

# Paediatric Rheumatology

Sub-specialty Syllabus

**Version 3**

Approved by the GMC for implementation from 1 August 2023

This document outlines the syllabus to be used by doctors completing Paediatric Rheumatology training in the United Kingdom (UK). It accompanies the RCPCH Progress+ curriculum and Assessment Strategy.

This is Version 3. As the document is updated, version numbers will be changed and content changes noted in the table below.

Version number	Date issued	Summary of changes
Version 2	September 2021	Document reviewed as part of the Shape of Paediatrics Training review.  'Using the Syllabus with ePortfolio' (page 5) updated.
Version 3	August 2023	Updated from Progress to Progress+.  Using the syllabus (page 3) updated: reference to Level 1, 2 and 3 removed and replaced with Core and Specialty training.

# Introduction

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This syllabus supports the completion of the RCPCH Progress+ curriculum and should be used with the curriculum document and Assessment Strategy.

The purpose of the curriculum is to train doctors to acquire a detailed knowledge and understanding of health and illness in babies, children and young people. The curriculum provides a framework for training. It articulates the standard required to work at Consultant level and through key progression points of the training, as well as encouraging the pursuit of excellence in all aspects of clinical and wider practice.

The curriculum comprises Learning Outcomes specifying the standard trainees must demonstrate to progress in training and attain a Certificate of Completion of Training (CCT). The syllabi supports the curriculum by providing further instructions and guidance on how the Learning Outcomes can be achieved and demonstrated.

In the context of clinical training or service, the term “babies, children and young people” is a common term used by those working in the field of paediatrics and child health. Therefore, in relation to the assessment, the trainee needs to achieve the capabilities for either a baby, child or young person.

## Using the Syllabus

Paediatric trainees are required to demonstrate achievement of generic and sub-specialty or General Paediatric Learning Outcomes throughout their training period.

For core trainees (ST1 – 4), there are 11 generic paediatric Learning Outcomes. For specialty training (ST5 – 7), there are a further 11 generic paediatric Learning Outcomes and several additional Learning Outcomes in either General Paediatrics or the sub-specialty to which the trainee has been appointed.

This syllabus contains five interlinked elements, as outlined in Figure 1 which illustrates how each element elaborates on the previous one.

## Elements of the Syllabus

The **Introductory Statement** sets the scene for what makes a Paediatric Rheumatologist doctor.

The **Learning Outcomes** are stated at the beginning of each section. These are the outcomes which the trainee must demonstrate they have met to be awarded their Certificate of Completion of Training (CCT) in Paediatrics. Progress towards achievement of the Learning Outcomes is reviewed annually at the Annual Review of Competence Progression (ARCP).

Each Learning Outcome is mapped to the General Medical Council (GMC) Generic Professional Capabilities framework. Each trainee must achieve all the Generic Professional Capabilities to meet the minimum regulatory standards for satisfactory completion of training.

The **Key Capabilities** are mandatory capabilities which must be evidenced by the trainee, in their ePortfolio, to meet the Learning Outcome. Key Capabilities are therefore also mapped to the GMC Generic Professional Capabilities framework.

The **Illustrations** are examples of evidence and give the range of clinical contexts that the trainee may use to support their achievement of the Key Capabilities. These are intended to provide a prompt to the trainee and trainer as to how the overall outcomes might be achieved. They are not intended to be exhaustive and excellent trainees may produce a broader portfolio or include evidence that demonstrates deeper learning. It is not expected that trainees provide ePortfolio evidence against every individual illustration (or a set quota); the aim of assessment is to provide evidence against every Key Capability.

The **Assessment Grid** indicates suggested assessment methods, which may be used to demonstrate the Key Capabilities. Trainees may use differing assessment methods to demonstrate each capability (as indicated in each Assessment Grid), but there must be evidence of the trainee having achieved all Key Capabilities.

