

Clinical Radiology Curriculum 2021



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New CR and IR curricula

Implementation by August 2021



“We would like to commend the college for the extensive work undertaken during this curriculum review, including a thorough stakeholder consultation and a clearly articulated rationale for the changes proposed.”

- **Both curricula available on RCR [curriculum web page](#)**

Drivers for change



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SHAPE OF TRAINING

Excellence by design: standards for postgraduate curricula

Working with doctors Working for patients

General
Medical
Council



The 2021 CR Curriculum



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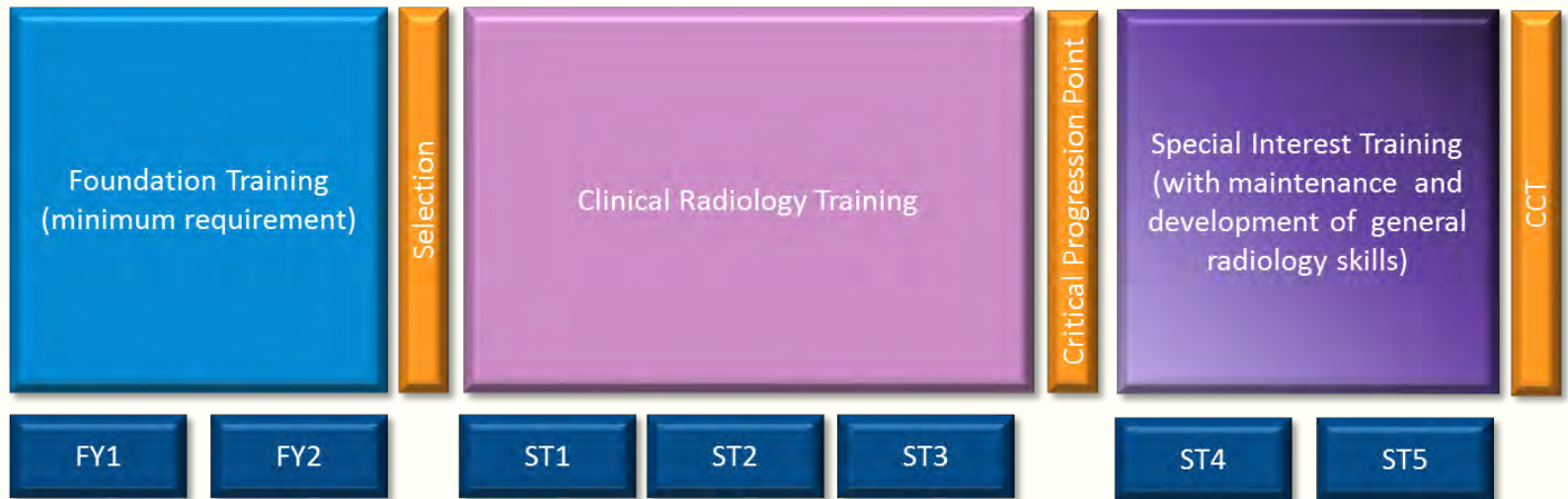
- **12 capabilities in practice (CiPs)**
 - 6 generic
 - 6 specialty specific
- **Assessment based on concept of entrustable professional activities (EPAs)**
 - No changes to exams or WPBA
- **Progression grids provide clear expectations for each stage of training**
- **Concise systems-based tables of presentations and conditions**

CR Training Pathway



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Capabilities in Practice



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- **High level exit outcomes**
- **Describe what a trainee should be able to do on CCT**

Generic CiPs



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Demonstrate the professional values and behaviours expected of all doctors as outlined in Good medical practice.



Successfully function within the health service and healthcare systems in the UK.



Engage in reflection, clinical governance and quality improvement processes to ensure good practice.



Engage in evidence-based practice and safeguard data, including imaging data.



Act as a clinical teacher and supervisor.



Work well within a variety of different teams, communicating effectively with colleagues and demonstrating the skills required to lead a team.

Specialty Specific CiPs



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Appropriately select and tailor imaging to patient context and the clinical question(s).



Provide timely, accurate and clinically useful reports on imaging studies.



Appropriately manage imaging examination lists/procedures according to clinical need and professional expertise.



Evaluate image quality and utilise the knowledge of imaging sciences to optimise image quality.



Safely manage the imaging and image-guided intervention needed to support emergency care.



Effectively contribute a clinical/imaging opinion to a multidisciplinary team (MDT) meeting.

