



SAUDI BOARD PEDIATRIC CURRICULUM



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2014

## Preparation

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## INTRODUCTION

### FOREWORD

In this updated curriculum, we are adopting the CanMEDS framework, as it is an innovative, competency-based framework that describes the core knowledge, skills, and attitude of physicians. This curriculum is intended to provide a broad framework for residents and faculty to focus on teaching and learning as well as clinical experience and professional development during the training program. This does not intend to be the sole source of defining what is to be taught and learned during the residency training. Residents are expected to acquire knowledge and skills as well as develop appropriate attitude and behavior throughout their training program and take personal responsibility in learning. They must learn from every patient encounter whether or not that particular condition or disease is mentioned in this curriculum.

This curriculum is part of strategic planning of SCFHS to review and update the curricula of the training programs, it was developed and reviewed by The Scientific Council of Saudi Paediatrics Board, residents representative, and International and local Advisors

The Saudi Commission for Health Specialties, as it is represented by The Scientific Board, Paediatric Regional Training Committee, and Central Accreditation Committee are committed to providing full support for the implementation of the curriculum by way of allocating necessary resources, providing faculty development, and establishing a monitoring system. Further reinforcements and continuous quality improvement process through feedback from residents, trainers and program directors and site visits will be done by the Central Accreditation Committee and The Paediatric Scientific Board.

## CONTEXT OF PRACTICE

The health services in Saudi Arabia started with limited medical resources, and gradually reached specialized modern hospitals, medical centers, and medical cities. The rapid growth of health services has also been accompanied by a planned process in developing manpower to run such services. This is evident in investing in overseas scholarships and local training especially after establishing the Saudi Commission for Health Specialties, and implementation of structured training programs.

Pediatrics is one of the earliest programs. However, in over 20 years, it has rapidly grown to become a well-recognized general pediatric specialty with approximately 13 pediatric subspecialties.

The demographic of Saudi Arabia is unique, with nearly 30% of the population under 14 years of age. This trend is expected to be maintained in the future. Pediatrics is a unique specialty, as it takes care of the entire body as one unit with high emphasis on family, health maintenance, and disease prevention. Residents will have a broad exposure to the health care of children and substantial experience in the management of diverse pathologic conditions. This includes experience in child health supervision and those conditions commonly encountered in primary care practice. It will include experience with a wide range of acute and chronic medical conditions of pediatrics in both the inpatient and ambulatory settings.

Preventive health care, ethical issues, and discussions of the cost and benefits of diagnostic tests, procedures, and therapies will be an integral part of the residency training throughout the four years of training.

Residency training in pediatrics will provide educational experiences that prepare residents to be competent general pediatricians able to provide comprehensive, coordinated care to a broad range of pediatric patients.

Residents will become sufficiently familiar with the fields of subspecialty pediatrics to enable them to participate as team members in the care of patients with chronic and complex disorders.

Residents will be given the opportunity to function with other members of the health care team in both inpatient and ambulatory settings to become proficient as leaders in the organization and bring systematic improvement of the processes of patient care.

Residents will have a progressive educational experience with increasing patient care responsibility over the 4-year period of their training. Supervisory responsibilities will involve both inpatient and outpatient experiences.

Throughout the 4 years of training, emphasis will be placed on enhancement of residents' competence in the medical interview, physical examination, and communication and interpersonal skills.

Training will be conducted under the supervision of general and subspecialty pediatric faculty, maintaining high level of competencies at regular intervals.

## PROFILE OF PRACTICE

Pediatricians are specialists who focus on the physical, emotional, and social health of neonates, infants, children, adolescents, and young adults. This specialty deals with health promotion and prevention, and the detection and management of physical, behavioral, developmental, mental/emotional, environmental, and social problems that affect children. The ability to communicate effectively with patients, families, and social service professionals is the key to providing effective pediatric care.

Pediatricians work closely with a large network of physicians and other health care professionals. Pediatrics provides a fair degree of flexibility in the type of practice; some pediatricians are affiliated with community hospitals and have consulting general pediatric practices where patients are referred by other primary care physicians, such as family physicians, emergency physicians, etc. In many urban communities, consulting pediatricians are affiliated with tertiary care centers. Others choose academic tracts and work in university-affiliated hospitals. There are an increasing number of recognized pediatric subspecialties which provide an opportunity to combine clinical and basic scientific research with the delivery of highly specialized care.

## Structure of the Residency Training Program

The pediatric residency training program consists of well-structured full time supervised 4 years training after completing medical school. This training includes:

- **Core rotations**
  - General pediatrics:
    - Junior resident rotations
    - Senior resident rotations
    - Increasing responsibility, to include a senior supervisory year with responsibility for supervision of more junior trainees
    - Management of hospitalized and ambulatory patients
  - Ambulatory/hospital-based outpatient pediatrics
  - Community and primary care pediatrics
  - Neonatal intensive care unit
  - Pediatric intensive care unit
  - Pediatric emergency medicine
  - Research
  - Anesthesia
  - Communication skills/Simulation
  - Developmental pediatrics (including child psychiatry, developmental Psychology and behavioral medicine)
  - Subspecialty rotations, appropriate experience in pediatric subspecialties:
    - Pediatric allergy/immunology
    - Pediatric cardiology
    - Pediatric endocrinology
    - Pediatric gastroenterology
    - Pediatric genetics and metabolic disorders
    - Pediatric hematology/oncology
    - Pediatric infectious diseases
    - Pediatric nephrology
    - Pediatric neurology
    - Pediatric pulmonology
    - Pediatric rheumatology
- **Electives**
  - Elective rotations allow residents the flexibility to gain a concentrated experience in an area of interest.
  - The resident will have eight weeks of electives:
    - Four weeks in the 3rd year
    - Four weeks in the 4th year
  - Residents have the right to choose from the above subspecialties or other specialties related to pediatrics, such as pediatric radiology, pediatric dermatology, pediatric psychiatry, pediatric surgery etc.



## Required Rotations for Each Year

The rotations are based on a block system rather in months . Each block consists of four weeks.

BLOCK (4 WKS)	R1	R2	R3	R4
1	GP	GP	GP	GP
2	GP	GP	GP	(H/O)
3	GP	AMB	EL	(ALL/IMMUN)
4	GP	NICU	NICU	NICU
5	GP	NICU	(ID)	(GEN/MET)
6	GP	PICU	PICU	AMB
7	NICU	PICU	ER	PICU
8	NICU	ER	Trauma	ER
9	ER	(H/O)	(ENDO)	EL
10	PC	(CARDIO)	(GASTRO)	(PULM)
11	WBC	(NEURO)	DEV PEDS	(NEPHRO)
12	SIM/COM-ANESTH	RES I	RES II	(RHEUM)
13	HOL	HOL	HOL	HOL

## ABBREVIATIONS

SIM/COM	<b>Simulation &amp; Communication</b>
DEV PEDS	Developmental pediatrics
RES I	Research (Fundamental & Methodology)
RES II	Research Project
(CARDIO)	Cardiology
(NEURO)	Neurology
(ENDO)	Endocrinology/Metabolic
(H/O)	Hematology/Oncology
(GASTRO)	Gastroenterology
(PULM)	Pulmonology
(NEPHRO)	Nephrology
(RHEUM)	Rheumatology
(ID)	Infectious Diseases
(ALL/IMMUN)	Allergy/Immunology
(GEN/MET)	Genetic/Metabolic

Rotations		Block
General Pediatrics	GP	11
Neonatal Intensive Care	NICU	6
Pediatric Intensive Care	PICU	4
Well Baby Clinic	WBC	1
Primary Care, Family Medicine	PC	1
Ambulatory Care	AMB	2
Emergency	ER	4
Pediatric Trauma	Trauma	1
Elective	EL	2
Subspecialties	SBS	13
Simulation & Communication	SIM/COM	0.5
Anesthesia	ANESTH	0.5
Research (Fundamental & Methodology)	RES I	1
Research Project	RES II	1
Holiday	HOL	4
TOTAL		52

## **Differences between previous and current curriculum**

### **Philosophical Orientations**

- Competency-based
- Graded responsibility for the physicians
- Better supervisory frameworks
- Clearer demarcation of what should be achieved at each stage of training
- Core curriculum with elective options
- Independent learning within a formal structure

### **Expanded Range of Competencies**

- Balanced representation of knowledge, skills, and professionalism
- Incorporation of new knowledge and skills

### **Evidence-based Approach**

- Demographic data (e.g., disease prevalence)
- Practice data (e.g., procedure performed)
- Patient profile (e.g., outpatient versus inpatient)
- Catering to future needs

### **Holistic Assessment**

- Higher emphasis on continuous assessment
- Balanced assessment methods
- Portfolio and logbook to support learning and individualized assessment
- In-built formative assessment

## Definitions Used in the Document

**Assumed Knowledge:** Subjects that you have studied in undergraduate studies as well as knowledge and skills gained during undergraduate studies

**An Attitude** is “a relatively enduring organization of beliefs, feelings, and behavioural tendencies towards socially significant objects, groups, events or symbols” (Hogg & Vaughan, 2005, p. 150) “A psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour” (Eagly & Chaiken, 1993, p. 1).

**Behavior** is an observable activity, the aggregate of responses to internal or external stimuli. The action or reaction of any material under given circumstances.

**Competency:** Possession of required skill, knowledge, or qualification

**Core (Skills, Knowledge, and Professional Behavior):** A specific knowledge or skill or professional behavior that is specific and essential to pediatrics

**Knowledge** is a familiarity with someone or something, which can include facts, information, descriptions, or skills acquired through experience or education.

**Mastery:** Expert skill or knowledge

**Portfolio:** A briefcase of personal documents/data required and obtained skills and knowledge, including a logbook, during the training program

**Skills:** competence in performance, expertness, and dexterity

**Universal:** A knowledge, skill, or professional behavior that is not specific to pediatrics but universal for the practice of clinical medicine

## OUTCOMES AND COMPETENCIES

### Rationale

The Saudi Board of Pediatric Program aims to provide high-level, state-of-the-art clinical training, education, and research in the field of pediatrics in concordance with the international educational standard to graduate qualified and safe general pediatricians.

### Overall Goal

To provide pediatricians with educational experiences to obtain the necessary knowledge, skills, and attitudes to become well-rounded pediatricians, and prepare them to be competent general pediatricians able to achieve, develop, and carry out the appropriate care for the patient while maintaining a high degree of professionalism and ethical standards in developing patient-physician relationships.

### Learning Outcomes

Successful residents will acquire a broad-based understanding of the principles, philosophy, and core knowledge, skills, and attitudes of pediatrics. By the end of their training, they should be able to:

Trainee Role	Goals and Objectives
<b>Medical Expert</b>	<ul style="list-style-type: none"><li>• Function effectively, integrating all of the CanMEDS roles to provide optimal, ethical, and patient-centered medical care</li><li>• Establish and maintain clinical knowledge, skills, and attitudes appropriate to their level of training</li><li>• Perform a complete and appropriate assessment of a patient</li><li>• Use preventive and therapeutic interventions effectively</li><li>• Demonstrate proficient and appropriate use of procedural skills, both diagnostic and therapeutic</li><li>• Seek appropriate consultation from other health professionals, when needed</li></ul>
<b>Communicator</b>	<ul style="list-style-type: none"><li>• Develop rapport, trust, and ethical therapeutic relationships with patients and families</li><li>• Accurately elicit and synthesize relevant information and perspectives of patients and families, colleagues, and other professionals</li><li>• Accurately convey relevant information and explanations to patients and families, colleagues, and other professionals</li><li>• Develop a common understanding on issues, problems and plans with patients and families, colleagues, and other professionals to develop a shared plan of care</li><li>• Convey effective oral and written information about a medical encounter</li></ul>
<b>Collaborator</b>	<ul style="list-style-type: none"><li>• Participate effectively and appropriately in an inter-professional health care team</li><li>• Effectively work with other health professionals to prevent, negotiate, and</li></ul>

	resolve inter-professional conflict
<b>Health Advocate</b>	<ul style="list-style-type: none"> <li>• Respond to individual patient health needs and issues as part of patient care</li> <li>• Respond to the health needs of the communities that they serve</li> <li>• Identify the determinants of health of the populations that they serve</li> <li>• Promote the health of individual patients, communities, and populations</li> </ul>
<b>Managerial Skill</b>	<ul style="list-style-type: none"> <li>• Participate in activities that contribute to the effectiveness of their health care organizations and systems</li> <li>• Manage their practice and career effectively</li> <li>• Allocate finite health care resources appropriately</li> <li>• Serve in administration and leadership roles, as appropriate</li> </ul>
<b>Scholar</b>	<ul style="list-style-type: none"> <li>• Maintain and enhance professional activities through ongoing learning</li> <li>• Critically evaluate information and its sources, and apply this appropriately to practice decisions</li> <li>• Facilitate the learning of patients, families, students, residents, other health professionals, the public, and others, as appropriate</li> <li>• Contribute to the creation, dissemination, application, and translation of new medical knowledge and practices</li> </ul>
<b>Professional</b>	<ul style="list-style-type: none"> <li>• Demonstrate a commitment to their patients, profession, and society through ethical practice</li> <li>• Demonstrate a commitment to their patients, profession, and society through participation in profession-led regulation</li> <li>• Demonstrate a commitment to physician health and sustainable practice</li> </ul>

## Continuum of Learning

Residents in training will see children with a wide variety of conditions are seen at the training centers. As pediatric residents progress, they have increasing responsibility in the management of these children. The first-year resident has primary responsibility for initial assessment and daily total care for the patient on the pediatric floor. This care is provided under the close supervision of the senior pediatric resident and full-time consultant. The second-year resident has primary responsibility in the Pediatric Intensive Care Unit under appropriate supervision. The third and fourth year residents have greater responsibility for supervision of other residents. Works and teaching rounds are conducted daily by full-time consultants.

This is a short section that shows expected learning that should take place in each key stage of progression within the pediatric specialty. The role changes between junior level (RY1–RY2) and senior level (RY3–RY4):

R 1–2 (Junior )	R 3–4 (Senior )
<b>Obtain fundamental knowledge related to core clinical problems in pediatrics.</b>	Apply knowledge to provide appropriate clinical care related to core clinical problems of the specialty.
<b>Develop clinical skills such as physical examination and practical procedures related to the core presenting problems and procedures in pediatrics.</b>	Analyze and interpret the findings from clinical skills to develop appropriate differential diagnoses and management plan for the patient.
<b>Direct supervision is immediately available.</b>	The resident is expected to perform independently the duties learned at junior level.
<b>If indirect supervision is provided, such supervision must be consistent with training policies and specific criteria that junior residents must meet.</b>	Supervise the routine activities of the junior residents.  Coordinate the care of multiple patients on the team assigned.
<b>Examples of tasks that are expected at junior level:</b> <ul style="list-style-type: none"> <li>- perform a history and physical</li> <li>- order medications and diagnostic tests,</li> <li>- collect and analyze test results</li> <li>- communicate those to the other members of the team and faculty,</li> <li>- obtain informed consent,</li> <li>- perform simple procedures such as urinary catheters and nasogastric tubes,</li> <li>- perform other invasive procedures such as arterial line or central line insertion under the direct supervision of the senior residents at the discretion of the responsible faculty member</li> </ul>	<p>Senior residents may perform some procedures with indirect supervision (such as insertion of central lines, arterial lines) once competency has been documented according to established criteria.</p> <p>Senior residents can perform progressively more complex procedures, such as bone marrow aspiration and biopsy and pleural/peritoneal tabs under the direct supervision of the faculty.</p>
<b>The resident is expected to exhibit a dedication to the principles of professional preparation that emphasizes primacy of the patient as the focus of care.</b>	Senior residents should be able to demonstrate continued sophistication in the acquisition of knowledge and skills and further ability to function independently in evaluating patient problems and developing a plan for patient care.
<b>With the assistance of an assigned mentor or the program director, a junior resident must develop and implement a plan for study, reading, and research of selected topics that promotes personal and professional growth and be able to demonstrate successful use of the literature in dealing with patients.</b>	Senior residents may respond to consults and learn the elements of an appropriate response to consultation in conjunction with the faculty member.
<b>The resident should be able to communicate with patients and families about the disease process and the plan of care as outlined by the attending physician.</b>	<p>The resident should take a leadership role in teaching junior residents and medical students the practical aspects of patient care</p> <p>The resident should be able to explain complex diagnostic and therapeutic procedures to the patient and family.</p>

<b>The resident should be adept at the interpersonal skills needed to handle daily situations.</b>	The resident should be adept at the interpersonal skills needed to handle more difficult situations.
<b>The resident is expected to demonstrate an understanding of the socioeconomic, cultural, and managerial factors inherent in providing cost-effective care.</b>	The resident is expected to demonstrate an understanding of the socioeconomic, cultural, and managerial factors inherent in providing cost-effective care.

## Core Conditions

**Top Conditions in Pediatrics in Saudi Arabia:** Below is a list of top conditions/diseases presented in the three major care sites in Saudi Arabia: outpatient, emergency rooms, and inpatient. The intention is to provide trainees focus during their training and to help them identify the diseases and presentations that must be mastered on a priority basis.

This is followed by outcomes from three representative presentations to illustrate how learning can be organized through the CanMEDS competencies framework for various patient presentations and problems.