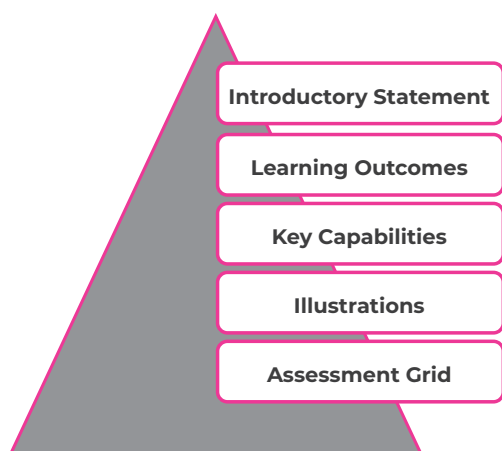


Figure 1: The five elements of the syllabus

## Using the Syllabus with ePortfolio

The ePortfolio is used to demonstrate a trainee's progression using assessments, development logs and reflections. Events should be linked to the Progress+ curriculum specifically against the Key Capabilities at the appropriate level.

Further guidance on using the ePortfolio is available on our website: <https://www.rcpch.ac.uk/resources/rcpch-eportfolio-guidance-doctors>



# Paediatric Rheumatology Introductory Statement

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A Paediatric Rheumatologist is a doctor who cares for children and young people with a range of conditions, from mechanical pains and juvenile arthritis to complex multi-system inflammatory disorders. They rely on history-taking, examination and communication with other professionals, as the conditions they manage often do not have specific diagnostic tests. Central to their work is liaising with the multidisciplinary team (MDT) – particularly specialist nurses, physiotherapists, occupational therapists and psychologists. They support collaborative work within clinical networks, are competent in practical skills, such as joint injections and have expert understanding of the drugs used to target the inflammatory pathway. Paediatric Rheumatologists belong to a rapidly developing sub-specialty that encourages a range of clinical and academic interests, including clinical, educational and basic science research. They are committed to contributing to collaborative research studies and clinical trials, with the aim of improving outcomes for children and young people with rheumatological conditions.

# Sub-specialty Learning Outcomes

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Sub-specialty Learning Outcomes		GMC Generic Professional Capabilities
1.	Performs the high-level clinical and technical skills required in paediatric rheumatology.	GPC 2, 3, 6
2.	Assumes a leadership role within the Paediatric Rheumatology Team, including sharing responsibility for service delivery, research and education.	GPC 5, 8, 9
3.	Liaises effectively with hospital and community teams and networks to manage the spectrum of conditions that are encountered in paediatric rheumatology.	GPC 5
4.	Effectively manages and coordinates patient flow, staffing, safety and quality in the context of a Paediatric Rheumatology MDT/Network.	GPC 5, 6

# Sub-specialty Learning Outcome 1

Performs the high-level clinical and technical skills required in paediatric rheumatology.	GPC 2, 3, 6
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## Key Capabilities

Uses investigations to guide the diagnosis and management of rheumatological conditions.	GPC 2, 3
Demonstrates proficiency in the technical skill of joint injection.	GPC 3
Recognises, assesses and manages paediatric rheumatology emergencies, including macrophage activation syndrome.	GPC 2, 3, 6

## Illustrations

Clinical skills:	
1.	Obtains a thorough rheumatological history from a child or young person and the parents or carers, considering the child and young person's developmental stage and growth.
2.	Performs a meticulous clinical examination of a child and young person with a suspected rheumatic or musculoskeletal disorder, including (as a minimum) a screening examination, such as the paediatric Gait, Arms, Legs and Spine (pGALS) or the paediatric Regional Examination of the Musculoskeletal System (pREMS) for individual joints.
3.	Assesses and quantifies the physical function of a child and young person with rheumatic disease.
4.	Assesses the clinical features and function of all potential target organs (eg kidneys, lungs, central nervous system, heart, blood vessels, eyes, skin, muscles, bones and joints) where necessary, in collaboration with other specialists.
5.	Uses disease-specific functional scores, outcome variables and disease-activity and damage scores.
6.	Assesses health-related quality of life with disease-specific or generic assessments.
7.	Assesses health-related physical fitness with relevant tools and assessments.
8.	Assesses family interactions and their impact on clinical symptoms and signs.