CiPs Tables



CIP 9

Appropriately manage imaging examination lists/procedures according to clinical need and professional expertise.

Consultant radiologists will be able to obtain consent and directly examine a patient in real time with imaging such as ultrasound and perform image-guided procedures.

Descriptors

- Explain imaging examinations, risks and findings facilitating informed patient choice
- Obtain informed consent for relevant imaging examinations and/or procedures from all patients including vulnerable groups, showing sensitivity to issues of equality and diversity
- Understand and safely prescribe or stop medication relevant to imaging and procedures as appropriate
- Manage adverse reactions (including anaphylaxis) to administered contrast and drugs
- Maintain an up to date knowledge of cardiopulmonary resuscitation (CPR) techniques
- Implement current health and safety and infection control techniques in the context of imaging examinations/procedures
- Demonstrate insight into level of personal expertise and appropriately refer/seek second opinion

Suggested evidence

- Rad-DOPS
- Appropriate evidence of training in management of anaphylaxis and resuscitation

Mapping to GPCs

- Domain 1: Professional values and behaviours
- Domain 2: Professional Skills
 - Practical skills
 - Communication and interpersonal skills
 - Dealing with complexity and uncertainty
 - Clinical skills: History taking, diagnosis and medical management; consent; humane interventions; prescribing medicines safely; using medical devices safely; infection control and communicable disease
- Domain 3: Professional knowledge
 - Professional requirements
 - National legislative requirements
 - The health service and healthcare systems in the four countries
- Domain 6: Capabilities in patient safety and quality improvement
 - Patient safety
- Domain 7: Capabilities in safeguarding vulnerable groups



- **“Any attempt to comprehensively list all clinical presentations, pathological conditions, imaging modalities and techniques would be extensive but inevitably incomplete, and would rapidly become out of date. Our approach is to provide general guidance and not exhaustive detail”**
- **“These table are not comprehensive; they must be viewed as a guide and interpreted with common sense.”**

Presentations and conditions



Area	Develop an appropriate imaging strategy for the following presentations	Recognise imaging features of the following conditions	Develop skills in the following imaging modalities and techniques
Cardiac Radiology	<ul style="list-style-type: none"> Acute chest pain Stable chest pain Cardiovascular chest trauma Exertion shortness of breath Stroke and paradoxical embolism Syncope Sudden collapse Palpitation with confirmed arrhythmia 	<ul style="list-style-type: none"> Cardiac arrhythmias Cardiac failure Coronary heart artery disease and its complications Valvular heart disease Common congenital heart disease Heart muscle disease/ cardiomyopathy Heart failure Diseases of the arteries including aortic dissection Acute aortic syndrome Diseases of the pulmonary circulation Heart muscle disease/ cardiomyopathy Pericardial diseases Pulmonary embolism Stroke and paradoxical embolism Cardiac tumours and masses 	<p><u>Proficient:</u> Plain radiography of cardiac disease, CT including ECG gated cardiac and thoracic aorta CT</p> <p><u>Experience:</u> cardiac MRI, nuclear cardiology</p> <p><u>Specialist:</u> echocardiography</p>

Presentations and conditions



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Table 1: Common and/or important presentations and conditions for clinical radiology.

Key to Skills in Imaging Modalities and Techniques

Proficient: These are examples of imaging procedures in which all radiology trainees will develop skills to Level 4 (fully independent practice) by CCT.

Experience: These are examples of imaging procedures in which as a minimum all radiologists will have knowledge of the role, indication, contra-indications and limitations. They will be able advise on when and how to refer for these procedures even if they do not undertake the examination personally. Trainees specialising in these areas would be expected to become proficient in these competences.

Specialist: These are examples of examinations and procedures which are necessary to support specialist services. They are additional skills which will be developed by a limited number of radiology trainees, in response to service need.

Practical procedures



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Perform the following imaging procedures

Image guided biopsy

Image guided drainage

Image guided vascular access and basic catheter/wire manipulation

Contrast studies of lines and tubes

Contrast studies of the adult and paediatric GI and GU tract

Assessing progress: specialty-specific CiPs



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Level	Descriptors	
1	Entrusted to observe only	No provision of direct clinical care
2	Entrusted to act with direct supervision	<p>The supervising doctor is physically within the hospital or other site of patient care and is immediately available to provide direct supervision.</p> <p>For IR procedures the supervising doctor is present in the operating theatre.</p>
3	Entrusted to act with indirect/minimal supervision	<p>The supervising doctor is not physically present within the hospital or other site of patient care, but is immediately available by means of telephone and/or electronic media, to provide advice and can attend physically if required to provide direct supervision.</p> <p>For IR procedures the supervising doctor is on hand in the department.</p>
4	Entrusted to act unsupervised	The trainee is working independently and at a level equivalent to a consultant