Outpatients Referral	Emergency Visits	Inpatients Admissions
<b>Abdominal pain</b>	Bronchial asthma	Bronchial asthma
<b>Anemia</b>	Bronchiolitis	Bronchiolitis
<b>Constipation</b>	Diabetes mellitus	Diabetes mellitus
<b>Failure to thrive</b>	Fever	Gastroenteritis
<b>Heart murmur</b>	Gastroenteritis/dehydration	Jaundice for investigation
<b>Recurrent cough/wheeze</b>	Meningitis	Pneumonia
<b>Rickets/vitamin D deficiency</b>	Neonatal jaundice	Pyrexia of unknown origin
<b>Sickle cell anemia</b>	Neonatal sepsis	Rule out sepsis/meningitis
<b>Skin rash</b>	Pneumonia	Seizure disorders
<b>Short stature</b>	Seizure disorders	Sickle cell anemia
<b>Well baby check-up and immunization</b>	Sickle cell anemia	Urinary tract infection



## Examples from each area:

### Sickle Cell Anemia (Outpatient Referral)

Medical Expert	Communicator	Collaborator	Manager	Health Advocate	Scholar	Professional
Obtains an efficient, focused history in relation to pain (e.g., onset, duration, aggravating or relieving factors, character, severity) associated symptoms (fever, vomiting, headache, weakness, and cough), limitation of activity, family history SCA, previous history of blood transfusion	Counsels parents on the aggravating and relieving factors  Communicates with patient and his/her parents about the diagnosis and prognosis	Liaises effectively with hematology team, nursing, clinical pharmacist, and social work services	Puts patient in touch with sickle cell support group if available	Responds to individual patient's health needs and issues as part of patient care in Saudi Arabia  Selects high-risk patients on age and/or presence of other pre-existing risk factors for possible early screening	Critically appraise research findings about sickle cell anemia using PICO model	Keeps up to date with local screening and management guidelines  Requests investigations according to local protocol  Complies with professional responsibility with regard to disease registry
Performs the standardized general, abdominal, CNS, and MSK exam, ensuring the patient's comfort	Counsels and educate parents on the importance of early diagnosis and prophylaxis					
Generates differential diagnosis						
Differentiates between different sickle cell crises						
Initiates appropriate investigations guided by differential diagnosis						
Interprets critical clinical, laboratory, and imaging findings						
Outlines the medical management according to updated guidelines						

## Gastroenteritis (Emergency Visit)

Medical Expert	Communicator	Collaborator	Manager	Health Advocate	Scholar	Professional
Obtains an efficient, focused history on vomiting, diarrhea, abdominal pain or distension, associated symptoms (fever, decreased activity, dehydration)	Counsels parents on the causative factors, importance of hygiene	Liaises effectively with general, gastroenterology, intensive care teams, nursing, clinical pharmacist, and social work services	Gives parents leaflets and necessary information about gastroenteritis and its effect on children's hydration	Responds to individual patient health needs and issues as part of patient care	Critically appraises research findings about gastroenteritis and dehydration using PICO model	Keeps up to date with diagnosis and management guidelines  Requests investigations according to local protocol
Performs the standardized general, abdominal, and CNS exam, ensuring the patient's comfort	Communicates with patient and his/her parents about the diagnosis and prognosis					Complies with professional responsibility with regard to disease registry, if applicable
Generates differential diagnosis	Counsels and educate patients and their parents on the role of early diagnosis and prophylaxis					
Differentiates between different degrees of dehydration and causes of gastroenteritis						
Initiates appropriate investigations guided by differential diagnosis						
Interprets critical clinical and laboratory investigations						
Outlines the medical management according to updated guidelines						

## Bronchial Asthma (Inpatient Admission)

Medical Expert	Communicator	Collaborator	Manager	Health Advocate	Scholar	Professional
Obtains an efficient, focused history in relation to cough (e.g., onset, duration, aggravating or relieving factors, character (wet or dry) associated symptoms (fever), and increased work of breathing, limitation of activity, diurnal variation)	Counsels parents on the aggravating and relieving factors, use of inhalers, nebulizers, and other drug delivery devices	Liaises effectively with allergy/immunology, respiratory, nursing, clinical pharmacist, and social work services	Puts patient in touch with bronchial asthma support group if available	Respond to individual patient health needs and issues as part of patient care in Saudi Arabia	Critically appraise research findings about bronchial asthma using PICO model	Keeps up to date with local screening and management guidelines  Requests investigations according to local protocol
Obtains family history/personal of bronchial asthma or atopy	Communicates with patient and his/her parents about the diagnosis and prognosis			Selects high-risk patients on age and/or presence of other pre-existing risk factors for possible early screening and immunization		
Performs the standardized respiratory examination, ensuring the patient's comfort						
Generates differential diagnosis respiratory distress and wheezing	Counsels and educate patients and their parents on the role of early diagnosis and prophylaxis					
Differentiates between different respiratory causes of disease exacerbations						
Initiates appropriate investigations guided by differential diagnosis						
Interprets critical clinical, laboratory, and imaging findings of different respiratory diseases						
Outlines the medical management according to updated guideline						

## Generic Competencies

Generic Problems and Issues will address “health” and “preventive” aspects of pediatrics that are not generally covered under the presenting problem based model. (With written permission from COMSEP)

- Health supervision
- Growth
- Development
- Prevention
- Nutrition
- Behavior
- Therapeutics
- Adolescence
- Acute pediatric care
- Chronic pediatric care
- Fluid and electrolytes management
- Poisoning
- Pediatric emergencies
- Child abuse
- Child advocacy

## Health Supervision

<b>Rationale</b>	Health supervision includes assessment of growth and development, prevention of disease by immunization, prevention of injury by education, screening for treatable conditions and promotion of a healthy environment and a healthy lifestyle. It is an essential component of pediatric practice and primary care.
<b>Prerequisites</b>	<ol style="list-style-type: none"> <li>1. Introductory data gathering skills</li> <li>2. Knowledge of metabolic processes in the body including the respective roles of dietary fats, carbohydrates, and protein, and the need for vitamins and minerals</li> <li>3. Knowledge of normal immune responses, mechanisms of immunization, and modes of transmission of communicable diseases</li> <li>4. Knowledge of clinical epidemiological concepts and the appropriate uses of screening in clinical medicine and the characteristics of a good screening test (i.e., sensitivity, specificity, positive and negative predictive values)</li> </ol>
<b>Competencies</b>	<p><i>Knowledge</i></p> <ol style="list-style-type: none"> <li>1. List the most common preventable morbidities in childhood and describe strategies for prevention.</li> <li>2. Describe the components of a health supervision visit, including health promotion and disease and injury prevention, the appropriate use of screening tools, and immunizations for newborns, infants, toddlers, school-aged children, and adolescents.</li> <li>3. Describe the rationale for childhood immunizations.</li> <li>4. Discuss the rationale for screening tests (such as CBC, urinalysis, and PPD).</li> <li>5. Describe the indications, appropriate use, interpretation, and limitations of the following screening tests:             <ol style="list-style-type: none"> <li>a- Neonatal screening</li> <li>b- Developmental screening</li> <li>c- Hearing and vision screening</li> <li>d- Anemia screening</li> <li>e- Tuberculosis testing</li> </ol> </li> <li>6. Define anticipatory guidance and describe how it changes based on the age of the child.</li> </ol> <p><i>Skills</i></p> <p>Demonstrate an ability to provide age-appropriate anticipatory guidance about:</p> <ol style="list-style-type: none"> <li>1. nutrition</li> <li>2. behavior</li> <li>3. immunizations</li> <li>4. injury prevention</li> <li>5. pubertal development</li> <li>6. sexuality</li> <li>7. substance use and abuse</li> </ol>
<b>Processes</b>	All residents, during the course of pediatric training, should provide health supervision to infants, toddlers, school-aged, and adolescent children.

## Growth

<b>Rationale</b>	Growth is a defining feature of childhood. Genetic and environmental factors influence the rate of growth and the final stature and body habitus the child attains. Regular monitoring of growth provides the clinician with one of the best indicators of the underlying health of the child.
<b>Prerequisites</b>	1. Knowledge of the genetic, endocrine, nutritional, and psychosocial influences on growth.
<b>Competencies</b>	<i>Knowledge</i>
	<ol style="list-style-type: none"> <li>1. Describe variants of normal growth in healthy children, (e.g., familial short stature and constitutional delay).</li> <li>2. Identify and describe abnormal growth patterns based on the family growth history and the child's previous growth (e.g., microcephaly, macrocephaly, short stature, obesity, growth abnormalities related to specific physical findings).</li> <li>3. Identify failure to thrive and overweight/obesity in a child or adolescent using body mass index (BMI) and other growth measures and outline the differential diagnosis and initial evaluation.</li> </ol>
	<i>Skills</i>
	<ol style="list-style-type: none"> <li>1. Demonstrate ability to measure and assess growth, including height/length, weight, and head circumference and body mass index in patient encounters using standard growth charts.</li> </ol>
<b>Processes</b>	<ol style="list-style-type: none"> <li>1. All residents on pediatric training should manage patients with real or possible (e.g., parental concerns) issues related to growth (e.g., failure to thrive, obesity, short stature, macrocephaly, microcephaly, constitutional delay, small for gestation age).</li> <li>2. This can take place in the context of a well-child examination or a child with a known disorder.</li> </ol>

## Development

<b>Rationale</b>	<p>The physical maturation and intellectual, social, and motor development of the child follow predictable patterns, and provide the physician with a good indicator of the child's health and neurological function.</p> <p>The clinician must be familiar with normal patterns of development in order to detect deviations that might be the first sign of a medical or psychosocial problem.</p>
<b>Prerequisites</b>	<ol style="list-style-type: none"> <li>1. Knowledge of neurology and neurobiological development of children</li> </ol>
<b>Competencies</b>	<p><i>Knowledge</i></p> <ol style="list-style-type: none"> <li>1- Describe the four developmental domains of childhood as defined by the Denver developmental exam (e.g., gross motor, fine motor, language, and social development).</li> <li>2- Describe how abnormal findings on the development screening tools would suggest a diagnosis of developmental delay, autism, pervasive developmental delay, and mental retardation.</li> <li>3- Describe the initial evaluation and need to refer a patient with evidence of developmental delay or abnormality.</li> <li>4- Define anticipatory guidance and describe how it changes based on the age of the child.</li> </ol>
	<p><i>Skills</i></p> <ol style="list-style-type: none"> <li>1- Demonstrate an ability to assess psychosocial, language, physical maturation, and motor development in pediatric patients using appropriate resources (e.g., Bright Futures, the Denver Developmental Standard Test 2, and HEADSS). Key features might include the following:               <ol style="list-style-type: none"> <li>a. Newborn/infant - Disappearance of primitive reflexes; changes in tone and posture; cephalocaudal progression of motor milestones during the first year; stranger anxiety.</li> <li>b. Toddler/child - Separation and autonomy in two- to three-year olds; sequence of language development; concept of school readiness</li> <li>c. Adolescent - Sequence of physical maturation (e.g., Tanner scales), cognitive development, and assessment of psychosocial and emotional development (e.g., HEADSS).</li> </ol> </li> </ol>
<b>Processes</b>	<ol style="list-style-type: none"> <li>1- All residents on pediatric training should manage patients with real or possible (e.g., parental concerns) issues related to development (e.g., delayed or possibly delayed language, motor, fine motor, or social adaptive skills).</li> </ol>

## Prevention

<b>Rationale</b>	Physicians routinely incorporate strategies for prevention of illness and injury into routine health supervision. Immunizations have resulted in a drastic reduction in the rates of certain infectious diseases. Injuries cause the majority of deaths in childhood and adolescence. Illness and injury prevention must be a prominent and recurrent theme during health maintenance and other health care visits. The American Academy of Pediatrics and most medical groups no longer use the term “accident,” as most childhood injuries are believed to be predictable and preventable.
<b>Prerequisites</b>	<ol style="list-style-type: none"> <li>1- Knowledge of clinical epidemiologic concepts as they pertain to estimation of health risk and prevention of illness and injury.</li> <li>2- Understanding of the impact that culture, socioeconomic status, and environment have on illness and injury prevalence and patterns.</li> <li>3- An understanding of childhood development in order to better understand risk and provide age-appropriate prevention strategies.</li> </ol>
<b>Competencies</b>	<p><i>Knowledge</i></p> <ol style="list-style-type: none"> <li>1- Describe how risk of illness and injury change during growth and development and give examples of the age- and development-related illnesses and injuries.</li> <li>2- List the immunizations currently recommended from birth through adolescence and identify patients whose immunizations are delayed.</li> <li>3- Describe the rationale, and general indications and contraindications of immunizations. Explain how screening for family violence may serve as an important preventive health practice.</li> <li>4- Describe the key components of a pre-participation sports physical.</li> <li>5- Describe infection control precautions that help limit the spread of infectious diseases in patients and health care providers (e.g., hand washing, masks, and N-95 masks in patients with tuberculosis).</li> </ol> <p><i>Skills</i></p> <ol style="list-style-type: none"> <li>1. Provide age-appropriate anticipatory guidance for the following: motor vehicle safety, infant sleeping position, falls, burns, poisoning, fire safety, choking, water safety, bike safety, sexually transmitted diseases, and firearms and weapons.</li> </ol>



## Nutrition

<b>Rationale</b>	<ol style="list-style-type: none"> <li>1- Proper nutrition promotes growth and helps maintain health.</li> <li>2- Some degree of assessment of nutrition is a component of almost every pediatric medical visit.</li> <li>3- In patients presenting with abnormal growth, nutritional assessment is central to diagnosis and treatment.</li> </ol>
<b>Prerequisites</b>	<ol style="list-style-type: none"> <li>1- The appropriate balance of food groups</li> <li>2- Basic science course work on body metabolism, the respective roles of dietary fats, carbohydrates, and protein, and the need for vitamins and minerals.</li> <li>3- The role of nutrition in preventive health</li> </ol>
<b>Competencies</b>	<p><b>Knowledge</b></p> <ol style="list-style-type: none"> <li>1- Describe the advantages of breastfeeding and describe common difficulties experienced by breastfeeding mothers.</li> <li>2- Describe the signs and symptoms of common nutritional deficiencies in infants and children (e.g., iron, vitamin D, and inappropriate caloric volume) and how to prevent them.</li> <li>3- Identify children with specific or special nutritional needs (e.g., patients with chronic illness, prematurity, abnormal growth patterns, failure to thrive, obesity, or when family risk factors suggest the possibility that nutritional modification will be needed).</li> <li>4- Describe nutritional factors that contribute to the development of childhood obesity and to failure to thrive.</li> <li>5- Discuss risk factors for the development of cardiac disease and diabetes with families.</li> <li>6- Describe the endocrine, cardiovascular, and orthopedic consequences of childhood obesity.</li> </ol> <p><b>Skills</b></p> <ol style="list-style-type: none"> <li>1. Obtain a dietary history in children of different ages that includes the following:             <ol style="list-style-type: none"> <li>a. Infants: type, amount, and frequency of breast or formula feeding, solid foods, and dietary supplements (vitamins iron)</li> <li>b. Toddler/school age child: milk, juice, soda, fast foods, and meal patterns</li> <li>c. Adolescents: meal patterns, nutritional supplements, milk, juice, soda, alcohol, snacking, and fad diets</li> </ol> </li> <li>2. Determine the caloric adequacy of an infant's diet.</li> <li>3. Provide nutritional advice to families regarding the following:             <ol style="list-style-type: none"> <li>a. Breastfeeding vs. formula feeding</li> <li>b. Addition of solids to an infant's diet</li> <li>c. Introduction of cow's milk to an infant's diet</li> <li>d. Healthy food choices for children and adolescents</li> <li>e. Exercise and TV or video viewing and their effect on obesity</li> </ol> </li> </ol>
<b>Processes</b>	<ol style="list-style-type: none"> <li>1. All residents on pediatric training should manage a patient or patients with self or parental concerns or questions about appropriate nutrition (e.g., failure to thrive, questions about breast vs. bottle feeding, questions about switching to formula, when to add solids).</li> <li>2. This can be in the context of a routine health care supervision visit.</li> </ol>

## Behavior

<b>Rationale</b>	<p>Providing anticipatory guidance, especially in the areas of normative or expected behaviors, and identification of abnormal behavior is critical to pediatric practice.</p> <p>Knowledge of age-appropriate behavior allows the physician to recognize deviant behaviors and facilitates earlier intervention</p>
<b>Prerequisites</b>	<ol style="list-style-type: none"> <li>1. Recognition that the developmental tasks of infancy, childhood, and adolescence differ.</li> <li>2. Knowledge of the genetic and environmental influences on behavior and behavioral patterns.</li> </ol>
<b>Competencies</b>	<p><i>Knowledge</i></p> <ol style="list-style-type: none"> <li>1. Identify normal patterns of behavior in the developing child, such as:             <ol style="list-style-type: none"> <li>a. newborn/infants: development and evolution of social skills</li> <li>b. toddler: autonomy</li> <li>c. school age: independence</li> <li>d. adolescence: abstract thinking</li> </ol> </li> <li>2. Describe the typical presentation of common behavioral problems and issues in different age groups, such as:             <ol style="list-style-type: none"> <li>a. newborn/infants: sleep problems, colic</li> <li>b. toddler: temper tantrums, toilet training, feeding problems</li> <li>c. school age: enuresis, attention deficit, encopresis, autism</li> <li>d. adolescence: eating disorders, risk-taking behavior, conduct disorders</li> </ol> </li> <li>3. Describe the emotional disturbances or medical conditions that may manifest as alterations in school performance and peer or family relationships.</li> <li>4. Distinguish between age-appropriate behavior, inappropriate or abnormal behavior, and those that suggest severe psychiatric or development illness in children of different ages (e.g., head banging, threatening gestures, suicidal).</li> <li>5. Describe how somatic complaints may represent psychosocial problems (e.g., recurrent abdominal pain, headache, fatigue, and neurologic complaints).</li> <li>6. Describe the types of situations where pathology in the family (e.g., alcoholism, domestic violence, depression) contributes to childhood behavior problems.</li> </ol> <p><i>Skills</i></p> <ol style="list-style-type: none"> <li>1- Identify behavioral and psychosocial problems of childhood using the medical history and physical examination.</li> <li>2- Counsel parents and children about the management of common behavioral concerns, such as discipline, toilet training, and eating disorders.</li> </ol>
<b>Processes</b>	<ol style="list-style-type: none"> <li>1. All residents on pediatric training should manage a patient or patients with an individual or parental concern over a specified behavior or group of behaviors (e.g., sleep problems, colic, temper tantrums, toilet training, feeding problems, enuresis, attention deficit, encopresis, autism, eating disorders, conduct disorders, head banging, poor school performance).</li> </ol>