<b>Communication skills:</b>	
1.	Communicates well with children and young people of all ages and their parents or carers and provides appropriate education on diseases encountered in paediatric rheumatology (emphasis is placed on counselling skills).
2.	Communicates and empathises with the parents or carers of affected children and young people in emergency situations, employing appropriate counselling skills.
3.	Communicates the risks and benefits of drug treatment, as well as the prognosis to children and young people and their parents or carers.
4.	Counsels patients and parents or carers about the use of immunosuppressive treatments, their effects on lifestyle (eg contraception and alcohol) and the long-term risks, including unknown risks (eg fertility and malignancy).
5.	Engages appropriate communication skills for adolescent consultations.
6.	Describes the complications of joint aspiration and injection to a child or young person and their parents or carers during the process of obtaining informed consent/assent.
7.	Demonstrates skill in the aspiration and injection of the following joints with appropriate analgesia/sedation: knee, ankle, wrist, elbow and digits.
8.	Recognises the process involved in injecting the subtalar joint, hip joint, shoulder joint, midfoot, temporomandibular joints and tendon sheaths.
9.	Interprets and uses the appropriate imaging to assist with joint injections.
<b>Management of Juvenile Idiopathic Arthritis (JIA):</b>	
1.	Diagnoses JIA, including recognises the clinical presentations and classification.
2.	Monitors disease activity, outcome measures, treatment indications and treatment goals.
3.	Confident in the pharmacological management of JIA.
4.	Safely and efficaciously prescribes methotrexate and other disease-modifying anti-rheumatic drugs.
5.	Safely and efficaciously prescribes biologics.
6.	Recognises the differential diagnosis for and the conditions that mimic JIA.
7.	Demonstrates reflective understanding of the epidemiology, aetiology, immunopathogenesis and genetics of JIA.
8.	Demonstrates clear understanding of the extra-articular manifestations of JIA.
9.	Recognises the need for the assessment of eye inflammation and the management of chronic uveitis.
10.	Recognises the role of and appropriately interprets laboratory examinations in JIA.
11.	Recognises radiographic abnormalities in JIA.

12.	Applies knowledge of the role of ultrasound and magnetic resonance imaging (MRI) in the management of JIA.
13.	Recognises the duration and the discontinuation of pharmacological therapy in JIA.
<b>Management of childhood-onset systemic lupus erythematosus (cSLE), juvenile dermatomyositis, vasculitis and other systemic connective tissue diseases:</b>	
1.	Diagnoses cSLE, recognises the differential diagnosis and applies the classification criteria and recognises the clinical presentations of the classification criteria.
2.	Demonstrates proficiency in the pharmacological management of cSLE, juvenile dermatomyositis and childhood-onset vasculitis, considering disease severity and organ-specific manifestations.
3.	Recognises the clinical presentation, diagnosis and management of Juvenile Dermatomyositis. Recognises the clinical presentation, diagnosis and management of vasculitis in childhood-onset vasculitis. Recognises the clinical presentations, diagnoses, managements and classifications of mixed connective tissue disease and undifferentiated connective tissue disease.
4.	Recognises the clinical presentation, diagnosis and management of Sjögren's syndrome. Explains the role of salivary gland biopsy and imaging in the diagnosis and management of Sjögren's syndrome.
5.	Demonstrates reflective evidence of understanding the epidemiology, aetiology, immunopathogenesis and genetics of cSLE, juvenile dermatomyositis and childhood-onset vasculitis.
6.	Interprets general laboratory investigations and autoantibodies in cSLE, juvenile dermatomyositis and childhood-onset vasculitis.
7.	Recognises the long-term outcome, morbidities and co-morbidities associated with cSLE, juvenile dermatomyositis and childhood-onset vasculitis.
8.	Monitors disease activity and recognises disease severity and damage in cSLE, juvenile dermatomyositis and childhood-onset vasculitis.
9.	Recognises the presentation, diagnosis and management of neonatal lupus erythematosus.
10.	Recognises the presentation, diagnosis and management of anti-phospholipid syndrome in childhood and adolescence.
11.	Explains the role of histopathology and imaging in the diagnosis and management of cSLE.
<b>Management of other rare systemic inflammatory diseases:</b>	
1.	Recognises the differential diagnosis of sarcoidosis in children and young people.
2.	Demonstrates reflective evidence of understanding the epidemiology, aetiology, immunopathogenesis and genetics of paediatric sarcoidosis.
3.	Appropriately interprets laboratory examinations, histopathology and imaging in sarcoidosis.

