MARSHALL UNIVERSITY SCHOOL OF MEDICINE
PEDIATRIC RESIDENCY TRAINING PROGRAM

LETTER OF AGREEMENT FOR THE COOPERATIVE TRAINING OF RESIDENTS/FELLOWS FROM MARSHALL UNIVERSITY JOAN C. EDWARDS SCHOOL OF MEDICINE (MUSOM), AND CABELL HUNTINGTON HOSPITAL ([CHH] Participating Site)

This letter of agreement is an educational statement that sets forth the relationship between MUSOM and CHH. This statement of educational purpose is not intended to supercede or change any current contracts and institutional affiliation agreements between the institutions.

This Program Letter of Agreement is effective from July 1, 2022, and will remain in effect for five (5) years, unless updated, changed, or terminated as set forth herein. All such changes, unless otherwise indicated must be approved in writing by all parties.

Persons Responsible for Education and Supervision at CHH

At MUSOM:	Audra Pritt, M.D., Site Director
At CHH:	Audra Pritt, M.D., Site Director and All current MUSOM Pediatric Faculty Members (Exhibit A) which may change due to resignation or the addition of new faculty members

1. Responsibilities

The MUSOM faculty (Faculty) at the CHH must provide appropriate supervision of residents/fellows (Resident/Fellows) in patient care activities and maintain a learning environment conducive to educating the residents/fellows in the AOA/ACGME competency areas. The Faculty must evaluate Resident/Fellows performance in a timely manner during each rotation or similar educational assignment and document this evaluation at completion of the assignment.

2. Content and Duration of the Educational Experiences

The content of the educational experiences has been developed according to AOA/ACGME Residency/Fellowship Program Requirements and are delineated in the attached goals and objectives for each rotation. See Exhibit B.

The Program Director, Susan L. Flesher, MD is ultimately responsible for the content and conduct of the educational activities at all sites, including CHH. The MUSOM Program Director/CHH Site Director and the faculty are responsible for the day-to-day activities of the Residents/Fellows to ensure that the outlined goals and objectives are met during the course of the educational experiences.

Rotations may be in two (2) week blocks, but generally rotations are a month in duration.

The day-to-day supervision and oversight of Resident/Fellow activities will be determined by the specialty service where they are assigned. The Program Coordinator is responsible for oversight of some Resident/Fellow activities, including coordination of evaluations, arrangement of conferences, sick leave and annual leave as mandated by MUSOM.

3. Assignments

In accordance with the Affiliation Agreement between MUSOM and CHH, MUSOM will provide to CHH, the name of the Resident(s)/Fellow(s) assigned to the site, the service they will be training on and other relevant information.

4. Responsibility for supervision and evaluation of residents

Resident/Fellows will be expected to behave as peers to the Faculty, but be supervised in all their activities commensurate with the complexity of care being given and the Resident/Fellow own abilities and level of training. Such activities include, but are not limited to the following:

- Patient care in clinics, inpatient wards and emergencies
- Conferences and lectures
- Interactions with administrative staff and nursing personnel
- Diagnostic and therapeutic procedures
- Intensive Care unit or Ward patient care

The evaluation form will be developed and administered by the Pediatric Residency Program. Residents will be given the opportunity to evaluate the teaching faculty, clinical rotation and CHH at the conclusion of the assignment.

5. Policies and Procedures for Education

During assignments at CHH, Residents/Fellows will be under the general direction of MUSOM's Graduate Medical Education Committee's and the Pediatric Residency Program's Policy and Procedure Manual as well as the policies and procedures of CHH, including but not limited to, policies related to patient confidentiality, patient safety, medical records.

