



Entrustable Professional Activities

EPA 3 for Pediatric Endocrinology

EPA 3: Manage Patients with Acute Endocrine Disorders in Ambulatory, Emergency, or Inpatient Settings

Supervision Scale for This EPA

1. Trusted to observe only
2. Trusted to manage with direct supervision and coaching
3. Trusted to manage with indirect supervision and discussion of information gathered and conveyed for most simple and some complex cases
4. Trusted to manage with indirect supervision but may require discussion of information gathered and conveyed for a few complex cases
5. Trusted to manage without supervision

Description of the Activity

Children with acute endocrine disorders require evaluation both in the inpatient, emergency, and outpatient settings. This requires an appropriate knowledge base to evaluate, diagnose, and treat patients with possible endocrine disorders. Engaging in sound clinical reasoning that drives the development of an appropriate differential diagnosis and evaluation is a necessary skill in this process.

The specific functions which define this EPA include:

1. Evaluation of patients in consultation, including appropriate selection and interpretation of laboratory data and imaging
2. Diagnosing and managing common endocrine diseases encountered in childhood and adolescence
3. Recognizing the need for help in diagnosing and managing rare endocrine disease and the utilizing of additional resources as needed
4. Developing and documenting a clear management plan, including both admission and discharge criteria, and addressing comorbidities requiring attention during hospitalization
5. Developing and documenting a clear management plan for patients managed in the ambulatory setting
6. Developing a fiscally responsible care plan that balances the costs of various procedures, tests, and therapies with the benefits to the patient and family
7. Coordinating care with the interdisciplinary health care team. The child with complicated medical concerns in the inpatient or ambulatory setting requires the input of many professionals on the health care team (e.g., nutritionist, pharmacist, discharge planner, social worker). Thus, the entrusted professional must be able to communicate and partner with all members of the health care team.

Judicious Mapping to Domains of Competence

- Patient Care
- Medical Knowledge
- Practice-Based Learning and Improvement
- Interpersonal and Communication Skills



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- Professionalism
 Systems-Based Practice
 Personal and Professional Development

Competencies Within Each Domain Critical to Entrustment Decisions

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| PC 1: | Gathering information |
| PC 2: | Organizing prioritizing responsibilities |
| PC 5: | Performing complete physical exams |
| PC 6: | Using optimal clinical judgment |
| PC 7: | Developing management plans |
| MK 2: | Practicing EBM |
| ICS 5: | Consultative role |
| SBP 5: | Working in interprofessional teams |

Context for the EPA

Rationale: Pediatric endocrinologists must be able to evaluate and manage patients with a variety of endocrinologic conditions at diverse ages from the newborn to early adulthood. This necessitates an understanding of pathophysiology, differential diagnosis, interpretation of laboratory and radiologic findings, and the ability to synthesize these in the context of the clinical and family setting.

Scope of Practice: Patients with potential acute endocrinologic disorders are seen in the ambulatory setting, emergency departments, or as inpatient consultations. The patient populations will range from newborns to those in early adulthood. Scope of practice will change with context ranging from primary responsibility for patient care to providing consultative services, though the need for coordination of care with an interdisciplinary team is present throughout. This document is intended to address the scope of knowledge and skills of the pediatric endocrinologist in both hospital-based and private practice. As such it focuses on common problems that a pediatric endocrinologist would manage with the understanding that the general pediatric endocrinologist will recognize his/her own limitations and seek additional assistance from subspecialists within and outside the field as needed.

Curricular Components That Support the Functions of the EPA

1. Evaluating patients in consultation, including appropriate selection and interpretation of laboratory data and imaging
 - Demonstrates the general state of the patient with an acute endocrine condition in comparison to his/her state of normal well-being
 - Distinguishes the abnormal findings on physical exam, laboratory values, and imaging data in the acute state
 - Interprets the abnormal findings in the context of the family history, particularly for autoimmune and inherited conditions
 - Synthesizes the clinical findings into a unified list of potential diagnosis and prioritize the evaluation for the most likely diagnosis



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2. Diagnosing and managing common endocrine diseases encountered in childhood and adolescence (examples below but are not limited to those listed)
 - Diabetic ketoacidosis/New onset diabetes mellitus
 - Applies the criteria for the diagnosis of diabetic ketoacidosis and its severity
 - Understands the management of fluid resuscitation and insulin therapy particularly within the first 24 hours of diabetic ketoacidosis and as acuity decreases
 - Monitors for the potential morbidities associated with diabetic ketoacidosis
 - Provides counseling to families about diagnosis, therapy, and need for further care
 - Adrenal crisis
 - Knows the role of glucocorticoid replacement therapy and fluid resuscitation and applies it in acute management
 - Thyroid storm
 - Applies the criteria for the diagnosis of thyroid storm
 - Knows the treatment options available during a storm
 - Monitors for and manages the potential morbidities associated with a thyroid storm
 - Hypoglycemia
 - Applies the criteria for the diagnosis of hypoglycemia in relationship to the age of the patient
 - Knows the critical sampling of blood and urine needed during the evaluation of hypoglycemia and the potential difficulties with interpretation of results
 - Electrolyte imbalances (Examples: hypo- and hypernatremia, hypo- and hypercalcemia)
 - Applies the laboratory knowledge necessary to determine the cause of the hormonal deficiency/excess leading to the electrolyte disturbance
 - Determines the therapy needed to correct this disturbance
 - Recognizes and manages the possible comorbidities associated with the correction of the hormonal and electrolyte disturbances
 - Newborn with ambiguous genitalia
 - Acknowledges the importance of the timing of laboratory evaluation and responds accordingly
 - Applies the laboratory knowledge necessary to determine the cause of the hormonal deficiency/access leading to the electrolyte disturbance
 - Abnormal newborn screen for congenital hypothyroidism or congenital adrenal hyperplasia
 - Knows the methods for newborn screening in the community in which he/she practices
 - Knows how to interpret abnormal results from newborn screening and potential need for further evaluation or treatment