## THERAPEUTICS

<b>Rationale</b>	<ol style="list-style-type: none"> <li>1. Appropriate and successful treatment requires choice of the correct medication, the appropriate dose, and both a dosage form and a dosing regimen that will maximize compliance.</li> <li>2. The pharmacokinetics (absorption, metabolism, distribution, and elimination) of medications change under the influence of growth and physiologic maturation.</li> <li>3. Child behavior and psychomotor development influence the form of medication dispensed and the expectation for compliance.</li> </ol>
<b>Prerequisites</b>	<ol style="list-style-type: none"> <li>1. Knowledge of general pharmacokinetics and pharmacodynamics.</li> <li>2. Knowledge of the physiologic and behavioral changes that occur during childhood.</li> </ol>
<b>Competencies</b>	<p><b>Knowledge</b></p> <ol style="list-style-type: none"> <li>1. Describe how to assess whether a drug is excreted in the breast milk and safe to use by a breast-feeding mother.</li> <li>2. List medications such as aspirin, tetracycline, and oral retinoic acid that are contraindicated or must be used with extreme caution in specific pediatric populations.</li> <li>3. Describe the appropriate use of the following common medications in the outpatient setting, including when it is NOT appropriate to treat with a medication:             <ol style="list-style-type: none"> <li>a. Analgesics/antipyretics</li> <li>b. Antibiotics</li> <li>c. Bronchodilators</li> <li>d. Corticosteroids</li> <li>e. Cough and cold preparations</li> <li>f. Ophthalmic preparations</li> <li>g. Optic preparations</li> <li>h. Vitamin/mineral supplements</li> </ol> </li> <li>4. Select generally accepted pharmacologic therapy for common or life-threatening conditions in pediatric patients. These conditions could include common conditions seen in ambulatory settings such as:             <ol style="list-style-type: none"> <li>a. Acne</li> <li>b. Acute otitis media</li> <li>c. Allergic rhinitis</li> <li>d. Asthma</li> <li>e. Atopic dermatitis</li> <li>f. Candida dermatitis</li> <li>g. Fever</li> <li>h. Impetigo</li> <li>i. Streptococcal pharyngitis</li> <li>j. Common conditions seen in hospitalized patients</li> <li>k. Life threatening conditions</li> <li>l. Sepsis/meningitis</li> <li>m. Status epilepticus</li> </ol> </li> </ol> <p>1- Describe the ways medication errors are systemically prevented.</p> <p><b>Skills</b></p> <ol style="list-style-type: none"> <li>1- Calculate a drug dose for a child based on body weight.</li> <li>2- Write a prescription, for example, for a common medication, such as an antibiotic.</li> <li>3- Negotiate a therapeutic plan with the patient and family to maximize adherence with the agreed upon treatment regimens and assess the family's understanding of the plan.</li> </ol>

## Adolescence Health Care

<b>Rationale</b>	<ol style="list-style-type: none"> <li>1. Adolescence represents the stage of human growth and development between childhood and adulthood.</li> <li>2. During this time, significant physical, cognitive, and psychosocial changes occur.</li> </ol>
<b>Prerequisites</b>	<ol style="list-style-type: none"> <li>1. Introductory communication and interviewing skills</li> <li>2. Knowledge of the anatomy, physiology, and endocrinology related to growth and development</li> <li>3. A framework for understanding childhood reproduction</li> </ol>
<b>Competencies</b>	<p><i>Knowledge</i></p> <ol style="list-style-type: none"> <li>1- Describe the unique features of the physician-patient relationship during adolescence, including confidentiality and consent.</li> <li>2- Identify and describe the sequence of the physical changes of puberty (e.g., Tanner scale).</li> <li>3- List the components of health supervision for an adolescent, such as personal habits, pubertal development, immunizations, acne, obesity, diabetes, scoliosis, sports participation, and indications for pelvic exam.</li> <li>4- Describe the common risk-taking behaviors of adolescents, such as early and unsafe driving, smoking, alcohol, and other drug use, sexual activity, and violence.</li> <li>5- Describe the contributions of unintentional injuries, homicide, suicide, and HIV/AIDS to the morbidity and mortality of adolescents.</li> <li>6- Describe the features of common mental health problems in adolescence, including school failure, attention deficit, body image, eating disorders, depression, and suicide.</li> <li>7- Describe an approach to counsel an adolescent regarding substance abuse and personal safety.</li> <li>8- Describe the unique difficulties encountered by adolescents with chronic diseases, including adherence and issues of autonomy vs. dependence.</li> <li>9- Discuss the characteristics of early, mid-, and late adolescence in the terms of cognitive and psychosocial development.</li> </ol> <p><i>Skills</i></p> <ol style="list-style-type: none"> <li>1- Interview an adolescent patient, using the HEADSS method, to ask sensitive questions about lifestyle choices that affect health and safety (e.g., sexuality, drug, tobacco, and alcohol use) and give appropriate counseling</li> <li>2- Conduct a physical examination of an adolescent that demonstrates respect for privacy and modesty, employing a chaperone when appropriate.</li> <li>3- Conduct a pre-participation sports examination and demonstrate the key components of that examination necessary to clear an individual for participation in strenuous exercise (special senses, cardiac, pulmonary, neurological, and musculoskeletal).</li> <li>4- Conduct a health supervision visit for a healthy adolescent, incorporating a psychosocial interview, developmental assessment, and appropriate screening and preventive measures.</li> </ol>
<b>Processes</b>	All residents in pediatrics should manage adolescent patient or patients.

## Acute Pediatric Illnesses

<b>Rationale</b>	<p>Patients often come to medical attention because of a specific problem or complaint. The physician must solve the problems posed by the patient using information obtained from the history, the physical examination and, when appropriate, laboratory tests, and/or imaging studies. In the problem-solving process, the physician typically develops differential diagnoses for each of the problems identified. The diagnostic process demands knowledge of disease etiology, pathophysiology, and epidemiology and of the patient's gender, ethnicity, environment, and prior health status.</p> <p>When the patient is an infant, child, or adolescent, the physician must also consider the effects of age, physical growth, developmental stage, and family environment. Commonly occurring illnesses are first considered, but other, less common disorders may need to be included in the evaluation of various clinical problems.</p>
<b>Prerequisites</b>	<ol style="list-style-type: none"> <li>1. Pathophysiology of common diseases</li> <li>2. Fundamentals of epidemiology</li> <li>3. Principles of pharmacology including pharmacokinetics and pharmacodynamics, and indications for drugs</li> <li>4. Basic clinical data gathering skills</li> </ol>
<b>Competencies</b>	<p><i>Knowledge</i></p> <ol style="list-style-type: none"> <li>1- List the age-appropriate differential diagnosis for pediatric patients presenting with each of the following symptoms.             <ol style="list-style-type: none"> <li>a. Abdominal pain</li> <li>b. Cough and/or wheeze</li> <li>c. Diarrhea</li> <li>d. Fever and rash</li> <li>e. Fever without a source</li> <li>f. Headache</li> <li>g. Lethargy or irritability</li> <li>h. Limp or extremity pain</li> <li>i. Otalgia</li> <li>j. Rash</li> <li>k. Rhinorrhea</li> <li>l. Seizures</li> <li>m. Sore throat</li> <li>n. Vomiting</li> </ol> </li> <li>2- List the age-appropriate differential diagnosis for pediatric patients presenting with each of the following physical findings:             <ol style="list-style-type: none"> <li>a. Abdominal mass</li> <li>b. Bruising</li> <li>c. Heart murmur</li> <li>d. Hepatomegaly</li> <li>e. Lymphadenopathy</li> <li>f. Splenomegaly</li> <li>g. Petechiae and/or purpura</li> <li>h. Red or wandering eye</li> </ol> </li> </ol>

i. White pupillary reflex

- 3- List the age-appropriate differential diagnosis for pediatric patients presenting with each of the following laboratory findings:
  - a. Anemia
  - b. Hematuria
  - c. Proteinuria
  - d. Positive Mantoux skin test (PPD)
- 4- Describe the epidemiology, clinical, laboratory, and radiographic findings, of each of the core pediatric level conditions listed for each presenting complaint.
- 5- Explain how the physical manifestations of disease and the evaluation and management may vary with the age of the patient. Be able to give specific examples.
- 6- Discuss the characteristics of the patient and the illness that must be considered when making the decision to manage the patient in the hospital or in the outpatient setting.
- 7- Describe the epidemiology, clinical, laboratory, and radiographic finding for each of the mastery level conditions listed for each presenting complaint.

**Skills**

- 1- Perform an age-appropriate history and physical examination pertinent to the presenting complaint of the child.
- 2- Generate an age-appropriate differential diagnosis and initial diagnostic and therapeutic plan for each patient presenting with one of the following symptoms, physical examination findings, or laboratory findings.

Symptoms	Physical examination findings	Laboratory tests
1. Abdominal pain	1. Abdominal mass	1. Anemia
2. Cough and/or wheeze	2. Bruising	2. Hematuria
3. Diarrhea	3. Heart murmur	3. Proteinuria
4. Fever and rash	4. Hepatomegaly	4. Positive Mantoux skin test (PPD)
5. Fever without a source	5. Lymphadenopathy	
6. Headache	6. Petechiae and/or purpura	
7. Lethargy or irritability	7. Splenomegaly	
8. Limp or extremity pain	8. Red or wandering eye	
9. Otagia	9. White pupillary reflex	
10. Rash		
11. Rhinorrhea		
12. Seizures		
13. Sore throat		
14. Vomiting		

**Processes** All residents on pediatric training should see a patient or patients with the following system or symptom based complaints:

1. Upper respiratory tract complaint, such as sore throat, difficulty swallowing, otalgia

2. Lower respiratory tract complaint, such as cough, wheeze, shortness of breath
3. Gastrointestinal tract complaint, such as nausea, vomiting, diarrhea, abdominal pain
4. Skin or mucous membrane complaint, such as rash, pallor
5. Central nervous system complaint, such as headache, lethargy, irritability, fussiness
6. Fever without localizing findings

## Chronic Pediatric Illnesses

<b>Rationale</b>	<ol style="list-style-type: none"> <li>1. Pediatricians are more frequently being asked to care for children with chronic medical conditions and exacerbations of their chronic illness.</li> <li>2. Physicians will need to understand the long-term medical needs, implications, and complications of the disorder for the patient as well as the family.</li> </ol>
<b>Prerequisites</b>	<ol style="list-style-type: none"> <li>1. An understanding of the pathophysiology and epidemiology of the following chronic illnesses: allergies, asthma, sensory impairment, cerebral palsy disability, cystic fibrosis, sickle cell disease, seizure disorder, diabetes mellitus, childhood malignancy, AIDS</li> </ol>
	<p><b>Knowledge</b></p> <ol style="list-style-type: none"> <li>1. Describe the clinical features of chronic medical conditions seen in children, such as:             <ol style="list-style-type: none"> <li>a. Asthma</li> <li>b. Atopic dermatitis</li> <li>c. Cerebral palsy</li> <li>d. Cystic fibrosis</li> <li>e. Diabetes mellitus</li> <li>f. Epilepsy</li> <li>g. Malignancy (e.g., acute lymphocytic leukemia and Wilms' tumor)</li> <li>h. Obesity</li> <li>i. Seasonal allergies</li> <li>j. sickle cell disease</li> <li>k. HIV/AIDS</li> <li>l. Sensory impairment</li> </ol> </li> <li>2. Describe how chronic illness can influence a child's growth and development, educational achievement, and psychosocial functioning.</li> <li>3. Describe the impact that chronic illness has on the family's emotional, economic, and psychosocial functioning.</li> <li>4. Describe the impact of a patient's culture on the understanding, reaction to, and management of a chronic illness.</li> <li>5. Describe the contributions of each member of a multidisciplinary health care team in caring for children with a chronic illness.</li> <li>6. Identify the key components of delivering "Bad News" in relation to chronic illness.</li> <li>7. Explain the management strategies for common chronic illnesses seen in children, such as asthma, seasonal allergies, diabetes, and atopic dermatitis.</li> </ol> <p><b>Skills</b></p> <ol style="list-style-type: none"> <li>1- Perform a medical interview and a physical examination in a child with a chronic illness that includes the effects of the chronic illness on growth and development, emotional, economic, and psychosocial functioning of the patient and family, and the treatments used, including "complementary and alternative therapies."</li> </ol>
<b>Processes</b>	<ol style="list-style-type: none"> <li>1. Residents on the training should see one or more patients with one of the chronic medical conditions listed above.</li> <li>2. This can be in the context of an acute or routine visit.</li> </ol>



## Fluid and Electrolyte Management

Rationale	<ol style="list-style-type: none"> <li>1. All human beings need an uninterrupted supply of water, electrolytes, and energy.</li> <li>2. Excessive or diminished fluid intake or losses may lead to severe physiologic derangements, with significant morbidity and even mortality.</li> </ol>
Prerequisites	<ol style="list-style-type: none"> <li>1. The relationship between basal metabolic rate and daily water requirements</li> <li>2. Daily glucose requirements</li> <li>3. The role of the adrenal gland and antidiuretic hormone (ADH) in maintaining serum sodium and body water balance</li> <li>4. Pathophysiology of hypernatremic and hyponatremic dehydration</li> </ol>
Competencies	<b>Knowledge</b> <ol style="list-style-type: none"> <li>1- Describe the conditions in which fluid administration may need to be restricted (such as the syndrome of inappropriate ADH secretion, congestive heart failure, or renal failure) or increased, (e.g. fever).</li> <li>2- Describe the physical findings in hypovolemic shock and the approach to restoration of circulating fluid volume (i.e., "rescue" fluid infusion).</li> <li>3- Describe the causes and consequences of fluid imbalances and electrolyte disturbances leading to dehydration and such conditions as hypernatremia, hyponatremia, hyperkalemia, hypokalemia, and severe metabolic acidosis.</li> </ol>
	<b>Skills</b> <ol style="list-style-type: none"> <li>1- Obtain historical and physical finding information necessary to assess the hydration status of a child.</li> <li>2- Calculate and write orders for intravenous maintenance fluids for a child considering daily water and electrolyte requirements.</li> <li>3- Calculate and write orders for fluid therapy for a child with severe dehydration caused by gastroenteritis to include "rescue" fluid to replenish circulating volume, deficit fluid, and ongoing maintenance.</li> <li>4- Explain to parents how to use oral rehydration therapy for mild to moderate dehydration.</li> </ol>

## Poisoning

<b>Rationale</b>	<ol style="list-style-type: none"> <li>1. Poisonings and ingestions are major preventable causes of childhood morbidity and mortality.</li> </ol>
<b>Prerequisites</b>	<ol style="list-style-type: none"> <li>1. Knowledge of the routes of absorption of toxins including the gastrointestinal tract, the skin, and lungs</li> <li>2. An understanding that a relationship exists between the mechanism of injury, the child, and the environment</li> <li>3. The concept of therapeutic index</li> </ol>
<b>Competencies</b>	<p><i>Knowledge</i></p> <ol style="list-style-type: none"> <li>1- Describe the developmental vulnerability for poisoning and accidental ingestions in infants, toddlers, children, and adolescents.</li> <li>2- List the ages at which prevalence of unintentional and intentional poisonings is highest and the passive and active interventions that decrease the incidence of childhood ingestions (e.g., locks or safety caps).</li> <li>3- Describe the emotions of guilt and anxiety that may be present in the parent, caregiver, or child at the time of ingestion.</li> <li>4- Describe the environmental sources of lead, the clinical and social importance of lead poisoning, and screening tools to identify children at risk for lead poisoning.</li> <li>5- Describe the acute signs and symptoms of accidental or intentional ingestion of acetaminophen, iron, alcohol, narcotics PCP (phencyclidine), tricyclic antidepressants, volatile hydrocarbons, and caustics.</li> <li>6- Describe the immediate emergency management of children with toxic ingestions e.g. acetaminophen, iron, hydrocarbons, and strong alkali.</li> <li>7- Describe the role of the Poison Control Center and other information resources in the management of a patient with an accidental or intentional ingestion.</li> <li>8- Describe the agents and acute signs and symptoms of intentional chemical (e.g., cholinergic) or biologic agents.</li> </ol> <p><i>Skills</i></p> <ol style="list-style-type: none"> <li>1- Provide anticipatory guidance regarding home safety and appropriate techniques to prevent accidental ingestions.</li> <li>2- Elicit a complete history when evaluating an unintentional ingestion or exposure to a toxic substance (including the substance, the route of exposure, the quantity, timing, and general preventive measures in the household).</li> <li>3- Elicit a complete history surrounding the intentional ingestion of a toxic substance (including the substance, route of exposure, amount, timing, antecedent events, and stressors).</li> </ol>

## Pediatric Emergencies

<b>Rationale</b>	<ol style="list-style-type: none"> <li>1. All health care providers must be able to identify the infant, child, or adolescent with a medical emergency.</li> <li>2. A systematic and thorough approach to the seriously ill child may significantly reduce morbidity and mortality.</li> </ol>																												
<b>Prerequisites</b>	<ol style="list-style-type: none"> <li>1. Knowledge of the cardiopulmonary responses to decreased or relatively decreased intravascular volume</li> <li>2. Certification in basic cardiopulmonary resuscitation</li> </ol>																												
<b>Competencies</b>	<p><b>Knowledge</b></p> <ol style="list-style-type: none"> <li>1- List the symptoms of and describe the initial emergency management of shock, respiratory distress, lethargy, apnea, and status epilepticus in pediatric patients.</li> <li>2- Describe the age-appropriate differential diagnosis and the key clinical findings that would suggest a diagnosis for each of the emergent clinical problems in the table below.</li> <li>3- Describe the clinical findings for each of the diagnosis to consider in the table below.</li> </ol>																												
	<table> <tr> <th>Emergent Clinical Problem</th><th>Diagnoses to Consider (Core Level)</th><th>Diagnoses to Consider (Mastery Level)</th></tr> <tr> <td>Airway obstruction/respiratory distress</td><td>Croup, bronchiolitis, asthma, pneumonia, foreign body aspiration, anaphylaxis</td><td>Peritonsillar or retropharyngeal abscess</td></tr> <tr> <td>Altered mental status (Delirium/lethargy)</td><td>Head injury, increased ICP, substance abuse, infection (encephalitis, meningitis), diabetic ketoacidosis, hypoglycemia, abuse, shock, hypoxemia</td><td>Intussusception</td></tr> <tr> <td>Apnea</td><td>Acute life-threatening event (ALTE), seizures, and respiratory infections (RSV and pertussis), GERD, sepsis</td><td>Cardiac dysrhythmias, breath holding</td></tr> <tr> <td>Ataxia</td><td></td><td>Ingestion, infection, and tumor</td></tr> <tr> <td>Gastrointestinal bleeding</td><td>Meckel's diverticulum, fissure, intussusception</td><td>Inflammatory bowel disease, allergic colitis, peptic ulcer disease</td></tr> <tr> <td>Injuries and accidents</td><td>Animal bites, minor head injury, nursemaid's elbow</td><td>Sprains and fractures, burns, near drowning, lacerations</td></tr> <tr> <td>Proptosis</td><td></td><td>Tumor and orbital cellulitis</td></tr> <tr> <td>Seizures</td><td>Infection (i.e., meningitis or encephalitis), status epilepticus, febrile, ingestion, hypoxemia, shock, electrolyte disturbances</td><td>tumor</td></tr> </table>	Emergent Clinical Problem	Diagnoses to Consider (Core Level)	Diagnoses to Consider (Mastery Level)	Airway obstruction/respiratory distress	Croup, bronchiolitis, asthma, pneumonia, foreign body aspiration, anaphylaxis	Peritonsillar or retropharyngeal abscess	Altered mental status (Delirium/lethargy)	Head injury, increased ICP, substance abuse, infection (encephalitis, meningitis), diabetic ketoacidosis, hypoglycemia, abuse, shock, hypoxemia	Intussusception	Apnea	Acute life-threatening event (ALTE), seizures, and respiratory infections (RSV and pertussis), GERD, sepsis	Cardiac dysrhythmias, breath holding	Ataxia		Ingestion, infection, and tumor	Gastrointestinal bleeding	Meckel's diverticulum, fissure, intussusception	Inflammatory bowel disease, allergic colitis, peptic ulcer disease	Injuries and accidents	Animal bites, minor head injury, nursemaid's elbow	Sprains and fractures, burns, near drowning, lacerations	Proptosis		Tumor and orbital cellulitis	Seizures	Infection (i.e., meningitis or encephalitis), status epilepticus, febrile, ingestion, hypoxemia, shock, electrolyte disturbances	tumor	
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	Shock	Sepsis, severe dehydration, diabetic ketoacidosis, anaphylaxis, congestive heart failure, and ingestion	Burns, neurogenic shock, ductal dependent heart lesions, and adrenal insufficiency
	Suicidal ideation	Depression	
	<b>Skills</b>		
	1- Demonstrate the appropriate anticipatory guidance to prevent life-threatening conditions (e.g., infant positioning for sudden infant death syndrome [SIDS], locks to prevent poisoning, and the use of car seats and bicycle helmets). 2- Demonstrate the “ABC” assessment as a means for identifying who requires immediate medical attention and intervention.		
<b>Processes</b>	1. All pediatric residents in training should manage patients in the emergency department, real or simulated, with respiratory distress.		

