

SHEFFIELD TEACHING HOSPITALS NHS FOUNDATION TRUST

EXECUTIVE SUMMARY
REPORT TO THE TRUST HEALTHCARE GOVERNANCE COMMITTEE

HELD ON 26 SEPTEMBER 2011

Subject:	Radiation Safety Steering Group Annual Report
Supporting Director:	Professor Mike Richmond, Medical Director
Author:	Sue Nutton, Governance Lead MIMP, Professional Secretary to RSSG
Status¹	

PURPOSE OF THE REPORT:

To summarise the work of the Radiation Safety Steering Group between April 2010 and March 2011.

KEY POINTS:

The remit of the steering group is to monitor the work of the specialist radiation sub-groups and to ensure that issues requiring action by the Trust are reported and acted upon appropriately.

IMPLICATIONS²

Achieve Clinical Excellence	
Be Patient Focused	Effective radiation safety management systems are required for legislative compliance and are vital to patient and staff safety
Engaged Staff	Ensure staff compliance with radiation safety procedures
CQC Outcome	Outcome 4 - management of radiation services to ensure safety

RECOMMENDATION(S):

The HCGC is asked to note this report.

APPROVAL PROCESS

Meeting	Presented	Approved	Date

¹ Status: A = Approval
A* = Approval & Requiring Board Approval
D = Debate
N = Note

² Against the three pillars (aims) of the STH Corporate Strategy 2008-2012

Radiation Safety Steering Group Annual Report April 2010 – March 2011

Introduction

This is the fourth annual report from the Radiation Safety Steering Group (RSSG), which summarises the main activities of the group between April 2010 and March 2011.

Terms of Reference

The current terms of reference are shown in Appendix 1. Meetings take place bi-annually, normally in January and July.

Membership

The current membership list is shown in Appendix 2.

Principal matters considered

1. Assessment of Radon levels in Trust properties

The Health and Safety Executive have been formally notified of the four properties occupied by the Trust which exceed the IRR99 action level. Measurements of Radon levels are now taking place in the occupied areas of these properties (initial measurements were taken in unoccupied basement areas). Estates specified remedial measures in consultation with the Radiation Protection Adviser and work commenced during May 2011– currently awaiting confirmation that this work has been completed. For the summary report of Radon surveys at STH please refer to Appendix 3

2. Specialist Sub-Groups

The RSSG receives reports from four specialist radiation sub-groups, monitoring and assisting with progress on issues raised. Issues reported by the groups are as follows–

- a) Ionising radiation (X-ray)
Ongoing problems with angiography room 8 at RHH. The equipment is listed on the replacement programme and a business case is to be submitted.
- b) Non-ionising radiation (ultrasound, MRI, etc)
Discussion is ongoing with all relevant areas within the Trust to formalise the arrangements for authorisation of clinical staff to use lasers. The proposal is to have a Lead Laser Clinician for each area who would work with the LPS for that area to draw up a protocol for use.
- c) Unsealed sources (nuclear medicine)
The new radiopharmacy has opened at NGH; this has replaced the one at WPH. The unit is operating under the new Environment Agency permits and is functioning well.
- d) Radiotherapy/Sealed sources
The replacement of two Linacs was approved and the first arrived in March, The second one is due to arrive in 2012
The new Gamma Knife at RHH has been installed. There were problems identified during pre-installation work with the discovery of asbestos and with the weight bearing of the floor slab, but otherwise there are no major concerns

3. Incident reporting - internal

Incidents reported to Datix April 2010- March 2011 are as follows –

Site	Directorate	Speciality	No.	Severity				
				Insignificant	Minor	Moderate	Major	Catastrophic
RHH	MIMP	Radiology	50	48	2	-	-	-
	MIMP	Medical Physics	17	12	4	1	-	-
JHW	MIMP	Radiology	4	4	-	-	-	-
WPH	Oncology	Radiotherapy	71	71	-	-	-	-
	MIMP	Medical Physics	6	5	-	-	-	-
NGH	MIMP	Radiology	110	105	5	-	-	-
	MIMP	Medical Physics	31	27	4	-	-	-

Total number of incidents reported = 289

Only one incident had a severity rating of moderate. The moderate severity rating was determined by the fact that the incident was RIDDOR reportable.

