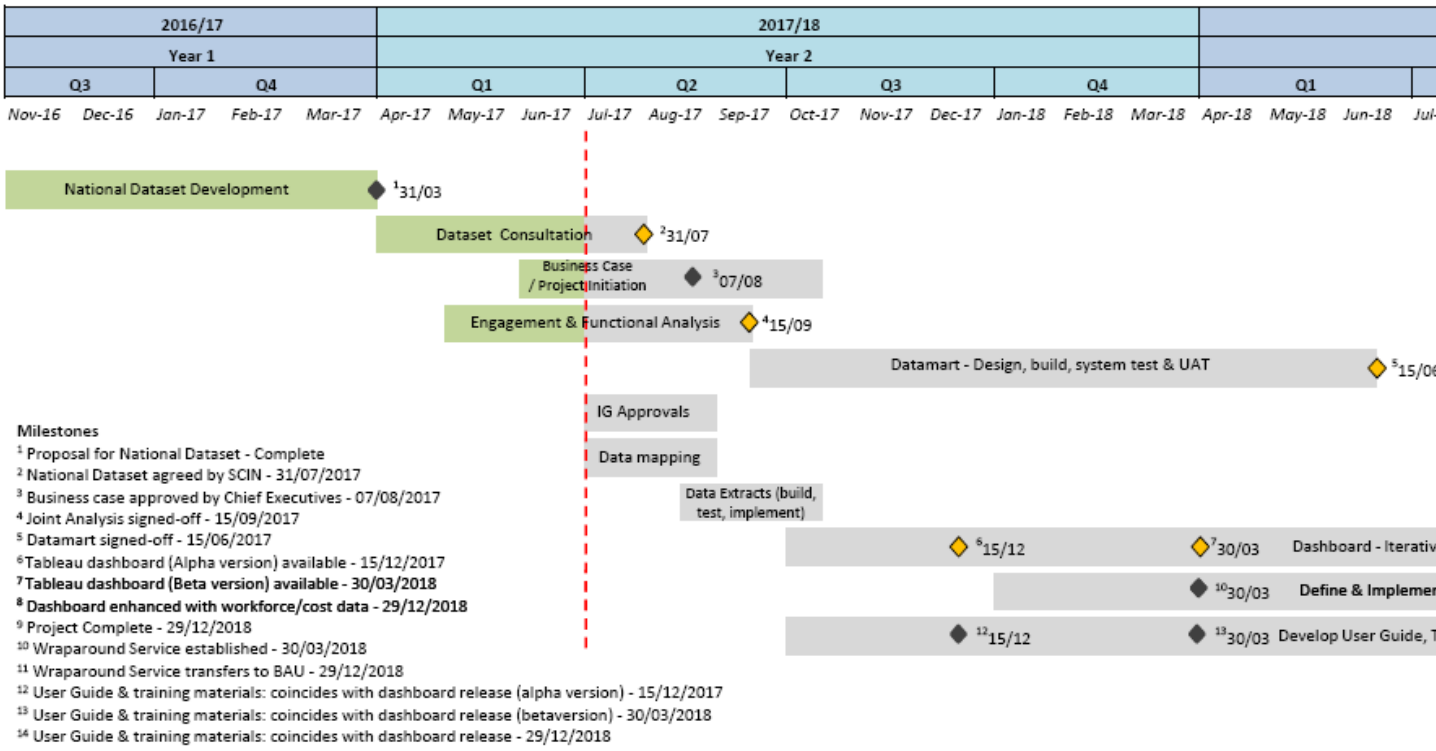
Following Business Case Approval:

- Develop the information & intelligence products & services to be provided to radiology services in Scotland. Work will be progress in an incremental fashion[10] and prioritised in accordance with feedback received from service engagement.
- Continued engagement with key stakeholders throughout the duration of the project.
- Responsibility for the implementation of the NRIIP will sit with NSS:PHI.

[10] The NRIIP will be developed in an incremental fashion with early release of Alpha and Beta versions of the dashboard prior to full release. See Appendix 1 for further details.

National Radiology Information & Intelligence Platform Project

1.18 IMPLEMENTATION PLAN (SEE APPENDIX 2 FOR EXCEL VERSION OF IMPLEMENTATION PLAN)



Milestones

[1] Proposal for National Dataset - Complete
[2] National Dataset agreed by SCIN - 31/07/2017
[3] Business case approved by Chief Executives - 07/08/2017
[4] Joint Analysis signed-off - 15/09/2017
[5] Datamart signed-off - 15/06/2017
[6] Tableau dashboard (Alpha version) available - 15/12/2017
[7] Tableau dashboard (Beta version) available - 30/03/2018
[8] Dashboard enhanced with workforce/cost data - 29/12/2018
[9] Project Complete - 29/12/2018
[10] Wraparound Service established - 30/03/2018
[11] Wraparound Service transfers to BAU - 29/12/2018
[12] User Guide & training materials: coincides with dashboard release (alpha version) - 15/12/2017
[13] User Guide & training materials: coincides with dashboard release (betaversion) - 30/03/2018
[14] User Guide & training materials: coincides with dashboard release - 29/12/2018

1.19 TIMESCALES:

Activity		Timescales
Project initiation		August 2017 (following business case approval)
Dashboard Production	Alpha version (very limited subset of radiology activity – 12 data items only)	15th December 2017
	Beta version (full radiology activity dataset)	31st March 2018
	Iterative development to incrementally add additional datasets required	April 2018 - December 2018
Project closure		December 2018

Note: NHS Board input will be required during the development of the dashboard (alpha (small number of NHS Boards), beta (all NHS Boards) and full version (all NHS Boards)).

1.20 COSTS:

Funding is required in order to develop a completed NRIIP. Funding required is outlined below:

	2017/18	2018/19	2019/20	Total
Capital	£200,000	£10,000	£0	£210,000
Revenue	£321,000	£213,000	£0	£534,000
Total Investment	£521,000	£223,000	**£0**	**£744,000**
Recurring costs	£0	£172,000	£247,000	

Notes:

- Costs are based on 2017/18 prices and staff costs. As requested, inflation has not been taken into consideration.
- These estimates are based on our current understanding of the likely costs associated with the provision of the necessary data extracts by the RIS suppliers. These may be subject to change as a result of ongoing negotiations with the RIS suppliers.
- The recurring costs include Capital Charges which start in 2018/19 and end after five years (2023/24). As a result recurring costs for 2019/20 – 2023/24 will be £247,163 per annum, reducing to £205,274 from 2024/25).
- These are the total costs for the NRIIP, including the NSS PHI costs, NSS IT costs and RIS supplier costs. They do not include any costs that may be incurred by NHS Boards during the development of the platform.

Appendices:

Appendix 1 – NRIIP Workflow diagram

2017 06 23 NRIIP Description (Draft) v0

Appendix 2 – NRIIP Implementation Plan

2017 06 19 High Level for BC (Draft) v

APPENDIX 13 - EMPLOYMENT ARRANGEMENTS GOOD PRACTICE GUIDE AND PROFESSIONAL GOVERNANCE PATHWAYS

Employment Arrangements for Cross Boundary Working

1. Introduction

1.1 The Shared Services Portfolio Group for Imaging were one of the first groups to highlight the challenge of how employees can work across different employers or deliver services on behalf of a different board. This has led to the group commissioning support from the Shared Services Workforce Reference Group, to consider ways in which NHS staff across Scotland can work more collegiately across board boundaries recognising that all Boards are single employers.

1.2 The following are the main mechanisms staff can undertake to enable cross boundary working without altering the core employer/employee relationship. All of these mechanisms require careful consideration of personal contract arrangements of the individuals, ensuring that the rates of pay are in line with national terms and conditions and ensuring that there is cognisance given to the professional liability of the individuals.

1.3 The information below can be applied across the Shared Services Portfolio.

2. Job Planning

2.1 In terms of medical consultant posts the average job plan of a Consultant is 10 programmed activities and whilst this will vary across Boards from 9:1, 8:2, 7.5/2.5 there is scope within the job plans to look at EPAs. It may be in some instances appropriate that the consultant continues to remain within their substantive employer on a core job plan of up to 10 PA's and that additional EPAs become under a separate contract with the other Boards. EPA's are aimed at being used for short to medium term activities.

2.2 EPAs are those in excess of 10 per week for full-time consultants and in excess of the number of programmed activities in the main contract for part-time consultants.

2.3 The pay rate used to calculate EPAs will be basic pay plus any discretionary points held by the consultant up to a maximum of 8 discretionary points. For a consultant holding a distinction award, the pay rate used will be basic pay plus the maximum of 8 discretionary points. The arrangements set out in **Section 4.8** of the consultant contract will apply where such activities are undertaken in the out-of-hours period. A consultant may agree with the employer to undertake EPAs. Any such activities should be agreed and timetabled through the job planning process as set out in **Section 3** of the consultant contract. Such EPAs will be separately contracted for under the same terms and conditions of service as the main contract.

2.4 It should be emphasised that we do not encourage anyone working beyond 48 hours per week. If there is agreement to undertake EPAs that will require a consultant to work in excess of 48 hours per week for the employer this will be subject to the consultant having signed a waiver opting-out of the requirements of the Working Time Regulations regarding the maximum working week of 48 hours. Please see section 6.1.4 of this document.

2.5 A model contract for EPAs is available through the Boards Human Resources. Such a contract may be entered into for any period of time but where possible should be offered and agreed on an annual basis. These EPAs may be terminated at any time by either the consultant or the employer giving the other a minimum of three months' notice. In exceptional circumstances EPAs may be contracted for a period of less than three months,

in which case the contract should specify the duration and it may not be terminated prior to the expiry of its term.

2.6 An employer will not require a consultant to undertake programmed activities in excess of 10 per week, or the number in the main contract for a part-time consultant, where the consultant's agreement is withheld. Where a consultant withholds agreement, this is not subject to appeal and there will be no detriment to progression through seniority points (except under the provisions of **paragraphs 4.4.6 to 4.4.12** of the consultant contracts) or any other matter.

3. Secondments

3.1 NHS Scotland has a PIN policy for Secondments which can also be used across organisations. This is more relevant if the position is short term and may be beneficial for covering long term sick or maternity cover rather than permanent vacancies. This will enable an employee to seek a secondment to work in another organisation. They will still retain employment rights with their own Board and have a commitment that they can return to a post within the Board and they will equally continue to enjoy NHS terms and conditions of employment with the new employer.

3.2 Time can be split in a secondment arrangement whereby the employee can work for part of the week for one organisation and part of the week for another organisation. To be successful, both organisations need to agree the preferred working patterns in advance.

3.3 The following is a link to the PIN which also has a standard template for a secondment agreement.

http://www.staffgovernance.scot.nhs.uk/media/1409/secondment-pin-policy.pdf

4. Service Level Agreements

4.1 Service Level Agreements (SLA) are formal contracts for service which can be agreed between two organisations. Whilst a Service Level Agreement looks very similar to a Secondment Agreement effectively if an employer agrees that one of their employees can work in another organisation under a Service Level Agreement, matters which need to be taken into consideration is; will the employer also be willing o continue to provide the service if that particular employee is not available for work, and the latest changes.

4.2 The employer providing the individual or work allocation will ensure that the person identified is suitably skilled and experienced and payments in this arrangement are normally by cross charge through finance management accounts team.

4.3 Effectively an SLA is a purchase provider arrangement. Enclosed at Appendix 1 is a draft Service Level Agreement for consideration. The purchaser will take responsibility for the individuals performance however should any major issues arise the provider should be notified.

5. Honorary Contracts

5.1 Honorary Contracts have traditionally been used in teaching hospital environments with joint arrangements between Health Boards and Universities. This was also supported by the Follet recommendations. "University and NHS to consider joint approaches to recruitment, conduct and capability issues".

5.2 Honorary Contracts are still used in University settings for medical staff where hours of commitment are agreed through job plans. To be successful agreement is required at the outset as to who is the main employer, and the split between teaching and clinical roles.

5.3 The Central Legal Office are currently reviewing an alternative to Honorary Contracts and this will be available in coming months.

6. Working Time Regulations

6.1 It is important when employees are working across organisations to ensure that the Working Time Regulations are followed. The following is a summary of requirements.

6.1.1 Working Time Directive Guidance

Introduction

The Working Time Regulations apply to all employees full and part time, temporary and casual workers (including bank staff). Agency or contract workers are also included but responsibility and subsequent liabilities under the Regulations' rests with the organisation that is responsible for paying them (i.e. the agency).

The Working Time Regulations detail rights and obligations relating to working time and rest time. The main provisions cover the following points:

- a limit on average weekly working time to 48 hours
- a limit on night workers' average normal time to 48 hours
- requirement of employers to offer free health assessments (night workers)
- minimum daily and weekly rest periods
- rest breaks at work
- paid annual leave

6.1.2 Employers do need to note that there are derogations agreed for senior medical staff which can be found within PCS (DD) 1999/1 (Scotland) http://www.msg.scot.nhs.uk/wpcontent/uploads/Circulars/PCS's/pcs%20dd%201999%201.pdf with specific emphasis on compensatory rest.

6.1.3 Definition of Working Time

Under the Regulations and for the purpose of this guidance working time is defined as any time an employee is:

i. working in an identified workplace or areas
ii. at the employer's disposal
iii. carrying out his/her contracted duties or activity.

Examples of working time include: (this list is not exhaustive)

- travelling to see patients or travelling between sites/meetings as part of duties
- time spent on a call out during an on call period, including travelling from/to home
- time spent on standby whilst compulsorily resident on site
- undertaking authorised training
- taking work home when specifically agreed and documents with manager eg agile working
- trade union/professional association duties undertaken by accredited representatives of recognised trade unions

The following would not be considered as working time:

- travelling to and from the place of work
- unpaid breaks
- being on call at home but pursuing own activities
- taking work home of your own accord (this includes telephone calls)

6.1.4 Weekly Working Time Limit

The Board will take all reasonable steps to ensure that its employees do not work more than an average of 48 hours per week over a 17 week reference period unless there are exceptional circumstances.

An employee may be required to work more than 48 hours in any one week as long as the average of 48 hours over the reference period is not exceeded.

The Regulations' allow that an individual employee may choose to agree to work more than 48 hours average per week by completing and signing a working time opt out form/waiver. This is voluntary on the part of the individual employee and they can decide at any time, by giving one weeks' notice that they no longer wish to work in excess of 48 hours per week. The other stipulations of the Working Time Regulations must however be complied with, even if the employee has agreed to sign a waiver. This section of the Regulations is the only part where an 'opt-out' may apply.

The Board has agreed that waivers may only be used by agreement of the relevant Director, and at period where 'exceptional circumstances' may be cited. These include during periods of a major incident, where there may be unpredicted staff absence levels, caused by adverse weather or similar events, significant infection outbreaks, e/g H1N1, and during unpredicted periods of patient activity. Any agreed waivers will be for finite period agreed by the Board.

For reasons of health and safety no employee of the Board should work excessively long hours or for prolonged periods of time. Managers should take steps to ensure that they reduce the average hours of work for all employees to an acceptable level. In order to achieve this, employees must inform their manager if they are undertaking any other types of work, i/e secondary employment including bank and agency activity.