## Child Abuse

<b>Rationale</b>	1. Abuse may include physical, sexual, and/or emotional trauma or may occur in the form of neglect when caregivers fail to provide basic physical, psychological, or medical needs. 2. Recognition of abuse or neglect can dramatically affect a child’s life. 3. Residents and other health care providers need to understand the medical, legal, and social implications of suspected abuse and recognize the role of the physician in preventing child abuse and family violence, through routine assessment of family dynamics, early identification of children at risk, and cooperation with community services that support families.
<b>Prerequisites</b>	1. Basic clinical data gathering and communication skills with families and professionals 2. Knowledge of the epidemiology of domestic violence including those factors that increase the risk of domestic violence
<b>Competencies</b>	<b>Knowledge</b> 1- List characteristics of the history and physical examination that should trigger concern for possible physical, sexual, and psychological abuse and neglect, such as inconsistency in the history, unexplained delays in seeking care, injuries with specific patterns or distributions on the body, or injuries incompatible with the child’s development. 2- Describe the medical-legal importance of a full, detailed, carefully documented history, and physical examination in the evaluation of child abuse. 3- Discuss the concurrence of domestic violence and child abuse and describe markers that suggest the occurrence of family violence. 4- Describe the unique communication skills required to work with families around issues of maltreatment. 5- Summarize the responsibilities of the “mandatory reporter” to identify and report suspected child abuse. Know to whom such a report should be made.

## Child Advocacy

<b>Rationale</b>	<ol style="list-style-type: none"> <li>1. Physicians have a variety of roles in child health, including a public health role wherein they serve as patient and family advocates.</li> <li>2. Since children are unable to advocate for themselves and many of their families are not empowered, physicians must advocate for them at the individual, local, national, and global levels.</li> </ol>
<b>Prerequisites</b>	<ol style="list-style-type: none"> <li>1. Understand the role of the physician as an advocate</li> </ol>
<b>Competencies</b>	<div><i>Knowledge</i></div> <ol style="list-style-type: none"> <li>1- Describe barriers that prevent children from gaining access to health care, including financial, cultural, and geographic barriers.</li> <li>2- Identify opportunities for advocacy during a health supervision visit.</li> <li>3- Describe critical components of partnering with the community members to promote child health.</li> <li>4- Describe the types of problems that benefit more from a community approach rather than an individual approach.</li> <li>5- Identify a specific pediatric health care issue and outline a potential approach to advocacy.</li> </ol>

## Core Clinical Problem List and Representative Diseases

Core Clinical Problem includes symptoms, signs, laboratory or investigation results, or referrals. Priority is given to conditions and diseases that are common, treatable, life, limb, or vision threatening, or preventable.

Each core clinical problem is categorized into:

- Core Specialty Level: to be mastered by RY1–RY2 level
- Mastery Level: to be mastered by RY3–RY4 level

### Expected Level of Competency for Core Specialty Level Problems

Competency Level	RY 1/2	RY 3/4
Take a focused history		
Triage and prioritize the patients		
Render immediate/emergency management		
Generate the most likely diagnosis and focused differential diagnoses		
Describe the pathophysiological/clinical-anatomical basis of the condition		
Rationalize, order, and interpret appropriate investigations		
Recognize secondary complications/adverse events/severity		
Counsel patients/families/caregivers regarding the condition		
Manage complex psychosocial/financial/behavioral aspects of the condition		
Teach students, fellow colleagues, and other health care professionals regarding the condition		

### Expected Level of Competency for Master Specialty Level Problems

Competency Level	RY 1/2	RY 3/4
Take a focused history		
Triage and prioritize the patients		
Render immediate/emergency management		
Generate the most likely diagnosis and focused differential diagnoses		
Describe the pathophysiological/clinical-anatomical basis of the condition		
Rationalize, order, and interpret appropriate investigations		
Recognize secondary complications/adverse events/severity		
Counsel patients/families/caregivers regarding the condition		
Manage complex psychosocial/financial/behavioral aspects of the condition		
Teach students, fellow colleagues, and other health care professionals regarding the condition		

### Core Clinical Problem (Detailed Mapping)

Core Clinical Problems	Core Specialty Level	Mastery Level
<b>Abdominal pain</b>	Functional Gastroenteritis Appendicitis Gastrointestinal obstruction Bronchiolitis Pneumonia Bronchial asthma Congenital heart disease	Henoch-Schonlein purpura Peritonitis Pancreatitis Inflammatory bowel disease Metabolic acidosis Cystic fibrosis Inborn error of metabolism Poisoning Severe dehydration
<b>Anemia</b>	Iron deficiency anemia Sickle cell anemia	Malignancy Chronic GI bleeding
<b>Apnea</b>	Bronchiolitis Prematurity  Gastroesophageal reflux disease Sepsis Congenital heart disease Seizure Pertussis	Congenital central hypoventilation Obstructive sleep apnea Foreign body aspiration Vocal cord anomaly Hypocalcemia
<b>Arthritis</b>	Juvenile idiopathic arthritis Septic arthritic Reactive arthritis Spondyloarthropathy Acute rheumatic fever Systemic lupus erythematosus	Sarcoidosis Trauma Hemarthrosis Legg-Calvé-Perthes disease Transient synovitis Tuberculosis
<b>Constipation</b>	Dietary Bowel obstruction Functional Anal fissure	Hypothyroidism Hypercalcemia Intestinal tumors
<b>Cough</b>	Bronchial asthma Bronchiolitis  Pertussis Foreign body inhalation	Bronchial asthma Tuberculosis Bronchiectasis  Gastroesophageal reflux
<b>Cyanosis</b>	Cyanotic congenital heart disease Pneumonia Bronchiolitis Bronchial asthma Foreign body inhalation	Smoke inhalation  Methemoglobinemia
<b>Delayed speech</b>	Hearing impairment Social deprivation	Autism Syndrome associated



<b>Edema</b>	Malnutrition Nephrotic syndrome Glomerulonephritis Malabsorption Congestive heart failure Liver failure	Renal failure Lymphangiectasia Angioedema Drug reaction
<b>Fever without a focus</b>	Occult bacteremia  Septicemiae Meningitis Urinary tract infection Viral illness	Juvenile idiopathic arthritis Malignancy
<b>Hematuria</b>	Urinary tract infection Bleeding disorders Stones Hemolysis	Familial Glomerulonephritis Trauma Alpert syndrome Münchausen syndrome by proxy
<b>Hypernatremia</b>	Massive hemolysis Acute renal failure Addison's disease Tourniquet prior to venipuncture Iatrogenic	Drugs like amiloride, indomethacin, isoniazid Hyperkinetic activity Malignant hyperpyrexia Crush injuries
<b>Hypoalbuminemia</b>	Malnutrition Nephrotic syndrome Liver disease Many gastrointestinal conditions Chemotherapy	Malabsorption Thyrotoxicosis Thermal burns Cushing's disease Familial hypoproteinemia
<b>Hypocalcemia</b>	Rickets (vitamin D deficiency) Anticonvulsant medications Hypoparathyroidism Hyperphosphatemia	Acquired or inherited disorders of vitamin D metabolism Pancreatitis Fat malabsorption
<b>Hypoglycemia</b>	Diabetes mellitus Sepsis Addison disease hypopituitarism	Glycogen storage diseases (1&3) Inborn error of metabolism Idiopathic ketotic hypoglycemia Isolated growth hormone deficiency
<b>Hypotonia</b>	Down syndrome Malnutrition Spinal muscular atrophy Cerebral palsy	Prader-Willi syndrome Neurometabolic disorders Neuromuscular disorders
<b>Jaundice</b>	Hemolytic anemia Hepatitis	Inherited liver disease Autoimmune hepatitis
<b>Lower GI bleeding</b>	Bowel infection Bleeding disorders Anal fissure Vascular anomalies	Meckel's diverticulum Familial polyposis Duodenal ulcer Inflammatory bowel disease

		Intussusceptions Liver cirrhosis
<b>Lymphadenopathy</b>	Infection Malignancy	Connective tissue diseases Autoimmune diseases
<b>Metabolic acidosis</b>	High anion gap (MUDPILES)  <ul style="list-style-type: none"> <li>• Diabetic ketoacidosis</li> <li>• Salicylates</li> <li>• Isoniazid (INH)</li> <li>• Iron lactic acid</li> </ul>	High anion gap (MUDPILES)  <ul style="list-style-type: none"> <li>• Methanol</li> <li>• Uremia</li> <li>• Paraldehyde ethanol, ethylene glycol</li> </ul>
	Normal anion gap (USED CARP):  <ul style="list-style-type: none"> <li>• Ureterostomy</li> <li>• Diarrhea</li> <li>• Adrenal insufficiency</li> <li>• Renal tubular acidosis (RTA)</li> </ul>	Normal anion gap (USED CARP):  <ul style="list-style-type: none"> <li>• Small bowel fistula</li> <li>• Extra chloride</li> <li>• Carbonic anhydrase inhibitors (e.g., acetazolamide)</li> <li>• Pancreatic fistula</li> </ul>
<b>Metabolic alkalosis</b>	chloride-sensitive  <ul style="list-style-type: none"> <li>• Vomiting</li> <li>• Nasogastric drainage</li> <li>• Thiazide diuretics</li> <li>• Congenital chloride diarrhea</li> <li>• Cystic fibrosis</li> </ul>	chloride-sensitive  Post-hypercapnia syndrome (especially in mechanically ventilated patients with chronic lung disease)
	chloride-resistant  <ul style="list-style-type: none"> <li>• Primary aldosteronism</li> <li>• Deoxycorticosterone (DOC) excess syndrome (congenital adrenal hyperplasia variant)</li> <li>• Chronic potassium depletion</li> <li>• Primary reninism</li> <li>• Hyperglucocorticoidism</li> </ul>	chloride-resistant  <ul style="list-style-type: none"> <li>• Bartter syndrome</li> <li>• Liddle syndrome</li> <li>• Excessive ingestion of licorice</li> <li>• Milk-alkali syndrome</li> </ul>
<b>Myositis</b>	Infection Polymyositis Juvenile dermatomyositis Systemic lupus erythematosus	Inclusion body myositis Drugs (colchicine) Mixed connective tissue disease  Rhabdomyolysis
<b>Proteinuria</b>	Glomerulonephritis Nephrotic syndrome Urinary tract infection	Systemic lupus erythematosus Protein losing enteropathy Henoch-Schonlein purpura IGA nephropathy

<b>Rash</b>	Viral infection Dermatitis Henoch-Schonlein purpura Bleeding disorder Trauma	Sepsis Immune thrombocytopenia Child abuse Meningococemia Neurocutaneous syndromes
<b>Seizure</b>	Febrile seizure Electrolyte disturbances Central nervous system infection Epilepsy	Metabolic disorders Space occupying lesions Vasculitis Sturge-Weber syndrome
<b>Short stature</b>	Familial Malnutrition	Syndromic Growth hormone deficiency
<b>Syncope</b>	Arrhythmias Electrolyte disturbances Sickle cell disease (CNS infarction)	Drug toxicity Pulmonary hypertension Restrictive cardiomyopathy Aortic stenosis
<b>Thrombocytopenia</b>	Autoimmune thrombocytopenia Disseminated intravascular coagulopathy (DIC) Severe infections Congenital hemangiomas Hypersplenism Aplastic anemia Leukemia	Wiskott-Aldrich syndrome May-Hegglin anomaly Bernard-Soulier syndrome Chediak-Higashi anomaly Fanconi's syndrome Uremia
<b>Vomiting</b>	Gastritis  Gastroesophageal reflux Poisoning	Metabolic disorders Space occupying lesion

## Subspecialty Rotations Competencies

### Allergy & Immunology

Sites	Competency		
	Knowledge	Skills	Management
- Inpatient care - Outpatient clinic - Consultation	1- The anatomy and physiology of the respiratory system, skin, and immunology system 2- The pathophysiology of allergic inflammation 3- The pathophysiology, diagnosis, and management of: <ol style="list-style-type: none"> <li>Acute and chronic bronchial asthma</li> <li>Allergic rhinitis</li> <li>Urticaria, angioedema, and atopic dermatitis</li> <li>Drug allergy</li> <li>Food allergy</li> <li>Primary immunodeficiency (SCID, combined immunodeficiency, antibody deficiency, phagocytic dysfunction, neutrophil disorder, and complement deficiency)</li> </ol>	Being able to: <ol style="list-style-type: none"> <li>Read peak flow meter</li> <li>Interpret the result of spirometer.</li> <li>Read the skin prick test.</li> <li>Interpret the result of RAST test, leukocyte marker, phagocytic function test, immunoglobulin level test.</li> <li>Demonstrate SC injection and sublingual immunotherapy if available.</li> </ol>	<ol style="list-style-type: none"> <li>Bronchial asthma</li> <li>Allergic rhinitis</li> <li>Urticaria</li> <li>Angioedema</li> <li>Atopic dermatitis</li> <li>Drug allergy</li> <li>Food allergy</li> <li>Primary immunodeficiency</li> <li>Severe combined immunodeficiency (SCID)</li> <li>Antibody deficiency</li> <li>Phagocytic defects (including CGD), neutrophil disorder (e.g., LAD), complement deficiency</li> <li>Human immunodeficiency virus (HIV)</li> </ol>
	4- Human immunodeficiency virus (HIV)		

## Ambulatory Care

Site	Competency		
	Knowledge	Skills	Management
Outpatient clinics	<p><b>Common Signs and Symptoms</b></p> <p>Evaluate and manage common signs and symptoms associated with the practice of pediatrics in the outpatient clinic.</p> <p><b>Common Conditions</b></p> <p>Recognize and manage common childhood conditions presenting to the outpatient clinic.</p> <p><b>Diagnostic Testing</b></p> <p>Utilize common diagnostic tests and imaging studies appropriately in the outpatient clinic:</p> <p>Demonstrate understanding of the common diagnostic tests and imaging studies used in the outpatient setting.</p>	<p><b>Technical and Diagnostic procedures</b></p> <ol style="list-style-type: none"> <li>Describe the following procedures (or techniques), including how they work and when they should be used</li> <li>Technical and therapeutic procedures, such as:               <ol style="list-style-type: none"> <li>Bladder catheterization</li> <li>Conjunctival swab</li> <li>Ear: cerumen removal</li> <li>Medication delivery:                   <ul style="list-style-type: none"> <li>inhaled, intramuscular (IM), subcutaneous (SC), or intradermal (ID)</li> </ul> </li> </ol> </li> <li>Diagnostic and screening procedures, such as:               <ol style="list-style-type: none"> <li>ECG interpretation</li> <li>PPD interpretation</li> <li>Radiologic interpretation (abdominal X-ray, chest X-ray, sinus films)</li> <li>Vision screening</li> </ol> </li> </ol>	<ol style="list-style-type: none"> <li>Malpositioning of feet, hip clicks, skin rashes, birthmarks, jittering, hiccups, acute life-threatening event (ALTE), constitutional symptoms, excessive crying, apnea, heart murmur, conjunctival infection, short stature, abdominal pain, change in urine color, abnormal bleeding, delays in developmental milestones, suspected child abuse or neglect</li> <li>Breastfeeding, bottle feeding, colic, congenital hip dislocation, constipation, strabismus, failure to thrive, well child and well adolescent care (including anticipatory guidance), bronchial asthma, heart murmurs, acne, atopic dermatitis, diabetes mellitus, enuresis, hematuria, labial adhesions, anemia, cervical adenitis, growing pains, ADHD, recurrent infections, viral URI and LRI, pre-and post-op evaluation of surgical patients</li> </ol>