Main categories of incident reports are as follows –

Incident type	% of total incidents reported
Data entry error	21.5%
Form not adequately completed	7%
Unnecessary exposure (patient)	6%
Exposure to radiation (staff)	3.5%
Wrong examination/patient	11%
Radiotherapy incidents	24.5%
All other types	26.5%

4. Incident reporting – external

Agency	Specialty	Incident	Outcome
HSE - RIDDOR	Medical Physics	Member of radiation protection staff experiencing increasing discomfort in wrists hands and forearms when working at a computer/ handling heavy equipment /wearing a lead apron. Time off work > 3 days. Initially diagnosed as bilateral wrist tendonitis.	Diagnosis later revised to trapped nerve in neck/shoulders, leading to referred pain in arms. No longer a member of STH staff
HSE	Medical Physics	The Dose meter worn by a member of staff was returned with a recorded dose of 2330mSv. This exceeds the staff exposure limit detailed in the Ionising Radiation Regulations 1999.	Cause believed to be that dosimeter was inadvertently left in linear accelerator room (hence member of staff did not actually receive recorded dose). Incident reviewed with HSE inspectors and changes to be made to policy re. wearing of dosimeters,
CQC	Radiotherapy	Geographical miss for palliative beam therapy patient. TSRT9/level1/primary point 13k/secondary point 13hh. Parallel pair to brain. For the first fraction the left lateral field was centred on the anterior field border.	Clinician reported there is no significant effect on outcome for this patient as treatment is 'very palliative'. Patient not informed as clinician judged that the patient would be unlikely to understand and has expressed firm view not to be informed about full diagnosis and treatment.

5. Radiation Safety Inspection/Accreditation reports 2010-2011

Internal inspections (inspections undertaken by STH Radiation Protection of STH services):

STH Nuclear Medicine Inspections:- Trust Lead for all NM departments - Phil Hillel. Consultant Nuclear Medicine Physicist. Trust Lead for sentinel lymph node procedures in RHH theatres - Simon Richardson, Group Risk Adviser, and Operating Services.		
Department:	Date:	External lead:
WPH (Imaging and Therapy)	23rd May 2011	Dr P Harris, Radiation Protection Physicist
RHH (Imaging and Therapy) including the RHH central radioactive waste store and sentinel lymph node procedures conducted in theatres.	12th May 2011	Tracy Soanes, Radiation Protection Adviser (RPA)
NGH (Radiopharmacy) – including transport of prepared radiopharmaceuticals	26th May 2011	Mark Singleton, RPA
NGH (Imaging and Therapy)	31st May 2011	Mark Singleton, RPA

Inspection of STH RHH Clinical Chemistry:
Trust Lead: Martin Loxley – Laboratory Manager
Inspection undertaken on 11th October 2010 by Dr P Harris.

Inspection of the NGH Pet Centre operated by Alliance Medical :-
Centre Manager: Mark Haines
Inspection undertaken on 24th May 2011 by:
Giles Morrison – Medical Physics Expert and RPA (X-Ray)
Phil Hillel - MPE for Nuclear Medicine aspects, Consultant Nuclear Medicine Physicist.
Mark Singleton – RPA for Nuclear Medicine aspects.

Summary of outcomes:

The inspections generated a number of actions which will be received by the RSSG secretary when finalised.

(Currently with the Trust leads - Phil Hillel and Simon Richardson for their agreement.)

The following is a summary of the more significant and generic actions:

Actions relevant to all NM departments:

- 1) The trigger levels for dose investigations (whole body and extremity) need to be reviewed and re-specified.
- 2) Doses arising from likely accidents need to be estimated.
- 3) The outcomes of 1 and 2 need to be used to determine whether NM staff need to be designated as classified radiation workers.

Action relating to theatres: Theatre RPS staff need time to undertake the RPS role.

Actions concerning the Trust:

- 1) High Radon concentrations were found in one STH controlled property. Estates specified remedial measurers in consultation with the RPA and a deadline of the end of May set to achieve a reduction in the concentrations. Work commenced before this date but we await confirmation that all specified work has been completed.
- 2) Eye doses are to be assessed in preparation for a proposed (and likely) reduction in the eye dose limit (from 150 to 20 mSv/year for non-classified staff).
- 3) Arrangements for governance of research projects involving ionising radiation need to be reviewed.

