



# Entrustable Professional Activities

## Curricular Components Supporting EPA 3 for Pediatric Infectious Diseases

### Curricular Components That Support the Functions of EPA 3: Management of Healthy Patients with Pediatric Infectious Diseases

1. Demonstrating knowledge of pediatric infectious diseases by focusing the clinical question to distinguish high and low priority of various diagnoses
  - Develops skills in which to frame the consultation in terms of a clinical question relevant to the patient and their disease process(es)
  - Reframes the original clinical question in order to provide the best care of the patient
  - Interprets the differential diagnosis in terms of most likely to least likely disease process and prioritizes laboratory testing in this fashion
  - Determines which diseases in the differential diagnosis are most likely to cause rapid deterioration in the near term, and thus may require rapid testing and/or empiric therapy
  - Provides a thorough rationale for the order of the differential diagnosis based on clinical history, examination findings, laboratory and radiological results, and disease epidemiology
  - Continually reevaluates the differential diagnosis as results of testing are known and the clinical course evolves
2. Obtaining essential information to develop and prioritize a working differential diagnosis of potential infectious diseases
  - Determines possible risk factors for an infectious disease including behavioral (e.g., high-risk sexual behaviors), travel related (e.g., malaria), food and beverage related (e.g., ingestion of preformed toxin or contaminated food/water), previous vaccinations, and animal or other environmental exposures
  - Interprets the timeline of the patient's clinical course in terms of what is known about the suspected or proven disease process, with an open mind to include uncommon or rare features of disease which may manifest outside of an expected time frame or sequence
  - Carefully considers all aspects of verbal and written history (e.g., review of medical record, patient and family interview, discussion with referring physician) provided to develop and then determine the likelihood of various infectious possibilities in the differential diagnosis
3. Performing a thorough physical exam relevant to the clinical question(s)
  - Determines the general state of the patient to be acutely, subacutely, or chronically ill
  - Distinguishes abnormal and key normal findings relevant to the suspected infectious process on physical exam
  - Interprets physical exam findings in the context of the patient's history and clinical features of the suspected infectious process
  - Synthesizes history and clinical findings into a unified diagnosis when possible



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4. Recommending specific laboratory tests to confirm or exclude diagnoses based on the differential diagnosis
  - Applies knowledge of the major routes of transmission/acquisition of micro-organisms (e.g., type of contact, common vehicle, airborne, vector borne) when recommending laboratory testing
  - Recognizes the major sources and reservoirs of different microorganisms, including sites of colonization and shedding
  - Applies a working knowledge of appropriate specimen collection, handling and processing, and test performance characteristics in the decision to obtain a given test (e.g., sensitivity, specificity, PPV, NPV).
  - Determines the settings in which it is most appropriate to obtain culture, serology, antigen, and/or nucleic acid testing
  - Analyzes test results within the clinical context of the patient's presentation to determine the likelihood of a diagnosis
  - Prioritizes testing for treatable pathogens in the setting of low likelihood (e.g., HSV testing in the setting of encephalitis)
  - Recognizes costs associated with specific laboratory tests and seeks to mitigate costs by judicious use of testing (e.g., vancomycin levels in patients with normal renal function prior to reaching steady state equilibrium)
5. Applying knowledge about the pathophysiology of unusual, complex, and fulminant pediatric infectious diseases to formulate appropriate diagnostic and therapeutic management plans
  - Recognizes subtle differences between seemingly similar presentations of common infections and rapidly progressive or severe infections (e.g., cellulitis vs. necrotizing fasciitis)
  - Recognizes host factors which influence the risk of severe or rapidly progressive disease (e.g., encapsulated organisms in the young child)
  - Recognizes patterns and/or constellations of signs and symptoms for various severe infections (e.g., erythroderma and Toxic Shock Syndrome [TSS])
  - Makes a plan to escalate therapy in situations in which the patient is not clinically improving and as the clinical diagnosis evolves
  - Knows how host factors influence the results of diagnostic testing (e.g., QuantiFERON result in a young child)
6. Choosing empiric antimicrobial therapy based on the differential diagnosis, the most likely diagnosis and the local antibiogram
  - Develops an empiric therapy management plan for the following common infections including
    - Upper respiratory/lower respiratory
    - CNS (meningitis, brain abscess)
    - ENT (peritonsillar, retropharyngeal, mastoiditis, acute otitis media)
    - Osteoarticular