## Cardiology

Site	Competency		
	Knowledge	Skills	Management
- Outpatient clinics - Inpatient care - Echo - Consultation	1. The anatomy, hemodynamics, and electrophysiology of the normal heart 2. The disturbances of anatomy and hemodynamics associated with the more common congenital heart defects, and acquired inflammatory and infectious cardiac diseases 3. The fetal circulation and post-natal circulatory changes 4. The basic mechanisms of heart failure and the principles of management of heart failure in the pediatric patient 5. Indications, causes, limitations, benefits, and hazards of various types of cardiac investigation, namely: echocardiography, cardiac catheterization, angiocardiography, scalar electrocardiogram, 6 ft. cardiac X-ray, exercise ECG, Holter monitor, and radionuclide cardiac scans 6. The indications for anticipated results from modern cardiac surgical therapy 7. Pre- and post-operative needs of the pediatric heart patient 8. Indications for specific bacterial endocarditis prophylaxis 9. Pharmacology of commonly used cardiac drugs, epidemiology of adult-onset cardiac disease, and means of possible prevention in children	1. Anthropometry measurements and their interpretation 2. Blood pressure measurements by palpation, sphygmomanometer, flush technique, and Doppler method 3. Arterial puncture and interpretation of blood gas and acid-base profile 4. Recording 12-lead ECG 5. Limited interpretation of ECG 6. Basic aspects of echocardiography 7. Chest roentgenographic analysis from cardiac evaluation point of view 8. Determination of intrapulmonary right-to-left shunting using 100% oxygen 9. Cardiopulmonary resuscitation of: (a) neonates, (b) infants, and (c) Older children	1. Congestive heart failure 2. Pulmonary infections in patients with intracardiac left-to-right shunt 3. Infective endocarditis 4. Anemia in children with cyanotic heart disease 5. Cyanotic spells in children with cyanotic heart disease 6. Brain abscess in children with cyanotic heart disease 7. Kawasaki disease 8. Supraventricular tachycardia 9. Ventricular tachycardia 10. Bradycardia 11. Acute rheumatic fever 12. Rheumatic heart disease 13. Neonates with patent ductus arteriosus 14. Neonates with cyanosis

## Developmental Pediatrics

Site	Competency		Management
	Knowledge	Skills	
Outpatient clinics Inpatient Consultation	<b>Medical Expert:</b> <ol style="list-style-type: none"> <li>Expose to developmental issues of different age groups (infant, pre-school and school age):               <ol style="list-style-type: none"> <li>Recognize normal and abnormal development – gross motor, fine motor, language</li> <li>Able to screen vision and hearing</li> <li>Able to screen developmental problems: prevention, early identification, counselling</li> <li>Understand and interpret psychological and educational testing</li> <li>Assess psychomotor development (neurodevelopmental exam)</li> <li>Recognize normal growth, development, and behaviour with provision of anticipatory guidance</li> <li>Recognize, diagnose, and preliminary manage:                   <ol style="list-style-type: none"> <li>Visual and hearing impairment</li> <li>Cerebral palsy</li> <li>Developmental delay/mental retardation</li> <li>autism</li> <li>Learning disabilities</li> <li>hyperactivity/attention problems</li> <li>dysregulation disorders (colic etc.)</li> </ol> </li> </ol> </li> <li>Recognize emotional and psychological development (normal and abnormal):               <ol style="list-style-type: none"> <li>Psychosocial factors affecting development and behaviour</li> <li>Normal emotional development</li> <li>Sexuality</li> <li>Psychiatric Disorders affecting development and behaviour</li> </ol> </li> </ol>	<ol style="list-style-type: none"> <li>Support relationships with parents to help them to become more confident and competent as parents.</li> <li>Communicate effectively with pediatric clinicians about issues raised by the family in the office or at home may help the clinician to know more about their patients than they ever did before.</li> <li>Practice in using developmental screening tools for young children that focus on cognitive development, speech and language, fine and gross motor development, and emotional development.</li> <li>Work relationships that link the pediatric practice to the community such as childcare settings, preschools, early childhood special education facilities, early intervention programs, and mental health and other social service agencies.</li> <li>Understand the impact of risky parental behaviors such as cigarette smoking, substance</li> </ol>	<ol style="list-style-type: none"> <li>Parental education and support. National and regional parent support organizations</li> <li>Early intervention (children younger than 3 years).</li> <li>Appropriate interventions in this age group usually take place in homes or child care centers and are individualized. They include behavioral methods, early developmental education, communication, occupational and physical therapy, highly structured social play interventions, and extensive parent training.</li> <li>School-based special education Educational interventions should be individualized and take into account the child's specific strengths and deficits.</li> <li>Speech and occupational therapy and use of typically developing peers as role models and playmates are usually included in these programs.</li> <li>Behavior management. Behavioral training, including communication development, has been shown to be effective in reducing problem behaviors and improving adaptation.</li> </ol>

	<p>3. Understand the resources available in the community for children with special needs like Autism, and ADHD with attention to multidisciplinary care, anticipatory guidance and counselling specific to special need populations</p> <p><b>Communicator:</b></p> <ol style="list-style-type: none"> <li>1. Interact with parents and children in the clinic setting</li> <li>2. Anticipate guidance</li> </ol> <p><b>Scholar:</b></p> <ol style="list-style-type: none"> <li>1. Identify capacity for independent learning around cases</li> <li>2. Perform interactive lecturing and/or writing skills in paper/presentation during rotation</li> </ol> <p><b>Collaborator:</b></p> <ol style="list-style-type: none"> <li>1. Function well and respectfully in the multidisciplinary milieu</li> </ol> <p><b>Professional:</b></p> <ol style="list-style-type: none"> <li>1. Demonstrate Honesty, Integrity, and sense of Ethics</li> <li>2. Demonstrate Responsibility and Self Discipline Sensitivity to Diversity</li> </ol> <p><b>Advocate:</b></p> <ol style="list-style-type: none"> <li>1. Understand the need for pediatricians to advocate on behalf of vulnerable populations such as special needs populations</li> </ol> <p><b>Manager:</b></p> <ol style="list-style-type: none"> <li>1. Recognize the Pediatrician's role as team leader in multidisciplinary care</li> </ol>	<p>abuse, and family violence on the family and particularly on the development of young children.</p> <p>6. Understand the impact of parental mental health issues such as parental depression on the development of young children.</p> <p>7. Communicate with parents about their concerns about their child's development and behavior, the impact of risky parental behaviors and parental mental health issues and their impact on the development of young children.</p>	<p>7. Medical treatment. Although children with ASD have the same health care needs as children</p> <p>8. Community services. extended family, neighbors, friends, and spiritual community</p> <p>9. Alternative therapies.</p>
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## Endocrinology

Site	Competency		
	Knowledge	Skills	Management
- Outpatient clinics on endocrine, diabetes, lipid and bone problems - Inpatient - Consultation - Short stay for hormone testing	1. The normal anatomy and embryology of the endocrine glands and genitalia 2. The physiology and pathophysiology of the endocrine glands, glucose homeostasis, electrolyte and acid-base balance, and calcium homeostasis 3. Normal physical/sexual growth and development, interpretation of growth charts 4. The inherited disorders that affect the endocrine glands and genitalia 5. Indications for, complications, and interpretation of endocrine tests 6. Pharmacology of commonly used drugs and hormones 7. Interpretation of newborn screening for endocrine disease 8. Presentation of inborn errors of metabolism	1. Performance and interpretation of various endocrine dynamic tests 2. Use of growth charts 3. Reading of bone age 4. Education of diabetic patients and use of meters, pens, pumps	1. Diabetes mellitus 2. Short stature 3. Childhood obesity 4. Congenital and acquired hypothyroidism 5. Hyperthyroidism and goiter 6. Panhypopituitarism 7. Diabetes insipidus 8. Hypoparathyroidism 9. Hypocalcemia/rickets 10. Ambiguous genitalia 11. Congenital adrenal hyperplasia 12. Precocious/delayed puberty 13. Neonatal hypoglycemia

## Gastroenterology/Metabolism

Site	Competency			Management
	Knowledge	Skills		
- Inpatient care - Outpatient clinics - Consultation - Endoscopy if applicable	1. The pathophysiology of common pediatric gastroenterology, hepatology, and nutrition disorders 2. The basics of intravenous fluid therapy 3. The multidisciplinary management of patients with chronic diarrhea 4. The differential diagnosis of hepatomegaly in older children 5. The different types of oral rehydration and milk formula and its indication 6. Indication, contraindication, post procedure of liver biopsy	1. Obtain an accurate history and perform physical examination including thorough abdominal examination 2. Laboratory tests related to pediatric gastroenterology, hepatology, and nutrition disorders 3. Familiarity with the growth chart and proper nutritional assessment of infants and children 4. Be able to discuss the management strategies of patients having gastroenterology, hepatology, and nutritional disorders Observe or perform under supervision liver biopsy	1. Malnutrition, including patients in need of enteral feeding and patients on long-term Total Parenteral Nutrition (TPN) 2. Neonatal cholestasis secondary to biliary atresia and galactosemia 3. Failure to thrive 4. Chronic diarrhea 5. Abdominal pain 6. Hepatomegaly	

## Genetic/Metabolic

Site	Competency			Management
	Knowledge	Skills		
- Outpatient clinics - Consultation	1. Have a clear understanding of patterns of inheritance, including Mendelian/non-Mendelian and multifactorial.	1. The sick neonate with non-specific symptoms and signs 2. The dysmorphic child a. To be familiar with dysmorphology terminologies and description b. Being able to perform different body measurements required in evaluating the dysmorphic child c. To know the principles of searching the medical databases, such as Possum and London Dysmorphology database	.. Acute illness of common genetic metabolic diseases including amino acid disorder, organic acidemias, urea cycle disorders, and disorders of carbohydrate metabolism. 2. Chronic progressive neurological diseases related to metabolic disturbances. 3. Common single genetic disorders including metabolic disorders (lysosomal disorders, organic acidemias, amino acidopathies, carbohydrate metabolism disorders, and urea cycle defects) and other single genetic disorders (cystic fibrosis, hematological diseases like sickle cell anemia, G6PD, thalassemia, etc.), multifactorial disorder (DM, cleft lip/palate, etc.), chromosomal disorder (trisomies, common deletion, duplication, translocations, etc.). 4. Common dysmorphic syndromes and understanding Saudi clinical variations	
	2. Know the principles of neonatal screening and its application in the Kingdom of Saudi Arabia and Gulf region.			
	3. Have general principles about genetic tests including biochemical, cytogenetic, and molecular labs.	3. The recurrence of acute episodes of metabolic decompensation such as hypoglycemia, hyperammonemic coma, and metabolic acidosis		
	4. Understand the nutritional aspects in the management of metabolic disorders.	4. Prenatal Diagnosis: implications, indications, methods available for diagnosis, and ethical issues		
	5. Know how these general pediatric practices affect the management of metabolic disorders.			

## Hematology/Oncology

Site	Competency		
	Knowledge	Skills	Management
- Inpatient care - Outpatient clinics - Consultation - Short stay for chemotherapy	1. The basic physiology of the bone marrow forming blood component coagulation cascade	1. Performing bone marrow aspiration and smear preparation	1. Febrile neutropenia
	2. The blood transfusion indication, precautions, and complications	2. Examine for lymph nodes of different groups.	2. Tumor lysis syndrome
	3. The indications for lymph node biopsy	3. Being able to detect the clinical signs of different blood diseases and oncology diseases	3. Superior vena cava (mediastinal) syndrome
	4. Pathophysiology of different types of anemia	4. Examine for hepatosplenomegaly.	4. Acute lymphoblastic leukemia and lymphomas
	5. Leukocytosis and thrombocytopenia	5. Examine for coagulation disorders manifestation.	5. Bleeding disorders (coagulation disorders, TTP)
	6. Basic knowledge regarding different type of leukemia and solid tumors as well as chemotherapy principles	6. Be able to recognize the staging system of tumors.	6. Different type of anemia (AIHA)
			7. Treatment of thalassemia (RBCs transfusion, desferal)
			8. Management of sickle cell disease (vasoocclusive crises, infection, sequestration, crises, aplastic crisis)
			9. Solid tumors from biopsy aspect, radiological indications, and general ideas for treatment approach
			10. Dealing with side effects of chemotherapy
			11. Manage other oncology emergencies

## Infectious Disease

Site	Competency		
	Knowledge	Skills	Management
- Inpatient care - Outpatient clinics - Consultation	1. The classification, characteristics, and epidemiology of common infectious agents	1. Tuberculin skin testing: perform and interpret 2. Procurement of appropriate specimens for diagnosis of infections	1. Common infections caused by viral, bacterial, fungal, and parasitic agents. 2. Fever without focus 3. Bacteremia: fulminant, occult, and associated with IV devices 4. CNS infections: Meningitis, encephalitis, abscesses, and VP shunt related 5. Osteoarticular infections: osteomyelitis and arthritis 6. Fever of unknown origin 7. Perinatal/congenital infections 8. Endemic and tropical infections: TB, malaria, brucellosis, leishmaniasis 9. Common infections in the immunocompromised host 10. HIV Infection 11. Life-threatening infections 12. Child with recurrent infections
	2. Mechanism of infection and host defenses		
	3. Basic clinical pharmacological properties of antimicrobial agents and interpretation of sensitivity tests for antibiotics		
	4. Antimicrobial resistance mechanisms and their implications		
	5. Control of communicable diseases, including prevention and immunization		
	6. Vaccination: indications, contraindications, and complications		
	7. Congenital and perinatal infections: epidemiology, natural history, and prevention		
	8. Nosocomial infections and the basic principles of infection control in health care facilities		

## Intensive Care

Site	Competency		
	Knowledge	Skills	Management
Critical care unit	<ol style="list-style-type: none"> <li>1. Outline the indications and criteria for admission to and transfer from pediatric intensive care unit.</li> <li>2. Actively and appropriately participate in the care of critically ill patients in a PICU setting that emphasizes a multidisciplinary team approach to patient care and values the contribution of all those participating in care of the patient.</li> <li>3. Manage PICU patient airways appropriately and provide adequate respiratory support.</li> <li>4. Recognize and treat life-threatening conditions common in the PICU setting.</li> <li>5. Provide appropriate fluid and electrolyte therapy for the critically ill PICU patient.</li> <li>6. Provide appropriate nutritional support for the critically ill PICU patient.</li> <li>7. Recognize and treat hemodynamic instability in the critically ill PICU patient.</li> <li>8. Participate appropriately in patient procedures performed in the intensive setting under the direct supervision of the pediatric intensivist.</li> </ol>	<ol style="list-style-type: none"> <li>1. Maintenance of open airway in non-intubated unconscious patient</li> <li>2. Endotracheal intubations</li> <li>3. Mechanical ventilation using different modes of the ventilator</li> <li>4. Central venous catheter placement</li> <li>5. Arterial blood gas specimen collection</li> <li>6. Arterial catheter placement</li> <li>7. Enteral feeding tube placement</li> <li>8. Total parenteral nutrition management.</li> <li>9. Thoracentesis and chest tube insertion</li> <li>10. Paracentesis</li> <li>11. Lumbar puncture</li> </ol>	<ol style="list-style-type: none"> <li>1. Respiratory failure</li> <li>2. Cardiac failure</li> <li>3. Dysrhythmia</li> <li>4. Sepsis/septic shock</li> <li>5. Upper airway disease (including stridor, foreign bodies, congenital anatomical abnormalities)</li> <li>6. Acute renal failure</li> <li>7. Fluid and electrolyte disturbance</li> <li>8. Diabetic ketoacidosis</li> <li>9. Toxic ingestions/poisonings</li> <li>10. Trauma (including acute traumatic spinal cord injuries)</li> </ol>

## Neonatology

Site	Competency			Management
	Knowledge	Skills		
Neonatal ICU Postnatal unit Delivery room Step-down unit	<ol style="list-style-type: none"> <li>1. Fetal growth, development, and physiology</li> <li>2. Aspects of pregnancy, labor, and delivery that affect the neonate</li> <li>3. Process of neonatal adaptation to extrauterine life</li> <li>4. Demographic, medical, and psychosocial factors that influence perinatal mortality and morbidity (high-risk pregnancy).</li> <li>5. Neonatal growth, nutrition, metabolic problems, feeding problems</li> <li>6. Aspects of drug therapy unique to the newborn</li> <li>7. General principles of care of the newborn: skin, warmth, feeding</li> <li>8. Developmental problems encountered in the follow-up of the high-risk neonate</li> <li>9. Effect of maternal systemic disease on the fetus and newborn</li> </ol>	<ol style="list-style-type: none"> <li>1. Ability to obtain maternal and family history</li> <li>2. Assessment of gestational age and examination of full-term healthy and low birth weight babies</li> <li>3. Initial assessment of the newborn (apgar scores)</li> <li>4. Recognition of subtle and non-specific signs of serious illness in the newborn</li> <li>5. Procedural skills related: newborn resuscitation, umbilical artery and vein catheterization, chest tube insertion, etc.</li> </ol>	<ol style="list-style-type: none"> <li>1. Respiratory distress</li> <li>2. Cyanosis</li> <li>3. Prematurity</li> <li>4. Seizures</li> <li>5. Intrauterine growth retardation</li> <li>6. Vomiting</li> <li>7. Apnea</li> <li>8. Problems associated with congenital anomalies</li> <li>9. Sepsis</li> <li>10. Birth asphyxia</li> <li>11. Congenital anomalies</li> <li>12. Neonatal surgical emergencies</li> </ol>	

## Nephrology

Site	Competency		
	Knowledge	Skills	Management
- Inpatient care - Outpatient clinics - Hemodialysis and peritoneal dialysis care - Consultation	1. The development of the genitourinary tract and the recognition of disorders of embryogenesis that result in abnormalities of this system, including the external genitalia	1. Take a detailed history and conduct a physical examination to determine the possibility of renal disease.	1. Acute and chronic renal failure
	2. Hereditary renal disease	2. Doing urine dipsticks and interpreting the results.	2. Nephrotic syndrome
	3. Water and electrolyte homeostasis, normal fluid and electrolyte requirements at various ages; the pathophysiology and treatment of disturbances of water and electrolyte balance, disorders, or calcium and phosphorus metabolism	3. Measuring blood pressure and interpreting the results.	3. Acute nephritis
	4. Normal mechanisms of acid-base balance; interpretation of blood gas value	4. Recognize when to refer to nephrologists or urologist.	4. Hypertension
	5. The renal pathophysiology and manifestations of systemic diseases	5. Being able to prepare the patient for kidney biopsy, dialysis, and transplantation as well as immediate care after these procedures	5. UTI and obstructive uropathy
	6. Indications for measurements of GFR, IVP, voiding cystourethrogram, renal scan, renal ultrasound, urodynamics, renal angiography, rennin studies, and renal biopsy	6. Interpreting the biochemical and radiological investigation related to the renal system including renal biopsy	6. Nephrolithiasis
	7. Pathophysiology of renal failure; indications and complications of dialysis and renal transplantation		7. Voiding disorder
			8. Hematuria and proteinuria
			9. Tubular disorder



