



### Report Cover Sheet

Report to:	Board of Directors	
Date of the Meeting:	27 November 2019	
Agenda Item:	P1/204/19	
Title:	Annual Radiation Safety Report	
Report prepared by:	N/A	
Executive Lead:	Sheila Lloyd, Director of Quality and Nursing	
Status of the Report:	Public	Private
	X	

Paper previously considered by:	Quality Committee
Date & Decision:	13 November 2019

Purpose of the Paper/Key Points for Discussion:	To provide details of the annual review of Radiation Protection Adviser's report, which covers the period of 1 April 2018 to 31 March 2019.
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Action Required:	Discuss	
	Approve	
	For Information/Noting	X

Next steps required	N/A
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*The paper links to the following strategic priorities (please tick)*

Deliver <b>outstanding care locally</b>	X	Collaborative system <b>leadership</b> to <b>deliver better patient care</b>	X
<b>Retain and develop outstanding staff</b>	X	<b>Be enterprising</b>	
<b>Invest in research &amp; innovation</b> to deliver <b>excellent patient care</b> in the future		Maintain <b>excellent</b> quality, operational and financial <b>performance</b>	X

*The paper relates to the following Board Assurance Framework (BAF) Risks*

BAF Risk	Please Tick
1. If we do not optimise quality outcomes we will not be able to provide outstanding care	
2. If we do not prioritise the costs of the delivering the Transforming Cancer Care Programme we will not be able to maintain our long-term financial strength and make appropriate strategic investments.	
3. If we do not have the right infrastructure (estate, communication & engagement, information and technology) we will be unable to deliver care close to home.	
4. If we do not have the right innovative workforce solutions including education and development, we will not have the right skills, in the right place, at the right time to deliver the outstanding care.	
5. If we do not have an organisational culture that promotes positive staff engagement and excellent health and well-being we will not be able to retain and attract the right workforce.	
6. If we fail to implement and optimise digital technology we will not deliver optimal patient outcomes and operational effectiveness.	
7. If we fail to position the organisation as a credible research partner we will limit patient access to clinical trials and affect our reputation as a specialist centre delivering excellent patient care in the future.	
8. If we do not retain system-wide leadership, for example, SRO for Cancer Alliance and influence the National Cancer Policy, we will not have the right influence on the strategic direction to deliver outstanding cancer services for the population of Cheshire & Merseyside.	
9. If we do not support and invest in entrepreneurial ideas and adapt to changes in national priorities and market conditions we will stifle innovative cancer services for the future.	
10. If we do not continually support, lead and prioritise improved quality, operational and financial performance, we will not provide safe, efficient and effective cancer services.	

**Equality & Diversity Impact Assessment**

Equality & Diversity Impact Assessment		
Are there concerns that the policy/service could have an adverse impact on:	YES	NO
Age		X
Disability		X
Gender		X
Race		X
Sexual Orientation		X
Gender Reassignment		X
Religion/Belief		X
Pregnancy and Maternity		X

If YES to one or more of the above please add further detail and identify if a full impact assessment is required.

**Radiation Protection Adviser's Report**  
**Annual Review of Radiation Protection**  
**[covering the period from April 1<sup>st</sup> 2018 to March 31<sup>st</sup> 2019]**

This report should be read in conjunction with the summary of RPS reports. The topics discussed in this report are based on the list of RPA functions in the Medical and Dental Guidance Notes. This report covers the financial year 2018/19.

### 1. RPA arrangements

Chris Lee is a certified RPA until 1<sup>st</sup> May 2021. Philip Mayles is a certified RPA until 31<sup>st</sup> May 2022 and a certified RWA (Radioactive Waste Adviser) until 30<sup>th</sup> June 2021. John Archer is a certified RPA until 8<sup>th</sup> October 2022. He is considering creating an RWA portfolio. Russell Dawson and Daniel Kelly (Radiotherapy) and Colin Lee and Chris Fitzpatrick (Nuc Med and Imaging) are working towards their RPA portfolios.

QPulse is now in full use. RPA advice is now being copied to [ccf-tr.RPACCC@nhs.net](mailto:ccf-tr.RPACCC@nhs.net). [RPA-xxx] is being put in the subject line of all RPA advice related emails where xxx represents the initials of the person dealing with the issue. The use of this system however, needs to be improved and better understood as it enables us to record the advice in QPulse more easily without delaying the advice given.