Assessing progress: generic CiPs



Level	Descriptors
1	Novice requires support and guidance throughout
2	Developing working towards competency, with some support and guidance needed
3	Capable possesses adequate skills to act independently and seeks support and guidance if required
4	Expert highly skilled and able to lead and support others

Progression grids



Table 6: Progression grid for generic CiPs, showing minimum expected progress at the end of each stage of training

Generic CiP	ST1	ST2	ST3		ST4	ST5	CCT
1. Demonstrate the professional values and behaviours expected of all doctors as outlined in Good medical practice	4	4	4	Critical Progression point	4	4	Critical Progression point
2. Successfully function within the health service and healthcare systems in the UK	2	2	2		3	4	
3. Engage in reflection, clinical governance and quality improvement processes to ensure good practice	2	3	3		3	4	
4. Engage in evidence-based practice and safeguard data, including imaging data	3	3	3		4	4	
5. Act as a clinical teacher and supervisor	2	2	3		3	4	
6. Work well within a variety of different teams, communicating effectively with colleagues and demonstrating the skills required to lead a team	2	3	3		3	4	

Progression grids



Table 7: Progression grid for specialty-specific CiPs, showing minimum expected progress at the end of each stage of training

Specialty Specific CiP	ST1	ST2	ST3		ST4	ST5	CCT
7. Appropriately select and tailor imaging to patient context and the clinical question(s)	2	2	3	Critical Progression point	4	4	Critical Progression point
8. Provide timely, accurate and clinically useful reports on imaging studies	2	2	3		3	4	
9. Appropriately manage imaging examination lists/procedures according to clinical need and professional expertise	2	2	3		3	4	
10. Evaluate image quality and utilise the knowledge of imaging sciences to optimise image quality	2	2	3		4	4	
11. Safely manage the imaging and image-guided intervention needed to support emergency care	2	2	2		3	4	
12. Effectively contribute an imaging opinion to a multidisciplinary team (MDT) meeting	1	1	2		3	4	

Milestones and procedures



Table 8: Progression grid for critical progression points in clinical radiology training, showing minimum expected progress at the end of each stage of training

Milestones and Procedures	ST1	ST2	ST3		ST4	ST5	CCT
Image guided biopsy	1	2	2	Critical Progression point	3	4	Critical Progression point
Image guided drainage	1	2	2		3	4	
Image guided vascular access and basic catheter / wire manipulation	1	2	2		3	3	
Contrast studies of lines and tubes	2	3	3		4	4	
Contrast studies of the GI and GU tract	1	2	3		3	4	
Protocol and prioritise imaging referrals	1	2	3		4	4	
Independently report plain films to support the acute unselected intake	2	3	3		4	4	
Manage an ultrasound list to support the acute unselected intake	2	3	3		4	4	
Report CT examinations to support the acute unselected intake	1	2	3		3	4	
Report MRI examinations to support the acute unselected intake	1	2	3		3	4	
FRCR 1 exam	X						
FRCR 2A exam			X				
FRCR 2B exam				X			

- Trainees (and trainers):
 - are expected to keep up to date with, embrace and evaluate emerging technologies
 - should be prepared to adapt these tools into clinical practice once validated
 - should be aware of the concepts and terminology relating to AI, machine learning, deep learning and radiomics

- This applies to any other technologies that may emerge in the future, not just AI

Emerging techniques



- Trainees should be aware of emerging imaging techniques and to undertake training in these techniques where these become available according to their specialist interest.
- Post mortem imaging and hybrid imaging specifically mentioned – but also applies to any techniques that emerge in the future
- Trainees should understand that general radiology skills alone are not sufficient and that specific training in the emerging technique will be required

IR training pathway



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- **IR trainees must achieve all of the CiPs contained in the CR curriculum, plus two IR-specific CiPs**



Clinically manage all patients undergoing interventional radiology procedures under their care.



Provide essential image guided therapy in emergency care as well as elective care in patients with complex pathology and multiple co-morbidities.