External inspections

Inspecting body	Area/Department	Issues identified
Dangerous Goods Safety Advisor	Nuclear Medicine NGH	Nil of note
Counter Terrorism Security Advisor	Nuclear Medicine NGH	Nil of note
North Zone Cancer Peer Review Team	Radiotherapy Services	Insufficient radiography staffing levels to meet expected demand– Action plan 3 March 2011 Protocol required for use of students to support lone practitioners – Action plan 17 March 2011

Report approved by Radiation Safety Steering Group 27 July 2011

Committee / Group

Name of Committee / group etc	Radiation Safety Steering Group
Accountable to	Healthcare Governance Committee
Reporting through	Healthcare Governance and Medical Equipment Management Group
Primary Purpose	To ensure the Trust complies with the requirements of the Ionising Radiation Regulations 1999 (IRR 99), the Ionising Radiation (Medical Exposure) Regulations 2000 (IR[ME]R 2000), the Radioactive Substances Act 1993 (RSA93) and other relevant legislation.
Responsibilities	Production/review of Trust Radiation Safety Policy and other documentation required by legislation for example IR(ME)R Employers Procedures. Monitoring of the management of radiation safety within the Trust, notifying the Trust and ensuring action is taken for any areas of concern
Committees/Groups that report to it:	Ionising Radiation Sub-group Non-ionising Radiation Sub-group Sealed Sources Sub-group Unsealed Sources Sub-group
Membership Chairperson Deputy Others Standing invitation In attendance	Dr David Throssell, Deputy Medical Director (Chairperson) Chairperson of each Radiation Safety Sub-group <ul style="list-style-type: none"> • Ionising Radiation - Wendy Inman • Radiotherapy/sealed sources – Stephen Tozer-Loft • Nuclear Medicine/unsealed sources – Phil Hillel • Non-Ionising radiation – Prashant Verma Trust and University Radiation Protection Advisers – Giles Morrison, Tracy Soanes, Mark Singleton, Karen Fuller and Trevor Moseley Trust Patient Safety Manager – Andrew Scott Governance Lead, Medical Imaging & Medical Physics - Sue Nutton
Quorum	Radiation Protection Adviser attendance essential, other group members expected to send deputies if not available
Lead Officer	Sue Nutton (professional secretary to the group)
Serviced by	Louise Heath (PA to Sue Nutton)
Meeting frequency	6 monthly
Minutes circulated to	Group Members, Deputy Medical Directors Office
Terms of Reference	Steering Group and Sub-groups have separate terms of reference (attached)
Date ToR last approved	27 January 2010
Review date	January 2013 (or earlier if changes in legislation take place which impact upon the terms)
Process for reviewing effectiveness	Monitoring of incidents reported internally and those requiring formal external reporting to monitoring agencies e.g. HSE Review of progress with actions required as a result of incidents or introduction of new legislation
Reporting Structure	Annual report submitted to Healthcare Governance Committee

Radiation Safety Steering Group: Terms of Reference

The Radiation Safety Steering Group shall advise the Trust and be accountable to the Trust Healthcare Governance Committee on all matters concerning the radiation protection of all patients, workers (whether or not employed by the Trust) and members of the public on the Trust premises. Within these general terms the Committee is specifically required:

1. To ensure that the requirements of Ionising Radiation legislation, and all relevant Approved Codes of Practice and Guidance Notes and any other applicable statutory requirements are complied with at all times by way of written policies and procedures for Radiation Safety;
 2. To receive all minutes and formal reports from the Radiation Safety sub-Groups, Radiation Protection Adviser and any relevant external agency and to inform the Trust of the state of radiation protection arrangements within the Trust premises, and act upon any recommendations made;
 3. To advise the Trust on the measures to be taken when specified problems in the management of radiation protection are identified;
 4. To receive annual reports from the Radiation Protection Adviser on the state of radiation protection measures within the relevant departments; and focus on exceptions and action plans
 5. To monitor progress and implementation of actions required to ensure ongoing legislative compliance and radiation safety for all persons on Trust premises;
 6. To inform the Trust of any changes in working areas or practices involving radiation;
 7. To be informed of any proposed new work which would require an application for a new Registration and/or Authorisation Certificate or Permit or a modification to an existing Certificate or Permit;
 8. To inform the Trust of any situation where it considers it necessary to "Classify" a radiation worker. (If such a situation were to occur, the Radiation Safety Steering Group would be required to sanction the provision of special monitoring and medical supervision for the individual);
 9. To receive and review reports on annual personnel dosimetry records, environmental monitoring records and radiation incident reports as collated by the Radiation Protection Service, ensuring that action is taken where appropriate;
 10. To submit a report annually to the Trust Healthcare Governance Committee
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Appendix 2**RADIATION SAFETY STEERING GROUP
Membership List – July 2011**