6.1.5 In-Work Rest Periods

Where the working day is longer than 6 hours an employee is entitled to a break of at least 20 minutes (unpaid). In the majority of areas in the Board staff working more than 6 hours will be able to take this 20 minute break as part of their normal meal break.

This break should be taken during the working shift, not routinely at the start or at the end, and the employees should be able to take this break away from their area of work/workstation.

6.1.6 Daily Rest Periods

Employees are entitled to a daily rest period of 11 consecutive hours in each 24 hours period. This effectively means that there must always be 11 hours of rest between shifts.

6.1.7 Weekly Rest Periods

Employees are entitled to a rest period of 24 hours over a 7 day period. This can be averaged over a two week period (i.e. two rest days over a fortnight). It is important employers review this regularly with employees to ensure compliance is maintained.

6.1.8 Secondary Employment

For employees of the Board who also have secondary employment either with another employer or NHS Body (e.g. bank) it is the duty of the Board and the employee in partnership to recognise all working time is relevant to the Regulations.

7. Protection

Employers have to be mindful that some employees will have protection arrangements relating to their substantive post which may impact on any additional hours payable in line with current Agenda for Change protection calculations.

Appendix 1

SERVICE LEVEL AGREEMENT
between
(The Purchaser) Board A
[NAME OF DIRECTORATES]
and
(The Provider) Board B
from [date] to [date]
Re: [Job Title]

SECTION 1 - SERVICE LEVEL AGREEMENT

1.1 Definitions and interpretation

In this Agreement-
'Performance Indicators' means the performance indicators listed in Annex B;
"the Provider" is Board B

"the Purchaser" is NHS Board A
"the Services" means all those services and other items described in the SLA and as set out in requirement specification table at Annex C.

"the SLA" means this Service Level Agreement between the Purchaser (as defined below) and the Provider (as defined below);
"the SLA commencement date" means [date]

1.2 Parties to the SLA
The SLA is between the Purchaser and the Provider for the provision by the Provider of the services sought by the Purchaser.

1.3 Background
The SLA sets out the services which the Provider will be responsible for providing to the Purchaser and sets out the minimum levels of service to be provided.
Both the Provider and the Purchaser have a responsibility for ensuring the total service provision. The SLA covers the Provider's obligations for the provision of these services and for the provision of appropriate system performance and reliability measurements.
Nothing in the SLA creates an employment relationship between the Purchaser and any person who delivers the Services on behalf of the Provider. Any employee, worker or contractor of the

Provider who delivers the Services shall not be considered for any purpose to be employed by the Purchaser.

1.4 Service Objective
The Provider has an overall objective to provide quality services within a cost effective framework. Measures will therefore be agreed by the Purchaser and Provider to monitor, operational performance and resource utilization in accordance with section 3.2.2 below.
To achieve this service objective it is essential that the Provider and the Purchaser work closely together.

1.5 Agreement Period
The SLA is for a period of [specify] months, from and including [date] to and [date], unless it is otherwise terminated in accordance with the provisions of the SLA, and may be extended by agreement in writing between the parties before [end date].

1.6 Variations and termination
The Provider and the Purchaser may, from time to time and by agreement in writing; alter, substitute for, cancel or vary any or all of the provisions of the SLA. The SLA may be amended only with the prior written agreement of both parties.
Either party may terminate the SLA by providing the other party with [specify] months' written notice.

1.7 Scope of, and location for provision of, Services
The services covered by the SLA are described in detail in Sections 2 and 3 and Annex C below. The Provider will also carry out all associated and appropriate tasks necessary to perform these activities consistent with best practice. Any associated services to be excluded from the SLA will be clearly identified in the relevant part of section 2.
The services will be provided at [specify address].

1.8 Security/Data Protection
The Provider will adhere to the procedures and guidelines implemented to ensure the physical security of all data held. The individual staff members of the Provider located at the premises of the Purchaser, will comply with the Provider's security principles and requirements. They will also ensure that the core Board A security principles and the good practice guidelines from the Office of Security and Information Assurance, are adhered to at all times. The relevant Director shall retain overall responsibility for information security in the areas covered by the SLA.
In addressing security, consideration must be given to the sensitivity of the date being shared, using the Government Protective Marking system.
Specific measures, if any, for the secure handling, transfer and storage of that date should be covered in Annexe C.
Any breach of the Board A information security rules or the IT code of conduct will lead to the Provider removing the individual(s) concerned and considering appropriate action under their own processes, as the employer.

1.8.1 Official Secrets Act (Only required if linked to Civil Service)
The Provider shall comply with and shall ensure that its staff comply with, the provisions of the Official Secrets Acts 1911 to 1989.
In the event that the Provider or its staff fail to comply with this clause, the Purchaser reserves the right to terminate this SLA by giving Notice to the Provider.

1.9 Confidentiality
All data and information relating to service enquirers will be held in secure conditions and treated as confidential. With the exception of named officers, the Provider will not disclose data to any third party without prior consent of the Purchaser.
The Provider will ensure that the core Board A security principles and the good practice guidelines from the Office of Security and Information Assurance, are adhered to at all times.

1.10 Change Procedures

Either party may at any time request variation of the SLA in relation to the requirement specification set out in Annex C, including any additional requirements as may be agreed between the Provider and the Purchaser.

Any variation request shall be communicated in writing. Both parties undertake that they will not unreasonably withhold or delay approval for a variation request reasonably made by the other party.

The Provider will document, cost and review all change requests for agreement by both parties to assist in managing future changes. Once agreed, any updates and amendments will be formally documented and signed off with the amended SLA issued to all parties highlighting the change. The variation will take effect from the date of signing the amended SLA.

1.11 Force Majeure

Neither the Provider nor the Purchaser will be liable for delay or failure to perform the obligations of the SLA if this delay or failure results from circumstances beyond their reasonable control. In the event of any delay or failure the Purchaser may make alternative arrangements for the provision of the services specified in the SLA and neither party will have the right to seek to renegotiate the terms of the SLA.

SECTION 2 - SERVICES AND SERVICE LEVELS

2.1 Provider's obligations

The Provider agrees to:

Ensure the availability of a suitably qualified member of staff with relevant expertise to fill the post of [Job Title] for the period [date] to [date].

2.2 Purchaser's obligations

The Purchaser agrees to:

pay any reasonable costs associated with the requirements set out in paragraph 2.1 and in Annexe B to ensure that there is no detriment to the Provider

SECTION 3 - SUPPLEMENTARY INFORMATION

3.1 Dispute resolution

Both the Purchaser and Provider shall attempt in good faith to negotiate a settlement to any dispute between them arising out of or in connection with the SLA within 20 working days of either party notifying the other in writing of the dispute and in the event of failure to agree the matter shall be referred to a single arbiter to be mutually chosen by the parties, and failing agreement to be nominated by the President of the Law Society of Scotland for the time being on the application of either party. Any such reference to arbitration shall be deemed to be an agreement to refer to arbitration within the meaning of the Arbitration (Scotland) Act 2010.

3.2 Review and Monitoring Arrangements

3.2.1 Review

The Provider and Purchaser will hold, each year between 1st January and 31st March, review meetings which ensure that the services specified are being maintained, monitoring that the original specification continues to reflect the service requirements and if necessary, to identify any changes needed. Consideration should be given to the overall performance of the SLA for the period, overall financial performance for the period (including consideration of any tolerance levels set); and any need to vary the existing SLA to reflect the latest Scottish Government published SLA guidance and/or any specific change in circumstances. The outcome of the review meetings, (including any actions) should be confirmed in writing between the Purchaser and Provider.

3.2.2 Monitoring

The Provider will maintain a system for the purpose of monitoring the level and standards of service provided to the Purchaser and will provide feedback, if requested, using one or more of the Performance Indicators.

3.3 Training

The Purchaser will provide any necessary training required to support delivery of the objectives of Board A [specify Directorate/Department].

Board A [specify Directorate/Department] will endeavour to support ongoing professional development in accordance with the individual personal development plan, as agreed with the Provider.

(If the SLA is related to medical staff, cognisance needs to be given to appraisal, job planning and revalidation)

3.4. Price

Subject to the other provisions of the SLA, the costs payable in accordance with the SLA by the Purchaser to the Provider in respect of the actual performance of the Services shall be as shown in **Annex A**.

3.5 Notices

3.5.1 No notice or other communication from one party to another shall have any validity under the SLA unless made in writing by or on behalf of the party concerned.

3.5.2 Any notice or other communication which is to be given by either party to the other shall be given by letter (sent by hand, post or by the recorded or special delivery service), or by facsimile transmission or electronic mail. Such letters shall be addressed to the other Party in the manner referred to in clause 3.5.3 Provided the relevant communication is not returned as undelivered, the Notice or communication shall be deemed to have been given 2 Working Days after the day on which the letter was posted, or 4 hours, in the case of electronic mail or facsimile transmission or sooner where the other Party acknowledges receipt of such letters, facsimile transmission or item of electronic mail (such acknowledgement not to include an acknowledgement given by means of an automated electronic process).

3.5.3 For the purposes of clause 3.5.2, the address of each party shall be:

(a) For the Provider:
Human Resource Directorate
Board B
Address
For the attention of: [Name and Title]
Tel: [Tel Number]
Email: [name].@ggc.scot.nhs.uk

(b) Board B [Specify Directorates]
Address
For the attention of: [Name and Title]
Tel: [Tel Number]
Email: [specify]

3.5.4 Either Party may change its address for service by serving a Notice in accordance with this clause.

IN WITNESS WHEREOF these presents typewritten on this and the 6 preceding pages are executed as follows:

SIGNED for and on behalf of the Purchaser Board A[SpecifyDirectorates)

At.....

On.....

Signature.....

Name .....

Position .....

Address.....

In the presence of

Signature (witness)……

Full name……

Address……

SIGNED for and on behalf of the Provider Board B

At.....

On.....

Signature.....

Name .....

Position .....

Address.....

In the presence of

Signature (witness)……

Full name……

Address……

This is Annex A referred to in the foregoing Service Level Agreement (Section 3.4) between Board A [Specify Directorates] and Board B and Clyde.

Price

The Purchaser agrees to pay any reasonable costs associated with the requirements set out in paragraph 2.1 and Annexe B to ensure that there is no detriment to the Provider:

- Salary: £xxx
- Employer 'on-costs' : £xxx
- Allowable expenses

- VAT (if appropriate)
- Any training as agreed by the Purchaser
- Any other valid costs borne by the Provider and agreed by the Purchaser

This is Annex B referred to in the foregoing Service Level Agreement (Section 3.2) between the Board A and Board B.

Performance Indicators

The Provider agrees to meet the requirements of the Board A through the provision of specific individual expertise to undertake the role of [Job Title]. The individual, who will be [specify key competencies] will [briefly describe the key purpose/duties].

For the purpose of this SLA NHS Board B will release [employee name] for the duration specified within the agreement.

This is Annex C referred to in the foregoing Service Level Agreement (Section 1) between the Board A [specify] Directorates and Board B

General requirements

Board A [Specify] Directorates requirements

A stipulated person (who must be acceptable to the Purchaser) identified by Board B who will have relevant expertise in order to undertake the role of [Job Title].

Board B response

Board B will ensure the provision of an individual with the skills and experience necessary to undertake the role of [Job Title].

Board B will, in line with effective financial governance, ensure the quarterly provision of invoices in connection with approved costs associated with this arrangement.

The individual identified will be expected to participate in continuous professional development and any performance assessment and development activities as deemed necessary by Board A and Board B.

NHS Scotland Shared Services
Workforce Reference Group

Governance pathways to meet Codes of Conduct of relevant professional bodies

Introduction

The "National Radiology Strategic Document" proposes the implementation of a national radiology model which will support patient focused health and facilitate diagnostic imaging to be delivered consistently and with long term sustainability.

In order to underpin the implementation of the National Radiology Model, there is a requirement to maximise role utilisation through the service and enable staff to work across traditional NHS Health Board boundaries. This work will require clear linkages to professional and technical quality assurance arrangements and clinical governance. A Shared Services Workforce Reference Group (WRG) has been formed to consider short, medium and long term solutions to enable staff to work collegiately across traditional NHS Health Board boundaries.

Governance Pathways to meet Codes of Conduct of Professional Bodies

To assess the potential impact of a National Radiology Model on individuals' accountability for practice a review of the professional Code of Conduct was carried out with follow up conversations as indicated below:

Society and College of Radiographers – Maria Murray, Professional Officer for Scotland and Alexandra Lipton, Professional Officer & Senior Services Manager

Royal College of Radiologists (RCR) – Grant Baxter, Consultant Radiologist and Secretary RCR Scottish Standing Committee (SSC)
Health & Care Professionals Council – Katherine Timms, Policy Manager
SCIN - Anne-Marie Sinclair, Consultant Radiologists and Lead Clinician SCIN
Linda Delgado, UNITE
General Medical Council – Good medical practice
Medical Staffing – Angela Cooper, HR Manager

Code of Conduct Review

The review of the Codes of Conduct and discussions with the individuals highlighted above has not identified any standard or guidance which would prohibit a registrant from managing patients remotely.

Each registrant is required to make sure their practise is in accordance with their professional body's standard of performance, conduct and ethics.

It is for the registrant themselves to use their professional judgement to decide whether or not it is appropriate to review information remotely on a case by case basis.

In general there is a requirement for registrants to practise collaboratively and communicate effectively with other healthcare staff, putting patients at the centre of their work and respecting contributions of all members of multidisciplinary teams.

The requirements on training for reporting are very clear with no immediate issues identified.
Revalidation

In order to revalidate, licensed practitioners must undergo annual appraisal, based on the General Medical Council's (GMC) core guidance for appraisal: "Good Medical Practice". Doctors are required to collect supporting information for their appraisal to help them demonstrate how they are meeting the GMC professional standards in their everyday practice. In working across a number of Board areas, the practitioner must ensure that their annual appraisal reflects this and any supporting information gathered, covers the full range of activity from all service areas. The Responsible Officer for the purpose of revalidation remains with the licensed practitioners employing board.

For Radiographers, The Health and Care Professions Council (HCPC) Standards of Conduct and Ethics[11] states that the professional is responsible for keeping their knowledge and skills up to date and relevant to their practice through continuing professional development..

Considerations

The general view is that professional liability will sit with the registrants' employing NHS Health Board.
Training will be required on any new technology based systems.
The scheme and scope of work to be shared needs to be clearly articulated and understood with standardised reporting processes and protocols.
The most likely contentious issue will be around performance management and specifically the raising of any issues or concerns cross boundary.

Documents

Below are links to the document which were reviewed with reference to the specific sections.

