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## Ionising radiation legislation How to comply

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## The role of the RPS

The RPS appointment letter should clearly describe your role

Prime duty  
Securing compliance with the Regulations for work in controlled areas

**Securing compliance will require oversight of**

- Workload, equipment, staff groups and practice
- Risk assessments and local rules
- Radiation incidents
- Staff dosimetry
- Staff training
- Personal Protective Equipment (PPE)
- Outside workers

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## Attributes of an RPS

An RPS should

- Be closely involved in the work
- Have received specific training
- Have working knowledge of the Regulations
- Have a detailed understanding of the Local Rules
- Understand the measures to restrict dose
- Understand contingency plans
- Command sufficient authority

The HSE expect a ratio of 1 RPS per 20-30 members of staff

  
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## Using your RPA

<p><b>Must consult</b></p> <ul style="list-style-type: none"> <li>Advice on compliance with Regs</li> <li>Dose limitation</li> <li>Requirements for CA &amp; SA</li> <li>New installations</li> <li>Checking monitoring equipment</li> <li>Safety features &amp; systems of work</li> </ul>	<p><b>Should consult</b></p> <ul style="list-style-type: none"> <li>Risk assessment</li> <li>Radiation incidents</li> <li>Classification of workers</li> <li>Dose assessment &amp; recording</li> <li>Contingency plans</li> <li>Quality Control</li> <li>PPE</li> <li>Training</li> </ul>
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**Contacting CMPE**

- RPA contacts (phone or email)
- Department visits

Helpful resources: Website, Newsletters and Advice sheets

  
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## Risk Assessment

**Risk assessment**


- Type of risk
- Workload
- Personnel
- Classification of staff
- Area designation
- Structural protection
- Engineering controls and warning devices
- PPE
- Systems of work
- Projected doses
- Training
- Audit
- Maintenance and testing of engineering controls
- Investigation level
- Extra precautions (pregnancy, inexperienced workers, others)
- Contingencies
- Review arrangements

**CMPE templates**

- must be customised
- RPA to approve final version

**RPS should review**

- Regularly
- Following significant changes in workload, practice or equipment

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## Local Rules

**Should identify the key working instructions to ensure doses are kept ALARP.**

<p><b>Must contain</b></p> <ul style="list-style-type: none"> <li>• Name of RPS</li> <li>• Description of designated areas (including warning signs)</li> <li>• Work not covered in risk assessment</li> <li>• Arrangements for entering and working in the controlled area</li> <li>• Key work instructions</li> <li>• Contingency plans</li> <li>• Incident reporting</li> <li>• Investigation levels</li> </ul>	<p><b>Should be:</b></p> <ul style="list-style-type: none"> <li>• Brief, clear and local</li> <li>• Reflect actual work practice</li> <li>• Reviewed regularly</li> </ul>
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## Radiation incidents

- If suspected **overexposure** to staff or member(s) of the public
- Inform department manager
- Perform and document an immediate investigation
  - Collect incident details e.g. name, pregnancy status, PPE, exposure factors, description of events, ...etc.
  - Request dose report from RPA
  - Action RPA recommendations using Trust processes
- Record incident on organisation incident database (if necessary)
- Feedback findings to relevant persons and colleagues

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## Staff dosimetry

Things to consider:

- Are staff doses reviewed regularly?
  - Is anyone approaching the investigation or classification level?
- Does dosimetry match that identified in the risk assessment
- Are staff wearing dosimeters correctly?
  - Legal requirement to wear as directed
- Are staff working at other hospitals?
- Management of pregnant workers

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## Training

- All employees **engaged in work** with ionising radiation should know
  - risks to health
  - precautions to be taken
  - importance of complying with the Regulations
- Other employees **directly concerned** with work with ionising radiation require
  - “adequate” information to ensure their health and safety

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## Training

All employees **engaged in work** with IR should receive

- General radiation protection training
- Training specific to the characteristics of the controlled area and the practices within it

