

Guide for STP Trainees : Radiotherapy

DOPS



	DOPS	Examples of evidence which may relate to this DOPS	Competencies which may share evidence with this DOPS
RT DOPS	Perform a radiation survey of a treatment room	Observed doing the survey safely and results assessed by registered physicist	RP-C-2
	Produce and evaluate a simple treatment plan	Observed and discussion with a registered physicist	RP-C-12, 13, 14, 15
	Measure the radiation output of a treatment machine	Carry out necessary measurements under observation, and calculate final output manually (i.e. not using a formula in a spreadsheet)	RP-C-5

CbD

	Examples of possible subjects for CbD. Note that these are not prescribed within the Learning Guide	Examples of possible evidence	Competencies which may share evidence with this CbD
RT CbD	Manual Calcs	Competency evidence e.g. spreadsheet of manual calc examples	RP-C-16
	Picking the best Conformal Plan	Competency evidence e.g. treatment plans for different sites	RP-C-13
	Beam profiles at different depths/qualities	Competency evidence e.g. analysis of profiles at different depths	RP-C-7
	Risk assessment	Competency evidence e.g. risk assessment	RP-C-3
	Consistency Checks	Competency evidence e.g. consistency checks	RP-C-1
	Linac QC	Competency evidence e.g. Linac QC	RP-C-9
	Patient pathways: setup / planning / verification steps for different treatment sites	Competency evidence	RP-C-10, 11, 12, 13, 14, 15

Competencies

Learning Outcome Subject	Code	Competency	Examples of evidence	Other rotational competencies which may be demonstrated by this evidence
Radiation Protection Applied to Radiotherapy	RP-C-1	Assist with the safe handling and operation of small sealed sources in the department, including the performance of strontium-90 consistency checks on dosimetry equipment	<ul style="list-style-type: none"> Report showing participation in strontium 90 consistency checks, including understanding of the need, safety concerns and equipment involved in taking these readings 	RP-C-4, 5, 6, 7, 8, 9 RADS-C-6 (Partial)
	RP-C-2	Perform a radiation protection room survey and discuss the results with your training officer	Survey and risk assessment (including risk assessment of dose to various staff groups, safety procedures etc.) Example ideas: <ul style="list-style-type: none"> New treatment room during commissioning (where possible); Routine (e.g. annual) radiation room survey ; Survey for use of FFF in pre-existing bunkers; Survey of a brachytherapy bunker 	RP-C-3
	RP-C-3	Perform a radiation risk assessment and discuss the results with your training officer		RP-C-2 RT3-4 (RT Specialism)
	RP-C-4	Operate treatment equipment safely and evaluate the operation of the interlocks	<ul style="list-style-type: none"> Report showing participation in output measurements including understanding of the need, safety concerns and equipment involved in taking these readings and the tolerance appropriateness Report showing participation in consistency checks including understanding of the need, safety 	RP-C-1, 5, 6, 7, 8, 9 RADS-C-6 (Partial)