IR presentations and conditions



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- **Separate sections for general IR and INR**
- **More comprehensive lists of procedures**
- **Progression grids, milestones and procedures as in the CR curriculum**



Radiology Direct Observation of Procedural Skills (DOPS) Form

AAAAAA's Registration Number (A.g GMC, NMC) <input type="text"/>	AAAAAA's name <input type="text"/>	Date of AAAAAA's (DD/MM/YY) <input type="text"/> / <input type="text"/> / <input type="text"/>
Trainee's GMC number <input type="text"/>	Trainee's name <input type="text"/>	Year of specialty training <input type="text"/>

Clinical area:
 Magnetic Resonance Computed Tomography Ultrasound Fluoroscopy Breast Imaging
 Paediatric Imaging Interventional Radiology Radionuclide Imaging Other (specify below)

Other:	<input type="text"/>
Procedure name:	<input type="text"/>

Number of times this procedure previously performed by trainee:

0 1-4 5-10 >10

Difficulty of procedure:

Low Medium High

AAAAAA's comments

With confidence?	<input type="text"/>
With close direct supervision?	<input type="text"/>
With no direct supervision and appropriate support?	<input type="text"/>

Possible areas for feedback as appropriate to procedure:

*	Demonstrate understanding of indication, anatomy and technique, acquire risks/benefits/consent/aggregate use of analgesia etc., usage of equipment, infection prevention/control, technical ability, safety, minimise use of ionising radiation, communication with patients/staff, quality of diagnostic images, judgement/impact/quality of report/procedure overall
**	This might include targeted clinical experience, courses, e-learning activity, simulation

OVERALL ENTRUSTMENT RATING			
		Rating	Description
<input type="checkbox"/>	Level 1	Entrusted to observe only – no provision of clinical care	Demonstrates basic/radiological procedural skills resulting in incomplete examination findings. Shows limited clinical judgement following encounter.
<input type="checkbox"/>	Level 2	Entrusted to act with direct supervision	Demonstrates some radiological/procedural skills resulting in complete examination findings. Shows basic clinical judgement following encounter.
<input type="checkbox"/>	Level 3	Entrusted to act with indirect supervision	Demonstrates good radiological/procedural skills resulting in sound examination findings. Shows good clinical judgement following encounter.
<input type="checkbox"/>	Level 4	Entrusted to act unsupervised (with the clinical oversight appropriate to trainee)	Demonstrates excellent and timely radiological/procedural skills resulting in a comprehensive examination. Shows good clinical judgement following encounter.

Trainee's comments – comment on your performance and any actions required (handwritten)

