The neurology elective is available to first year residents in either a 2 or 4 week block rotation. The experience will include performing inpatient consultations, attending outpatient clinics and participating in procedures. This is a separate opportunity from the assignment to neurology on the silver inpatient service.

The overall goal of the neurology elective is to acquire an in-depth knowledge and experience with commonly encountered neurologic problems of infants and children. This elective also includes adequate time to pursue directed readings that focus on pathophysiology of disease processes. With this information as a background, the resident will acquire a good understanding of the management and long-term outcomes of common neurologic disorders in children.

Residents are expected to attend and be active participants in all required clinics. When instructed, residents are required to complete consultations on hospitalized patients thoroughly so that they are prepared to present and discuss the patients on rounds with the attending. This includes locating pertinent imaging studies in radiology and pulling pertinent literature from the library. Residents are required to follow the consult patients and communicate recommendations to the inpatient team.

A. **Patient Care:**

1. Demonstrate competence in the neurologic examination for children of all ages
2. Gather accurate, essential information from all sources, including medical interviews and medical records and diagnostic/therapeutic procedures
3. Make informed recommendations about preventative, diagnostic and therapeutic options and interventions that are based on clinical judgment, scientific evidence, and patient preference
4. Develop, negotiate and implement effective patient management plans and integration of patient care

B. **Medical Knowledge:**

1. Recognize normal versus abnormal conditions in pediatric neurology
2. Identify normal and abnormal neurological development including language, cognition, motor development, reflexes, socialization
3. Demonstrate a skillful neurological history and exam which can distinguish normal from abnormal findings, peripheral from central nervous system lesions, and static from progressive neurological dysfunction
4. Identify temporary/iatrogenic neurological dysfunction (e.g., ataxia, or lethargy due to anticonvulsant loading dose) from dysfunction due to pathological conditions (e.g., trauma, poisoning, severe infection, hypoglycemia, and electrolyte imbalance)
5. Describe those symptoms of neurological diseases manifested outside the central nervous system (e.g., vomiting, weakness, precocious puberty, and polyuria), and explain how the CNS dysfunction produces the symptoms
6. Recognize the neurological manifestations of systemic disease (e.g. renal failure, hepatic failure, etc.)
7. Demonstrate knowledge of common neurological conditions commonly managed by primary care practitioners
8. Apply methods to diagnose and manage these conditions:
   a. Febrile seizures
   b. Static encephalopathy
   c. Migraine and tension headaches
   d. Mild closed head trauma and simple linear skill fractures
e. Transient neurological disturbances due to drug ingestions (e.g. benzodiazepines)
f. Viral meningitis
g. Attention deficit disorder, uncomplicated
h. Behavioral disorders
i. Learning disabilities

9. Identify conditions and review indications of neuropathy typically referred to subspecialty care

10. Recognize, provide initial treatment for, and appropriately refer these conditions:
   a. Acute encephalopathy (e.g., metabolic, lead, hypertensive, anoxic, drug/toxin induced)
   b. Bacterial meningitis
c. Brain tumor
d. Cerebral palsy
e. Coma, increased intracranial pressure
f. Craniosynostosis
g. Encephalitis
h. Headaches which are severe, progressive, or refractory to simple therapy, or suggestive of malignancy (e.g., Guillain-Barre, muscular dystrophy, hypotonia)
i. Hydrocephalus
j. Movement disorders (chorea, ataxia, tics)
k. Mental retardation, loss of neurological skills, autism
l. Muscled weakness of flaccidity (e.g., Guillain-Barre, muscular dystrophy, hypotonia)
m. Neurocutaneous syndromes
n. Seizures (other than febrile)
o. Severe head trauma, complicated skull fractures, spinal cord injuries
p. Ventriculoperitoneal shunt infection and dysfunction