### 2. Legislation

The Ionising Radiation Regulations (IRR2017) is now in force as is IR(ME)R 2017. The Trust has successfully received consent for its use of accelerators and the administration of radioactive substances and its possession of a HASS source under the new graded approach with the HSE. This is in addition to the EA permits (see below).

Under the new Ionising Radiation (Medical Exposures) legislation 2017 a successful application was made to ARSAC and the Employer licence (for the administration of radioactive substances) received. This is valid until 21<sup>st</sup> August 2023. Current ARSAC certificate holders (nuclear medicine and radiotherapy IRMER practitioners) are "grandfathered" into the new system, but renewal must be carried out according to the new licencing arrangements at or before their current certificate expiry date. Drs. Sun Myint, Romaniuk and Vinjamuri each hold a (new-style) practitioner licence. The new legislation also requires the national certification of Medical Physics Experts and a new scheme for certification has been published.

The regulations for Carers and Comforters have been transferred to IR(ME)R from IRR. A new CCC Carers and Comforters policy has been created to conform to the new legislation. This has been used. There is also an issue in relation to "Cooperation Between Employers" in regard to radioactive patients being discharged to nursing homes. They are now required to register with the HSE and to appoint an RPA. A process has been introduced in which we give advice to nursing homes.

The DGSA (EcoStar Environmental Ltd) reviewed our radioactive sources consignment processes, to monitor compliance with legal requirements.

### 3. Controlled and Supervised areas

All rooftops and loft spaces above the linac bunkers have been designated as controlled areas and referred to in the local rules. The "Areas of Restricted Access" document has been updated to include the change to the rooftop and loft space areas.

The pump room in cyclotron has been de-controlled and the engineers room inside the cyclotron treatment room has been made a controlled area.

In the IRR2017 ACoP, if the dose rate is less than 7.5 micro Sv/h when averaged over a working day (8h), but the instantaneous dose rate at any point exceeds 100 micro Sv/h, the area must be designated a controlled area

The HSE are insistent that **all** employees who work in the area of radiation equipment (i.e. including cleaning staff etc) should have some training in relation to ionising radiation. This has been carried out.

## 4. New equipment and activities

A new Trubeam linac (VT5) was installed in the Holly bunker. A prior risk assessment was approved by the RPA (Chris Lee) on the 16<sup>th</sup> Jan 2019. A preliminary radiation survey was carried out on 29<sup>th</sup> Jan and RPA approved on the same date. A full external radiation survey was completed and approved on 28<sup>th</sup> Feb once the machine was capable of emitting radiation. There were no recommendations or changes to area designations required as a result of the survey. In addition to an external survey, an internal radiation survey was also carried out to provide dose rate data for the estimation of dose in the unlikely event of a staff member being in the room during beam on. All necessary documentation was updated and approved in QPulse (Critical Examination, Radiation surveys, Risk Assessment, Local Rules and the Equipment Inventory).

V10-4 Elder was decommissioned in March 2019. The TBI activities were relocated to VT2

## 5. Risk assessment and contingency plans

All radiation risk assessments are now complete which follows a strict template and the method of approval and activation is via the document management system, QPulse. These are all up to date but will require re-issuing every 3 years.

Contingency plan rehearsal is a legal requirement under IRR2017. Staff electronic training records have been updated with an entry for rehearsal of contingency plans relating to controlled areas.

## 6. Equipment calibration

In house calibration of our radiation protection equipment has identified some anomalies. We have received a quote from PHE in Didcott and there is also a PHE branch in Leeds which is being investigated for this service.

## 7. Engineering controls

Following an incident\* in which a member of staff was in the treatment room when the beam was turned on all the last man out buttons in the linac bunkers have been re-positioned to be on the wall adjacent to the gantry stand. This is so all areas of the treatment rooms can be seen by the person pressing the internal button.

\*Brief summary of incident: On Friday 7<sup>th</sup> July in the morning (around 08:15) the VL2 linear accelerator encountered a "Critical 2" fault during the morning run-up. The run-up was performed by a radiographer. The on-call technician was responsible for fixing the fault, and went into the room to reset a component in the linac stand. Several minutes later the radiographer assumed the technician had completed his work and left. She went into the room, performed a visual inspection then set the last man out system and initiated a radiation exposure. While monitoring the CCTV system she noticed movement and pressed the Beam Off button. The technician was still in the room by the stand.

