

Action plan following External Review Ionising Radiation (Medical Exposures) IR(ME)R Regulations December 2014.						
Section A - Cardiology - Specific outstanding actions from CQC visit March 2010						
Action required	Detail and Issues	Actions to be taken	Named Lead	Timeframe	Progress	
1	<p>In conjunction with MPE support, review the value and use of local DRLs, taking account of figures available nationally, with the aim of ensuring that they are acting as an aid to optimisation.</p> <p>Medical Physics should carry out a review of patient dose and DRLs. Exposure parameters to be optimised to ensure national DRLs are not exceeded wherever possible. Exam descriptors need to be carefully compared to national exam names to ensure like-for-like comparisons.</p>	<p><i>Wording from CQC report 2010</i> The local DRLs for some of the cardiology exams still significantly exceed the national DRLs. These also exceed the LDRLs set by Oxford University Trust (e.g. Angiography DAP 45 Gycm2 compared to 25 Gycm2; or Angioplasty DAP 95 Gycm2 compared to 45 Gycm2). It is recommended that Medical Physics are asked to undergo a programme of standardisation and optimisation for all exams. This should include an assessment of image quality and exposure parameters, optimisation of dose reduction methods (e.g. spectral filtration, default dose rates), and a full review of LDRLs (especially as new equipment is now in place in one of the cath labs). This should also include an interpretation of exam names to enable an accurate and like-for-like comparison to be made with published data. An example of Justification Guidelines which include LDRLs can be provided as required. At the time of this review it was difficult to carry out a full benchmarking exercise due to variations in exam descriptors. This should be addressed as part of the patient dose audit.</p>	<p>Medical Division/Cardiology to action review and publication of revised LDRLs - to be within national DRLs limits. Need clinical input to fully understand procedure undertaken.</p> <p>Medical Physics and Catheter Lab staff to audit doses against local and national DRLs</p> <p>To include review of exam descriptions and mapping to national descriptors</p>	XXX with XXX	30.4.15	Work has been carried out since 2010 to reduce LDRLs through procedures and practice. For 2014/15 LDRL audits carried out under XXX. This includes: retrospective audit of 400 left heart cath patients, and coronary angiography patients. This showed Exeter to be level with the mean of means (below 75th centile) with weight matched patients compared to national data. Plan to repeat a further audit in 1 year with RPA support. Completed 2.4.15
2	<p>To ensure that those undertaking routine quality control measurements have an understanding of the units involved.</p> <p>Physics should review the routine testing currently carried out by the RPSs to ensure compliance with IPEM Report 91. Provide further training as required.</p>	<p><i>Wording from CQC report 2010:</i> Routine (level A) quality assurance testing is carried out by the cardiology Radiation Protection Supervisors (RPS). These tests do not appear to fully comply with national guidelines (IPEM Report 91, Recommended Standards for the Routine Performance Testing of Diagnostic X-ray Imaging Systems). It is recommended that Physics are asked to advise on the tests carried out and provide further training especially with regard to action levels and units.</p>	<p>Medical Physics and cardiology to produce compliant SOPs for QA testing including test limits, description and schedules. Ensure compliant within IPEM report '91.</p>	XXX with XXX	30.6.15	<p>Completed April 2010</p> <p>Completed January 2015</p>
3	<p>Recommendation: To review the potential value of taking on the services of a cardiac radiographer, even in a secondary role, to provide support on X-ray aspects including quality assurance and optimisation.</p> <p>Agree on the mechanisms for optimisation of image quality and dose especially if radiographers continue to offer no support.</p>	<p><i>Wording from CQC report 2010:</i> The Cardiology department continues to function without the input of radiographers. A good standard of service appears to be provided in almost all aspects of the work, however there continues to be some concerns regarding patient dose and optimisation. I would therefore recommend that the Cardiology Department considers how it will address these concerns in the light of the CQC recommendation. Proactive input from Medical Physics on a regular basis may provide a solution to these issues especially if there is no support from radiographers.</p>	<p>Document outlining how Medical Physics team can support the Cardiology service within SLR including frequency and extent of input to ensure optimisation, QA and staff safety issues are monitored and actions taken.</p>	XXX with XXX and XXX Cluster.	30.4.15	<p>Discussed with cardiology team at Dose optimisation meeting 2.4.15. Cardiac Radiographer not required. Cardiology has up to date policies, procedures and SOPs to deliver ALARA to patients.</p> <p>RPA agreed training plan within Cardiology Audit Training Programme (link with XXX) - first session July 2015, and agreed need Trust Radiation Policy finalised.</p> <p>Continue to work together, especially with new Cath Labs being commissioned in June 2015.</p> <p>Closed 2015.</p>

Section B - Radiotherapy - Outstanding action from CQC visit Oct 2007.						