Trainee's Signature

AAAAAA's Signature

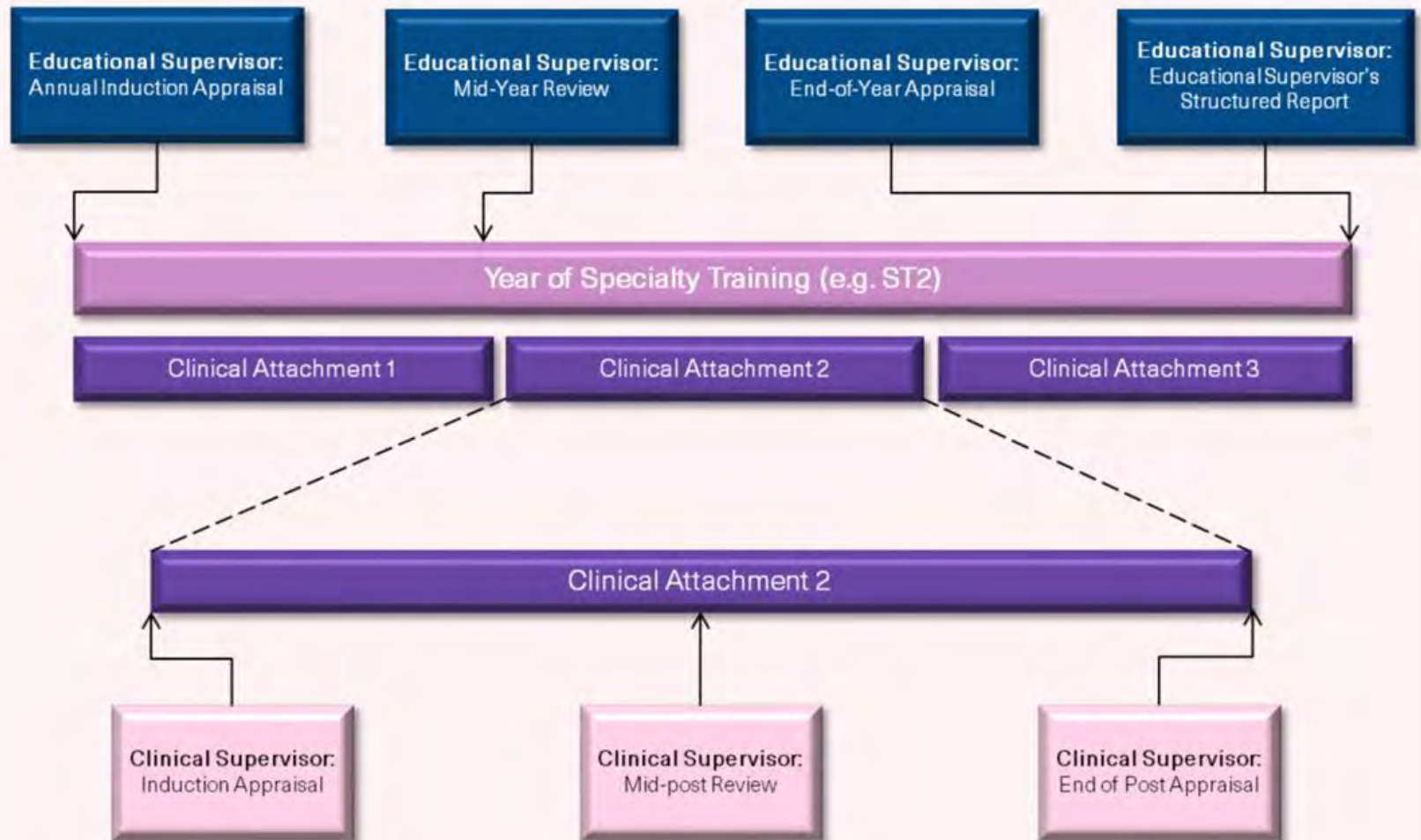


- **No change to content of exams**
- **Guidance on the RCR website**

Appraisal



Figure 3: Appraisal meetings during a single training year (or equivalent for LTFT trainees)



ARCP decision aid: CR



		ST1	ST2	ST3		ST4	ST5	CCT	
Satisfactory workplace based assessments (minimum per year – pro rata for LTFT trainees)	mini-IPX	6	6	6	progression point	6	6	progression point	
	Rad-DOPS	6	6	6		6	6		
	MSF	1	1	1		1	1		
	Teaching Observation	2	2	2		2	2		
	QIPAT	1	1	1		1	1		
	MDTA	Optional	Optional	Optional		2	2		
Clinical research		One research project undertaken during training, evidenced in Kaizen (e.g. by a research evaluation form or publication)							
Educational Supervisor's Report	Generic CiPs	Confirms trainee is meeting or exceeding expectations and no concerns				Confirms trainee is meeting or exceeding expectations and no concerns			Critical
	Specialty Specific CiPs								
	Milestones & procedures	At ST3 confirms trainee has met the requirements to pass the critical progression point				At ST6 confirms trainee has met the requirements for completion of training			
Examinations		FRCR 1		FRCR 2A		FRCR 2B			