## 8. Local rules

All sets of Local Rules have been re-written using a standard template structure. They have all been approved and are active documents in QPulse. Staff are carrying out the mandatory training module of reading the Local Rules.

A number of RPSs have left their position and we require a replacement training programme. Attendance at the RPS forum had improved slightly but 2 consecutive RPS fora over this report period were non quorate. It should be noted that the identification and support (i.e. allocation of appropriate time for the role) of RPS's is the responsibility of departmental managers.

## 9. External Investigations

No investigations have occurred during the period of this report

## 10. Personnel monitoring

The new personal dosimetry system provided by Mirion replaced the Landauer provider last year. The new system uses Instadose digital badges that are read out using Bluetooth. Hot spot Bluetooth hubs were set up at strategic locations around the directorate but were found not to be that successful at syncing with individual badges. An alternative USB syncing system has since been installed on pcs in

appropriate locations. This seems to have increased the number of badges successfully syncing. It has also identified faulty badges needing to be replaced. Email addresses of RPSs and RPAs have been set up within the system to enable alerts of high badge doses to be received. Close scrutiny of this monitoring is required by RPSs to ensure all staff badges are functioning and syncing correctly.

The process document HWXDoses that details how to report staff doses which have triggered a set dose level has been approved in QPulse and was followed 6 times during the period of the report. The trigger level has been set deliberately low in order to proactively monitor staff before breaching the internal investigation level.

There has been 1 level B dose on a badge (1.34 mSv). This was a single event. Investigations have failed to show a definitive cause for this dose. There was no evidence of the staff member receiving this dose. The badge has been replaced and there has been no dose recorded to date.

- No member of staff breached the annual whole body effective dose limit of 20mSv
- No member of staff breached the annual whole body effective dose limit for a classified worker of 6mSv
- No member of staff in radiotherapy, imaging, nuc med and physics breached the annual whole body effective dose limit for an internal investigation of 2mSv
- No member of staff in PET breached the annual whole body effective dose limit for an internal investigation of 3mSv

## 11. Quality assurance programmes

Our quality assurance programme is in place.

## 12. Arrangements for outside workers

The new legislation requires that outside workers are treated in the same way as our own staff. The local rules have been updated to reflect this and staff training has been carried out in relation to the AXREM form. Machines returned to clinical use following work carried out by external engineers must be signed by an appropriate MPE or delegated physicist.

## 13. Staff training

RPS training is now required as some RPSs are no longer available (mat leave, a desire to step down etc). This is important in light of IRR2017.

IRR and IRMER face to face training sessions have been delivered and e-learning has been rolled out as mandatory training. New starters in radiotherapy have received this face to face training.

Porters, and ODAs and Domestic received basic IRR training.

Radiation Services Directorate IRR training compliance as of 31<sup>st</sup> March 2019:

182/211 (86%) compliant

## 14. Training for emergencies

Rehearsals of the contingency plans relating to failure to terminate should occur occasionally and must be recorded. A better record is now being kept using staff electronic training records. However, it is generally not advisable to actually press the emergency stop buttons – particularly on CT scanners and rehearsals should simply require staff to state what they would do. The contingency plan for source sticking on the brachytherapy unit is rehearsed at the time of source changes.

## 15. Satellite Centre

Plant-room access keys at CCCA were relocated to improve compliance with the captive-key system when working out-of-hours. Discussions and environmental measurements have been on going to de-restrict this area.

## 16. Environmental permits

No issues here

## 17. New building in Liverpool

Over the past year there has been much interaction with Laing O'Rourke in regard to the details of the radiation protection in the new building. We have been able to see the construction process of the

radiotherapy bunkers and there appears to be a good system in place. We will need to apply for a new Environment Agency permit in September 2019.

CTSA have been closely involved with the HDR security arrangements and are content that appropriate measures are in place for the necessary SR4 compliance.

Chris Lee, RPA  
27/6/2019



## Committee/Group 'Triple A' Report

Name of Committee/Group	Annual Radiation Safety Committee	Reporting to:	H&S / Risk and Q&S / IG
Date of the meeting:	02/07/2019	Parent Committee:	Quality Committee
Chair:	Sheila Lloyd	Quorate (Y/N)	Y
Attendees:	Sheila Lloyd, Gill Murphy, Linda Williams, Karen Postlethwaite, Steve Povey, Julie Massey, Kieran Woods, Chris Lee, Carl Rowbottom, Matt Ward	Key Items discussed at the meeting:	RPA annual report, IRMER incidents annual report, new legislation / guidance, Terms of Reference, current RPA issues.