Name	Job Title	Telephone
David Throssell	Deputy Medical Director (Chair)	15326
Wendy Inman	Deputy Directorate Manager, MIMP (Chair of Ionising Radiation Subgroup)	66534
Stephen Tozer-Loft	Head of Radiotherapy Physics WPH (Chair of Radiotherapy/Sealed Sources Subgroup)	65174
Phil Hillel	Clinical Scientist (Chair of Unsealed Sources Subgroup)	13468
Prashant Verma	Clinical Scientist (Chair of Non-Ionising Radiation Subgroup)	14240
Mark Singleton	Radiation Protection Adviser	12103
Tracy Soanes	Radiation Protection Adviser	13397
Karen Fuller	Radiation Protection Adviser	65181
Trevor Moseley	Radiation Protection Adviser (Sheffield University)	0114 222 6190
Andrew Scott	Patient Safety Manager, Patient and Healthcare Governance	66320
Giles Morrison	Head of Radiology Physics STH	65191
Sue Nutton	Governance Lead MIMP (RSSG Professional Secretary)	14727

Summary Report of Radon Surveys at STH

Legislative Requirements

Under the Management of Health and Safety at Work Regulations 1999, Sheffield Teaching Hospitals NHS Foundation Trust must undertake an assessment of health and safety risks concerning the presence of Radon in properties owned by the Trust. If any properties are found to have Radon concentrations above action levels specified by the HSE then the Ionising Radiations Regulations 1999 (IRR99) will also need to be complied with. The HSE document 'Radon in the Workplace' states that the risk assessment should include measurement of Radon levels for:

- all below ground workplaces; and
- all ground floor workplaces located in Radon affected areas.

To assist the Trust in achieving compliance with the regulations, Radiation Protection Services has conducted a survey of Radon levels across the Trust that has been carried out in 3 phases with a 4th phase awaiting completion of agreed remedial work. These phases and the subsequent results are described below.

Assessment of Radon Levels in STH Properties

The choice of locations for assessing Radon levels in each building owned by the Trust has been made on the basis of a 'worst case location'. This is judged to be a room (or rooms in the case of large buildings) that is little used (minimal air movement), has poor ventilation and is below ground if possible or on the ground floor if not. Such rooms have been used to 'screen' a building for the potential for occupied work spaces to have high Radon levels and, therefore, require more detailed assessment whilst also allowing other buildings to be determined as having work places with low Radon levels without the need for further measurement.

Phase 1 – Screening of the main hospital sites (01.04.08 – 30.07.08)

Locations: Dosemeters were placed at 2 locations in RHH, at 2 locations in WPH and at 4 locations around the NGH site.

Results: All measurements were below HSE action levels

Further Action: 10 year review

Phase 2 – Screening of other STH properties on Central Campus (26.01.10 – 07.05.10)

Locations: Dosemeters were placed in 23 buildings identified by Estates.

Results: 4 properties were identified as likely to have occupied rooms with Radon levels above HSE action levels:

- 12 Palmerston Road (Parkinsons and Stroke)
- 23 Northumberland Road (Cancer Support Centre)
- 21 Claremont Crescent (IT)
- 8 Beech Hill Road

Further Action: In accordance with IRR99, the Trust notified the HSE of the finding of Radon concentration above relevant action levels. Dosemeter measurements in all occupied rooms on ground floor levels of above buildings (No basement work areas were present).

10 year review for others

Phase 3 – Follow-up to phase 2 (15.12.10 – 24.3.11)

Locations:

- 4 rooms in 12 Palmerston Road
- 4 rooms in 23 Northumberland Road
- 6 rooms in 21 Claremont Crescent
- 17 rooms in 8 Beech Hill Road

Results:

One room in 12 Palmerston Road had Radon levels above the HSE workplace action level (400Bq/m^3), one room was just below the action level and one dosimeter was lost.

The results for the other three properties were all below the action level.

Further Action:

The three properties below the action level are to be reviewed in five years.

An action plan for remedial work at 12 Palmerston Road was discussed during a meeting with estates on the 11th May 2011 and formalised in writing on 16th May with a target to achieve a reduction in concentrations of Radon to below the action level. The following actions were agreed:

1. Any defects in the basement ceiling that could lead to leakage of Radon gas into the office space above should be sealed.
2. Existing passive venting from the basement should be cleaned and checked to ensure proper air flow.
3. Venting from basement beneath room G4 should be assessed for the possibility of inserting a fan to establish forced venting.
4. On completion of action, Radon dosimeters should be placed in each office to measure the effectiveness of the action.
5. Estates must ensure engineering controls remain functional and are maintained.

At the time of writing, parts 1 and 2 have been completed but confirmation of part 3 has not been received. Radon dosimeters have been purchased and will be placed in 12 Palmerston Road upon completion of the remedial work

Phase 4 – Measurement of Radon levels at 12 Palmerston Road following completion of remedial work

Locations: 4 rooms in 12 Palmerston Road

Results: Results expected in November 2011

Further Action: Dependent on outcome of results

Paul Harris
Medical Physicist
20-07-2011