<b>Management of arthritis related to infection:</b>	
1.	Demonstrates reflective evidence of understanding the epidemiology, aetiology and pathogenesis of infectious arthritis, osteomyelitis, infectious discitis, Lyme disease, rheumatic fever and post-streptococcal reactive arthritis.
2.	Identifies and manages articular and extra-articular manifestations of reactive arthritis in children and young people.
3.	Diagnoses and manages septic arthritis, considering the appropriate differential diagnosis.
4.	Diagnoses and manages osteomyelitis, considering the appropriate differential diagnosis.
5.	Diagnoses and manages reactive arthritis, considering the appropriate differential diagnosis (which includes rheumatic fever and post-streptococcal reactive arthritis) and the association between gastrointestinal and sexually acquired infections and arthritis.
6.	Diagnoses and manages infectious discitis, considering the appropriate differential diagnosis.
7.	Diagnoses and manages Lyme disease, considering the appropriate differential diagnosis.
8.	Diagnoses and manages acute rheumatic fever and post-streptococcal reactive arthritis and provides prophylaxis for these conditions.
<b>Management of autoinflammatory conditions:</b>	
1.	Demonstrates reflective understanding of the epidemiology, genetics and pathogenesis of the spectrum of non-bacterial osteitis; chronic recurrent multifocal osteomyelitis (CRMO) and synovitis, acne, pustulosis, hyperostosis and osteitis (SAPHO).
2.	Demonstrates reflective understanding of the epidemiology, genetics, pathogenesis and clinical features of periodic fever syndromes, including Familial Mediterranean fever (FMF), tumour necrosis factor receptor-associated periodic syndrome (TRAPS), hyperimmunoglobulinaemia D (HIDS) and cryopyrin-associated periodic fever syndromes (CAPS).
3.	Demonstrates reflective understanding of the epidemiology, pathogenesis, clinical manifestations, diagnosis, treatment and prognosis of periodic fever with aphthous stomatitis, pharyngitis and adenitis (PFAPA).
4.	Demonstrates reflective understanding of the genetics, pathogenesis, clinical features and managements of other autoinflammatory diseases (eg pyogenic arthritis pyoderma gangrenosum (PAPA), deficiency of the interleukin-1-receptor antagonist (DIRA), deficiency of the interleukin-36-receptor antagonist (DITRA), chronic atypical neutrophilic dermatosis with lipodystrophy (CANDLE), deficiency of adenosine deaminase 2 (DADA2), Blau syndrome, NLRP12 and cyclic neutropenia – <i>this list is not exhaustive and the diseases mentioned are just examples, as the number of known and characterised autoinflammatory conditions is growing</i> ).

5.	Diagnoses and manages the spectrum of non-infectious osteitis, CRMO and SAPHO, considering the appropriate differential diagnoses.
6.	Diagnoses and manages periodic fever syndromes and autoinflammatory conditions and recognises their classifications, differential diagnoses and complications.
<b>Management of paediatric rheumatological emergencies:</b>	
1.	Manages inpatient and outpatient rheumatological emergencies in children and young people. This includes diseases in which children and young people are systemically unwell, such as acute arthritis, cSLE, dermatomyositis, vasculitis and other conditions presenting with rheumatological symptoms (such as leukaemia and other malignancies, non-accidental injuries, macrophage activation syndrome [MAS] and catastrophic anti-phospholipid syndrome).
2.	Diagnoses MAS, recognises the clinical features and differential diagnosis, including distinguishes MAS/secondary haemophagocytic lymphohistiocytosis (HLH) from a flare of an underlying rheumatologic disease.
3.	Recognises the presentation of infection in a patient who is immunocompromised from symptoms of severe rheumatic disease and/or treatment side effects and manages this appropriately.
4.	Recognises the role of laboratory and bone marrow examinations in MAS and interprets them.
5.	Demonstrates reflective evidence of understanding the epidemiology, pathogenesis and genetics of MAS/secondary HLH.
6.	Demonstrates reflective evidence of understanding the pharmacological treatment of MAS.
<b>Management of non-inflammatory musculoskeletal conditions:</b>	
1.	Diagnoses and manages hypermobility, considering the differential diagnosis and manages conditions associated with hypermobility (eg Marfan syndrome and Ehlers–Danlos syndromes).
2.	Manages growing pains, recognising the clinical presentation and the differential diagnosis.
3.	Manages back pain in children and young people, recognising the clinical presentation, differential diagnosis and appropriate investigations.
4.	Recognises the clinical presentations, considers the differential diagnoses and formulates management plans for orthopaedic conditions, such as Scheuermann disease, osteochondroses, Legg–Calvé–Perthes disease, slipped capital femoral epiphyses and chondrolysis.
5.	Recognises the clinical presentations, considers the differential diagnoses and formulates management plans for common overuse injuries (eg patellofemoral pain syndrome, osteochondritis dissecans, tennis elbow) and chondromalacia patellae.
<b>Management of pain amplification syndromes:</b>	
1.	Diagnoses and manages childhood chronic pain, recognising its classification and outcome.