## Neurology

Site	Competency		
	Knowledge	Skills	Management
- Outpatient- inpatient activities: The primary goal of the Pediatric Neurology division is to provide clinical training in neurology to enable the pediatric residents to provide comprehensive, scientifically based, and effective diagnosis and management for children with neurological disorders.	<ol style="list-style-type: none"> <li>1. Basic structure and function of major neuro-anatomic pathways</li> <li>2. Embryology of the CNS</li> <li>3. Basic muscle structure and function</li> <li>4. Indications, limitations, benefits, hazards of various types of investigations: CSF analysis, radionuclide brain scan, CT scan, MRI scan, EEG, evoked potentials, EMG, nerve conduction studies, intracranial pressure monitoring, lumbar puncture, muscle and nerve biopsy, myelography, X-rays of skull and spine, and head ultrasound.</li> <li>5. Pharmacology of drugs used in neurologic, psychiatric, and muscular problems</li> </ol>	<ol style="list-style-type: none"> <li>1. Basic principles of history taking and physical examination as they apply to pediatric neurology</li> <li>2. Introduction to anatomical localization of neurological problems</li> <li>3. Normal, expected sequence of development for gross motor, fine motor, language, and social skills from the neonatal period to late childhood</li> <li>4. Interpretations of CT and MRI of the brain</li> </ol>	<ol style="list-style-type: none"> <li>1. Seizure disorders</li> <li>2. Paroxysmal disorders</li> <li>3. Altered states of consciousness</li> <li>4. Headache</li> <li>5. Increased intracranial pressure</li> <li>6. Psychomotor retardation and regression</li> <li>7. Hypotonia</li> <li>8. Flaccid limb weakness in childhood</li> <li>9. Disturbances of sensation</li> <li>10. Ataxia</li> <li>11. Hemiplegia</li> <li>12. Paraplegia and quadriplegia</li> <li>13. Movement disorders</li> <li>14. Brainstem and cranial dysfunction</li> <li>15. Disorder of cranial volume and shape</li> </ol>

## Pulmonology

Site	Competency		
	Knowledge	Skills	Management
- Inpatient care - Outpatient clinics - Consultation - Bronchoscopy if applicable	1. The anatomy and physiology of the respiratory tract 2. The pathophysiology of ventilation 3. The pathophysiology, diagnosis, and management of: <ul style="list-style-type: none"> <li>a- Asthma</li> <li>b- Infectious pulmonary disorders in children, such as bronchiolitis, pneumonia, TB, and pertussis</li> <li>c- Chronic restrictive and obstructive lung disorders, recurrent infections, and hemoptysis</li> <li>d- Cystic fibrosis</li> </ul> 4. Indications and contraindications of bronchoscopy	1. Obtaining respiratory history and performing physical examination 2. Use of peak flow meter and its interpretation 3. MDI (inhaler) and spacer use 4. Use of dry powder inhaler 5. Use of nebulizer 6. Use of environmental control measures 7. Participate in the performance of spirometry with at least four children during rotation. 8. Practice interpretation of PFTs. 9. Be familiar with the indication and interpretation of chest X-rays and CT scan of the chest. 10. Develop a better understanding of a specific aspect of pediatric pulmonary disease. 11. Communicate effectively with patients and families.	1. Asthma 2. Airway obstruction 3. Sleep apnea and life threatening events 4. Bronchopulmonary dysplasia 5. Cystic fibrosis 6. Foreign body in the lower airways 7. Emphysema 8. Pulmonary complications of HIV infection 9. Severe asthma 10. Respiratory failure 11. Significant pneumothorax 12. Tuberculosis

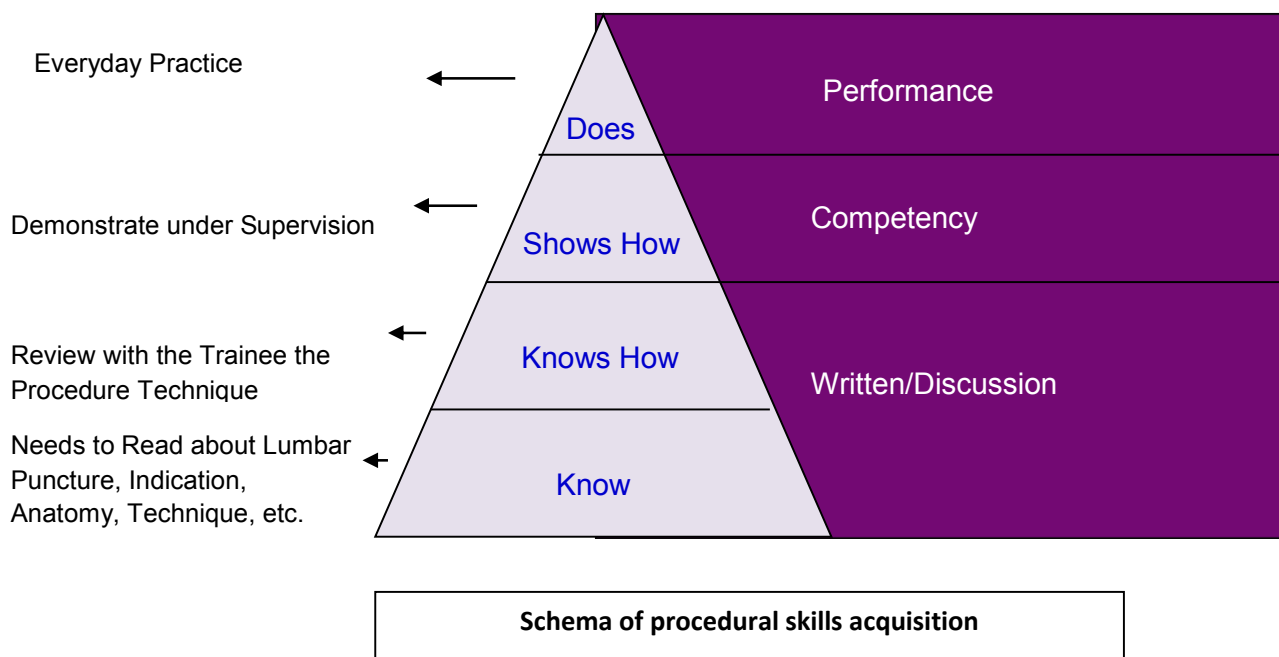
## Rheumatology

Site	Competency		
	Knowledge	Skills	Management
- Inpatient care - Outpatient clinics - Consultation	1. Trainees require a knowledge of a wide array of autoimmune, inflammatory, and musculoskeletal diseases that affect a multiplicity of tissues and organ systems	1. Take appropriate history related to rheumatic diseases	1. Juvenile idiopathic arthritis
	2. Require an understanding of normal and pathogenic immune processes that form the basis of autoimmune and inflammatory diseases as well as the development of new approaches to treatment.	2. Perform musculoskeletal examination	2. Systemic lupus erythematosus
	3. Require knowledge of the basis for and use of laboratory and diagnostic tests and therapeutic modalities, both pharmacologic and nonpharmacologic	3. Make primary assessment and put into effect treatment plan of inflammatory joint disease	3. Juvenile dermatomyositis
	4. The indications for, and interpretation of laboratory tests on blood and synovial fluid	4. Ensure safe drug monitoring	4. Mixed connective tissue diseases
	5. The principles and applications of physical and occupational therapy for rheumatic diseases	5. Observe intra-articular procedures	5. Vasculitis
	6. The indications, contraindications, and side effects of anti-inflammatory drugs, corticosteroids, biologics and immunosuppressives		6. Kawasaki disease
	7. Musculoskeletal manifestations of systemic diseases		7. Acute rheumatic fever
	8. The effects of chronic rheumatic diseases on physical growth and social development		8. Pyrexia of unknown origin

## Procedures List

Trainees must maintain a logbook of procedures performed. This will be entered regularly in T-RES system.

### Example: Lumbar Puncture



**List of Category I Procedures:** Trainees are assumed to be competent in these procedures.

Previously Learned Procedures	Declaration by the Trainee
Venipuncture	
Capillary blood sampling	
Arterial blood sampling	
Simple suturing	
Sc, iv, im injections	
Basic Life Support (BLS)	

**List of Category II:** To attain competency by R1–R2.

Core Procedures	Certified Competent by Supervisor	Declaration by the Trainee
Arterial line insertion		
Lumbar puncture		
Oral intubation		
Blood extraction		
Peripheral line		
Arterial blood gas		
Umbilical vein catheterization		
Electrocardiography (ECG) reading		
Urinary catheterization		
Thoracentesis/needle decompression		
Spirometry		
Nebulization		
Space devices		

**List of Category III:** To attain competency by R3–R4.

Mastery Procedures	Certified Competent by <b>Supervisor</b>	Declaration by the <b>Trainee</b>
Bone marrow aspiration		
Nasal intubation		
Central line		
Chest tube insertion		
Umbilical vein catheterization		
Umbilical artery catheterization		
Intra-osseous		
D/C shock		
Resuscitation skills		
Electrocardiography (ECG) reading		
Peritoneal tap		
Pediatric Advanced Life Support (PALS)		

**Behavioral/Communication Skills**

List of Behavior/Communication Skills	Declaration by the Trainee per Rotation	
	Junior Level	Senior Level
Conduct an open interview		
Breaking bad news		
Counseling		
Discharge against medical advice (DAMA)		
Procedure consent		
Initiating new therapy (e.g., chemotherapy)		
Difficult parents		
Management of conflict		
Refusing treatment		

## LEARNING OPPORTUNITIES

### General Principles

Teaching and learning is structured and programmatic with more responsibility for **self-directed learning**

Every week, **4–6 hours of formal training time** will be reserved. The Core Education Program (CEP) includes formal teaching and learning activities: universal topics, core specialty topics, and trainee-selected topics. CEP will be supplemented by other practice-based learning (PBL) such as

- Morning report or case presentations
- Morbidity and mortality reviews
- Journal clubs
- Systematic reviews, etc.
- Hospital grand rounds and other CMEs

Every four weeks at least 1 hour should be assigned to meeting with mentors, review of portfolio, mini-CEX (clinical evaluation exercise), etc.

## Universal Topics

These are high-value, interdisciplinary topics of utmost importance to the trainee, developed and delivered centrally to ensure that every trainee receives high-quality teaching and develops essential core knowledge. These topics are common to all specialties with suggested time 1.5 hrs.

The topics will be delivered in a modular fashion. At the end of each module there will be online formative assessment. After completion of all topics, there will be a combined summative assessment in the form of context-rich MCQ. All trainees must attain minimum competency in the summative assessment. These topics can be assessed in a summative manner along with specialty examination.

## Topics

Year of Training	No.	Universal Topic
<b>1st year (RY1)</b>	1	Safe drug prescribing
	2	Sepsis; SIRS; DIC
	3	Management of electrolyte imbalances
	4	Rationale of antibiotics use
<b>2nd year (RY2)</b>	1	Hospital acquired infections
	2	Blood transfusion
	3	Principles of management of cancer: chemotherapy; radiotherapy, surgery, immunotherapy
	4	Side effects of chemotherapy and radiation therapy
	5	Management of upper GI bleeding
	6	Management of lower GI bleeding
<b>3rd year (RY3)</b>	1	Oncologic emergencies
	2	Recognition and management of diabetic emergencies
	3	Management of diabetic complications
	4	Management of altered sensorium
	5	Pre-operative assessment
	6	Acute pain management
<b>4th year (RY4)</b>	1	Co-morbidities of obesity
	2	Patient advocacy
	3	Ethical issues: transplantation/organ harvesting; withdrawal of care
	4	Ethical issues: treatment refusal; patient autonomy
	5	Role of doctors in death and dying



## Core Specialty Topics

Core specialty topics are important pediatric clinical problems. They are interactive, case-based discussions with pre-materials. They include workshops and simulation to develop skills in core procedures.

### Examples of Core Specialty Topics: Case Discussions; Interactive Lectures

Topics	Learning Outcomes
Anemia	<ol style="list-style-type: none"><li>1. Differentiate between the different causes of anemia.</li><li>2. Discuss the investigations that may clarify the diagnosis.</li><li>3. Recognize the predisposing factors and consequences of iron deficiency anemia and discuss how to manage it.</li><li>4. Discuss the hereditary basis and clinical features of sickle cell anemia and thalassemia and how to screen for it.</li><li>5. Recognize the potential consequences of hemolytic anemia</li><li>6. Recognize and initiate management of sickle cell crisis.</li></ol>
Approach to bleeding disorders	<ol style="list-style-type: none"><li>1. Differentiate between the different causes of purpura and bruising.</li><li>2. Recognize features in the presentation that suggest serious pathology or child abuse.</li><li>3. Discuss how to explain Henoch-Schonlein purpura and idiopathic thrombocytopenia (ITP) to parents including when precautions and treatment are necessary.</li><li>4. Define how to manage acute bleeding in hemophilia and Von Willebrand's disease.</li><li>5. Recognize the causes and presentations of hemorrhagic disease of the newborn.</li><li>6. Discuss the hereditary basis of hemophilia and other coagulation disorders.</li><li>7. Recognize and treat hemarthrosis in a patient with hemophilia and be aware of the need to treat urgently, with appropriate advice.</li></ol>
Approach to febrile seizure	<ol style="list-style-type: none"><li>1. Define febrile seizures.</li><li>2. Discuss the management of this condition.</li><li>3. Determine the risk of recurrence and subsequent epilepsy risk.</li><li>4. Describe the genetic predisposition.</li></ol>
Approach to limping child	<ol style="list-style-type: none"><li>1. Formulate differential diagnosis of a limp at different ages and clinical presentations.</li><li>2. Determine when to refer for a specialist opinion and when to involve a pediatric rheumatologist.</li><li>3. Discuss the clinical features of benign hypermobility and non-benign hypermobility (e.g., Marfan's syndrome).</li><li>4. Distinguish between inflammatory and non-inflammatory</li></ol>

	<p>conditions.</p> <ol style="list-style-type: none"> <li>Determine joint laxity assessment.</li> <li>Distinguish between inflammatory and non-inflammatory conditions and recognize features that suggest serious pathology.</li> </ol>
Approach to patient with hematuria	<ol style="list-style-type: none"> <li>Elicit the different signs of hematuria.</li> <li>Discuss the relevant investigations.</li> <li>Recognize the indications for renal biopsy.</li> <li>Recognize features in the presentation that suggest serious or unusual pathology.</li> </ol>
Child abuse	<ol style="list-style-type: none"> <li>Determine how to assess in relation to history, developmental stage, and ability.</li> <li>Define when to initiate investigations when child abuse is a possibility, such as skeletal survey when appropriate.</li> <li>Recognize the possibility of dating bruising.</li> <li>Recognize new and old fractures on an x-ray.</li> <li>Define how to initiate a multidisciplinary investigation with a more experienced colleague.</li> </ol>
Child safety and environmental hazards	<ol style="list-style-type: none"> <li>Discuss promoting the safety of children with disabilities through anticipatory guidance, treatment, counseling, and referral.</li> <li>Determine factors that may contribute to the increased risk of injury.</li> <li>Recognize unintentional injury in children with disabilities.</li> <li>Discuss maltreatment – entails provision of anticipatory guidance regarding the increased risk of maltreatment in children with disabilities.</li> </ol>
Child with trauma and head trauma	<ol style="list-style-type: none"> <li>Perform appropriate investigations when child abuse is a possibility, such as skeletal survey when appropriate.</li> <li>Formulate appropriate investigations.</li> <li>Identify new and old fractures on an x-ray.</li> <li>Initiate a multidisciplinary investigation with a more experienced colleague.</li> <li>Perform fundoscopy and recognize retinal hemorrhage.</li> </ol>
Chronic diarrhea	<ol style="list-style-type: none"> <li>Discuss the differential diagnosis of chronic diarrhea.</li> <li>Assess the nutritional status of the child.</li> <li>Plot and interpret growth charts.</li> <li>Determine when to initiate investigations and how to manage common causes.</li> </ol>
Cyanotic child	<ol style="list-style-type: none"> <li>Define the anatomy of the common causes of cyanotic heart disease</li> </ol>

	<p>and the normal fetal circulation and transitional changes after birth.</p> <ol style="list-style-type: none"> <li>2. Differentiate between cardiac and non-cardiac causes of cyanosis.</li> <li>3. Recognize when treatment is urgent and initiate emergency management.</li> <li>4. Determine the other non-cardiac causes and discuss how to approach it.</li> <li>5. Describe clinical signs and investigations accurately and effectively with a cardiologist.</li> </ol>
Developmental delay	<ol style="list-style-type: none"> <li>1. Differentiate between the causes of neuro-developmental regression and how to access further expert help.</li> <li>2. Understand the implications.</li> <li>3. Define how to assess development.</li> <li>4. Discuss the current theories on the pathophysiology of cerebral palsy and understand the complication of cerebral palsy and how to manage and what is the role of a multidisciplinary team.</li> <li>5. Identify common secondary disabilities.</li> <li>6. Recognize common causes of disordered development, manage simple problems, and refer complex difficulties appropriately for specialist investigation and assessment.</li> </ol>
Diabetic ketoacidosis	<ol style="list-style-type: none"> <li>1. Discuss the pathophysiology of diabetic ketoacidosis.</li> <li>2. Recognize potential complications, including cerebral edema.</li> <li>3. Discuss how to treat and monitor progress.</li> <li>4. Recognize the clinical features of this condition.</li> <li>5. Determine how to manage ongoing treatment safely with guidance.</li> <li>6. Recognize potential complications, including cerebral edema.</li> </ol>
Dysmorphic child	<ol style="list-style-type: none"> <li>1. Recognize the scientific basis of chromosomal disorders and inheritance and basis of molecular genetics.</li> <li>2. Learn how to construct a family tree and interpret patterns of inheritance.</li> <li>3. Differentiate between the features of some common chromosome disorders and identify associated anomalies.</li> <li>4. Describe the features of a baby or child associated with common malformation or deformation syndromes.</li> <li>5. Recognize the risks of and cultural issues posed by consanguinity.</li> <li>6. Discuss how to give appropriate information to parents while awaiting investigations and opinions from colleagues.</li> </ol>
Failure to thrive	<ol style="list-style-type: none"> <li>1. Differentiate between the different causes of malnutrition, including organic and non-organic causes.</li> <li>2. Discuss the principles of enteral and parenteral nutrition support.</li> </ol>