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- Lymphoreticular
  - Genitourinary/renal
  - Intraabdominal/intestinal/hepatobiliary
  - Skin/soft tissue/muscle
  - Reproductive/sexually transmitted
  - Cardiovascular/endovascular
  - Ophthalmologic infections
  - Odontogenic infections
  - Vasculitides/Kawasaki disease
  - Systemic syndromes (e.g., Systemic Inflammatory Response Syndrome, Tick borne TSS)
7. Developing targeted antimicrobial therapy including dosing, duration, and route of administration for specific infectious diseases, with use of culture and susceptibility results
- Recognizes sites that require higher antimicrobial dosing (e.g., central nervous system infections) and the appropriate mode of antimicrobial delivery (e.g., parenteral vs. enteral)
  - Uses knowledge of local epidemiology and antibiogram to guide empiric therapy
  - Uses susceptibility results including minimum inhibitory concentrations (MICs) to determine definitive therapy and instances when more specific resistance testing should be performed (e.g., D test for clindamycin resistance in the setting of erythromycin resistance)
  - Uses antimicrobial specific pharmacokinetics (PK) and pharmacodynamics (PD) data to achieve therapeutic targets
  - Knows when specific drug monitoring is necessary for therapeutic and toxicity monitoring purposes (e.g., vancomycin and gentamicin)
  - Identifies when combination therapy is needed to adequately treat an infection (e.g., enterococcal endocarditis)
  - Develops an appropriate plan for transitioning from parenteral to enteral therapy based on clinical response to treatment and antimicrobial characteristics
  - Utilizes the existing literature to determine appropriate duration of therapy for various infectious disease processes (e.g., community acquired pneumonia, osteoarticular infection)
  - Determines whether specific antimicrobials are able to treat infections in specific body sites (e.g., daptomycin is inactivated in lung tissue)
  - Develops an appropriate plan to select second-line antimicrobials in the setting of drug allergies, interactions, or other contraindications to typical therapy for common infections
8. Accessing and applying medical literature that is critical to the patient and recognizing tiers of evidence and areas in which there is a lack of evidence



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- Understands and interprets the grading system for levels of evidence for clinical practice guidelines (e.g., community acquired pneumonia, MRSA)
- Develops clinical questions using a PICO format

<b>P</b>	Patient, Population, or Problem	How would I describe a group of patients similar to mine?
<b>I</b>	Intervention, Prognostic Factor, or Exposure	Which main intervention, prognostic factor, or exposure am I considering?
<b>C</b>	Comparison or Intervention (if appropriate)	What is the main alternative to compare with the intervention?
<b>O</b>	Outcome you would like to measure or achieve	What can I hope to accomplish, measure, improve, or affect?
	What type of question are you asking?	Diagnosis, Etiology/Harm, Therapy, Prognosis, Prevention
	Type of study you want to find	What would be the best study design/methodology?

- Plans a literature review based on a clinical question and evaluates and applies the available evidence
  - Develops an approach to clinical scenarios with conflicting, weak, or no evidence while incorporating patient and family preferences
  - Extrapolates data from the nearest neighbor evidence when needed in order to make informed therapeutic decisions (e.g., using data on use of linezolid for treatment of meningitis in the setting of shunt infections)
9. Building a therapeutic alliance in a collaborative manner with the primary patient team by advocating infectious disease recommendations to members of the health care team, patients, and families
- Utilizes open and ongoing communication strategies between the primary team, patient, family, and consult team in a culturally respectful manner
  - Acts in a collaborative manner with interdisciplinary team members who are also involved in the care of the patient, while recognizing when it is appropriate to advocate for infectious diseases specific recommendations.
  - Recognizes when a care conference or team meeting should be utilized to align patient/family engaged in multi-team interactions
  - Distinguishes instances in which patient advocate involvement may be beneficial for the patient and family
  - Recognizes diagnoses in which collaboration with another subspecialty is indicated (e.g., neurology in setting of encephalitis, orthopedics in septic arthritis)



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### 10. Participating in infectious disease related follow-up care

- Knows when follow up in infectious diseases clinic is indicated and how frequently visits should occur
- Arranges for appropriate laboratory monitoring and assesses laboratory results (e.g., vancomycin levels, CBC monitoring with long-term use of beta-lactam antibiotics)
- Plans necessary laboratory testing, based on the referral reason, during follow up appointments for infectious diseases (e.g., HIV, Hepatitis B, Hepatitis C, RPR testing in victims of sexual assault)
- Communicates effectively with primary care pediatricians, referring physicians, public health workers, patients, and families to coordinate care and to provide key information for ongoing care
- Knows when to refer patients to other subspecialties based on their clinical history and suspected disease process (e.g., referral of a patient to GI in the setting of suspected inflammatory bowel disease)

### Curricular Components Author

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