2.	Coordinates an MDT approach to the management of pain.
3.	Considers the differential diagnosis in children and young people presenting with marked musculoskeletal pain.
4.	Demonstrates reflective evidence of understanding the classification, diagnosis and management of complex regional pain syndromes (CRPS).
5.	Demonstrates reflective evidence of understanding the overlap between chronic pain and chronic fatigue syndrome.
6.	Effectively assesses and evaluates musculoskeletal pain.
<b>Management of other conditions that may be encountered in paediatric rheumatology:</b>	
1.	Recognises and manages the musculoskeletal and autoimmune manifestations of other conditions (eg vitamin deficiency or excess, metabolic diseases, haematologic disorders and malignancies, disorders of endocrine and exocrine glands, cystic fibrosis, coeliac disease, hyperostosis, skeletal dysplasias, skeletal malignancies, neuroblastoma and chromosomal disorders, such as Down's syndrome and primary immunodeficiencies).
2.	Diagnoses, investigates and manages osteoporosis in paediatric rheumatic disorders.
3.	Manages chickenpox exposure and varicella infection in a child and young person with a known rheumatological condition.
<b>Skills:</b>	
1.	Interprets haematological changes, acute phase reactants and biochemical changes that may accompany rheumatic diseases in children and young people.
2.	Applies knowledge of the immunological basis of rheumatic diseases, the methodology of investigations for inflammation and autoimmunity, including the interpretation of autoantibodies in their clinical context.
3.	Applies knowledge of the genetic basis of musculoskeletal and rheumatic diseases and the role of molecular genetic investigations in the diagnosis of such conditions.
4.	Identifies the roles of muscle, skin and kidney tissue biopsies, including interpreting histological abnormalities in children and young people with rheumatic diseases.
5.	Recognises the value and limitations of synovial fluid examination and synovial biopsy.
6.	Recognises the place of radiological investigations, including ultrasound, nuclear medicine scans, bone density scans, computerised tomography (CT) and MRI scans (with and without contrast) in the diagnosis of rheumatic disease in children and young people.
7.	Recognises the role of electromyography and nerve conduction studies in children and young people with rheumatic disease.
8.	Appropriately uses investigations to follow the progress of disease and assess the extent of damage to target organs, individual joints or other structures in the locomotor system and other systems directly or indirectly affected by rheumatic disease.

# Sub-specialty Learning Outcome 2

Assumes a leadership role within the Paediatric Rheumatology Team, including sharing responsibility for service delivery, research and education.	GPC 5, 8, 9
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## Key Capabilities

Coordinates and leads a multidisciplinary approach for the care of children and young people with musculoskeletal conditions.	GPC 5
Involves children and young people in national paediatric rheumatology research.	GPC 9

## Illustrations

1.	Coordinates an MDT approach for the management of JIA, which includes a nurse specialist, physical therapist, occupational therapist, social worker, ophthalmologist, psychologist, orthopaedic surgeon, dentist and adult rheumatologist.
2.	Teaches essential musculoskeletal examination skills to medical students and post-graduate trainees (eg pGALS as a basic examination and pREMS as a structured approach to a more detailed joint examination).
3.	Demonstrates reflective evidence of understanding the challenges of organising a teaching session for a multidisciplinary audience and provides solutions to overcome this problem.
4.	Organises patient, parent or carer education sessions together with the MDT.
5.	Demonstrates reflective understanding of the National Biologics Registry and the importance of recruitment to these and other longitudinal studies in routine clinical practice.
6.	Demonstrates experience in the registration of patients to the National Biologics Registry.
7.	Demonstrates reflective understanding of the Topic Specific Groups of the Paediatric Rheumatology Clinical Studies Group.
8.	Demonstrates reflective understanding of Good Clinical Practice and evidence of up-to-date certification.

9.	Demonstrates reflective understanding of the roles of different observational and interventional trial designs, retrospective case series, cohort studies, randomised controlled trials, randomised withdrawal trials, cross-over trials and Bayesian design in relation to paediatric rheumatology.
10.	Demonstrates reflective understanding of the recruitment and consent process of a child or young person to an interventional trial in paediatric rheumatology.