[11] (2016) Health and Care Professions Council: Standards of Conduct, Performance and Ethics

General Medical Council – Good Medical Practice
http://www.gmc-uk.org/guidance/good_medical_practice.asp
Para 7-13 - Develop and maintain your professional performance
Para 14-18 - Apply knowledge and experience to practise
Para 33-34 - Communicate Effectively
Para 35-38 - Working collaboratively with colleagues
Para 44-45 - Continuity and coordination of care
Para 46-50 - Establish and maintain partnerships with patients

Society of Radiographers – Code of Professional Conduct
http://www.sor.org/learning/document-library/code-professional-conduct
Section 1 – Relationship with Patients and Carers
Section 2 – Scope of Professional Practise
Section 3 – Personal Standards in Professional Practise
Section 4 – Relationships with Other Health Care Staff

Health Care and Professional Council – Standards of Conduct, Performance and Ethics
http://www.hcpc-uk.org/aboutregistration/standards/standardsofconductperformanceandethics/
Section 1 – Promote and protect the interest of service users and carers
Section 2 – Communicate appropriately and effectively
Section 3 – Work within the limits of your knowledge and skills
Section 6 – Manage risk
Section 7 – Report concerns about safety
Section 10 – Keep records of your work

NHSScotland Shared Services

Radiology Programme/

Scottish Clinical Imaging Network (SCIN)

National Framework for the Reporting Radiographer

Project Title National Framework for Reporting Radiographer	**Shared Services Radiology Programme**	**Scottish Clinical Imaging Network (SCIN)**
Project Manager	Fiona Agnew (FA)	
Programme Manager	Linda W Kerr (LWK)	Alley Speirs (AS)
Subject Matter Expert	Hamish McRitchie (HMc)	
Lead Clinician SCIN		Anne Marie Sinclair (AMS)/Hamish McRitchie
Programme Support Officer	Yvonne Leslie (YL)	

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V0.6	2017-04-13	Jonathan McConnell/Fiona Hawke
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V0.8	2017-05-10	Maria Murray – reference to 'Individual Responsibilities'
V0.9	2017-06-21	Exec Summary and RCR comments
V1.0		

Table of Contents

Executive Summary

On 9 August 2016, the national strategic direction for radiology was endorsed by the Chief Executives Group. The "*National Radiology Strategic Document"* proposes the implementation of a National Radiology Model which will support patient focused health and facilitate diagnostic imaging to be delivered consistently and with long term sustainability. This document can be found at: http://www.sharedservices.scot.nhs.uk/health-portfolio/programmes/radiology/

In order to underpin the implementation of the National Radiology Model, there is a requirement to maximise role utilisation throughout the service and enable flexibility for staff to work across traditional NHS Board boundaries. There is also a need to reduce unwarranted variation in practice. Currently, there is wide variation on how Reporting Radiographers are employed and how they work across NHS Boards.

The role of the Reporting Radiographer has the potential to create significant capacity for the Radiology service in NHSScotland but to achieve this will need a consistent national position. This was acknowledged during the NHS Chief Executives' discussion in August 2016. As part of the work to maximise role utilisation, the NHSScotland Shared Services Radiology Programme has initiated a joint project with the Scottish Clinical Imaging Network (SCIN) to develop a National Framework for Reporting Radiographers.

This paper seeks to give guidance to NHS Boards to standardise the employment and deployment of Reporting Radiographers in the form of a National Framework.

This National Framework for Reporting Radiographers outlines the following:

- Standard Job Description
- Standard Role Specification including;
- Educational Pathways and Continuing Professional Development (CPD): Radiographers must be Health and Care Professions Council (HCPC) registered and have gained a College of Radiogrphers (CoR) approved post-graduate qualification (at least a PgCert) in Clinical Image Interpretation. The Reporting Radiographer must maintain their professional knowledge and skills through continuous education, professional development and training programmes. This must be validated within a formal appraisal and personal development plan structure
- Scope of Practice including standard activity outputs : The minimum scope of practice for Reporting Radiographers is in Appendicular Plain Musculo-skeletal (MSK) radiographic imaging. Additional Scope will be as per local NHS Board agreement. Within the scope of practice, the referral sources for Reporting Radiographers are as follows:
- Trauma and A&E referrals;
- Orthopaedic referrals;
- Orthopaedic theatre imaging;
- Inpatient/outpatient referrals; and
- Other referrals as per local NHS Board agreement.
- A Reporting Radiographer should achieve a minimum of 60 examinations within multiple patient attendances per session.
- Agreed governance and practice supervision requirements: The responsibility for ensuring individual Radiographers are sufficiently expert to interpret imaging investigations, agree to record the results of their interpretations and Entitle Radiographers under Ionising Radiation (Medical Exposure) Regulations (IR (ME)R) as Operators for clinical evaluation, rests with the employer. The

radiology leadership[12]will be involved in mentorship and assessment as part of the Reporting team. The scope of practice for each Reporting Radiographer must be defined within the local governance process.

[12] (2006) Royal College of Radiologists: Standards for the reporting and interpretation of Imaging investigations

Introduction

On 9 August 2016, the national strategic direction for radiology was endorsed by the Chief Executives Group. The "*National Radiology Strategic Document"* proposes the implementation of a National Radiology Model which will support patient focused health and facilitate diagnostic imaging to be delivered consistently and with long term sustainability. This document can be found at: http://www.sharedservices.scot.nhs.uk/health-portfolio/programmes/radiology/

In order to underpin the implementation of the National Radiology Model, there is a requirement to maximise role utilisation throughout the service and enable flexibility for staff to work across traditional NHS Health Board boundaries. The NHS Scotland Shared Services Portfolio has sought support for this work from the Human Resources Directors (HRDs) and a Workforce Reference Group (WRG) has been established, Chaired by Anne MacPherson, HRD, NHS Greater Glasgow and Clyde. The WRG is exploring short medium and longer term contractual solutions required to enable cross boundary working.

One of the key priorities within the National Radiology Model is to maximise the use of the Reporting Radiographer. There was a wide variation in practice and implementation of the Reporting Radiographer role. In order to standardise and maximise the role a Project Group was established led by the NHSScotland Shared Services Radiology Programme, in conjunction with the SCIN to work jointly on this area of common interest to develop a National Framework for Reporting Radiographers. The group linked to the WRG to obtain Human Resource (HR) guidance where required.

Terms of Reference

The purpose of the joint project group is to develop a National Framework for Reporting Radiographers which encompasses educational pathways required, standardised job description, role specification including scope of practice including standard activity outputs, governance and CPD.

The scope of the project is limited to plain film reporting of musculo-skeletal examinations by Reporting Radiographers.

Aims

The aim of the project is to standardise and maximise the role of the Reporting Radiographer across Scotland. The Project has developed a National Framework for Reporting Radiographers. The key objectives capture what is detailed within the National Framework.

Key Objectives

The key objectives of the Project Group are to:

- Define the status quo
- Develop a national framework for Reporting Radiographers which includes:
  - Standard Job Description;
  - Standard Role specification;
    - Agreed educational pathways and continuing CPD;
    - Scope of Practice including standard activity outputs and
    - Agreed governance and practice supervision requirements.
2. Obtain approval of this framework
3. Publish the framework to and distribute to NHS Boards for consultation and thereafter implementation.

Membership of Group

Membership of the Group can be found at **Appendix 1**.

The Status Quo

There is currently a wide variation across NHS Boards as to how Reporting Radiographers are employed, deployed and differences in the scope of their practice. A survey was undertaken in 2016 and 2017 by the Reporting Radiographers Interest Group Scotland (RRIGS) which demonstrates the status quo across Scotland. This survey can be seen at **Appendix 2.**

Educational Pathways

There are varying Universities providing the Educational Pathways for Reporting Radiographers across the UK. However, the expected educational standard should be that the Reporting Radiographer must have obtained a minimum of a Post Graduate Certificate qualification (Masters Level) in Clinical Image Interpretation (or equivalent). This qualification must have been obtained through a College of Radiographers (CoR) approved course. A review to identify common elements for learning modules within MSc pathways for radiographer reporting was performed for the framework and is given as **Appendix 3.**

Recently the College of Radiographers[13] stated the following:

- "by 2021 there must be an expectation that all practitioners in radiography at advanced level hold a minimum of a full Master's degree
- By 2021 there must be an expectation that all practitioners in radiography at consultant level will hold, or be working towards a Doctoral level award".

This indicates that radiographers starting education from 2017 will be expected to complete the full Masters degree to claim, through peer accreditation, the ability to describe themselves as a College of Radiographers Accredited Advanced Practitioner. Normally the aspects of advanced practice are detailed by the statement from the CoR that accompanies ratification of accreditation.

Job Description

Due to the wide variation in Job Descriptions across Scotland, under the auspices of the NHSScotland Shared Services Workforce Group (WRG), Sandra Raynor, Senior Human Resources Advisor, NHS Fife undertook a survey of NHS Boards to establish the status of Job Descriptions for Reporting Radiographers. Thereafter a small sub-group of experts including partnership representatives worked to develop generic Job Descriptions. These can be seen in **Appendix 4**.

[13] http://www.sor.org/learning/document-library/research-strategy-2016-2021/2016-2021-research-strategy

Role Specification

Scope of Practice

The scope of practice for each Reporting Radiographer must be defined within the local governance process (and IR(ME)R Employers Procedures)as determined by IR(ME)R Operator role Entitlement.

It is recommended that the minimum scope of practice for Reporting Radiographers is in Appendicular Plain Musculo-skeletal (MSK) radiographic imaging. Additional Scope will be as per local NHS Board agreement.

1.21

It is recommended that within the scope of practice, the referral source for Reporting Radiographers are as follows:

-
- Trauma and A&E referrals;
- Orthopaedic referrals;
- Orthopaedic theatre imaging;
- Inpatient/outpatient referrals; and
- Other referrals as per local NHS Board agreement.

Scope of Practice – Operational Requirements

The operational requirements of the Scope of Practice are outlined as follows:

a. Reporting Radiographers with appropriate training may report within a defined scope of practice, with Consultant Radiographers and Radiologists providing support /review when necessary. Depending on the clinical scenario, it may also be necessary for radiologists to make recommendations for further imaging where it is outside the scope of the Reporting Radiographers[14].

b. Reporting of images by Radiographers is recognised as part of the reporting team and are autonomously responsible for their own actions and work. They must be Entitled under IR(ME)R as Operators for clinical evaluation.

c. The minimum scope of practice and examinations that a Reporting Radiographer may report under this policy are defined in section 7.1 above.

The policy across NHS Boards is to ensure that safe practice is maintained in order to protect patients and practitioners. The policy must contain the following detail:

a. Radiographers must be Health and Care Professions Council (HCPC) registered and have gained a CoR approved post-graduate qualification (at least a PgCert) in Clinical Image Interpretation.

[14](2012) The Royal College of Radiologists and the Society and College of Radiographers: Team working in clinical imaging

b. These Radiographers will report plain radiographic imaging as set out in 7.1 above with individual NHS Board Policies as per local requirement with appropriate training and support.

c. The Reporting Radiographers must work under an agreed scheme of work.

d. The Reporting Radiographer must maintain their professional knowledge and skills through continuous education, professional development and training programmes. This must be validated within a formal appraisal and personal development plan structure.

e. All image reports that have been reported by a Radiographer should be verified and accessible on the Radiology Information System (RIS) within the shortest possible timescale.

f. **Unexpected** significant findings must be immediately communicated **by agreed organisational protocols to** the referring Clinician, in line with National Patient Safety Agency (NPSA) Safer Practice Notice 16[15] "Early identification of failure to act on radiological imaging reports". **Appendix 5 refers .** This action should be clearly recorded on the verified report as having taken place.

g. If the Reporting Radiographer is uncertain about the presence of an abnormality and is unable to produce a meaningful clinical report a second opinion must be sought.

h. While reporting the Reporting Radiographer may suggest follow up imaging as per local agreement.

Scope of Practice – Risk Management

A risk of misinterpretation of images exists during any reporting process. Those at risk from image misinterpretation are the patients to whom the images refer. This risk is minimised by knowledge gained through an approved post graduate course of study, appropriate supervision, adherence to protocol and regular self /team/departmental audit.

Scope of Practice – Appropriate Skills and Support

Leadership should set the framework under which a team prospers. This leadership must include relevant training and continuing professional development for all team members to ensure a safe and just culture.

Scope of Practice - Productivity

The sessional requirement of a Reporting Radiographer is determined by service need however there is a need to standardise the activity of Reporting Radiographers. Considering this on a sessional basis the Group are recommending that a Reporting Radiographer achieves a minimum of 60 examinations within multiple patient attendances.

3 National Patient Safety Agency (2007): Safer Practice Notice 16: Early identification of failure to act on radiological imaging reports. www.npsa.nhs.uk

Governance

Professional Governance

The Standards of Conduct, Performance and Ethics of the HCPC[16] states that the professional is accountable for their individual practice; for keeping their knowledge and skills up to date and relevant to their practice through continuing professional development.
The CoR[17] established accreditation of Advanced Practitioners and Consultant Radiographers to:

- Ensure there is national consistency in the standards of practice;
- Secure transferability of those standards across the NHS and other health care sectors; and
- Recognise explicitly the professional achievements of individuals; provide clarity for professionals and service users on the nature of advanced practice in clinical imaging[18].

In relation to staff working across NHS Board boundaries, a Governance Pathway has been developed by the Shared Services Workforce Reference Group. **Appendix 6 refers**

Employer Governance

The responsibility for ensuring individual Radiographers are sufficiently expert to interpret imaging investigations, agree to record the results of their interpretations and Entitle Radiographers under Ionising Radiation (Medical Exposure) Regulations (IR (ME)R) as Operators for clinical evaluation, rests with the employer. The radiology leadership[19]will be involved in mentorship and assessment as part of the Reporting team. The scope of practice for each Reporting Radiographer must be defined within the local governance process.

To contribute to patient management, accuracy of image interpretation is crucial. Audit, reporting of discrepancies and feedback on errors is essential within each employing NHS Board. Clinical governance frameworks: Case mix, selection bias and inter/intra observer bias makes robust standard setting difficult. This Framework describes the training and audit required to demonstrate competency of practice and maintain a high quality of service to patients.

Responsibilities - Organisational

a. There must be a protocol for 'Radiographer Reporting' as per service need and set within a system of work [20]. This should be unique to the specific area of practice for the Reporting Radiographer[21]. The Clinical Lead for Radiology (or nominated person) is

[16] (2016) Health and Care Professions Council: Standards of Conduct, Performance and Ethics

[17] (2017) College of Radiographers: Consultant and Advanced Practitioner Accreditation

http://www.sor.org/career-progression/advanced-practitioners/advanced-practitioner-accreditation

[18] (2010) Society of Radiographers: Educational and Professional Development Strategy: New Directions

[19] (2006) Royal College of Radiologists: Standards for the reporting and interpretation of Imaging investigations

[20] (2013) Scottish Government: Independent Image Interpretation by Reporting Radiographers – Minimum Standards Framework (Appendicular and Axial Skeleton)

[21] (2012) The Royal College of Radiologists and the Society and College of Radiographers: Team working in clinical imaging.

responsible for ensuring that this framework is applied according to the protocol stated. This responsibility can be transferred to other appropriate staff to ensure that radiographers are suitably qualified and that performance is audited and recorded appropriately ensuring that the implementation of Reporting Radiographer does not compromise patient safety and is consistent with professional relationships and accountability.

b. Prior to commencement of autonomous reporting the organisation must recognise their Reporting Radiographers as 'entitled operators' under the IR(ME)R[22] for Image Interpretation. This IR(ME)R entitlement must be granted for each NHS Board if cross board reporting is being undertaken.

c. The NHS Board is required to accept vicarious liability for Reporting Radiographers providing there is a robust audit and discrepancy system in place and where workload statistics are identified at annual appraisal. Audit and practice development should be discussed at appraisal and defined within the Personal Development Plan (PDP).

d. Employers must maintain clear, accurate records of all employees who are trained and deemed competent to carry out extended roles, including the nature and scope of practice of the roles, duties and tasks involved. Such records should be readily available to all relevant staff affected by the skills mix and role development initiative, and any other staff to whom the records relate and refer.

e. To support governance the Service Manager should ensure that principles identified in the Schemes of Work and Scope of Practice are adhered to at all times. To maintain clinical competence this will require a minimum of two sessions of reporting per week by the Reporting Radiographer.