	<ol style="list-style-type: none"> <li>3. Define how to assess nutritional status.</li> <li>4. Discuss when to initiate investigations to establish the diagnosis and detect nutritional deficiencies and initiate management with dietetic support.</li> <li>5. Determine the causes of malabsorption, including celiac disease and cystic fibrosis, and its consequences.</li> <li>6. Discuss the principles of treatment of the different types of malabsorption.</li> <li>7. Recognize the role of the dietitian and liaise appropriately.</li> </ol>
Fever of unknown origin (FUO)	<ol style="list-style-type: none"> <li>1. Differentiate between different causes of fever of unknown origin.</li> <li>2. Recognize features in the presentation that suggest serious or unusual pathology.</li> <li>3. Determine how to conduct investigations to establish cause.</li> </ol>
Generalized body edema	<ol style="list-style-type: none"> <li>1. Differentiate between the causes of these signs.</li> <li>2. Determine the investigations that will differentiate between the causes.</li> <li>3. Recognize features in the presentation that suggest serious or unusual pathology.</li> <li>4. Discuss how to manage the most serious cause.</li> <li>5. Recognize when to consult cardiology, gastroenterology, and nephrology specialists.</li> </ol>
Immunization	<ol style="list-style-type: none"> <li>1. Differentiate between passive and active immunization.</li> <li>2. Discuss using immunoglobulin and the indications, contraindications, and complications.</li> <li>3. Recognize the principles and the rationale behind the national immunization policy for children in Saudi Arabia.</li> <li>4. Discuss the indications, contraindications, and complications of routine childhood immunizations.</li> <li>5. Determine how to immunize a child with special conditions or illness or missing vaccine.</li> <li>6. Discuss when to use the extra vaccine for a child with a special condition such as SCD.</li> </ol>
Lower respiratory tract infection (pneumonia and bronchiolitis)	<ol style="list-style-type: none"> <li>1. Discuss the causes of respiratory tract infections and recurrent infection.</li> <li>2. Recognize the indicators of severity.</li> <li>3. Determine when patients require intensive care.</li> <li>4. Discuss how to manage these infections.</li> <li>5. Recognize complications such as empyema and manage appropriately.</li> </ol>
Lymphadenopathy	<ol style="list-style-type: none"> <li>1. Elicit the different groups of lymph nodes.</li> <li>2. Discuss the differential diagnosis.</li> </ol>

	3. Differentiate between acute and chronic nodes inflammation.
Management of asthma	<ol style="list-style-type: none"> <li>1. Assess the severity of an asthma attack.</li> <li>2. Discuss guidelines for management of asthma.</li> <li>3. Recognize the patterns of asthma and contributing factors.</li> <li>4. Determine the complications of long-term use of medications for asthma.</li> <li>5. Institute age-appropriate individualized management plan for asthma.</li> <li>6. Teach children how to use a peak flow meter and diary.</li> <li>7. Teach and assess inhaler technique.</li> </ol>
Obesity	<ol style="list-style-type: none"> <li>1. Define the causes of obesity.</li> <li>2. Recognize the long-term complications.</li> <li>3. Discuss the interventional strategies that are involved in weight reduction.</li> <li>4. Calculate and interpret body mass index charts.</li> <li>5. Recognize features in the presentation that suggest serious pathology.</li> </ol>
Recurrent abdominal pain	<ol style="list-style-type: none"> <li>1. Discuss the different causes, including functional causes.</li> <li>2. Identify the different causes of acute abdominal pain.</li> <li>3. Recognize conditions that require urgent intervention, such as intussusception.</li> <li>4. Recognize the possibility of acute appendicitis in very young children.</li> <li>5. Recognize signs of pain in an infant or small child.</li> </ol>
Recurrent joint swelling	<ol style="list-style-type: none"> <li>1. Describe the different causes of joint swelling at single and multiple sites.</li> <li>2. Recognize when to refer to a specialist.</li> <li>3. Identify joint swelling and elicit abnormal range of joint movement on clinical examination.</li> <li>4. Perform a musculoskeletal assessment, including a screening examination and an approach to a more detailed examination.</li> </ol>
Recurrent urinary tract infection	<ol style="list-style-type: none"> <li>1. Discuss the causes of urinary tract infections and the causes of recurrence.</li> <li>2. Identify indicators of severity.</li> <li>3. Recognize patients requiring intensive care.</li> <li>4. Discuss how to manage these infections.</li> <li>5. Recognize complications (e.g., acute renal injury) and manage appropriately.</li> </ol>
Rickets	<ol style="list-style-type: none"> <li>1. Differentiate between nutritional rickets and other causes of rickets.</li> <li>2. Recognize the symptoms and the signs of vitamin D deficiency.</li> <li>3. Determine how to initiate the investigation and how to approach the most common causes.</li> <li>4. Identify when to refer to a specialist.</li> </ol>
Seizure disorders	<ol style="list-style-type: none"> <li>1. Identify the common causes of seizures in infants and children.</li> <li>2. Discuss common epileptic syndromes.</li> <li>3. Recognize the principles of initial and continuing anticonvulsant</li> </ol>

	<p>therapy in babies and children and how to treat the status epileptics.</p> <ol style="list-style-type: none"> <li>4. Differentiate between epilepsy and behavior problems.</li> <li>5. Recognize principles of the EEG and neuro-imaging in investigation.</li> <li>6. Educate parents for children's safety.</li> </ol>
Skin rash	<ol style="list-style-type: none"> <li>1. Describe accurately skin rash.</li> <li>2. Recognize when to refer to common birthmarks and hemangiomas.</li> <li>3. Differentiate and recognize the cutaneous and mucosal manifestations of systemic disease.</li> <li>4. Recognize the serious nature of some skin disorders or their associated conditions.</li> <li>5. Discuss the different potencies of topical steroids and of their side effects.</li> <li>6. Identify the indications for and the procedure involved in skin biopsy.</li> </ol>
Short stature	<ol style="list-style-type: none"> <li>1. Discuss the different causes of short stature.</li> <li>2. Determine when short stature needs to be investigated.</li> <li>3. Describe the rationale behind the baseline and subsequent investigations.</li> <li>4. Define to parents and patients the non-serious causes of short stature, such as genetic short stature, constitutional delay, and hypothyroidism.</li> <li>5. Recognize the need to rule out Turner's syndrome as a cause of short stature in girls.</li> </ol>
Speech and language delay, including hearing loss	<ol style="list-style-type: none"> <li>1. Discuss the common causes of speech delay.</li> <li>2. Discuss the importance of hearing assessment in children.</li> <li>3. Determine multidisciplinary investigation and therapy for those with more complex disorders.</li> <li>4. Recognize the risk factors for sensorineural hearing impairment.</li> <li>5. Recognize when referral to a specialist is needed.</li> </ol>
Stridor	<ol style="list-style-type: none"> <li>1. Detect the potentially life-threatening nature of this condition.</li> <li>2. Differentiate between allergic and infective causes, such as epiglottitis, laryngotracheitis, retropharyngeal abscess, and foreign body.</li> <li>3. Recognize when to request help from a senior colleague.</li> <li>4. Discuss how to manage this condition.</li> <li>5. Discuss the causes of chronic stridor.</li> <li>6. Recognize when and how to investigate.</li> </ol>
Wheezy infant	<ol style="list-style-type: none"> <li>1. Define wheezing.</li> <li>2. Differentiate between the causes of wheeze.</li> <li>3. Discuss the approach for a wheezy child.</li> <li>4. Recognize the risk of asthma.</li> </ol>

### Recommended Workshops/Simulation/Interpretation Sessions

Topics	Comments
Electrocardiography interpretation and response	
Chest tube insertion and removal	
Chest X-ray interpretation	
Urine dip stick	
Critical airway management	
Complete blood count interpretation	
Lumbar puncture and cerebrospinal fluid interpretation	
Synovial fluid aspiration	
Pain management/sedation	
Intubation, oral and nasal	
Pleural tap	
Central line	
Bone marrow aspiration/biopsy	

### Trainee Selected Topics

Trainees develop a list of topics on their own. All the topics need to be approved by the local education committee.

#### *Example of Trainee Topics*

1. Communication skills
2. Presentation skills
3. Decision making
4. Evidence-Based Medicine
5. Passing the MCQs
6. Clinical teaching and learning strategy
7. Breaking bad news
8. Medical ethics and malpractices and patient safety
9. Writing scientific papers
10. Objective Structured Clinical Exam (OSCE) preparation
11. Medication safety practices
12. Child safety and environmental hazards
13. Child psychiatry and learning disabilities
14. Stress coping and management
15. Management skills course
16. Critical appraisal and how to make journal club
17. How to write a case report
18. Program objectives and goals and how to achieve them

## Educational Activities

Activity	Objectives
<b>Morning Report (MR)</b>	<ol style="list-style-type: none"> <li>1. Educate training residents, monitor patient care, and reviewing management decisions and their outcomes.</li> <li>2. Develop competence in short presentation of all admitted patients in a scientific and informative way.</li> <li>3. Develop confidence in presenting long cases in a systematic fashion.</li> <li>4. Generate appropriate differential diagnosis and proper management plan.</li> <li>5. Practice how to give a concise short informative follow-up for previously presented cases.</li> </ol>
<b>Morbidity &amp; Mortality (MM)</b>	<ol style="list-style-type: none"> <li>1. Identify areas of improvement for clinicians involved.</li> <li>2. Prevent future errors that lead to morbidities or mortalities.</li> <li>3. Modify physician's behavior and judgment based on previous experiences.</li> <li>4. Identify the need for updated policies, guidelines that may affect the patient care.</li> </ol>
<b>Grand Rounds/Staff or Guest Lectures</b>	<ol style="list-style-type: none"> <li>1. Increase physician's medical knowledge and skills, and ultimately, improve patient care.</li> <li>2. Understand and apply current practice guidelines in the field of pediatrics and its subspecialties.</li> <li>3. Describe the latest advances in the field of pediatrics and research.</li> <li>4. Identify and explain areas of controversy in the field of pediatrics.</li> </ol>
<b>Case Presentation</b>	<ol style="list-style-type: none"> <li>1. Present a comprehensive history and physical examination with details pertinent to the patient's problem.</li> <li>2. Formulate list of all problems identified in the history and physical examination.</li> <li>3. Develop a proper and informative differential diagnosis.</li> <li>4. Formulate and discuss a treatment plan.</li> <li>5. Improve case presentation skills by proper feedback on presentation.</li> </ol>
<b>Journal Club/Evidence-Based Medicine</b>	<ol style="list-style-type: none"> <li>1. Critically appraise the literature.</li> <li>2. Promote continuing professional development.</li> <li>3. Understand the basis of hypothesis testing (Type I and II errors, p values, 95% confidence intervals, sample size)</li> <li>4. Keep up with the literature.</li> <li>5. Ensure that professional practice is evidence based.</li> <li>6. Learn and practice critical appraisal skills.</li> <li>7. Provide an enjoyable educational and social occasion.</li> <li>8. Understand sources of bias.</li> <li>9. Understand how results of study can be used in clinical practice.</li> <li>10. Understand the basis of diagnostic testing (prevalence, sensitivity, specificity, positive and negative predictive values, likelihood ratios).</li> </ol>



## Academic Half Day

Activity	Objectives
Topic review	<ol style="list-style-type: none"> <li>1. Review common conditions in the practice of ambulatory, emergency, and inpatient conditions.</li> </ol>
MCQs/Slides	<ol style="list-style-type: none"> <li>1. Train and teach residents in how this mode of assessment is to be done.</li> <li>2. Identify weakness and strength in knowledge and practice.</li> <li>3. Access more confidence in attending such exams.</li> </ol>
Approaches to common conditions	<ol style="list-style-type: none"> <li>1. Demonstrate diagnostic and therapeutic skills.</li> <li>2. Access and apply relevant information to clinical practice.</li> <li>3. Practice contemporary, evidence-based, and cost-effective medicine.</li> <li>4. Avoid unnecessary or harmful investigations or management.</li> </ol>
Clinical teaching	<ol style="list-style-type: none"> <li>1. Practice history taking, and demonstrate competence in some advanced interviewing skills.</li> <li>2. Master basic skills in physical examination and be able to perform and interpret a focused examination.</li> <li>3. Exhibit professional behavior, including demonstration of respect for patients, colleagues, faculty, and others in all settings.</li> <li>4. Prepare the resident for the clinical exams.</li> </ol>
Communication skills	<ol style="list-style-type: none"> <li>1. Develop patient-centered therapeutic communication through shared decision-making and effective dynamic interactions with patients, families, other professionals, and other important individuals.</li> <li>2. Counsel and educate patients and their parents on the role of early diagnosis and prophylaxis.</li> <li>3.</li> <li>4. Master skills of basic interviewing and demonstrate competence in some advanced interviewing skills.</li> <li>5. Exhibit professional behavior, including demonstration of respect for patients, colleagues, faculty, and others in all settings.</li> </ol>
Medical ethics	<ol style="list-style-type: none"> <li>1. Apply ethical knowledge in clinical care</li> <li>2. Describe the process of informed health care decision making, including the elements that must exist and the specific components of an informed-consent discussion.</li> <li>3. Discuss surrogate decision making for incapacitated patients, including who can and should act as a proxy decision maker and what standards they should use to make health care choices for another.</li> <li>4. DNR orders, community-based DNR orders, and advance directives.</li> <li>5. Describe the legal, ethical, and emotional issues surrounding withholding and withdrawing medical therapies.</li> <li>6. Describe the legal issues about refusal to treat, discharge against medical advice, etc.</li> </ol>
Data interpretation	<ol style="list-style-type: none"> <li>1. Describe the different investigational tools used in pediatrics and its subspecialties.</li> <li>2. Enhance proper interpretation of different investigational data.</li> <li>3. Enhance proper utilization of investigational tools in common and uncommon conditions.</li> <li>4. Recognize limitations of the different investigation tools.</li> </ol>

Research methodology & preparation	<ol style="list-style-type: none"> <li>1. Develop a basic knowledge in research design, including study design, abstract writing skills, and presentation skills.</li> <li>2. Gain competence in literature review, data synthesis, data analysis, and interpretation.</li> <li>3. Develop a viable research proposal with the help of faculty mentor.</li> <li>4. Conduct research on a topic broadly related to pediatric or pediatric subspecialties.</li> <li>5. Communicate research findings through oral presentations, poster presentations, abstract preparation, or article publication.</li> </ol>
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## Work-based Learning

Activity	Objectives
Daily Round Based Learning	<ol style="list-style-type: none"> <li>1. Present a focused history and physical examination finding to the team.</li> <li>2. Document historical and physical examination findings according to accepted formats, including a complete written database, problem list, and a focused S.O.A.P. note.</li> <li>3. Develop a patient management plan in consultation with others.</li> <li>4. Present a complete concise informative follow-up to old patients.</li> </ol>
On-Call Duty-Based Learning (OBL)	<ol style="list-style-type: none"> <li>1. Elicit a comprehensive history and perform a complete physical examination on admission, write clearly the patient's assessment and differential diagnosis of medical problems, and initiate the plan of management.</li> <li>2. Discuss the plan of management, including investigations and treatment plan with the seniors.</li> <li>3. Communicate the plan to the nurse assigned to the patient care.</li> <li>4. Perform the basic procedures necessary for diagnosis and management.</li> <li>5. Attend to consultations within and outside the department, including emergency consultations, and participate in outpatient clinic once or twice weekly.</li> </ol>
Clinic-Based Learning (CBL)	<ol style="list-style-type: none"> <li>1. Elicit a focused history and physical examination under the supervision of the consultant/senior resident.</li> <li>2. Present briefly the clinical finding to the attending consultant/senior resident.</li> <li>3. Discuss the differential diagnosis and the management plan with the attending consultant/senior resident.</li> <li>4. Write the patient's assessment and differential diagnosis, and the plan of management.</li> <li>5. Develop communication skills from the attending consultant/senior resident.</li> </ol>

## Self-directed Learning

Activity	Objectives
	<ol style="list-style-type: none"><li>1. Maintenance of personal portfolio (self-assessment, reflective learning, personal development plan).</li><li>2. Identify a good starting point for your learning task; get some assistance from colleague or mentor if needed.</li><li>3. Acquire the ability to identify your own learning needs and objectives.</li><li>4. Gather examples of acceptable learning outcomes.</li><li>5. Encourage critical thinking skills.</li><li>6. Locate appropriate learning resources.</li><li>7. Develop confidence and independence in their learning.</li><li>8. Develop a habit of reading journals.</li></ol>

### Example of Weekly Schedules of Formal Educational Activities:

	Sun	Mon	Tues	Wed	Thu
8 am–8:15 am	Morning Report	Morning Report	Morning Report	Morning Report	Morning Report
8 am–9 am		CP/GR	JC/RR	Core Topic	Workshop/MM
11 am–12 pm					
1 pm–3 pm				Half day: Slides/bedside teaching/MCQs	Meeting with Mentor/Mini- CEX etc. Minimum (1–2 mtg/month)

#### Morning Report:

1. Assigned moderator
2. Involving all residents in the discussion
3. New/fresh cases and follow-up of previous discussed cases
4. Healthy learning environment

#### Abbreviations:

GR: grand round  
 CP: case presentation  
 JC: journal club  
 RR: radiology rounds  
 MM: mortality & morbidity  
 MCQ: multiple choice questions  
 Mini-CEX: Clinical Evaluation Exercise

## Assessment

**Purpose:** The purpose of the assessment during the training is to:

1. Support learning
2. Develop professional growth
3. Monitor progression
4. Competency judgment and certification
5. Evaluate the quality of the training program

### General Principles:

1. Judgment should be based on holistic profiling of a trainee rather than individual traits or instruments
2. Assessment should be continuous in nature
3. Trainee and faculty must meet together to review portfolio and logbook once every two months and at the end of a given rotation
4. Assessment should be strongly linked to the curriculum and the content

Residents' evaluation and assessment throughout the program is carried out in accordance with the Commission's training and examination rules and regulations. This includes the following:

#### A. Annual promotion assessment:

This assessment is conducted towards the end of each training year throughout the program, and includes the following:

##### 1- End of year in-training evaluation report:

This is a summative evaluation report prepared for each resident at the end of each year based on the **end of rotation reports**, which might also involve clinical, oral exams, and completing other academic or clinical assignment(s). These academic or clinical assignments should be documented by electronic tracking system (when applicable) on an annual basis. Evaluations will be based on accomplishment of the minimum requirements of the procedures and clinical skills as determined by the program.