11. Demonstrate knowledge in the evaluation, pathophysiology, intervention, and counseling for seizures
   a. Differentiate the various seizure types (e.g., generalized, focal, complex partial, absence)
   b. Manage uncomplicated seizures effectively using a step-wise approach starting with simple observation through the appropriate anticonvulsant for the type of seizure, and drug monitoring
   c. List the indications for referral for patients and seizures (complicated, difficult to diagnose or manage, intractable, in status epilepticus, with shunts)
   d. Develop a step-wise plan for evaluation and management for a patient in status epilepticus
   e. Demonstrate an understanding of and counsel parents about febrile seizures including epidemiology, natural history, risk factors for afebrile seizures, and treatment options

12. Demonstrate knowledge and skill in the evaluation and treatment of headaches
   a. Identify the historical features which help to differentiate tension or migraine headaches from those caused by increased intracranial pressure
   b. Describe the therapeutic options available for benign, migraine, or tension headaches in children
   c. Identify the indications for radiological imaging (CT, MRI) in patients with headaches

13. Demonstrate a working knowledge of complex neurological testing

14. Describe the indications for, the limitations of, and the relative cost of these neurological tests:
   a. Electroencephalogram (EEG)
   b. Head computerized tomography scan (CT)
   c. Head magnetic resonance scan (MR)
   d. Lumbar puncture
   e. Psychometric testing
   f. Electromyography (EMG) and nerve conduction velocity (NCV)

15. Discuss and analyze common indications and contraindications for commonly used anticonvulsant
16. Describe appropriate monitoring of anticonvulsant therapy and recognize toxicities associated with anticonvulsant therapy

17. C. Practice-Based Learning and Improvement:

1. Acquire better understanding of neuroanatomy through use of the web-based neuroanatomy tool located on the Pediatric Chief Residents' Website
2. Review the practice guidelines for major neurologic processes located on the Chief Residents' Website
3. Demonstrate a willingness to learn from errors and use errors to improve the system or processes of care
4. Use information technology or other available methodologies to access and manage information, support patient care decisions and enhance both patient and physician education
5. Provide, request, and incorporate feedback into practice improvement
6. Reflect on your own performance and knowledge base, identify areas of weakness and target those areas with self-directed learning

D. Interpersonal and Communication Skills:

1. Provide effective and professional consultation to other physicians and health care professionals and sustain therapeutic and ethically sound professional relationships with patients, their families, and colleagues
2. Use effective listening, questioning, and narrative skills to communicate with patients and families
3. Interact with referring physicians in a respectful, appropriate manner
4. Demonstrate the ability to give guidance and instruction to families regarding the management of their children with neurologic disease without the use of medical jargon and with the use of interpreters as needed

E. Professionalism:

1. Act in the best interest of the patients at all times
2. Demonstrate respect, compassion, integrity, and altruism in relationships with patients, families and colleagues
3. Demonstrate sensitivity and responsiveness to the gender, age, culture, religion, sexual preference, socioeconomic status, beliefs, behaviors and disabilities of patients and professional colleagues
4. Be punctual and reliable
5. Adhere to principles of confidentiality/scientific/academic integrity
6. Demonstrate the ability to provide conflict resolution when needed

F. Systems-Based Practice:

1. Advocate for patients and families in both the health care and school system environment
2. Discuss the limitations and opportunities inherent in various practice types and delivery
3. Apply evidence-based, cost-conscious strategies to prevention, diagnosis and disease management
4. Collaborate with other members of the health care team to assist patients in dealing effectively with complex systems
5. Identify community resources for families of children with neurodevelopmental disorders
6. Describe the school issues for children with seizures and with developmental disorders
7. Demonstrate a working knowledge of coding, billing and documentation
8. Discuss resource limitations in various insurance programs and the Medicaid healthcare system
The Neurology elective is available to senior residents in either a 2 or 4 week block rotation. The experience will include performing inpatient consultations, attending outpatient clinics and participating in procedures. This is a separate opportunity from the assignment to neurology on the silver inpatient service.

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B. Medical Knowledge:

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