# Sub-specialty Learning Outcome 3

Liaises effectively with hospital and community teams and networks to manage the spectrum of conditions that are encountered in paediatric rheumatology.	GPC 5
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## Key Capabilities

Coordinates developmentally the appropriate transitional care for children and young people with chronic rheumatological conditions.	GPC 2, 3, 6
Teaches musculoskeletal examination skills.	GPC 8

## Illustrations

1.	Works with the adult rheumatology MDT to provide transitional care and a life-course approach to patients with paediatric-onset rheumatic disease.
2.	Demonstrates reflective evidence of understanding the differences and similarities between paediatric adolescent and adult care and helps empower young people to negotiate their own care.
3.	Demonstrates reflective evidence of understanding the unique nature of adolescent maturity; identifies the key features of adolescence as a distinct developmental stage and the impact of paediatric rheumatic diseases on adolescent development.
4.	Demonstrates reflective evidence of understanding and experience with the transitional care process for adolescents with musculoskeletal and rheumatic diseases.



# Sub-specialty Learning Outcome 4

Effectively manages and coordinates patient flow, staffing, safety and quality in the context of a Paediatric Rheumatology MDT/Network.	GPC 5, 6
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## Key Capabilities

Manages a paediatric rheumatology network ensuring appropriate patient flow and staffing.	GPC 6
Demonstrates safety and quality improvement strategies within a paediatric rheumatology network.	GPC 9

## Illustrations

Pharmacology of drugs used for children and young people with rheumatological conditions:	
Demonstrates reflective evidence of understanding the pharmacology (including the evidence base and side effects) of:	
1.	Non-steroidal anti-inflammatory drugs.
2.	Non-biological disease-modifying anti-rheumatic drugs.
3.	Biological disease-modifying anti-rheumatic drugs.
4.	Intra-articular, intravenous and oral corticosteroids.
5.	Cytotoxic drugs used in paediatric rheumatology.
6.	Drugs used in the treatment of severe Raynaud's syndrome and digital ischaemia.
7.	Drugs used in the treatment of osteoporosis.
8.	Gastro-protective drugs.
9.	Other drugs used in paediatric rheumatology (eg bisphosphonates, vitamin D, calcium and growth-inducing drugs).
Demonstrates reflective evidence of understanding:	
10.	The range and potential consequences of unconventional remedies and therapies given to children and young people with rheumatic disease.
11.	The use and risks of sedation for painful procedures in children and young people.
12.	The benefits, risks and indications for autologous stem-cell transplantation in the management of chronic inflammatory diseases in children and adolescents.
13.	Initiates and monitors the range of drugs used for pain control in children and young people.

# Assessment Grid

This table suggests assessment tools which may be used to assess the Key Capabilities for these Learning Outcomes. This is not an exhaustive list and trainees are permitted to use other methods within the RCPCH Assessment Strategy to demonstrate achievement of the Learning Outcome, where they can demonstrate these are suitable.

Key Capabilities	Assessment / Supervised Learning Event suggestions									
	Other	Paediatric Carers for Children Feedback (Paed CCF)	Paediatric Multi Source Feedback (MSF)	Handover Assessment Tool (HAT)	Clinical Leadership Assessment Skills (LEADER)	Discussion of Correspondence (DOC)	Acute Care Assessment Tool (ACAT)	Directly Observed Procedure / Assessment of Performance (DOP/AOP)	Paediatric Case-based Discussion (CbD)	Paediatric Mini Clinical Evaluation (Mini-CEX)
Uses investigations to guide the diagnosis and management of rheumatological conditions.									✓	✓
Demonstrates proficiency in the technical skill of joint injection.								✓		
Recognises, assesses and manages paediatric rheumatology emergencies, including macrophage activation syndrome.							✓		✓	✓
Coordinates and leads a multidisciplinary approach for the care of children and young people with musculoskeletal conditions.				✓	✓					
Involves children and young people in national paediatric rheumatology research.									✓	✓
Coordinates developmentally the appropriate transitional care for children and young people with chronic rheumatological conditions.				✓	✓					
Teaches musculoskeletal examination skills.								✓		✓
Manages a paediatric rheumatology network ensuring appropriate patient flow and staffing.									✓	✓
Demonstrates safety and quality improvement strategies within a paediatric rheumatology network.									✓	✓