Responsibilities - Individual

Responsibilities of the Individual:

- Reporting Radiographers must work within their Scope of Practice and to a Scheme of Work agreed by the Clinical Lead of the department. These Schemes should be reviewed if individuals are widening their Scope of Practice.

- High quality education (minimum of a Post Graduate Certificate at Masters level approved by the College of Radiographers), continued participation in training, audit and CPD are all essential components of reporting practice for Reporting Radiographers

- Individual Reporting Radiographers are legally accountable for their own actions and may be deemed negligent if they fail to demonstrate due care and diligence in performing their duties or act out with the agreed scope of practice. Acting within a clinical team does not absolve any individual of personal responsibility and accountability in law[1].

- Reporting Radiographers must be able to practise safely and effectively within their scope of reporting practice[2].

[22] (2011) Department of Health: The Ionising Radiation (Medical Exposure) (Amendment) Regulations

[1] (2006) Society of Radiographers: Medical Image Interpretation and Clinical Reporting by Non-Radiologists: The Role of the Radiographer

[2] (2016) Health and Care Professions Council: Standards of Conduct, Performance and Ethics

- Each individual has a responsibility to recognise the limitations of their own competency in any given area and will not work out with this level without seeking advice.

- Isolated practice without appropriate governance is not acceptable in Reporting Radiographer Practice

- It is recommended that Reporting Radiographers have appropriate personal indemnity insurance (i.e. SoR or equivalent) for their scope of practice and operate within an agreed scheme of work.

Recently the College of Radiographers[23] stated the following:

- "by 2021there must be an expectation that all practitioners in radiography at advanced level hold a minimum of a full Master's degree
- By 2021 there must be an expectation that all practitioners in radiography at consultant level will hold, or be working towards a Doctoral level award".

This indicates that radiographers starting education from 2017 will be expected to complete the full Masters degree to claim, through peer accreditation, the ability to describe themselves as a College of Radiographers Accredited Advanced Practitioner. Normally the aspects of advanced practice are detailed by the statement from the CoR that accompanies ratification of accreditation.

Supervision of Practice

Audit

Locally agreed annual audits which capture the depth and breadth of individual practice must be carried out and presented at the individual's annual appraisal to evidence to the Employer that the individual remains proficient in their scope of practice[2425].

The HCPC Standards of Conduct, Performance and Ethics of the Health and Care Professions Council [26] states that the professional must ask for feedback and use it to improve their practice.

Governance arrangements for reporting must include an audit of activity with analysis and actions resulting from errors and discrepancies identified; this audit will be specified by each individual NHS Board. Reporting teams should work together to refine and implement good governance arrangements, matched against national standards where available[27]. A comprehensive guide to Audit Practice follows.

[23] http://www.sor.org/learning/document-library/research-strategy-2016-2021/2016-2021-research-strategy

[24] (2006) Royal College of Radiologists: Standards for the reporting and interpretation of Imaging investigations

[25] (2014) Royal College of Radiologists: Quality assurance in reporting: peer feedback

[26] (2016) Health and Care Professions Council: Standards of Conduct, Performance and Ethics

[27](2012) The Royal College of Radiologists and the Society and College of Radiographers: Team working in clinical imaging

a. In keeping with SCoR recommendations Radiographers must undertake regular audit and review and relevant CPD, and work within locally explicit clinical governance arrangements to ensure their practice remains at the required standard.
    - If a previously qualified Reporting Radiographer or a reporting Radiographer who has been inactive in terms of reporting joins the team then a portfolio of reports should be produced prior to autonomous reporting. These reports should be issued by the Reporting Radiographer and assessed by a nominated Radiologist / Consultant Radiographer (if one is in post and if they are acting as a mentor). Assessment is in the form of the Radiologist checking the report prior to issue of these examinations.
    -
    - After the assessment period, if the audit demonstrates the Radiographer's reporting accuracy to be of 95% minimum. Ongoing departmental audit and self audit will then take place as agreed local arrangements.

Audit Programme

a. On commencement of Reporting practice, interim audit will be performed. This will be on a monthly basis for 6 months in keeping with developing practice. The reports will be peer reviewed or reviewed by a consultant Radiologist.

b. When the required level of accuracy as agreed by the Clinical Lead is achieved, progression to annual audit covering the breadth and depth of practice will follow. The reports will be double read either by peer review or by consultant Radiologist.

c. If an unacceptable level of discrepancies is noted, then learning needs must be addressed and the initial monthly audit cycle will be reinstated. Discrepancies will be recorded using the NHS Board's discrepancy reporting method.

d. Reporting Radiographers should be allowed access to all patient records to enable full audit evaluation on an outcomes basis as well as enabling information that contributes to decision making to be included during reporting sessions.

e. Failure to significantly reduce the frequency of discrepancies will result in a cessation of the Radiographer reporting until training issues have been addressed see Flow Chart **Appendix 7.**

Self Audit

a. The Royal College of Radiologists (RCR) would recommend self audit to help improve professional practice. This may be carried out using the RCR template. Details of the 'Standards for Learning from Discrepancies Meetings' as promulgated by the RCR can be accessed at: https://www.rcr.ac.uk/sites/default/files/docs/radiology/pdf/BFCR%2814%2911_LDMs.pdf and are suggested as an appropriate way to ensure safe practice. The main principles following recognition of a discrepancy are detailed below in 7.6.9.

Discrepancy

a. Discrepancies should be addressed in accordance with the NHS Board's discrepancy reporting procedure which should include the principles below:
    - A discrepancy notification will be made;
    - Where necessary, the referrer will be informed;

- An addendum will be added to the report;
- The discrepancy will be raised at the Peer Review meeting as a learning opportunity for the others in the team; and
- Reporting Radiographers should be part of the Peer Review meetings on a regular basis and not just when a discrepancy arises.

Record of Competency

- A log of appropriately trained staff will be kept by the Medical Imaging Services Manager for each of the clinical areas working within this policy/procedure document and reviewed as necessary. If a Reporting Radiographer joins the team from outside the employing NHS Board a reporting portfolio is required as 7.6.6 above before IR(ME)R Operator entitlement is given.

a. It is the responsibility of the Reporting Radiographer to comply with the agreed audit procedures, maintain competence in the relevant Scope of Practice and comply with radiology policy and IR(ME)R.

Continuing Professional Development

The HCPC Standards of Conduct, Performance and Ethics[28]states that the professional is responsible for keeping their knowledge and skills up to date and relevant to their practice through continuing professional development. In addition, the Minimum Standards Framework[29] recommends the following:

a. Reporting Radiographers will attend MDT meetings as appropriate.

b. Reporting Radiographers will perform audit of reporting practice in addition to reporting sessions.

c. Reporting Radiographers will ensure that they regularly update their knowledge in current trends and practice by personal study and attending study days, courses and teaching as appropriate.
d. Reporting Radiographers must attend radiology discrepancy meetings.
e. Reporting Radiographers should ideally attend special interest group meetings.

Summary and Recommendations

This Paper has outlined a National Framework for Reporting Radiographers including:

- Defined the status quo for Reporting Radiographers;
- Created Standardised Job Description for Reporting Radiographers;
- Developed a Standard role specification;
- Detailed agreed educational pathways and continuing CPD;

[28] (2016) Health and Care Professions Council: Standards of Conduct, Performance and Ethics

[29] (2013) Scottish Government: Independent Image Interpretation by Radiographer Reporting Radiographers – Minimum Standards Framework (Appendicular and Axial Skeleton)

- Outlined the Scope of Practice including standard activity outputs; and
- Provided agreed governance and practice supervision requirements.

The next steps are to publish the framework to and distribute to NHS Boards for consultation and thereafter implementation.

Appendix 1 – Membership of the Group

MEMBERSHIP OF THE PROJECT GROUP COMPRISED:

Name	Role / Representing	Contact Details
Hamish McRitchie	Shared Services Radiology Programme - Subject Matter Expert and Chair	hamish.mcritchie@borders.scot.nhs.uk
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Appendix 2 – The Status Quo of Reporting Radiographers Across Scotland

Each health board was approached to establish the reporting radiographer activity during the financial years of 2015/16 and 2016/17. The figures below have been presented. It is evident that the all health boards providing a reporting radiographer service (Western Isles and Orkney do not) deliver an A&E Reporting Radiographer (RR) trauma reporting service except the Golden Jubilee National Hospital, which is an elective only centre and delivers trauma imaging should this happen to in-patients.

Radiographer activity 2015/16 and 2016/17

Financial Year	Reporting radiographers in Scotland					Number of Health Boards and areas reporting radiographers operating in				Radiographer Reports 2016-17	No MSK exams for Health Board
	Adv Practs	Cons Radiogs	Total Reporting	Total Not reporting	WTE report time p.w.	A&E	GP	OP	IP		
2015/16	52	4	39	17	14.5	12	7	7	7	248641	1,160,597
2016/17	46	4	39	11	15.1	12	7	7	7	261280	1,120,829

Areas of activity

All areas of activity are plain radiographic examinations of the musculoskeletal system to include trauma (in-patients only for GJNH), orthopaedic follow up, degenerative changes and rheumatology where further education and audit have taken place.

Trained but not reporting radiographers

Since 2015/16 year there has been some staff change resulting in the loss of reporting radiographers to NHS Scotland. Of the 11 not reporting during the 2016/17 financial year this is due to a combination of factors that include maternity leave, loss of the RR to NHS Scotland and the impact of pay protection within a substantive post that has resulted in a block to these individuals taking up a reporting role. Of note is the increase in whole time equivalent input per week by RRs has risen indicating that either returners from maternity leave or increase in activity within boards with respect to proportions of the working week allocated to reporting duties has slightly increased.

Appendix 3 Common elements for learning module content within MSc pathways for Radiographer Reporting

Radiographers wishing to report must hold a minimum of a postgraduate certificate (PgC) at Masters level in the area of reporting they intend to participate in. From a review of the courses on offer across the UK the following key elements are noted as common components:

Currently radiographers enrol onto a Masters programme of study and choose:

- To exit at PgC
- To exit at postgraduate diploma (PgDip)
- Complete the full masters

In light of the recent statement from the College of Radiographers those wishing to gain peer reviewed advanced practice accreditation from the CoR will be expected to complete the full Masters degree by 2021.
.

The MSc requires 180 credits of study that normally equates to 10 hours per credit meaning:

- PgC = 60 credits or 600 hours (usually across 1 year though may be split into 2)
- PgDip = 120 credits or 1200 hours
- MSc = 180 credits or 1800 hours

Course content

A general pattern has evolved across courses on offer within the UK university sector, with a nominal expectation that each component is completed within a single year of study; extended part time study is possible and may be used to develop the clinical portfolio aspects whilst still working as a radiographer within image acquisition.

Usually the differing points of study contribute to a pathway followed by the student. As such the:

PgC acts as the provider of foundational scientific and medical learning linked to:

1. The psycho physics of vision, clinical reasoning and decision making, measurement of performance, constructing a report and the legal aspects of reporting;
2. Underpinning knowledge of anatomy, physiology and pathology for conditions affecting the musculoskeletal system that are manifested as appearances within plain radiographic imaging;
3. Analysis of the role of other imaging modalities in diagnosis and the role of imaging for patient management;
4. Development of a clinical portfolio with reflection that addresses areas of interpretation as developed in the theoretical learning.

PgDip is the second building block to the Masters Degree award and may contain:

1. If the PgC does not include axial skeleton this is added here;
2. Development of wider areas of practice that may include chest and abdominal plain radiograph reporting;
3. Development of research skills beyond BSc (Hons) in preparation for dissertation generation to complete the Masters degree;
4. Completion of a further reflective clinical portfolio aligned with the theoretical knowledge delivered earlier.

Full MSc degree is the final component and often contains:

1. Completion of research preparatory work if this was not a feature of the PgDip;
2. The writing of a dissertation of between 15 and 20,000 words with a view to producing a potential publication.

Learning methods are usually mixed with lots of internet based support available and usually multiple attendance sessions of several days for face to face tuition. Most universities do this via a virtual learning environment that can be used for course delivery and off site assessment. Normally the university and healthcare provider agree through a memorandum of understanding that sufficient time is available for the student to both study and have support at their work base with mentorship. This will include a minimum expected time for reporting/image viewing access plus opportunities to visit other departments such as orthopaedics to gain wider cross professional/discipline experience that feeds into the role.

Assessment may vary slightly between universities, however components that have been recognised as common within these courses include:

1. Objective Structure Clinical Examinations/Assessments (OSCE/OSCA) – these are university developed examinations that are designed to test the individual on a wide range presentations with an expectation of a minimal mark that may be normalised to represent a scaling system applicable to university award delivery. An expected 95% agreement is seen in some forms of OSCE;
2. Clinical portfolios of at least 500 cases with a proportion of reflections that help students identify areas of weakness, future study direction, recognition of good practice, an opportunity to focus on aspects of practice or a number of cases devised to meet the requirements of generalised areas such as trauma, orthopaedics, rheumatology, neoplastic disease to name a few. The candidate has to show 95% accuracy by completion of the portfolio;
3. Essays, case studies, presentations or poster generation to encourage varied methods of communication to enhance vocabulary and to teach the skills that are required for generating reports;
4. Contribution to the clinical portfolio by an in house mentor that should at least include consultant radiologist input from a perspective of familiarisation with the student's development of their audit and therefore improvement in performance over the period of the course.

The courses reviewed include offerings as listed over from a range of universities around the wider UK. All provide a final result that ensures transferability between hospitals and is recognised across the various nations of the UK. The universities also seek approval from the College of Radiographers, that course content is appropriate to ensure graduates are fit for purpose.

University courses reviewed:

Aberdeen	Robert Gordon University	PgC Diagnostic Image Reporting
Bradford	University of Bradford	MSc Medical Imaging (Medical Image Reporting)
Canterbury	Canterbury Christchurch University	MSc Clinical Reporting
Cardiff	Cardiff University	MSc Radiography (PgDip Radiographic Reporting)
Edinburgh	Queen Margaret's University	MSc/PgDip/PgCert Clinical Reporting
London	South Bank University	MSc Radiographic Reporting
Salford	University of Salford	MSc Advanced Medical Imaging (Radiology Reporting)

Appendix 4 – Job Descriptions for Reporting Radiographers

1. JOB IDENTIFICATION	
Job Title:	Advanced Practitioner / Reporting Radiographer
Clinically Responsible to:	[Local Board to Determine]
Department(s):	Imaging Departments
No of Postholder(s):	[Local Board to Determine]
Last Update:	[Local Board to Determine]

2. JOB PURPOSE

- Provide a Radiographic Reporting Service.
- To provide reports for one or more Radiographer image reporting disciplines.
- To support developments in radiographer reporting to enhance patient care across the service.
- Support the reporting team, management and clinical leads in meeting operational and strategic targets, and improving the quality of patient care within Radiology.
- To establish an environment of support for reporting radiographer trainees and for other professions with whom the post holder would have close contacts.
- To supervise and perform a wide range of radiographic examinations, providing a high quality Diagnostic Imaging service.
- To work, in partnership, with the Multi-disciplinary Team across traditional boundaries in all key functions.