Action required	Issue	Actions to be taken	Named lead	Time	Progress	
4	We recommend that the trust should improve its understanding of doses arising from concomitant exposures, so that IR(ME)R practitioners are better informed when justifying exposures. In liaison with Imaging Physics, radiotherapy physics should continue with the RT imaging dose review and optimisation programme with the aim of issuing guidance to the IR(ME)R Practitioners for use in the justification of concomitant exposures.	It was noted during the review that an appointment has now been made for an imaging physicist within the radiotherapy physics department. The post holder will eventually become the Medical Physics Expert for RT imaging. He has already embarked on a programme of dose audit and optimisation in CT and on-board imaging. It is therefore suggested that this work is extended, in liaison with the other imaging physicists, to include some analysis of CT image quality (using mA modulation to standardise noise levels), and dosimetry of CBCT. Careful consideration may have to be given as to how the imaging doses are communicated to the IR(ME)R Practitioners especially as the dose units for imaging and treatments are different (e.g. DAP/DLP/effective dose versus organ doses).	Report to RSG on progress of standardising exposures, dose optimisation and reducing unnecessary imaging as a result of the appointment of a Physics expert for Radiotherapy. Produce evidence of local DRLs for diagnostic/ planning scans to inform requesting practitioners	XXX and XXX	30.6.15	Working group to include: XXX, XXX, XXX, XXX/XXX, XXX Use DR in CT planning, cone beam and Kv imaging (plain xray), and CR for mobile unit and plain x-ray. Also use DR in the simulator. Need to establish local levels and exposure factors XXX logs exposure, use a standard pre-set for imaging. However current software does not record non-treatment exposure. Aim to standardise exposures and doses. In radiotherapy need to reduce unnecessary images and radiation - can use lower doses as images need to be 'good enough' as not diagnosing but used for planning positioning.
Section C - Patient dose audits, development of LDRLs, and optimisation - recommendations from the external review December 2014.						
Action required	Issue	Actions to be taken	By whom	Time	Progress	
5	Patient dose audits, development of LDRLs, and optimisation	Optimised and formally adopted local DRLs were not available at the time of the inspection for radiology exams. Radiotherapy concomitant and planning doses should continue to be investigated and developed into optimised and approved reference doses. Methods and processes for patient dose audit should be agreed and documented by physics in liaison with the relevant departments, including procedures for the formal adoption and dissemination of LDRLs. A review of exam names and descriptors may be required to ensure comprehensive benchmarking against published data. The adopted LDRLs should preferably be lower than the national DRLs as a means of demonstrating compliance with the ALARP (as low as reasonably practical) principle.	Review and publish local DRLs and compare these to national DRLs for diagnostic examinations. XXX (XXX), XXX (XXX), and XXX (XXX) with XXX XXX with Service Leads Publish schedule and scope of regular annual dose audit programme.	30.6.15 30.5.15	Cardiology - audit completed for 2014/15 - LDRLs below national DRLs. Completed 2.4.15 Radiology - Daily doses being recorded and reviewed - all LDRLs below national DRL levels. Completed 2.4.15. Radiotherapy - working to record LDRLs Audit programme being reviewed by XXX with resource implications being scoped	
Dose management system						
Action required	Issue	Actions to be taken	By whom	Time	Progress	
6	Trust dose management system implemented	A group of relevant staff from the various disciplines especially Medical Physics is convened to take forward the implementation of either an in-house or a commercial dose management system as an aid to dose tracking, dose monitoring, and optimisation.	Task and Finish groups to meet bi-monthly - reports to be sent to Chair of RSG until all actions complete. XXX	Monthly from April 15	Initial meeting of Trust Dose Optimisation group met on 5.2.15 to plan work. 3 working groups established with core scope agreed - Cardiology, Radiology and Radiotherapy. Regular working meetings to be finalised to work through the detail - started 2.4.15, then meeting bimonthly - reporting to the RSG. See organisation chart for Task and Finish group membership and reporting.	