Dosimetry and Treatment Equipment	RP-C-5	Select an appropriate dosimeter and measure standard output, including assessment of the constancy and leakage of the measurement system and its significance	<ul style="list-style-type: none"> concerns and equipment involved in taking these readings and the tolerance appropriateness Report showing participation in QC including understanding of the need, safety concerns and equipment involved in taking these readings and the tolerance appropriateness Report describing the tests (according to COP) carried out and a justified description of the equipment used; Report on strontium 90 checks; Report describing the tests carried out and a justified description of the equipment used; Report describing the relevant interlocks tested, describing their purpose (legislation), labelled floor plan 	RP-C-1, 4, 6, 7, 8, 9 RADS-C-6 (Partial)
	RP-C-6	Relate standard output measurement to the relevant code of practice (MV/kV electron)	<ul style="list-style-type: none"> Report describing the tests carried out and a justified description of the equipment used; Report describing the relevant interlocks tested, describing their purpose (legislation), labelled floor plan 	RP-C-1, 4, 5, 7, 8, 9 RADS-C-6 (Partial)
	RP-C-7	Measure a beam profile at the depth of the maximum dose and reference depth, and calculate the field size, penumbra, flatness and symmetry. Explain the differences and relate to the beam specification	<ul style="list-style-type: none"> Report describing measurements (with water tank/ diode array/ ion chamber array), results and explanations, spreadsheet showing analysis of data; Measurements at two depths may be better in a water tank 	RP-C-1, 4, 5, 6, 8, 9 RADS-C-6 (Partial) Possible delay until radiotherapy specialism: RT1-1, RT1-2
	RP-C-8	Critically evaluate the function of the ionisation chamber in the linear accelerator and its importance for correct treatment delivery		RP-C-1, 4, 5, 6, 7, 9 RADS-C-6 (Partial)
	RP-C-9	Assist with routine quality control on external beam radiotherapy equipment, including items such as light to radiation, quality index) and evaluate the appropriateness of action/tolerance levels	See above: RP-C-4	RP-C-1, 4, 5, 6, 7, 8 RADS-C-6 (Partial)
Treatment Planning	RP-C-10	Assess available immobilisation techniques and identify treatment sites that would most benefit	<ul style="list-style-type: none"> Evidence of immobilisation in RT including of understanding of tolerances and choice of aids Evidence of RT patient pathway for typical RT patient 	
	RP-C-11	Import images for treatment-planning purposes. Evaluate the interactions between data systems and be able to critically assess the essential information, e.g. image quality assurance, slice requirements, etc.		RP-C-12, 13, 14, 15, 16, 17
	RP-C-12	Generate outlines for anatomical structures and geometrical volumes to aid planning based on CT data sets	<ul style="list-style-type: none"> Presentation on RT patient pathway for typical RT patient Report incorporating evidence of understanding: <ul style="list-style-type: none"> Description of importing method, evidence (statement from appropriate person) of importing; Evaluation of the checks done on importing (including network errors); Screen shots of contours for 3 sites and a justification as to the margins; Screenshots of MV treatment plans created for three sites explaining choices made; Evidence that the plans meet departmental constraints; Evidence of discussion with supervisor about the nature of these constraints; Comparison of multiple plans for each site and discussion of pros and cons of technique (e.g.. 3f vs. 4f prostate, wedge vs. fFif breast) 	RP-C-11, 13, 14, 15, 16, 17
	RP-C-13	Design treatment plans for two to four field treatments for a range of sites in accordance with the International Commission on Radiation Units and Measurements Guidance and local clinical protocols (explain choice of modality/energy, beam arrangement, and compensation)		RP-C-11, 12, 14, 15, 16, 17
	RP-C-14	Appraise treatment plans, making use of dose volume information and dose constraints for organs at risk and the target volume		RP-C-11, 12, 13, 15, 16, 17
	RP-C-15	Produce a range of routine MV photon treatment plans		RP-C-11, 12, 13, 14, 16, 17
	RP-C-16	Perform manual calculations for basic treatment techniques, taking into account field size, wedge factor, change of FSD, off-axis, etc.	<ul style="list-style-type: none"> Could be incorporated into RP-C-11-15 Manual calculation examples used in the department including explanations of terms and tolerances; Spreadsheet showing and explaining manual calcs for their plans. Evaluation of their results vs. TPS; Use of example calcs (not trainee's plans) may be required to demonstrate differences with wedge, FSD etc. 	RP-C-11, 12, 13, 14, 15, 17
	RP-C-17	Perform and discuss routine quality assurance checks on the treatment planning/Vsim system and the radiotherapy network	<ul style="list-style-type: none"> Could be incorporated into RP-C-11-15 Short report on TPS QA including understanding of constraints; Screenshots of QA spreadsheets 	RP-C-11, 12, 13, 14, 15, 16