3. DIMENSIONS

General

- Provide a high quality, efficient and effective Radiographic Reporting Service.
- Clinical governance strategy ensures a high standard of care for patients undergoing Radiological examinations, and promotes multidisciplinary team working.
- Promote Departments' reputation for change and innovation and introduction of new technology and procedures.
- A Lead Radiographer will agree an annual personal development plan (PDP) and EKSF.

Clinical Areas

Imaging is provided at the following sites using a variety of imaging modalities. Reporting provides an expert opinion on this imaging to the referring clinicians and non-medical referrers.

Imaging Sites

- [*each HB to add list of sites here*]

Imaging Modalities

[each HB to add to or delete list from below]

- General radiography (plain imaging)
- CT Scanning
- MR scanning
- Fluoroscopy
- Angiography
- Interventional Radiology
- Cardiac Catheterisation
- Mammography
- Dental
- Dexa
- Ultrasound

The range of Medical Imaging examinations performed for the referring Clinicians provides a comprehensive diagnostic facility for many Primary Care, Out-Patient and In-Patient sources which includes imaging patients from paediatric to geriatric who have varying degrees of ability and understanding.

- To provide a 24/7 Diagnostic Imaging service.
- The examinations undertaken by the Diagnostic Imaging Department, including provision of images and reports are essential to allow optimal diagnostic and patient care processes to occur.
- All radiographic practice is undertaken in accordance with National Legislation: IR(ME)R 2000 (Ionising Radiation (Medical Exposures) Regulations 2000) and IRR 1999 (Ionising Radiation Regulations) and is subject to inspection by the IR(ME)R and HSE Inspectors.

Clinical Activity

- To provide a comprehensive Imaging service to patients and clinicians.
- To provide a Diagnostic Imaging service to in-patients and the A/E departments, including evening and weekend working.
- To provide a report following imaging examinations in accordance with agreed Policy and Protocol for Independent Image Interpretation by Advanced Radiography Practitioners.

Clinical Provision

7 days per week service

Staff Responsibility

Within a highly specialised Radiographic Imaging Modality the post holder has associated management responsibility for:

- Training, induction, competency, and supervision of Radiographers and HCSW's rotating through their specialised areas.
- Supervise the workload of Band 6 Radiographers, Band 5 Radiographers, HCSW's and direct porters as required.
- Student Radiographers on clinical placement and students from other disciplines i.e. Medical, Nursing, and AHPs.
- Health and Safety.
- IRMER and IRR.
- Liaising with other staff groups, including Medical, Nursing, Clerical and Portering.

4. ORGANISATIONAL POSITION

[Local Board to provide]

5. ROLE OF THE DEPARTMENT

- Provide a high quality, efficient and effective Radiology service to the local population.
- Diagnostic imaging equipment is used to carry out radiological examinations on patients and reports are provided to referring clinicians. The report assists the referrer in providing a diagnosis of the patient's condition in order to decide on an effective course of treatment and care.
- The postholder will enhance the service provided to the public, by reducing the turn around time between examination and formal report on plain films.

6. KEY RESULT AREAS

It is the postholder's responsibility to minimise radiation dose and risks to patients, staff, relatives, general public and self. This minimises the risk to current and future generations.

Clinical

- To provide an autonomous reporting service for one or more Radiographer reporting disciplines by analysing, interpreting and issuing an independent report from within the reporting team structure and when necessary discussing the findings with the referring clinician.
- To communicate in writing (via RIS) the final clinical reports on general radiography reporting to referring clinicians / non-medical referrers.
- Provide expert advice to clinicians on the nature of diagnostic images/reports.
- To recognise and ensure urgent findings are communicated to the appropriate person, and patients are directed accordingly.
- To provide expert clinical advice in relation to one or more Radiographer reporting disciplines Emergency Care and to support the multidisciplinary team.
- Participate in the development of the radiographer led reporting service.
- Support the establishment of standards and guidelines for best practice in Radiographer Reporting.
- Comply with protocol and procedure and associated clinical governance, risk assessment and audit in own specialist field.
- Deliver presentations / training sessions to enhance knowledge of image reporting to Radiographer colleagues and clinicians.
- Responsible for delivering findings of audits of practice to groups of staff, working parties etc.
- Ensure that the level of Radiographer Reporting Service provision meets imaging department standards.
- To plan own workload and prioritise the reporting of patients with acute illness or injury in line with locally agreed triage systems.
- Liaise with other staff specialities and draw on experience where clarification is required to ensure the most appropriate treatment or further assessment in line with established care pathway, determining the need for additional projections based on image appearance.
- To use specialist knowledge to review and comment on continuing appropriateness of imaging protocols.
- Demonstrate ability to act as a recognised expert within diagnostic imaging, providing specialist advice to clinicians as appropriate.
- Act as patient advocate in Radiation Protection issues advising and further referring where necessary.
- Care for the needs and welfare of every patient.
- Carry out a wide range of Radiographic Procedures using a variety of specialised equipment.

- On a daily basis multi task between using pieces of highly specialised equipment and dealing with frequent interruptions for advice/information on any aspect of the services provided.
- Be familiar with the range of technical applications available on Imaging equipment in own specialised area.
- Supervise Band 6 Radiographer, Band 5 Radiographers, Assistant Practitioners and HCSWs.
- Be actively involved in acquiring diagnostic images, and physically position the full range of patient presentations accurately for examinations, taking into account patient limitations and adapting standard techniques where necessary.
- Within area of expertise train, monitor and evaluate professional standards and provide professional advice contributing to effective 24 hour service delivery.
- Work as part of a team to ensure effective communication and delivery of care, prioritising work depending on severity of patient condition.
- To make decisions in complex and unpredictable circumstances, e.g. rearrange workload in event of equipment failure/accommodating emergency referrals, which would have an impact on other service users, eg. Orthopaedic, Medical and Surgical.
- Maintain accurate patient records by input of accurate information to reflect the service provided and meet professional standards.
- Ensure appropriate infection control measures are implemented to maintain a clean and safe working environment for both patients and staff.

Managerial

- Be actively involved in new patient care strategies and care pathways and be involved in promoting the Radiographer Reporting service.
- To influence the national policy agenda in Radiographic Reporting as appropriate.
- Participate in the development of the Radiographer Reporting service in collaboration with other members of the team.
- Produce and deliver presentations on the Radiographer Reporting service and other topics to multi disciplinary groups.
- Be actively involved in ensuring Radiographers are committed to departmental audit and Quality Assurance to maintain effective Clinical Governance.
- Plan and participate in delivery of education, training, multi-disciplinary and research activities.
- Maintain knowledge of technological and technical advances in order to promote a culture of continuous improvement.
- In the absence of modality leads take responsibility for the Radiographic team in that area, i.e. Band 6 Radiographers, band 5 Radiographers, Assistant Practitioners and HCSW's.
- Supervise other practitioners, radiographic staff and student radiographers and be responsible for the safe use of imaging equipment by other Radiographic staff and provide clinical training. If required reorganise and deploy staff appropriately, to ensure that staffing levels are adequate to meet the 24 hour service requirements.
- Over see an effective patient appointment or scheduling system.
- Contribute to the development, implementation and maintenance of departmental policies, procedures, standards and protocols, and 'Local Radiation rules' all of which have an impact on other service users.
- Be involved where feasible in monitoring and ordering of supplies / consumables and to assist in the delivery of a quality service within budgetary constraints.
- To ensure that images are presented for reporting purposes in a timely and accurate manner.
- To attend multidisciplinary and management meetings as required.
- To report equipment malfunctions and to help maintain a comprehensive and accurate record of faults, ensuring that all appropriate staff are kept up to date as to the working status of equipment.
- Comply and implement Hospital policies and procedures with respect to patient care, i.e.:
  - Health and Safety
  - Infection Control
  - Control of Substances

- Hazardous to Health (COSHH)
- IR(ME)R 2000 and IR99
- Risk Management
- Radiation Protection Procedures
- Quality Assurance Programme
- Clinical Governance
- Research and Development
- Education and Training

Human Resources
To be Involved in:

- Recruitment and retention (through interview process).
- To motivate and inspire the Radiographic team through extended professional role.
- To develop for staff utilising mentorship, appraisal and personal development plans (PDP).
- To promote individual accreditation of advanced practice by the College of Radiographers

Information Resources and Skills
- In-put patient data and supervise other members of staff using:
  - Radiology Information System (RIS) used to input and access patient information relating to radiological examinations in order to review previous procedures and clinical history, record current examination details, view and dictate reports.
  - Computerised Radiography Systems (CRS) Images are viewed on remote operator panels prior to being accepted onto the archiving system. This allows for all details to be checked and images to be manipulated to enhance diagnostic quality.
  - Picture archive and communication system (PACS) used on a daily basis to retrieve previous examinations and store current images. Used to copy images onto film for use in theatre or for transfer to other hospitals.
- Regularly use computer software programmes such as Microsoft Word and Excel to create documents and tables. e.g. for Quality assurance and audit purposes.
- Use of voice recognition technology, have a comprehensive knowledge of the Radiology Information, Reporting Systems and PACS; utilise systems to input and retrieve patient details, reports and statistics; retrieve and analyse data for the purpose of audit.
- If available, use proprietary brand document control systems to record radiation polices, procedures and other documents.
- Involved in own specialised area for the daily management/ housekeeping and troubleshooting of imaging modality IT systems creating seamless acquisition, storage, retrieval and display of digital patient images.
- To ensure that imaging modality systems are backed up regularly and that all patient demographics/information/images are correct and accurate.
- Access the internet, e-mail and Hospital intranet with relevance to personal and professional development and departmental business e.g. ordering of supplies etc.

Research and Development
- Regularly undertake Clinical Effectiveness and Quality Assurance.
- Use audit to continually improve practice and development of radiographer reporting service.
- Actively participate in the technical and patient focused aspects of the department's audit programme.
- Provide guidance, supervision and support for staff undertaking research, audit or teaching activities.
- Assist and advise Lead Radiographer(s) by contributing to the planning and organising of service provision, e.g. monitor and evaluate service demand including staffing levels and assessing workload.
- Maintain clinical expertise whilst continuing with research and development to influence national policy.

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Educational

- Actively involved in training and education, to influence and support educational developments of the multidisciplinary team in relation to the Radiographer Reporting Service.
- Must be able to communicate specialist condition related information – presents specialist and highly complex information to large groups such as MDT meetings.
- Maintain an extensive and contemporary knowledge of current practice by participating in ongoing personal education and development including mandatory training and actively pursuing continuous professional development keeping an up to date personal record, (PDP).
- The post holder as a senior member of the team will supervise the work of other qualified staff, assistant practitioners and students. In addition they will use their clinical knowledge to help train others and also provide more specialist training to others undertaking a course of study to allow them report.
- Support the education and clinical training of both undergraduate and postgraduate students, both within the Health Board and local Higher Education Institutions as required. Supporting new programmes of education and training to facilitate changes in practice, developing a lifelong learning culture within the Imaging department.
- Maintain knowledge of technological advances in methods of diagnostic imaging in order to promote a culture of continuous improvement within the department.
- Develop and maintain robust training and educational frameworks that are responsive to individual and service needs as appropriate.
- Maintain an in depth knowledge of specialist equipment used.
- As a reviewer carry out annual PDP interviews with Radiographers, Assistant Practitioner's and HCSW's.
- In conjunction with the Site and modality Lead Radiographers be involved in implementing Role Development for Radiographers.

7. SYSTEMS, EQUIPMENT AND MACHINERY

A variety of specialised investigative and diagnostic imaging equipment is utilised which comprise of multifunctional controls. The equipment is operator dependent and requires specific skills to achieve images of diagnostic quality. Below is a list of the radiology equipment. Post holders use the majority of the equipment relevant to their department. Radiographic equipment ranges from £30,000 to £1.5million.

- Reporting Workstations.
- Picture Archiving and Communication System (PACS).
- Radiology Information Systems (RIS) with voice recognition.
- General purpose x-ray equipment (includes x-ray tubes, tables, operator consoles)
- Digital Radiography Systems (CR/ DR)
- Dedicated resus x-ray equipment
- Digital fluoroscopy units
- Dedicated digital Angiography Unit
- Multi slice CT scanner
- MRI
- High Pressure Injector Pump
- Mobile x-ray units (mainly for use in wards)
- Mobile image intensifiers (mainly for use in theatre)
- Personal Computers
- Label printers associated with Radiology Information System (RIS)
- Manual Handling Aids: Mechanical patient hoists, PAT slides, GLIDE sheets
- Immobilisation devices e.g. foam pads
- Protective equipment, incl. Lead rubber aprons
- Suction, Oxygen, emergency drugs tray

8. ASSIGNMENT AND REVIEW OF WORK

- Operate autonomously within the team structure at clinical expert level, within broad guidance and principals to manage the responsibilities of the post.
- There will be on-going supervision for the postholder within their department.
- Make autonomous decisions on a daily basis, including provision of advice to junior staff in clinical decision making for a multi-disciplinary team including medical staff, regarding patient care on a daily basis.

9. DECISIONS AND JUDGEMENTS

- Independently analyse and interpret images as agreed by Policy and Protocol for Independent Image Interpretation by Advanced Practice Radiographers.
- Issue autonomous reports and when necessary discuss findings with referring clinician. This involves incorporating the clinical history, findings and knowledge of normal anatomy, pathology and disease processes to perform the task effectively and accurately. This enables prompt and appropriate action as regards further examinations and /or management.
- Advise and implement protocols and procedures for the optimum demonstration of pathology.
- Clinically evaluate images produced by self and team members to assess quality and determine need for further imaging prior to patient departure from department.
- Within own specialised area monitor and evaluate professional standards and provide Professional advice. Where a clinician disagrees, have the depth of specialised knowledge required to debate and convince otherwise.
- Apply analytical judgement to problem solving and improving service delivery.
- Act as Mentor to Radiographers not performing to accepted standards of work and teaching/training them to achieve appropriate standards and assessing and advising the Lead Radiographer as to their ability and competency.
- Act independently in the assessment of referrals for x-ray examinations, taking full responsibility for the justification of x-ray examinations in order to reduce unnecessary ionising radiation exposure of patients in accordance with IR(ME)R 2000.
- Exercise personal responsibility and make decisions based on knowledge and experience in complex and unpredictable circumstances when undertaking clinical duties.
- Assess mental, physical and emotional condition of patient prior to and during examination, and to adapt techniques accordingly, in order to provide the best possible image with minimum radiation dose.
- Identify and respond to significant service difficulties in a proactive manner taking into account individual, service and organisational risk factors.
- To make decisions on managing the service while giving support to referrers and radiographic colleagues in the event of equipment breakdown.
- Delegate tasks to Radiographers, and Assistants and ensure that appropriate skill mix is maintained at all times to achieve the desired quality of patient care.
- Frequently reassess workload to provide optimum utilisation of Radiographic resources.
- Assess ability and competence of students to perform radiographic tasks.