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- Determines and institutes initial treatment for congenital hypothyroidism or congenital adrenal hyperplasia
 - Provides counseling to families about diagnosis, therapy, and need for further care
3. Recognizing the need for help in diagnosing and managing rare endocrine disease and the utilizing of additional resources as needed (examples below but are not limited to those listed)
- Pheochromocytoma
 - Knows the pathophysiology and possible comorbidities of catecholamine excess
 - Applies the laboratory knowledge necessary for biochemical diagnosis
 - Consults with radiology and surgical colleagues concerning diagnosis and treatment
 - Cushing's syndrome
 - Applies criteria for clinical diagnosis of Cushing's syndrome
 - Utilizes appropriate testing for more definitive diagnosis and distinction between Cushing's syndrome and Cushing's disease
 - Consults with radiology, interventional radiology, surgery, and neurosurgery about appropriate diagnostic testing and management
 - Nonketotic hyperosmolar hyperglycemia
 - Applies criteria for diagnosis of hyperosmolar state
 - Knows and manages risk factors for and possible comorbidities associated with hyperosmolar state
 - Understands treatment options available
 - Neonatal diabetes
 - Applies appropriate criteria for diagnosis
 - Determines and institutes initial management
 - Provides counseling to families about diagnosis, therapy, and need for continued care
 - Thyroid cancer/thyroid nodules
 - Applies appropriate physical examination skills to describe findings and diagnose thyroid nodules
 - Knows appropriate testing to determine thyroid function and is able to interpret the results
 - Consults with sub-specialists to determine necessity for further evaluation or surgery

When rare diagnoses are encountered, searches the literature focusing on the highest-grade evidence available for formulation of the diagnosis and therapy

- Interprets the evidence in light of its grade
- Applies the evidence to the care of the patient, given the particular context
- Consults with others regarding available guidelines and other sources of evidence



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4. Developing and documenting a clear management plan, including both admission and discharge criteria, and addressing comorbidities requiring attention during hospitalization
 - Communicates effectively with emergency, ICU, and other physicians, both verbally and through appropriate and timely documentation of recommendations
 - Engages in closed-loop communication for serious concerns
 - Knows the criteria and has the clinical judgment needed to transition the patient to a lower level of acuity and care
 - Discusses and considers the home environment in making decisions about readiness for discharge
 - Discusses family level of comfort for interval between hospital discharge and first follow-up visit
 - Determines family acceptability of a visiting nurse to help with care if needed
 - Provides written and verbal discharge instructions inviting questions from the family
 - Transmits information about the emergency room visit and/or hospital stay to the primary care provider
 - Knows the preventative care necessary to avoid another acute exacerbation of the endocrine disorder and counsels the patient/family accordingly
5. Developing and documenting a clear management plan for patients managed in the ambulatory setting
 - Asks direct questions about concerns that parents and patient may have about the endocrine disorder
 - Gauges family understanding of the problem and invites questions
 - Evaluates the family and patient's readiness to manage the endocrine disturbances in the outpatient setting
 - Interviews the parents/family about previous experience with endocrine disorders
 - Gathers information on available support systems
 - Includes the family in a shared decision-making process
6. Developing a fiscally responsible care plan that balances the costs of various procedures, tests, and therapies with the benefits to the patient and family
 - Knows the relative costs of testing and intervention
 - Balances cost and patient discomfort with the likelihood of a test/procedure providing more definitive diagnosis or improving therapeutic decision-making
7. Coordinating care with the interdisciplinary health care team. The child with complicated medical concerns in the inpatient or ambulatory setting requires the input of many professionals on the health care team (e.g., nutritionist, pharmacist, discharge planner, social worker). Thus, the entrusted professional must be able to communicate and partner with all members of the health care team.
 - Identifies the care necessary for the management of the endocrine disturbance within the health care team, engaging new team members when necessary
 - Engages other sub-specialists in shared decision-making and care for patients requiring surgical or multi-specialty management (e.g., Pheochromocytoma, intracranial tumors, Cushing's syndrome)
 - Engages all members of the health care team and encourages questions/input regarding recommendations for patient care
 - Facilitates hand-offs of care through direct face-to-face discussion whenever possible
 - Directly updates the community practitioner with the status of the patient



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