Section D - General recommendations/suggestions from external review						
Action required	Issue	Actions to be taken	By whom	Time	Progress	
7	Standard Operating Procedures	Review and expand procedures. Describe how compliance is actually achieved. The RPA and MPE should provide advice as required.	Update list of all Trust SOPs relating to Ionising Radiation (Medical Exposures) Regulations IR(ME)R and undertake a gap analysis. Instigate work plan to address identified gaps and report 1/4ly on progress to RSG	XXX XXX	30.5.15 30.5.15	Position has been reviewed. <u>Cardiology</u> - regular review ongoing. <u>Radiotherapy</u> - use Radiology's policies and procedures - now in line. <u>Radiology</u> - using ISAS as a framework - reviewed again in February 2015 and showing improvements. Maintains regular audit and review through this framework.
8	Experts and advisors in radiation safety	Roles and responsibilities of the Trust's appointed experts, e.g. RPA, MPE, RWA, etc. should be clearly defined in the policies and procedures and job descriptions.	Review JDs and related policies to ensure that roles and responsibilities are clearly defined. Update as required.	Medical Physics	30.5.15	Re-banding of job descriptions completed Dec 2014. XXX appointed as second Trust RPA Feb 2015. XXX working on 6-months contract to support RWA training - XXX Trust LPA - XXX - undergoing training currently - plan to complete in 6 months. Trust Radiation Policy to be completed, including organogram to clarify R and R - by 30.6.15.
9	Radiation safety committee and groups	It is suggested that a Trust Medical Exposures Committee is formed to take forward IR(ME)R issues associated with optimisation. An additional appointment of an IR(ME)R Clinical Lead could also prove beneficial. The Radiation Safety Group/Committee could then focus on overseeing the Trust's compliance with radiation legislation.	A Trust Optimisation group has been set up with 3 working parties meeting bi-monthly to take forward dose optimisation work in cardiology, radiology and radiotherapy. This reports to RSG chair monthly	XXX	bi-monthly until complete	Initial Dose Optimisation meeting took place on 5.2.15, then 1/4ly working groups established from 2.4.15 with XXX providing admin input. Radiation incidents: recording and investigation process on Datix - process being improved, met on 13.4.15 to agree actions. 1/4ly dashboard to be presented at RSG, and all reports for information/sign off to share learning. Radiation incident investigation flowchart drafted for sign off at RSG 22.4.15
10	Internal auditing	It is recommended that a formal schedule of annual auditing under the radiation legislation is produced. Audit reports and action plans can be tabled at the Radiation Safety Committee.	Formal schedule of annual auditing under the radiation legislation to be produced. Progress to be reported 1/4ly to RSG with related actions and themes.	XXX	30.5.15	Work in progress, need to identify resource implications. Cardiology audit completed for 2014/15 with plan for more work during cath lab commissioning.
11	Training in radiation safety	It is suggested that an annual plan of radiation safety training requirements is agreed to ensure that all staff associated with radiation exposures have received adequate training and regular updates.	This is a section in the Trust Radiation Policy which needs finalising	XXX	30.5.15	Draft policy taken to PEP November 2014 - comments incorporated. Outstanding issue training details- to address and finalise policy
12	Routine quality assurance testing of x-ray equipment	Physics should continue to train radiographers in routine QA and carry out a review of all routine QA testing throughout all departments to ensure it complies with the national guidance.	Medical Physics to continue this training programme. To report 6-monthly to RSG with progress and any issues as relevant	XXX	1.10.15	To report to RSG in October meeting
13	Medical Physics staffing levels	It is suggested that consideration be given to reinstating the post of Head of Imaging Physics to support the on-going optimisation programme and dose management service. A further review of physics staffing levels and organisation may also be required.	Cancer Services and Medical Physics to review the 6-month fixed term Imaging post and plan a sustainable longterm solution. Report to RSG in July 2015	XXX, XXX	1.7.15	Head of Imaging Physics, XXX, working from 17.3.15 2-days per week for 6 months. Part of his role is to confirm what cover is required longer term. Benchmarking to be carried out against other similar Trusts.

14	Clinical Scientist trainees	Consideration should be given to supporting Clinical Scientist trainees within Medical Physics. These are fully funded posts which can significantly help with recruitment problems in future and provide valuable scientific input to projects and service development.	Medical Physics to provide a brief position statement on current and future trainee plans, and their recommendations going forward.	XXX	1.5.15	Currently have 2 trainees at RDE and need to understand further benefits from this staff group.
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