10. MOST CHALLENGING / DIFFICULT PARTS OF THE JOB

- Maintaining a minimum reporting accuracy level of 95% which will be audited as defined in the agreed Policy and Protocol for Independent Image Interpretation by Advanced Radiography Practitioners.
- Frequent need for long periods of intense concentration to report on examinations within a limited timescale.

- Maintaining a balance between reporting and other clinical duties.
- Working under pressure to ensure waiting times are kept to a minimum whilst dealing with urgent requests for acute cases.
- To be able to multitask between using highly specialised equipment and dealing with frequent interruptions for advice/information on any aspect of the service provided.
- On a daily basis be prepared to operate Imaging equipment in differing and demanding environments and being able to manage an unpredictable workload effectively.
- Train, supervise and assess other staff with varying degrees of experience and levels of competence, performing x-ray examinations whilst maintaining patient care and throughput.
- Provide supervision and assistance to Radiographers performing x-ray examinations as well as being actively involved oneself.
- Cope with the mental and physical demands of working in acute areas independently, sometimes having to obtain images on severely injured, abusive or violent patients.
- Exposure to cases where the patient's prognosis is poor.
- Combining training in new techniques or newly procured equipment with normal patient workload, keeping up to date with CPD and ever changing technology.

11. COMMUNICATIONS & RELATIONSHIPS

Daily contact with Medical Staff / Other Health Care Professionals

- Issue autonomous reports from within the team structure and when necessary discuss findings with referring clinician.
- Provide advice on the nature of an image/report.
- Advise/ discuss incorrect or unnecessary referrals.
- Provide advice on guidelines for relevant x-ray examinations.
- Relate highly sensitive patient information to and discuss this with referring clinicians and colleagues.
- Deliver CPD sessions to colleagues and clinicians.
- Liaise with medical and nursing, clerical and portering staff to ensure service delivery and efficient and timeous patient transfer and examination preparation.

Radiology Staff (Internal / External)

- Discuss images with Consultant Radiologist as required as per agreed Policy and Protocol for Independent Image Interpretation by Advanced Practice Radiographers.
- Receive information from and delegate tasks to Radiographer's, Assistant Practitioner's and HCSW's.
- Supervise, teach, and provide advice and reassurance to Specialist Registrar's, Radiographer's, Assistant Practitioner's and HCSW's.
- Pass on patient information when transferring patient care to colleagues.
- Provide handover information at the change of a shift.
- Impart information of a technical nature to students and Radiographers regarding specialist equipment and Radiographic Practice.
- Undertake training of student Radiographers and provide constructive criticism as part of the formal assessment process.
- Attend departmental meetings.

Patients

- Providing complex information by explanation of procedures, listening to the patient's requirements in order to encourage compliance with the imaging process, e.g. concerns over radiation dose or regulations regarding pregnancy.
- Where patients have a barrier to understanding or are unable to communicate e.g. English is not their first language or they are confused, the Radiographer must try to allay fears by ensuring that patients have the benefit of informed choice.
- Providing and receiving highly complex and sensitive information e.g. dealing with non-

accidental injuries in children and dealing with IV drug abusers.

- Communication skills are adapted to meet the needs of patients who may be anxious, aggressive or intoxicated, and with a variety of mental and physical abilities. The barriers to understanding must be overcome using clear, comprehensive, sympathetic and persuasive skills.
- Patients will have injuries or illness that will require the adaptation of the imaging technique and utilisation of developed motivational and persuasive skills to ensure the correct position and to reduce mobility, thus producing a high quality diagnostic image.

Relatives / Carers

- Provide information using tact and diplomacy in the context of the standards of professional and personal conduct and within the regulations governing the Data Protection Act.
- Highly developed skills are required for providing and receiving complex and sensitive information and showing empathy to patients and relatives, e.g. when explaining procedure to patient and relative and the associated side effects and gaining consent for the procedure to go ahead.
- Provide reassurance and receive information about patient's capabilities.
- Ask and instruct relatives / carers for assistance as required, while observing Radiation Protection Guidelines.

Other Relevant Departments, for example, liaise with equipment engineers and estates on priority and deployment of radiographic resources, e.g. service arrangements/interventional cases.

- Estates, Supplies ,Human Resources ,Fire Officer, Infection Control
- Non NHS Staff
- Communicate and liaise with Equipment Manufacturers:
  - Engineers
  - Equipment Sales Representatives
  - Company support staff

12. PHYSICAL, MENTAL, EMOTIONAL AND ENVIRONMENTAL DEMANDS OF THE JOB

Physical Skills:

- Enhanced keyboard skills for data entry to relevant systems, as well as to produce clinical and statistical reports.
- Using a high level of skill and accuracy when handling severely injured patients to minimise the risk of exacerbating injuries, whilst achieving the goal of acquiring the correct images.
- Positioning of patients demands a high degree of accuracy to minimise radiation dose.
- Have the expertise to handle and operate highly specialised and expensive equipment.

Physical Demands:

- Long periods of time spent in front of a workstation requiring high levels of concentration whilst reporting images.
- Maintain a level of physical fitness to frequently move ceiling mounted X-Ray tubes throughout three dimensions during all shifts.

Mental Demands

- Balancing constantly changing priorities whilst maintaining a high quality service.
- High level of concentration is required when analysing complex clinical images, producing reports or providing highly specialised advice.
- Be able to manage an unpredictable workload effectively and interact successfully with fellow healthcare professionals with referrers who all believe their patient should take priority.
- Prioritising workload requires diplomatic skills in discussion with referrers from a variety of clinical areas.
- Intense concentration when analysing complex clinical images/reports.

- Dealing with interruptions to concentration which results in a change of practice e.g. urgent phone calls from patients, consultants seeking advice etc.

Emotional Demands

- Perform Radiographic examinations with care and understanding when dealing with patients who may be anxious, distressed or terminally ill.
- Working under pressure to ensure that waiting times are kept to a minimum whilst dealing with urgent requests for acutely ill patients and frequently performing examinations in traumatic circumstances for critically injured patients
- To deal with a variety of patients from paediatric to elderly, mental health patients, prisoners, requiring sensitive handling in all situations, where verbal abuse could occur.

Daily Working Conditions

- Work within a darkened environment that is optimum for viewing and assessing diagnostic images on VDU, can work constantly in artificial lighting with little or no natural daylight.
- Frequent exposure to unpleasant odours, uncontained body fluids and infections.
- Occasional Risk of physical abuse from patients/ carers who may be intoxicated, confused, or be IV drug abusers.

13. KNOWLEDGE, TRAINING AND/OR EXPERIENCE REQUIRED TO DO THE JOB

Essential

- D.C.R. or BSc (Hons) in Diagnostic Radiography.
- Postgraduate qualification in one or more Radiographer reporting disciplines.
- HCPC registration.
- The post holder must have significant post graduate clinical experience.
- Evidence of CPD and post- graduate study in a specialist area.
- Current and wide range of highly developed specialist technical and Healthcare knowledge.
- Excellent verbal and written communication and presentation skills.
- Be able to organise and motivate others to deliver plans.
- Ability to take responsibility and make decisions.
- Team worker with developed and appropriate leadership style.
- Evidence of a high level of analytical problem solving skills.
- Interpersonal skills to negotiate influence and inspire.
- Effective advocate for patients and staff in a wide range of arenas.
- Computer literate and able to use data bases and spreadsheets.
- Have a positive attitude to flexible working to meet the demands of the service.
- Ability to work across professional and organisational boundaries internally and externally.

14. JOB DESCRIPTION AGREEMENT

A separate job description will need to be signed off by each postholder to whom the job description applies.	
Job Holder's Signature:	Date:
Head of Department Signature:	Date:

Appendix 5 – NPSA Notice 16: Early Identification of Failure to Act on Radiological Images

Early identification of failure to act on radiological imaging reports

Reference number	0472
Central Alert System (CAS) reference	NPSA/2007/16
Issue date	05 February 2007
Action date (if applicable) (date field)	28 February 2008
DH Gateway reference	NPSA/2007/16
Type	Alert

This Safer Practice Notice advises healthcare organisations to make changes to ensure that **radiology imaging results** are communicated and acted on appropriately.

Radiology imaging tests are requested by a registered health professional who relies on a **report** and **image** usually generated by a radiologist or radiographer. These are sent to the referring health professional, who then acts on the result. This system is unreliable and has been proven to fail.

Between November 2003 and May 2006, the National Reporting and Learning Service (NRLS) received 22 reports where failure to follow up radiological imaging reports led to patient safety incidents, mostly involving fatalities or significant long-term harm. NHS Litigation Authority data for the 10 years to May 2006 included 69 cases, some of which involved significant harm and monetary claims.

The NRLS recommends that all healthcare organisations providing or commissioning radiological imaging services should:

- ensure that all radiological imaging reports are communicated to, and received by, the appropriate registered health professional and that action is taken in a manner appropriate to their clinical urgency;
- ensure registered health professionals design 'safety net' procedures for their specialty;
  make clear to patients how and when they should expect to receive diagnostic test results;
- review relevant policies and procedures in line with the detailed recommendations outlined in the notice.

Appendix 6 – NHSScotland Shared Services Workforce Reference Group - Professional Governance Pathways

Governance Pathways to meet Codes of Conduct of relevant Professional Bodies

Introduction

The "National Radiology Strategic Document" proposes the implementation of a national radiology model which will support patient focused health and facilitate diagnostic imaging to be delivered consistently and with long term sustainability.

In order to underpin the implementation of the National Radiology Model, there is a requirement to maximise role utilisation through the service and enable staff to work across traditional NHS Health Board boundaries. This work will require clear linkages to professional and technical quality assurance arrangements and clinical governance. A Shared Services Workforce Reference Group (WRG) has been formed to consider short, medium and long term solutions to enable staff to work collegiately across traditional NHS Health Board boundaries.

Governance Pathways to meet Codes of Conduct of Professional Bodies

To assess the potential impact of a National Radiology Model on individuals' accountability for practice a review of the professional Code of Conduct was carried out with follow up conversations as indicated below:

Society of Radiographers – Maria Murray, Professional Officer for Scotland and Alexandra Lipton, Professional Officer & Senior Services Manager
Royal College of Radiologists – Grant Baxter, Consultant Radiologist
Health & Care Professionals Council – Katherine Timms, Policy Manager
SCIN - Anne-Marie Sinclair, Consultant Radiologists and Lead Clinician SCIN
Linda Delgado, UNITE
General Medical Council – Good medical practice
Medical Staffing – Angela Cooper, HR Manager

Code of Conduct Review

The review of the Codes of Conduct and discussions with the individuals highlighted above has not identified any standard or guidance which would prohibit a registrant from managing patients remotely.

Each registrant is required to make sure their practise is in accordance with their professional body's standard of performance, conduct and ethics.

It is for the registrant themselves to use their professional judgement to decide whether or not it is appropriate to review information remotely on a case by case basis.

In general there is a requirement for registrants to practise collaboratively and communicate effectively with other healthcare staff, putting patients at the centre of their work and respecting contributions of all members of multidisciplinary teams.

The requirements on training for reporting are very clear with no immediate issues identified.

Revalidation

In order to revalidate, licensed practitioners must undergo annual appraisal, based on the General Medical Council's (GMC) core guidance for appraisal: "Good Medical Practice". Doctors are

required to collect supporting information for their appraisal to help them demonstrate how they are meeting the GMC professional standards in their everyday practice. In working across a number of Board areas, the practitioner must ensure that their annual appraisal reflects this and any supporting information gathered, covers the full range of activity from all service areas. The Responsible Officer for the purpose of revalidation remains with the licensed practitioners employing board.

Considerations

The general view is that professional liability will sit with the registrants' employing NHS Health Board.

Training will be required on any new technology based systems.

The scheme and scope of work to be shared needs to be clearly articulated and understood with standardised reporting processes and protocols.

The most likely contentious issue will be around performance management and specifically the raising of any issues or concerns cross boundary.

Documents

Below are links to the document which were reviewed with reference to the specific sections.

General Medical Council – Good Medical Practise

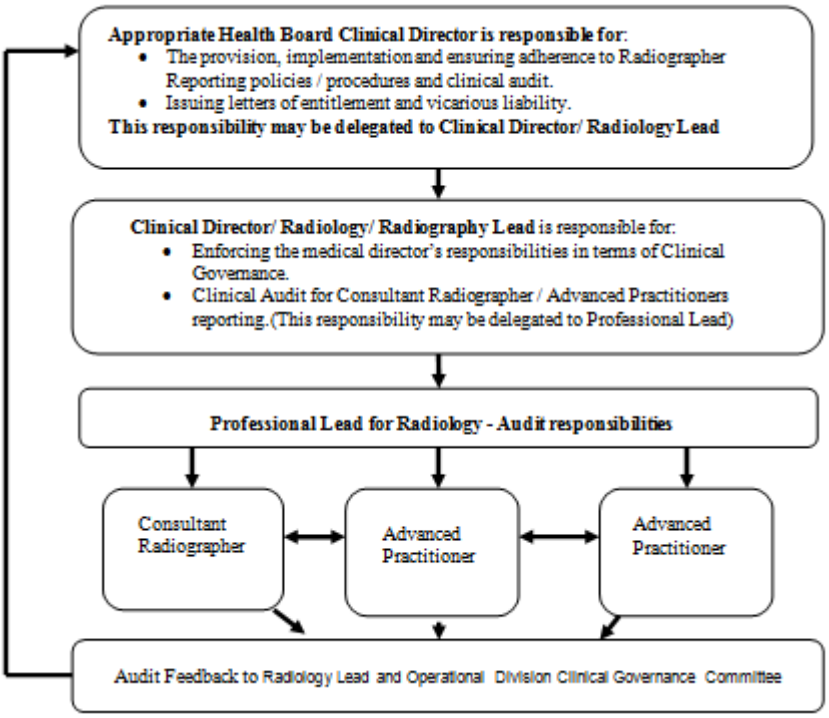
HTTP://WWW.GMC-UK.ORG/GUIDANCE/GOOD_MEDICAL_PRACTICE.ASP

Para 7-13 - Develop and maintain your professional performance
Para 14-18 - Apply knowledge and experience to practise
Para 33-34 - Communicate Effectively
Para 35-38 - Working collaboratively with colleagues
Para 44-45 - Continuity and coordination of care
Para 46-50 - Establish and maintain partnerships with patients

Society of Radiographers – Code of Professional Conduct
http://www.sor.org/learning/document-library/code-professional-conduct
Section 1 – Relationship with Patients and Carers
Section 2 – Scope of Professional Practise
Section 3 – Personal Standards in Professional Practise
Section 4 – Relationships with Other Health Care Staff

Health Care and Professional Council – Standards of Conduct, Performance and Ethics
http://www.hcpc-uk.org/aboutregistration/standards/standardsofconductperformanceandethics/
Section 1 – Promote and protect the interest of service users and carers
Section 2 – Communicate appropriately and effectively
Section 3 – Work within the limits of your knowledge and skills
Section 6 – Manage risk
Section 7 – Report concerns about safety
Section 10 – Keep records of your work

Appendix 7 – Flow Chart of Local Governance Responsibilities



APPENDIX 15 - IT CONNECTIVITY EVALUATION AND WEIGHTING CRITERIA

	Criteria	Weighting
2.	Response to NSS Requirement	70%
2.	Price	30%

10. **Evaluation of Response to NSS Requirement**

The NSS Requirement has two scored Sections with the weightings set out in Table 1 (Section Weighting) below:

Table 1 – Section Weighting

Section	Weighting
Software Functionality Requirements	40%
Non-Functional Requirements	30%
Total	70%

The two scored Sections within the NSS Requirement each comprise a number of detailed scored requirements (each with their own weightings) as per Table A (Software Functionality Requirements) and Table B (Non-Functional Requirements) below:

Table A - Software Functionality Requirements

Detailed Software Functionality Requirements		
Reference	**Section Title**	**Weighting**
6.2	**General**	**11.12**
6.3	**Worklist**	**11.11**
6.4	**Reporting**	**11.11**
6.5	**Cross Border Activity**	**11.11**
6,6	**Workflow**	**11.11**
6.7	**Quality Assurance**	**11.11**
6.8	**Urgent Report Alerting**	**11.11**
6.9	**Business Intelligence**	**11.11**
6.10	**Usability**	**11.11**
	Total	**100**

Table B - Non-Functional Requirements

Detailed Non-Functional Requirements		
Reference	**Section Title**	**Weighting**
7.1	**Professional Guidance and Confidentiality**	**5.0**

7.2	**Technical Requirements**	**5.0**
7.3	**Software Solution**	**5.0**
7.4	**Hardware**	**5.0**
7.5	**Security**	**5.0**
7.6	**Performance**	**5.0**
7.7	**Scalability**	**3.75**
7.8	**Access**	**3.75**
7.9	**Audit**	**5.0**
7.10	**Environments**	**3.75**
7.11	**Interfaces**	**5.0**
7.12	**Documentation**	**5.0**
7.13	**Archiving/Back up**	**5.0**
7.14	**Maintainability**	**5.0**
7.15	**Hosting**	**5.0**
7.16	**Testing**	**5.0**
7.17	**Implementation**	**5.0**
7.18	**Training**	**3.75**
7.19	**Support and Maintenance**	**5.0**
7.20	**Strategic Roadmap**	**5.0**
7.21	**eHealth Architecture and Design**	**5.0**
	Total	**100**

APPENDIX 16 - FINAL ASSUMPTIONS FOR GEM MODEL

Headings, assumptions and sources of data for NPC calculation

GEM Heading	Source of data	Forecast assumption
PROPERTY and OPP. COST	n/a	no property or opportunity costs were factored in.
CAPITAL		
IT Connectivity	Outcome of OJEU tender process	up front cost based on information returned by preferred suppliers during competitive procurement process - lifecycle incorporated separately
Data Mart Development	NSS	Up front cost of developing the data mart taken from paper by PHI detailing the solution including timescales and costs (see appendix 12)
Optimism bias	n/a	Have not included - used sensitivity to test assumptions around savings
Subtotal: Initial Capital Costs		
Lifecycle - IT Connectivity	IT procurement specialist	GEM factors in the initial outlay repeated over a 5 year cycle to ensure infrastructure is maintained as a lifecycle cost.
REVENUE COSTS		
Clinical Services		
Outsourcing	From Boards - bespoke data capture	Assumed increase in volume of images to be reported on via outsourcing due to increased demand for MRI/CT - details provided at bottom of paper.
Clinical/medical (less outsourcing)	From Boards - bespoke data capture	GEM assumed these costs would not be impacted by the project and thus costs were the same in both options.
Equipment - non capital	From Boards - bespoke data capture	Same costs factored in across both options - The Model may facilitate better regional/national planning and in the long-term provide savings through better utilisation of equipment but to be prudent no such savings were factored into the GEM.
Gross Pay - Substantive	From Boards - bespoke data capture	Base costs for all staff taken from data capture exercise. Assumed increase of 6 WTE in Consultant Radiologists per annum. Based on recent slowing historical trend of Medical

		staff numbers increasing as activity increases. Due to likely retirements this may be optimistic but Scotland has lower proportion of Radiologists than most western countries and may be opportunity to recruit from abroad.
Additional capacity - EPAs	From Boards - bespoke data capture	Assumed Boards where the average is to work fewer than 11 PAs would increase hrs to help take on work for their own or other Boards. Assumption in option 2 was that an additional 16,000 hrs could be put into the system (50% of potential hrs gained by WTE working on average 11 PA's to reflect that not everyone could/would work additional hrs)
Gross Pay - non substantive	From Boards - bespoke data capture (Agency & Locums)	The data capture showed this is a significant and increasing cost. The same increase was factored into both option 1 & 2 (£2.8m increase by 2020/21). The modelling (in option 2) prioritised based on cost savings which resulted in additional capacity focussing on images that are currently outsourced rather than reducing Locum spend . In reality, Locum spend could be part of the mix but this assumption simplified modelling by logically targeting additional capacity towards the areas with the highest financial benefit. Sensitivity analysis was conducted to show the impact if option 2 in no way prioritised on basis of cost.
SAVING - CT outsourcing <	Modelled using price per image from current outsourcing contract, volumes and overall costs from bespoke data capture	The data collected showed CT outsourcing as more expensive than MRI so assumed any additional Radiologist capacity would be targeted at CT outsourcing first. The impact of growth in demand was factored into both options on the same basis. However, the modelling factored in that there would be more CT images outsourced each year and more under option 1 than if option 2 was approved as option 2 allows for some additional capacity to target CT outsourcing.
SAVING - MRI outsourcing <	Modelled using price per image from current outsourcing contract, volumes and overall costs from bespoke data capture	See comment above. Same principles applied as to CT but modelling assumed that additional resource would target reporting on CT images first. So, some reduction in MRI outsourcing assumed between options 1 and 2.

Saving - Insourcing (premium pay for NHS Radiologists)	From Boards - bespoke data capture Insourcing defined as one Board reporting for another.	At times due to premium pay (including triple time) insourcing may be more expensive than outsourcing or Locums. Therefore more savings could be made by prioritising reducing the volume of images reported via insourcing. However, the quality of data was not good enough to model in any detail (either payments to other Boards or to internal staff). So, the GEM does not factor in any savings in option 2 whereas in reality this could be part of the mix if The Model was implemented including a nationally agreed system that work is paid at double time.
SAVING - Locum hrs <	From Boards - bespoke data capture	Locum costs taken from data provided by Boards. The additional capacity in option 2 was targeted to reducing outsourcing, therefore option 1 and 2 have the same level of Locum pay/hrs as there was not sufficient additional resource to negate the need for outsourcing. Sensitivity analysis showed the impact if reducing Locum hrs was part of the mix. This reduced the potential saving as the GEM assumed Locum costs were lower per image than outsourcing for CT & MRI.
SAVING - Reporting Radiographer impact	From Boards - bespoke data capture and existing information generated by specialist groups	Assumption that reporting Radiographers could dedicate 50% of their time to reporting (current average is 33%). Saving factored in by assuming this increased reporting capacity would be targeted at X-ray and thus free up Radiologist time to focus on CT/MRI. Saving is presented net of required backfill for the non reporting element of the Radiographer role (cost assumed backfill at AfC band 6).
SAVING - productivity gains from new IT	n/a	Given the level of uncertainty, there was no way to provide a robust assessment (and quantify) whether the preferred solution would allow more images to be viewed per session. Therefore, despite some anecdotal evidence this may be the case for some Boards, no productivity savings were factored in. To give an idea of scale, a 1% improvement in productivity could reduce costs by between £0.6m - £0.9m. This is on the assumption that existing staff whose salary costs are already 100% met would report on more images, reducing

		the need for outsourcing & Locums. This is by assuming the 1% productivity applies only to the time spent reporting. A simplistic and optimistic alternative way is to assume that you could reduce pay costs by 1% and still report on the same number of images would return a potential saving of £1.6m. If productivity gains can be made via IT enabling quicker turnaround times then another option is that Boards may use this to reduce waiting times, rather than costs.
Non Clinical Costs		
Regional Staff (Non Clinical staff)	Project team	An additional AfC band 4 and band 7 post in each region has been factored into option 2. These are to ensure that once implemented, there are local staff embedded to manage, maintain and co-ordinate.
Other Admin Supplies	From Boards - bespoke data capture	No difference between options
Other revenue costs	From Boards - bespoke data capture	No difference between options
Professional Fees And Charges	From Boards - bespoke data capture	No difference between options
Training	From Boards - bespoke data capture	No difference between options
Transport	From Boards - bespoke data capture	No difference between options
Travel And Subsistence	From Boards - bespoke data capture	No difference between options
Allocated costs	From Boards - bespoke data capture	No difference between options
Revenue cost associated with IT connectivity	Commercial provider	As per documented by preferred supplier in response to OJEU tender process
Revenue costs associated with NRIIP	From NSS as preferred provider	As documented by PHI (see appendix 12)
Building Running Costs		
Property (hard FM)	From Boards - bespoke data capture	No difference between options
Soft FM	From Boards - bespoke data capture	No difference between options
Heating Fuel And Power	From Boards - bespoke data capture	No difference between options
NET CONTRIBUTION/COST		
NHS Income	From Boards - bespoke data capture	No difference between options. Did not have enough information to show potential impact on insourcing.
Non NHS Income	From Boards - bespoke data capture	No difference between options
Costs relating to other NHS Bodies	From Boards - bespoke data capture	No difference between options
TRANSITIONAL COSTS		

IT Connectivity NHS implementation costs	NSS IT	Costs associated with the preferred supplier have been factored into the IT Connectivity cost but there is a requirement to manage and co-ordinate the roll with Boards. Thus the costs of project managing the local implementation and ensuring linkages with existing IT infrastructure and systems are factored in. Board time dedicated to implementation is not factored in on the assumption this would not be an incremental cost as it would be done by existing staff with support from the implementation team. The assumption has been that the IT implementation staff would be required for 18 months.
Project Management	NSS Programme Management Services	Implementing all aspects of The Model will require co-ordination and the cost has been factored in for 24 months. The cost includes a Clinical Lead and project managers,
EXTERNALITIES	n/a	No reasonable way to place a monetary value on and thus model any positive financial impact from having a more sustainable diagnostic imaging service or from benefits of integrating with other medical data marts to improve understanding of patient pathways. These benefits have been captured as part of the non financial benefits scoring.

Further detail on the main assumptions/inputs in the GEM

The biggest financial impact is due to a modest increase in capacity allowing for less images to be outsourced or done by Locums.

Capacity

Assumption that those Boards with an average programmed activity under 11 PAs can increase their hours now that the benefit can be maximised.
Assumed 50% of the additional hours to get to 11 PAs is realistic for Consultant Radiologists. These additional hours would be done at double time.
Assumption that Boards (via backfill) could allow the average time for reporting Radiographers to dedicate to reporting to be 50%. They would focus on plain film and thus free up Radiologist time to report on CT/MRI. This would add 8 WTE of additional reporting time.
No further savings factored in through encouraging additional reporting Radiographers into the system. This would appear a pragmatic and cost effective step to take but detail was not available to reasonably model the timing and potential WTE available.

Volumes

Cost book data using examinations by modality used to extrapolate trends in activity levels.
Data on volumes outsourced taken from bespoke data capture template returned by each Board and signed off by the service manager and DoF

Number of images reported in an hour taken from previous studies and accepted norms within the service. This is based on 20 images reported per hour by Consultant Radiologist for plain film x-ray. The resulting productivity for reporting Radiographers is 17 per hour for x-ray. The assumed rate for CT and MRI is 4 images reported per hour and that this is done by Radiologists. SERRIS used 20 per hr for x-ray and 3 for CT/MRI. The impact of using the SERRIS values (including the pay arrangements was modelled and discussed in the sensitivity analysis section of the Economic Case.

Costs

Cost data mainly taken from the bespoke data capture templates returned by Boards. This gave data from 15/16 and 16/17 half year.
The template asked for a detailed breakdown of pay costs by job type including, spend on non substantive pay such as Locums.
The template had detailed questions around costs and volumes of outsourcing and insourcing
Majority of cost information provided via a data dump from the ledger (Account code level) of each Board in order to consistently reflect the direct costs of the service.
The cost per outsourced image reported was taken from the current framework contract
Savings were modelled on comparing the cost of an outsourced image versus the staff cost of reporting internally. For consultants it was assumed the work would be carried out at double time
An average cost per hour for Locums was calculated using information returned via the data capture template. Again this was compared to if the image had been reported on substantive staff at double time.
Double time was calculated using average basic pay for Consultant Radiologist as per the data capture template. This was circa £2k higher (per annum) than taking midpoint on the Consultant pay scale and £9 an hour higher than SERRIS.

APPENDIX 17 - RADIOLOGY COST BOOK DATA – POTENTIAL CHANGES TO IMPROVE UTILITY

INTRODUCTION

There Shared Services Radiology Programme established a project to identify national radiology data requirements (NRDR) to support a national radiology service model. The model has three main strands, IT Connectivity between sites to facilitate pan Scotland remote reporting a NRIIS that would pull information from PACS and RIS and be able to combine with other data marts that hold clinical and financial information and the third strand of optimisation of the workforce. The NRIIS would support strategic and operational planning, reduce variation, support continuous monitoring, service improvement, and demand and capacity planning. All of these are essential to exploiting the opportunity to work on a more collegiate basis provided through IT Connectivity.

Part of the NRDR project was to have an initial proposal about how financial information could be incorporated with national operational and clinical data. The recommendations were reported back[30] and this brief paper is another output focusing on recommendations to improve the utility of the current main source of cost information relating to Radiology in Scotland which is known as the cost book. The recommendations come with the caveat that they are based on a limited number of interviews with service managers and one option would be to further canvass the opinions of people within the service.

COST BOOK

Currently the cost book, produced annually by Boards and collated by NSS, is the main source for the cost of the Radiology service in Scotland. The cost book combines activity and cost information by modality. Figure 1 below shows the information collected by hospital via Scottish Financial Return (SFR) 5.11. There is further output relating to Radiology in report R120 which shows the volume & net cost per examination for the modalities listed below in figure 1.

Figure 1 – SFR 5.11 blank template

PART 1	Direct Staff Costs	Direct Supplies Costs	Allocated Costs	Total Expenditure	Income Netted		Net Total Cost	No of Examinations
					ACT	Other		
Radiology Costs								
C T Scanner								
Gamma Camera								
Magnetic Resonance Imaging								
Ultrasonics								
Other								
TOTAL								

PART 2 Analysis of Direct Staff Costs	W.T.E.	Pay £
Medical & Dental		
Radiographer		
Nursing		
Other Clinical		
TOTAL		

Direct non pay costs make up only around 12% of expenditure, staff 55% and allocated costs 33%. As staff work across modalities and allocated costs by their nature are difficult to link to a modality it results in a degree of subjectivity assigning the majority of costs to a modality. The “other” category relates to around two thirds of activity and over 50% of the costs. Thus, at a granular level the cost by modality or cost per examination values will contain a high degree of subjectivity which undermines comparability between Boards and discourages wider use of the data.