ARCP decision aid: IR



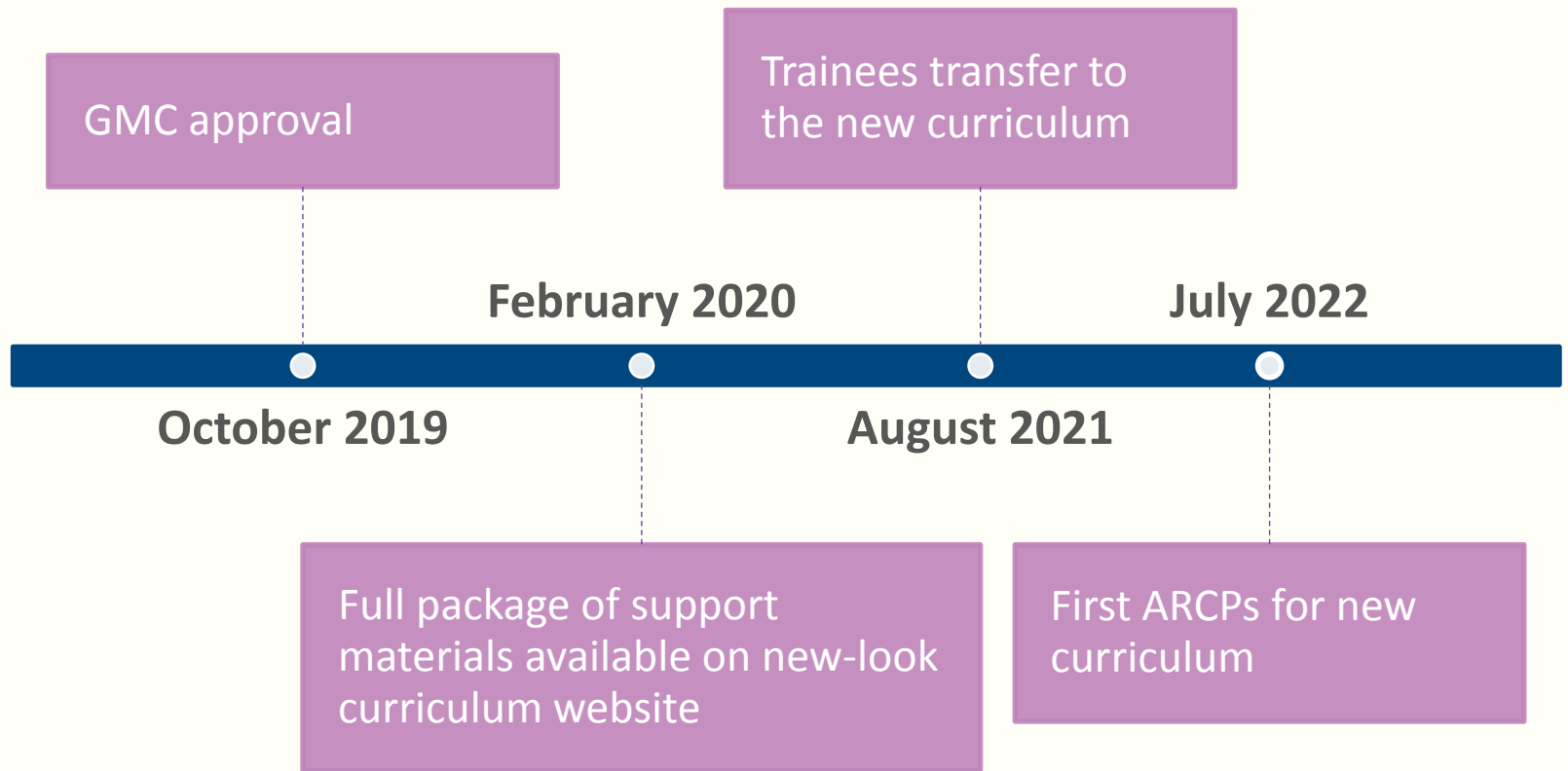
		ST4	ST5	ST6	CCT
Satisfactory workplace based assessments (minimum per year – pro rata for LTFT trainees)	mini-IPX	6	6	6	Critical progression point
	Rad-DOPS	12	12	12	
	MSF	1	1	1	
	Teaching Observation	2	2	2	
	QIPAT	1	1	1	
	MDTA	2	2	2	
Clinical research		One research project undertaken during CR or IR subspecialty training, evidenced in Kaizen (e.g. by a research evaluation form or publication)			
Educational Supervisor's Report	Generic <u>CiPs</u>	Confirms trainee is meeting or exceeding expectations and no concerns for CR and IR <u>CiPs</u> At ST6 confirms trainee has met the requirements for completion of training for CR and IR <u>CiPs</u>			
	Specialty Specific <u>CiPs</u>				
	Milestones & procedures				
Examinations		FRCR 2B	-	-	

Implementation – delayed due to COVID-19



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- **All clinical radiology trainees, including LTFT trainees, will need to transfer to the new curriculum, unless they are due to CCT before 1st September 2022**
- **Current trainees will transfer to the new curriculum by August 2021, normally following their ARCP for the 2020/21 training year**
- **Trainees who are out of programme or on statutory leave during this period will follow the new curriculum when they return to training**

Support for implementation



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- **New look web page launched February 2020**
- **Short videos (including Kaizen)**
- **Curriculum champions**
- **Training slide set**
- **Implementation checklist & calendar**
- **FAQs and terminology guide**
- **Exams guidance**
- **ARCP decision aids and guidance for ARCP panels**
- **Guidance on using entrustment scales**
- **Good practice in simulation**
- **Post mortem imaging added to RCR Learning hub**
- **Mapping documents**

Feedback and questions



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- www.rcr.ac.uk/clinical-radiology/curriculum
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