##### 1.1 End of rotation evaluation:

To fulfil the CanMEDS competencies based on the end of rotation evaluation, the resident's performance will be evaluated jointly by relevant staff for the following competencies:

1. Performance of the trainee during daily work.
2. Performance and participation in academic activities.
3. Performance in a 10–20 minute direct observation assessment of trainee-patient interactions. Trainers are encouraged to perform at least one assessment per clinical rotation, preferably near the end of the rotation. Trainers should provide timely and specific feedback to the trainee after each assessment of a trainee-patient encounter.
4. Performance of diagnostic and therapeutic procedural skills by the trainee. Timely and specific feedback for the trainee after each procedure is mandatory.

5. The CanMEDS-based competencies end of rotation evaluation form must be completed within two weeks following the end of each rotation (preferably in an electronic format) and signed by at least two consultants. The program director will discuss the evaluation with the resident, as necessary. The evaluation form will be submitted to the Regional Training Supervisory Committee of the SCFHS within four weeks following the end of the rotation.

## **2. End of year examination:**

End of year examination will be limited to R1, R2, and R3. The number of exam items, eligibility, and passing score will be in accordance with the Commission's training and examination rules and regulations. Passing of Part One exam will replace the promotion exam for that particular training year.

## **B. Final in-training evaluation report (FITER)/Comprehensive competency report (CCR)**

In addition to the approval of completion of clinical requirements (resident's logbook) by the local supervising committee, FITER is also prepared by program directors for each resident at the end of his/her final year in residency (R4), which might also involve clinical, oral exams, and completing other academic assignment(s).

## **C. Principles of Pediatric examination (Saudi Board Examination: Part One)**

This exam is conducted in the form of a written examination with an MCQ format and held at least once a year. The number of exam items, eligibility, and passing score will be in accordance with the Commission's training and examination rules and regulations.

## **D. Final pediatric board examination (Saudi Board Examination: Part Two)**

The final Saudi Board Examination comprises two parts:

### **1. Written examination**

This examination assesses the theoretical knowledge base (including recent advances) and problem-solving capabilities of candidates in the specialty of pediatric. It is delivered in an MCQ format and held at least once a year. The number of exam items, eligibility, and passing score will be in accordance with the Commission's training and examination rules and regulations.

### **2. Clinical examination**

This examination assesses a broad range of high-level clinical knowledge and skills, including data gathering, patient management, and communication and counseling skills. The examination is held at least once a year, preferably in an Objective Structured Clinical Examination (OSCE) format. The exam eligibility and passing score will be in accordance with the Commission's training and examination rules and regulations.

## **E. Certification:**

Certificate of training completion will only be issued upon the resident's successful completion of all program requirements. Candidates passing all components of the final specialty examination are awarded the "Saudi Board in Pediatric" certificate.

## Tools for Assessment

The following tools will form the “backbone” of assessment. They can be supplemented by other tools.

### **Cognition:**

Multiple Choice Questions (MCQs)

Standardized Multiple Choice Tests

Very reliable but only evaluates knowledge base

### **General features of the MCQ format:**

The phrase that introduces the item (stem) clearly states the problem.

Test only a single idea in each item.

Case scenario based MCQs are used in majority (>80%) of questions.

Single best answer format.

There will be 5 options including the correct answer.

Questions are based on an educational or instructional objective according to the blueprint.

## **Portfolio and Logbook**

### **Portfolio**

The portfolio will be an integral component of training. Each trainee will be required to maintain a logbook. The educational supervisor should be in charge of monitoring and reviewing the portfolio and provide continuous feedback to the trainee. The portfolio may include the following:

- 1.** Curriculum vitae
- 2.** Professional development plan
- 3.** Records of educational training events
- 4.** Reports from the educational supervisors
- 5.** Logbook
- 6.** Case write-ups (selected)
- 7.** Reflection
- 8.** Others: patient feedback, clinical audits etc.

### **Logbook**

The logbook will be a part of the portfolio. The logbook will be electronically filled and monitored.

The purposes of the logbook are to:

- 19.** Monitor trainees' performance on a continual basis
- 20.** Document and record the cases seen and managed by the trainees
- 21.** Maintain a record of procedures and technical intervention performed
- 22.** Enable the trainee and supervisor to determine the learning gaps
- 23.** Provide a basis of feedback to the trainee



## Online Evaluation (T-Res)

### Procedures, Academic Activities, Continuous Evaluation, Professionalism

#### Minimum Number of Procedures to Be Performed

Procedure	Junior Level (R1 and R2)	Senior Level (R3 and R4)
Blood extraction	5	3
Peripheral line	7	1
Arterial blood gas	3	3
Lumbar puncture	10	2
Intubation	3	3
Central line	1	4
Chest tube	1	2
Umbilical vein catheterization	3	1
Umbilical artery catheterization	3	1
Intra-osseous	1	1
D/C shock	1	2
Resuscitation skills	2	2
Bone marrow aspiration	0	2

#### Academic Activities

Morning rounds	Conference (regional/national)	Morbidity and mortality rounds
Case presentation	Course/meeting	Radiology rounds
Data interpretation	Slide presentation	Bedside teaching rounds
Grand rounds	Journal club	Consultant lectures

### Rotations Continuous Evaluation

Item	Poor	Mediocre	Respectable	Good	Excellent
	1	2	3	4	5
<b>Knowledge and Assignment</b>  <b>Mark: /5</b>	The trainee did not have the knowledge to understand the activity.	The trainee had some knowledge to understand the activity, but only at an overview level, not in depth.	The trainee had adequate knowledge for most of the activity	The trainee had a thorough understanding of the activity.	The trainee had exceptionally grounded knowledge to understand all aspects of the activity.
<b>History taking and Physical examination</b>  <b>Mark: /5</b>	The trainee demonstrated poor knowledge in history taking and physical examination skills	The trainee sometimes demonstrated poor knowledge in history taking and physical examination skills	The trainee demonstrated satisfactory knowledge in history taking and physical examination skills	The trainee demonstrated very good knowledge in history taking and physical examination skills	The trainee demonstrated exceptional knowledge in history taking and physical examination skills
<b>Data Interpretation and Utilizing Information</b>  <b>Mark: /5</b>	Major concern in the ability to interpret the investigation tools, analyze and integrate all the relevant data	Minor concern in the ability to interpret the investigation tools, analyze and integrate all the relevant data	No concern in the ability to interpret the investigation tools, analyze and integrate all the relevant data	Impressive ability to interpret the investigation tools, analyze and integrate all the relevant data	Outstanding ability to interpret the investigation tools, analyze and integrate all the relevant data
<b>Management Plan and Decision Making</b>  <b>Mark: /5</b>	Major concern in decision making, in direct supervision, and management.	Minor concern in decision making, in direct supervision, and management.	No Concern in decision making, in direct supervision, and management.	Impressive in decision making, in direct supervision, and management.	Outstanding in decision making, in direct supervision, and management.
<b>Communication Skills</b>  <b>Mark: /5</b>	Major concern in the ability to communicate effectively to patients, families, and healthcare providers	Minor concern in the ability to communicate effectively to patients, families, and healthcare providers	No concern in the ability to communicate effectively to patients, families, and healthcare providers	Impressive ability to communicate effectively to patients, families, and healthcare providers	Outstanding ability to communicate effectively to patients, families, and healthcare providers
<b>Completeness of Charts and Reports</b>  <b>Mark: /5</b>	The trainee was not able to complete charts and reports satisfactorily	The trainee could complete some aspects of this activity adequately, with some support from an expert	The trainee could complete some aspects of this activity adequately, with minimal support from an expert	The trainee could complete all aspects of this activity very well	The trainee could complete all aspects of this activity exceptionally well

<b>Evaluated Attitude and Relationship with others</b>  <b>Mark: /5</b>	Didn't follow the legal and ethical codes.  Rude, not willing to collaborate or help others.	The trainee's attitude was poor in performance towards patients, colleagues, and superiors  Rude but does not mind collaborating or helping others.	The trainee's attitude was satisfactory and asks for help when required.  Nice but not cooperative.	The trainee's attitude was very good and followed the legal and ethical codes.  Cooperative but tough	The trainee's attitude was exceptional and professional  Very pleasant and cooperative
<b>Managerial Skills</b>  <b>Mark : /5</b>	Unable to develop or maintain continuous education strategy.  Unable to provide constructive feedback.  Unable to do dependant rounds and take decisions	Can minimally develop or maintain continuous education strategy  Can provide non constructive feedback.  Unable to do dependant rounds and take decisions	Can develop and maintain continuous education strategy  Can provide feedback.  Able to do dependently rounds and take decisions	Can develop and maintain continuous education strategy  Can provide constructive feedback.  Able to do and supervise rounds and take decisions	Always develop and maintain continuous education strategy  Always provide constructive feedback.  Able to do and supervise rounds and take right decisions
<b>Scholar</b>  <b>Mark : /5</b>	Not participating in the teaching of junior residents,  preparation and presentation of weekly activities  Not showing any interest in reviewing medical literature for his patients	Minimal participating in the teaching of junior residents, preparation and presentation of weekly activities  Occasionally review medical literature for his patients	Participating in the teaching of junior residents,  preparation and presentation of weekly activities  Mostly review medical literature for his patients	Actively participate in the teaching of junior residents, preparation and presentation of weekly activities  Always review medical literature for his patients  Sometimes practice the skill of self-assessment	Actively participate in the teaching of junior residents, supervise preparation and presentation of weekly activities  Always review and discuss medical literature for his patients with his team  Always practice the skill of self-assessment

<b>Attendance and Punctuality</b>	The trainee has unsatisfactory attendance	The trainee has poor attendance.	The trainee has satisfactory attendance.	The trainee has good attendance.	Punctuality when reporting to duty.
<b>Mark: /5</b>					

**Given Score:** Sum of ten items (maximum total 50)

**Final Score (R1 – R3):** Given Score x 0.4/20

**Final Score (R4):** Given Score x 0.8/40

**Evaluator Comments:**

**Evaluator Name:**

**Signature:**

**Program Director:**

**Signature:**

**Resident Name:**

**Signature**

### Professionalism (Program Director/Mentor Evaluation)

Criteria	1	2	3	4	5
<b>Communication Skills</b>	Major concern in the ability to communicate effectively with patients, families, and health care providers.	N/A Major concern in the ability to communicate effectively to patients, families, and healthcare providers. Minor concern in the ability to communicate effectively with patients, families, and health care providers	No concern in the ability to communicate effectively with patients, families, and health care providers.	Impressive ability to communicate effectively with patients, families, and health care providers.	Outstanding ability to communicate effectively with patients, families, and health care providers.
<b>Collaboration</b>	N/A Cannot participate effectively and appropriately in an inter-professional health care team.	Needs to improve ability to participate effectively and appropriately in an inter-professional health care team.	Participates effectively and appropriately in an inter-professional health care team.	Impressive and very effective in an inter-professional health care team.	Outstanding team member.
<b>Attitude and Ethics</b>	Didn't follow the legal and ethical codes.	The trainee's attitude was poor in performance towards patients, colleagues, and superiors.	The trainee's attitude was satisfactory and he/she asks for help when required.	The trainee's attitude was very good and followed the legal and ethical codes.	The Trainee's attitude was exceptional and professional.
<b>Attendance and Punctuality</b>	N/A The trainee has unsatisfactory attendance.	The trainee has poor attendance	The trainee has satisfactory attendance	The trainee has very good attendance.	Punctual when reporting to duty.
<b>Department Participation</b>	No participation	N/A No participation. Few questions and not a lot of participation.	Few questions and participates often.	Discusses the case and has good participation.	Detailed discussion and contributes through active participation.
<b>Relation to Others</b>	Rude, not willing to collaborate or help others.	Rude but does not mind collaborating or helping others. Nice	Nice but not cooperative.	Cooperative but tough.	Very pleasant and cooperative.

### **Mini-Clinical Evaluation Exercise (CEX)**

- Customized mini-CEX for most important conditions of the specialty
- Mini-CEX and DOPS will be an open and joint exercise between the trainee and the supervisor
- Should have a very high emphasis on formative development
- At least 15 minutes should be dedicated to feedback

## Trainee Support (Mentorship)

1. Each trainee must have an assigned supervisor
2. A clinical supervisor must not have more than 3 trainees at any given point of time
3. Assigned supervisor must follow the trainee for at least one year

### Training Rules/Regulations and Trainee Rights:

1. **Average Calls:**
  - I. Junior level 7 calls per month
  - II. Senior level 6 calls per month
  - III. Calls 24 hours except ER rotations
  - IV. Resident leave from 12:00 pm next day
2. **Protected Time (Activities)**
  - I. F
3. **Leave:** Residents in the program are entitled to annual, national and educational leave. They can also apply for sick, emergency and maternity leave according to the Commission's general rules and regulations for training. The 30 days annual vacation may be split into two (2) or three (3) parts, depending on the trainee's rotation and departmental policies.

## **Appendix**

### **MORNING REPORT**

#### **POLICY AND GUIDELINES FOR PRESENTING**

**Purpose:**

- To outline the objectives for the morning report and the format in which patients should be presented.
- To develop skills in effective communication such that cases are presented confidently, concisely, accurately, and with appropriate focus.
- To develop critical thinking skills as they pertain to clinical management; namely, the formation of a complete problem list, adequate differential diagnosis, and plan for evaluation and management.
- To recognize areas of knowledge deficit and formulate appropriate clinical questions to be addressed from the medical literature.

**Guideline:**

- Attendance at morning report is mandatory for all residents. Exceptions are only when resident is on leave or outside rotation.
- The morning report starts promptly at specified time according to the hospital policy and will finish promptly after 15 minutes.
- An attending physician/senior resident or will be regularly scheduled to help facilitate morning report. Both the process and content material of the morning report will originate from them. They will emphasize the formulation of a differential diagnosis and appropriate evaluation and management. They are not necessarily expected to go over a topic or provide a didactic session.
- The senior resident on call reviews the admissions and diagnoses of patients on their service and selects one case for the junior resident to present. The senior resident will not be required to present any additional material at the morning report.
- The junior resident should give a concise, pointed presentation focusing on the pertinent history and physical findings.
- Pertinent X-rays, ECGs, or additional studies should be brought to morning report and be available for review.
- The initial 10 minutes should be spent on the junior resident's presentation, impression, differential diagnosis, and management plans.
- The remaining time should be spent either reviewing the management process or discussing a topic pertinent to the patient.
- The junior level resident's presentation will be evaluated for formative purposes.



## Mini-Clinical Evaluation Exercise (CEX)

Evaluator: ..... Date: .....

Resident: ..... R-1 ☐ R-2 ☐ R-3 ☐ R-4 ☐

Patient Problem/Diagnosis: .....

<b>Setting</b>	Ambulatory <input type="checkbox"/>	Inpatient <input type="checkbox"/>	ED <input type="checkbox"/>	Other: <input type="text"/>
<b>Complexity</b>	Low <input type="checkbox"/>	Moderate <input type="checkbox"/>	High <input type="checkbox"/>	
<b>Patient</b>	Age <input type="text"/>	Sex <input type="text"/>	New <input type="checkbox"/>	Follow-up <input type="checkbox"/>
<b>Focus</b>	Data Gathering <input type="checkbox"/>	Diagnosis <input type="checkbox"/>	Therapy <input type="checkbox"/>	Counseling <input type="checkbox"/>

Observed ☐ Not Observed ☐

	Overall	UNSATISFACTORY			SATISFACTORY			OUTSTANDING		
	Score	1	2	3	4	5	6	7	8	9
1	Medical Interviewing Skills									
2	Physical Examination Skills									
3	Professionalism									
4	Clinical Judgment									
5	Counseling Skills									
6	Organization/Efficiency									
7	Overall Clinical Competence									

Mini-CEX Time: Observing .....Min Providing Feedback: ..... Min

Evaluator Satisfaction with Mini-CEX:      LOW    1    2    3    4    5    6    7    8    9  
HIGH

Resident Satisfaction with Mini-CEX:      LOW    1    2    3    4    5    6    7    8    9  
HIGH

Comments:

Resident Signature

Evaluator Signature

## DESCRIPTORS OF COMPETENCIES DEMONSTRATED DURING THE MINI-CEX

- 1- **Medical Interviewing Skills:** Facilitates patient's telling of story; effectively uses questions/directions to obtain accurate, adequate information needed; responds appropriately to affect, non-verbal cues.
- 2- **Physical Examination Skills:** Follows efficient, logical sequence; balances screening/diagnostic steps for problem; informs patient; sensitive to patient's comfort, modesty.
- 3- **Professionalism:** Shows respect, compassion, empathy, establishes trust; attends to patient's needs of comfort, modesty, confidentiality, information.
- 4- **Clinical Judgment:** Selectively orders/performs appropriate diagnostic studies; considers risks, benefits.
- 5- **Counseling Skills:** Explains rationale for test/treatment; obtains patient's consent; educates/counsels regarding management.
- 6- **Organization/Efficiency:** Prioritizes; is timely, succinct.
- 7- **Overall Clinical Competence:** Demonstrates judgment, synthesis, caring, effectiveness, and efficiency.

## Clinical Evaluation Exercise (Mini-CEX)

### (Resident instructions)

The Clinical Evaluation Exercise (mini-CEX) assesses clinical skills, attitudes, and behaviors in a secondary care setting. It's one of the tools used to collect evidence for your Trainee ePortfolio.

#### **How mini-CEX works:**

The mini-CEX provides a 15-minute snapshot of how you interact with patients in a secondary care setting.

#### **Preparing for mini-CEX:**

Each mini-CEX should represent a different clinical problem, and you should have drawn samples from a wide range of problem groups by the end of the residency training years 1 and 2.

#### **Conducting mini-CEX:**

The mini-CEX may be overseen by the clinical mentor, the trainer, or the program director, depending on the arrangements in your center.

The mini-CEX may be observed by a staff grade doctor, nurse practitioner, clinical nurse specialist, an experienced specialty registrar, or consultant. The observer should not be a peer - a fellow GP trainee or specialty trainee at a similar stage in training.

#### **Using mini-CEX feedback:**

The observer will give you immediate feedback and the evidence will be rated and recorded in your Trainee ePortfolio. You'll develop a learning plan based on the strengths and developmental needs observed and record it in the Learning Log within your ePortfolio.

#### **When you take mini-CEX**

You'll be expected to undertake 4–6 observed encounters each training year.



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