[30] paper

Looking at comparability between hospitals the proportion of total expenditure in those categories ranges from:

Highest/Lowest	Direct Costs	Staff Costs	Allocated Costs
Highest	24%	74%	94%
Lowest	0%	5%	11%
Median	5%	50%	42%
Scottish Average	12%	55%	33%

It can therefore be seen that there is a high degree of variability and it would be good to investigate further whether this is partly due to how Boards are filling out the returns or genuinely reflects variance in the nature of service provision. However, it re-enforces that the majority of costs can only be linked to a modality using a subjective weighting algorithm and thus the potential incomparability of the cost per modality/examination metrics.
The annual and high level nature of the cost book process in all likelihood mean that a parallel set of financial metrics will be developed to aid the management of Radiology departments after the IT Connectivity and NRIIS have been introduced. A dashboard type approach utilising the opportunity provided by linking data marts should be developed that can report monthly or on an ad hoc basis. This will be taken forward elsewhere so is not discussed further in the paper but it could be worth the finance community being involved to ensure a degree of alignment between the cost book, current internal reporting and the dashboard metrics.
The use of SFR 5.11 within the service seems to be limited and there does appear to be a certain scepticism around the values, partly as a result of the lack of ownership/engagement by Radiology departments. However, the Radiology project could be an opportunity to make the production of SFR5.11 simpler. As more consistent and easier to interrogate activity data is produced this could be used by the producers of the cost book to quickly generate activity data by modality. Other opportunities will arise further down the line once other data such as from the finance system is incorporated.
However, in the short-term there are still relatively small changes that could improve the utility of the cost book. Listed below are some, they are not exhaustive and some may have been raised previously.

RECOMMENDATIONS

- Splitting x-ray from the “other” modality. The “other” category represents two thirds of activity and around 50% of net expenditure thus any trends or specialist modalities are lost within the volume of plain film x-ray activity. Splitting this out would add value to the other category.
- Should certain costs of interest to the service be separately reported such as outsourcing or waiting list initiative payments? Incorporating data that reflects the current issues within the service might encourage managers to reference the cost book more.
- To improve comparability between Boards It could be useful to have standard timings by modality and body part to inform cost allocation. Some Boards may have had more resource to look into timings so sharing or developing a standard would improve consistency in how costs are allocated to a modality.
- Admin & Clerical was taken out as a staff category but from initial results from asking Boards specific questions around workforce they make up around 15% of the Radiology WTE. Thus it is a large category to miss or be subsumed into another heading. Other useful splits such as sonographers or reporting radiographers would be useful but difficult to automate as they are not captured in the AfC post descriptors used by HR/Payroll.
- Splitting image acquisition from image reporting would better reflect the distinct nature of these two processes. The cost of doing this might outweigh the benefit. However some guidance could ensure that Boards are consistently reporting the same information. For example, some Boards will outsource reporting only, so the activity will be reflected in the

examination column, therefore it is important that the outsourced cost is reflected in the direct costs, otherwise there will be a disconnect between the activity and cost.

- To aid comparability should items such as capital charges and maintenance costs of equipment be mandated to fall under allocated? This on the assumption it would be impractical and against the majority practice to specify that they should appear under direct costs.
- Could the guidance be more explicit on what activity and costs should be captured? Some activity captured in RIS/PACS is likely to fall out with the radiology department (including the cost). There will also be other activity such a mammography, ultrasonic obstetrics that might fall completely out of the remit of the radiology department. Thus is clearer guidance required to encourage Boards to include and exclude the same activity/costs?
- Is it worth having interventional radiology as a separate modality? This might impact a few Boards but could be interesting to report the scale and cost of this service over time.
- Could ISD append trend data on staffing WTE by type, expenditure and also activity by modality to highlight any emerging trends such as the growth in staff vs. activity?
- If SCIN can come up with defined way of measuring did not attends then could be worth considering in the future whether this is reported in the cost book.

There may be legitimate reasons to disregard some of the recommendations but hopefully there is something that could be taken forward. There is also the opportunity for the finance community to engage with Radiology managers if the IT connectivity and data mart are implemented to ensure financial information and metrics are developed and align with cost book where practical.

APPENDIX 18 - IMPLEMENTATION COSTS

The Model Implementation		Staff grade	Staff costs				TOTAL STAFF COSTS	
			Year 1		Year 2			
			wte	£000s	wte	£000s	wte	£000s
Shared Services Radiology Implementation Programme Team *	Medical Director	Medical	0.60	63	0.40	46	1.00	109
	Programme Director	Exec D	1.00	82	1.00	82	2.00	164
	Programme Manager Executive	8d	0.50	37	0.50	37	1.00	74
	Project Manager	7	3.00	191	3.00	191	6.00	382
	Project Support Officer	5	1.50	65	1.50	65	3.00	130
NSS PHI / BI Teams	Engagement/Communication/IG	Var	0.56	37	0.50	24	1.06	61
	Data Management	Var	1.03	64	1.03	45	2.06	109
	Analysis	Var	2.59	147	2.78	119	5.37	266
	Training	7	0.06	4	0.07	3	0.13	7
	NSS IT Datamart Analysis/Design/Build/Test	7	0.51	36	0.14	10	0.65	46
NSS IT Team	Programme Manager	8a	0.50	37	0.25	19	0.75	56
	Project Manager	7	3.00	204	1.50	102	4.50	306
	Project Support Officer	4 or 5	1.00	48	0.50	24	1.50	72
	Travel and contingency			20		10		30
		Total	**15.25**	**972**	**12.77**	**731**	**28.02**	**1,703**

*** NOTE**

Figures are based upon National Services Scotland Day Rates – which includes property overhead for Project Managers and average medical costs from data returns for Clinical Lead

Years relate to a 12 month period

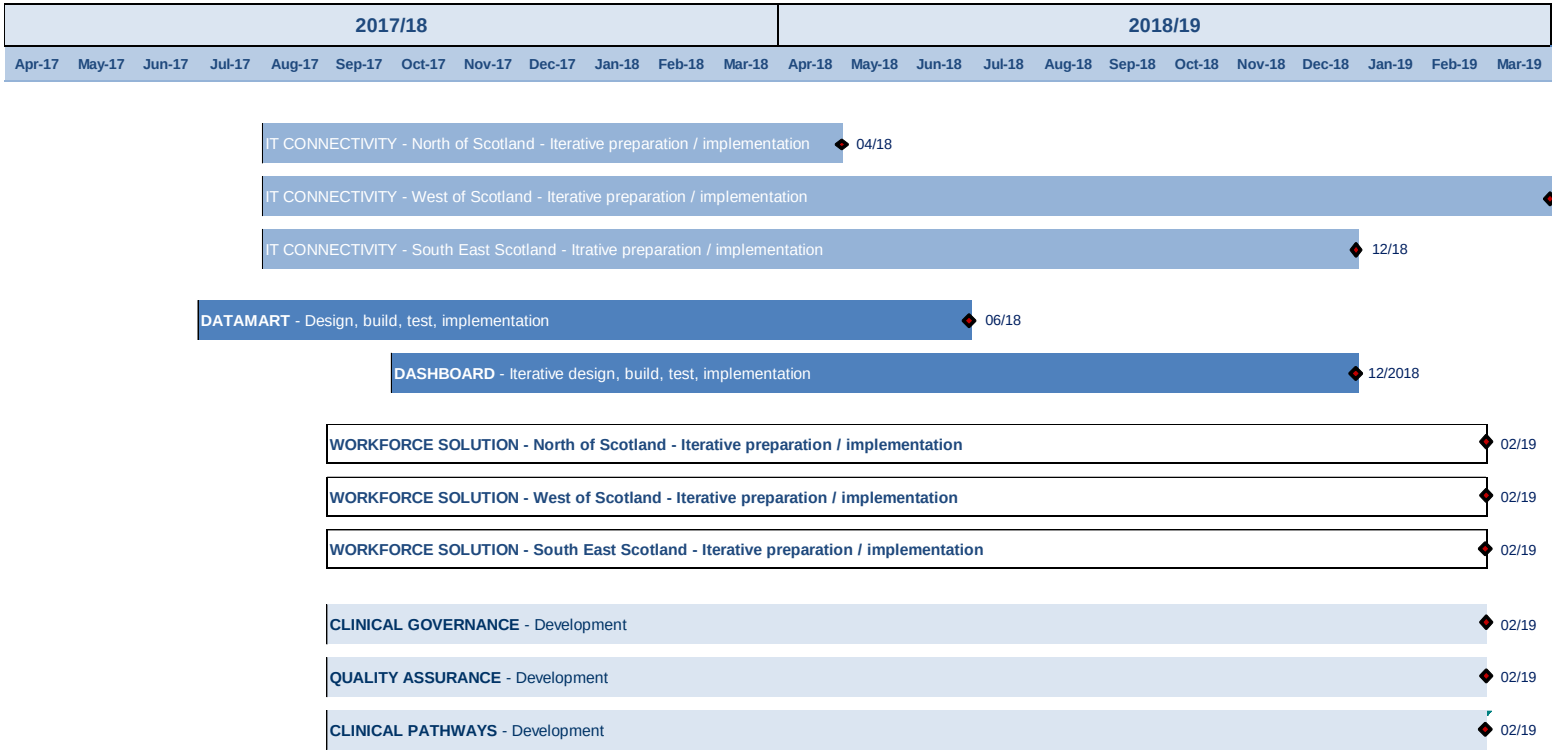
National Radiology Implementation Board

Required role	Responsibility
Medical Director (Clinical Radiology Lead)	Change will be led nationally through clinical leadership. This will take the form of a Medical Director who will have oversight of the programme and will engage with clinical leads from each region and other stakeholders as required.
Programme Director	Executive leadership and management will be provided by the Programme Director. This role will be responsible managerially for staff and programme delivery in the first instance and for ongoing leadership and management of the national service.
Programme and project support	Programme support will be provided by a full time PSO.
Senior Responsible Owners	Each region will be required to nominate an IT, Clinical and Managerial representative who must be from an executive level to represent their region on the NRIB. This would not be an incremental cost, but an extension to an existing role, therefore any cost incurred would be borne by the individual NHS Board or region.

National Radiology Implementation Board		Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
		2019/20	2021/22	2022/23	2023/24	2024/25	2025/26	2025/26	2025/26
Medical Director (Clinical Radiology Lead)	**1 day / week**	23,079	23,079	23,079	23,079	23,079	23,079	23,079	23,079
Programme Director	**Exec Level D Full time**	89,685	89,685	89,685	89,685	89,685	89,685	89,685	89,685
Programme and project support	**Band 5 Full time**	43,400	43,400	43,400	43,400	43,400	43,400	43,400	43,400
	Total	**156,164**	**156,164**	**156,164**	**156,164**	**156,164**	**156,164**	**156,164**	**156,164**

Note: Costs outlined in financial years. For years 1 and 2 costs of Medical Director and Programme Director are included in implementation costs above. From Year 3 only posts above occur on a recurring basis.

APPENDIX 19 - IMPLEMENTATION PLAN – NATIONAL RADIOLOGY MODEL



APPENDIX 20 – REPORT ON VISIT TO EAST MIDLANDS RADIOLOGY CONSORTIUM (EMRAD) 19 JULY 2017

Introduction

Dr Tim Taylor, Medical Director of EMRAD, gave a presentation to the Scottish Clinical Imaging Network (SCIN) in spring 2017. Fiona Agnew, Shared Services Radiology Programme, Project Manager, attended that presentation and suggested to the radiology programme team that a visit to EMRAD would be useful to inform the Radiology Business Case and to gain further information on how the Consortium was set up and implemented in order that lessons could be learned for the radiology programme.

As the radiology programme team had been working closely with the north of Scotland Radiology Project, it was suggested that Cathie Cowan, Chief Executive of NHS Orkney and Executive Lead of the north Radiology Project and Jim Cannon, Director of Regional Planning for the North of Scotland Planning Group (NoSPG), also visit. Dr Hamish McRitchie, Subject Matter Expert for the Radiology Programme was unable to attend the visit, but had liaised with Dr Taylor from EMRAD previously and was supportive of learning from their experience. The Shared Services Portfolio provided resource for the travel and accommodation of those attending.

EMRAD

The EMRAD Consortium serves a population base of 6.5m, with a rural dispersion; however, it does not cover the remote geography which Scotland does. The EMRAD Consortium also covers a mix of urban and rural hospitals, comparable to Scotland.

The EMRAD is funded through a contribution by each NHS Trust within the region (circa £57k each per annum) as well as national "Vanguard" funding. Their leadership structure includes a dedicated Medical Director (1 day per week), Programme Director (full time), a Technical Director (I day per week) and full time Project Support Officer. There are Senior Responsible Owners (SROs) in each NHS Trust (x7) who are from a variety of executive backgrounds in order that they have the appropriate authority to make decisions.

The governance structure of EMRAD is as follows. Executive Leadership is provided as described in the previous paragraph. The EMRAD team stressed the importance of having such senior executive leadership in order to drive and support the transformational change process. However, the accountability for delivery of operational radiology services remains within each individual NHS Trust. It was stressed that the level of accountability remaining with NHS Trusts was crucial to maintain ownership at that level at this point in the Consortium development. In discussion it emerged that the EMRAD leadership team had considered a more integrated service model, however judged that ownership and engagement is currently best maximised by maintaining operational responsibility at Trust level, whilst ensuring tight collaborative agreements through SLAs and other mechanisms between Trusts within the Consortium.

There is a Management Board which comprised the Executive Leaders and the SROs from each Trust. The EMRAD implementation team includes a well resourced programme team to support individual work streams which report to the Management Board.

EMRAD submitted a Business Case for one Picture Archiving and Communications System (PACS) and Radiology Information System (RIS) for the region and this was successful. The focus of the EMRAD Board is currently with implementation of the technical solutions. However, the team described a transformational change programme which is set in a historical landscape of suspicion and mistrust as the NHS Trusts were set up to be in competition with one another.

The EMRAD team gave demonstrations on the type of data which was being collected from their regional RIS. This benchmarking data is being used positively for service improvement and to enable behavioural change at an individual clinician level. Cross-boundary reporting has begun in a limited fashion, with the intention to grow this incrementally as small groups, in limited reporting areas, develop the culture (trust) and processes to make best use of the new systems. The EMRAD team shared all their documentation around governance, including data sharing, contractual arrangements for cross boundary working and common protocols.

In summary, the EMRAD leadership team emphasised the importance of a ten year transformational change programme which is incrementally progressed and led by the Executive team, with clear lines of authority from the Trust CEOs, with which the executive team were in regular contact.

Lessons Learned from EMRAD Visit

The Shared Services radiology programme team have emulated the EMRAD executive leadership methodology within the Business Case for implementation and ongoing support of the National Radiology Model, given the clear message from EMRAD that senior executive leadership (both clinical and managerial) is a critical success factor given the Consortium environment within which the programme works. There is also a governance proposal around regional SROs from Clinical, Information Technology (IT) and Management backgrounds within the Business Case.

In addition, the team learned tacit information around the support and implementation of the EMRAD transformational change programme, especially around the management of behaviours experienced in the process to date. EMRAD has offered to provide ongoing support to the Scottish radiology programme as required.

The network approach in Radiology is not new in Scotland however the visit was invaluable in informing both the Business Case and the approach to transformational change through a tangible implementation model.

It is possible Shared Services, with their history of networking and current operational collaborations across Scotland, could seek a more ambitious programme of implementation once the initial stages of IT infrastructure are in place over the coming 18 months. This would ensure the operational benefits of such a major IT investment are realised as the change is driven forward at pace with the appropriate level of infrastructure and engagement within services.

Fiona Agnew
Shared Services Radiology Programme Project Manager

James Cannon
Director Regional Planning