The provision of training and information should be repeated at appropriate intervals and documented

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## Training (Additional requirements)



- Staff who may become pregnant or start breast feeding must know
  - The possible risks to the foetus or nursing infant
  - The importance of notifying their employer of the pregnancy as soon as possible
- Additional training requirements for
  - Staff making entries in radiation passbooks
  - Staff monitoring radiation/contamination levels
  - RPS



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## Training



**Example: Theatre staff working where X-rays are used (do not operate X-ray equipment)**

	When	How	What to record
Basic awareness	At induction	Face-to-face presentation	Entry on induction checklist
	Refresher at 3 year intervals	e-learning	Names and dates of staff attending presentations, records or reports from e-learning systems (NHS ESR)
Local rules	At induction	Physical copy at induction	Obtain printed name, signature and date on sheet.
	Following any new version of the rules Refresher at 3 year intervals	E-mail request following new issue of rules	Maintain log of staff names with dates of signature
Specific training: wearing and storing of PPE	At induction Refresher at 5 year intervals	Face-to-face or video	Entry on induction checklist Names and dates of staff attending or watching presentations



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## PPE



- Are staff wearing PPE in accordance with risk assessment
- Are PPE fit for purpose (lead equivalence, coverage...etc)
- Are QC assessments on PPE documented



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## Outside workers


Definition: A worker who carries out services in the controlled or supervised area of another employer.

Cooperation between employers

- Dose information
- Training

Things to consider

- Who are outside workers...examples
- Who needs training

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## Some common HSE findings

- Risk Assessments & Local rules
- Staff training
- Staff dosimetry
- Cooperation between employers

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## IRMER

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## When to Notify the CQC

  
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CQC guidance for significant accidental unintended exposure

- <https://www.cqc.org.uk/guidance-providers/ionising-radiation/notifying-irmer-incidents>
- Wrong patient exposed – de minimis reporting threshold of 3 mSv (adult) and 1 mSv (child)
- Notification always required for
  - Radiotherapeutic exposures significantly lower than intended
  - Radiotherapy verification – 5 repeat exposures over course of treatment
  - Total geographical miss
  - Foetal dose resulting from procedural failure  $\geq 1$  mGy
  - Interventional or cardiology procedure dose  $\geq 10 \times$  local DRL
  - Breast feeding infant (NM only) – procedural failure and infant effective dose  $\geq 1$  mSv
  - Exposure of multiple individuals
- For other exposures multiplicative factors apply

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## When to Notify the CQC

  
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		Situation	SAUE criteria to be reportable
Accidental	{	No dose intended (e.g. wrong patient, intended MRI)	>3 mSv (adult) >1 mSv (child)
		Intended dose < 0.3 mSv	>3 mSv (adult) >1 mSv (child)
Unintended	{	Intended dose between 0.3 mSv and 2.5 mSv	10x intended
		Intended dose between 2.5 mSv and 10 mSv	25 mSv or above
		Intended dose of more than 10 mSv	2.5 x intended

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## When to Notify the CQC

  
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- Clinically significant events**
  - Local criterion is
    - Effective dose  $\geq 20$  mSv
    - Equivalent dose exceeding the threshold for a tissue reaction
    - 2 parallel pieces of guidance by the Clinical Imaging Board and Radiotherapy Board on imaging and therapy – watch this space!
- <https://www.rcr.ac.uk/sites/default/files/cib-learning-from-adverse-events-report.pdf>

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**When not to notify the regulators**  The Christie  
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- Repeat exposures with no procedural, human, systematic or equipment error
  - e.g. technical repeat x-rays
- Foetal exposures with no procedural failure
  - e.g. technical repeat x-rays



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**Equipment QC**  The Christie  
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*Ensure*

- Adequate testing before first use
- Testing at regular intervals
- Testing after maintenance

QC results must be recorded and corrective action taken where necessary.

Documentation of all testing should be kept.



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**Questions**  The Christie  
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