Agenda Item:	AAA	Key Points	Actions Required	Action Lead	Expected Date for Completion
05/2019		Changes in RPS personnel therefore additional RPS training required	<ul style="list-style-type: none"> <li>CL / MW to clarify how many RPS's require training</li> <li>CL/MW to ensure further training delivered</li> </ul>	CL / MW	30/09/19
05/2019		Not all staff members are synching their radiation monitoring devices routinely which they are required to do.	<ul style="list-style-type: none"> <li>Badge synching to be discussed within RPS forum and RPA Group to ensure RPS's understand their responsibilities</li> <li>RPS appointment letters to be amended to ensure RPS's are clear on their role requirements</li> <li>Individual staff members not synching badges names</li> </ul>	CL/MW  RPA Group  CL / MW	31/07/19  31/08/19  31/07/19

Agenda Item:	AAA	Key Points	Actions Required	Action Lead	Expected Date for Completion
			<ul style="list-style-type: none"> <li>to be provided to Directorate Q&amp;S meeting</li> <li>Line managers to take action with individuals not synching badges</li> </ul>	CR/ LW/ KW	31/08/19
05/2019		Local Rules currently available both via QPulse and Intranet with potential for old versions to be available	<ul style="list-style-type: none"> <li>KP to remove Local Rules from Intranet</li> </ul>	KP	31/07/19
05/2019		Nursing homes may not be aware of their requirements to have RPA advice. CCC provides temporary advice when a patient has a radioactive substance administered at the Trust	<ul style="list-style-type: none"> <li>JM / GM to make commissioners aware that this may be a compliance issue</li> </ul>	GM/JM	31/07/19
08/2019		New SAUE guidance in place	<ul style="list-style-type: none"> <li>Gap analysis of guidance and current process and action plan to be developed</li> <li>Previous guidance removed</li> </ul>	CR MW	31/07/19 28/06/19
05/2019		Annual report will have evidence for assurance and triangulation with incidents. It will also have a forward plan section	<ul style="list-style-type: none"> <li>Discuss at monthly Q&amp;S to identify items for annual report</li> </ul>	RPA Group	On-going
09/2019		Ongoing continuity of RPA	<ul style="list-style-type: none"> <li>Plan in place to ensure additional RPA's are developing portfolio to submit to become accredited RPA's</li> </ul>	RPA Group	On-going
05/2019		Annual RPA report provides assurance of compliance with radiation safety	<ul style="list-style-type: none"> <li>New badge reading system allows more immediate identification of dose received and more timely investigation</li> </ul>		
05/2019		Last man out buttons in Linacs have been re-situated to reduce risk of radiation exposure	<ul style="list-style-type: none"> <li>New hospital build incorporates new button position</li> </ul>		

Agenda Item:	AAA	Key Points	Actions Required	Action Lead	Expected Date for Completion
05/2019		There is a process in place for information and advice to care homes for patients receiving radioactive substances	<ul style="list-style-type: none"> <li>Audit to be carried out of compliance with process</li> </ul>	Imaging auditor	31/12/19
05/2019		Contingency rehearsal process in place with records of training	<ul style="list-style-type: none"> <li>Forward compliance to SP for emergency planning</li> <li>Add compliance percentages into next annual report</li> </ul>	CL CL	30/09/19 31/05/20
09/2019		HSE inspection in May – no areas of requirement found. Verbal suggestions as to improvements made	<ul style="list-style-type: none"> <li>Action plan created to complete suggested actions</li> </ul>	CL	Completed by 21/06/19

Review of Risk Register (Details of Risks discussed)		New Risk identified at the meeting:  Y/N (If Y please detail including next steps)	
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KEY

	<b>ALERT</b> the Committee on areas of non-compliance or matters that need addressing urgently
	<b>ADVISE</b> the Committee on any on-going monitoring where an update has been provided to the sub-committee and any new developments that will need to be communicated or included in operational delivery
	<b>ASSURE</b> the Committee on any areas of assurance that the Committee/Group has received