6. Authorized Signatures

Cabell Huntington Hospital

Audra Pritt, MD, Site Director — Date: 10/19/22

Hoyt Burdick, MD, Sr. VP Medical Affairs — Date: 11/7/22

Kevin Yingling, MD, President/CEO — Date: 10/25/22

MUSOM

Audra Pritt, MD, Program Director
MUSOM and CHH Site Director — Date: 10/19/22

Paulette S. Wehner, MD, DIO
Vice Dean for GME — Date: 11/11/22

Bobby L. Miller, MD
Interim Dean — Date: 10/20/22

Exhibit A: List of Faculty Members

Rose Ayoob, MD
Rebecca Barnett, DO
Maggie Blackwood, MD
Pete Chirico, MD
Norman Cottrill, DO
Luke Damron, MD
Chris Dewese, MD
Jenna Dolan, MD
Brian Dunlap, MD
Amanda Dye, MD
Beth Emrick, MD
Joe Evans, MD
Paul Finch, MD
Susan Flesher, MD
Marie Frazier, MD
Jennifer Gerlach, MD
Scott Gibbs, MD
Jeff Harris, MD
Christina Hensley, MD
Josh Hess, MD
Mary Beth Hogan, MD
Susu Kapourales, MD
Patricia Kelly, MD
Jacob Kilgore, MD
Deborah Klimek, MD
Jay Lakhani, MD
Mariana Lanata, MD
Andrea Lauffer, MD
Ashley Litchfield, MD
Amy Lochow, MD
Patricia Lutz, MD
Chaundra Maddox, MD
Cindy Massey, MD
Chris McKeand, MD
Bobby Miller, MD
Jay Naegele, MD
Shylah Napier, DO
Casey Patick, MD
Ed Pino, MD
Jodi Plumley, MD
Hillary Porter, MD
Audra Pritt, MD – Site Director
Viorel Raducan, MD
Jackie Ray, MD
Peter Ray, MD

Jessie Shields, MD
Allyn Small, MD
Jack Stines, MD
Eva Tackett, MD
Xavier Villa, MD
Michael Waldeck, MD
Kate Waldeck, MD
Sara Walker, MD
Troy Wallace, MD
Joe Werthammer, MD

Inpatient Pediatrics

Description:

The resident will gain experience, knowledge, and skills related to the care of children in the inpatient setting. Patients will be admitted from the Marshall Pediatrics outpatient departments, CHH ED, PICU transfer, private office settings, and transports from referring hospitals.

The residents will evaluate and prioritize the care of these patients, perform history and physicals, and provide appropriate care plans through discharge including follow-up outpatient management plans. PL-1 residents will initiate contact and forward their assessment and plan to the senior resident. The senior residents supervise care and complete discussion of patient care including differential diagnosis and treatment plan with attendings on admission and during daily attending rounds.

Note:
The goals and objectives described in detail below are not meant to be completed in a single one month block rotation but are meant to be cumulative, culminating in a thorough and complete inpatient experience at the end of residency.

Primary Goals for this Rotation

GOAL: Common Signs and Symptoms. Evaluate and manage common signs and symptoms associated with acute illness and hospitalization.

Evaluate and manage, with consultation of indicated, patients with signs and symptoms that commonly present to the Inpatient Unit (examples below).

1. General: acute life-threatening event (ALTE), constitutional symptoms, hypothermia, excessive crying, failure to thrive, fatigue, fever without localizing signs, hypothermia, weight loss
2. Cardiorespiratory: apnea, chest pain, cough, cyanosis, dyspnea, heart murmur, hemoptysis, hypertension, hypotension, inadequate respiratory effort, rhythm disturbance, shock, shortness of breath, stridor, syncope, tachypnea, respiratory failure, wheezing
3. Dermatologic: ecchymoses, edema, petechiae, purpura, rashes, urticaria
4. EENT: acute visual changes, conjunctival injection, edema, epistaxis, hoarseness, nasal discharge, stridor, trauma
5. Endocrine: heat/cold intolerance, polydipsia, polyuria
6. GI/Nutrition/Fluids: abdominal masses or distention, abdominal pain, ascites, dehydration, diarrhea, dysphagia, hematemesis, inadequate intake, jaundice, melena, rectal bleeding, regurgitation, vomiting
7. Genitourinary/Renal: change in urine color, dysuria, edema, hematuria, oliguria, scrotal mass or edema
8. GYN: abnormal vaginal bleeding, pelvic pain, vaginal discharge
9. Hematologic/Oncologic: abnormal bleeding, bruising, hepatosplenomegaly, lymphadenopathy, masses, pallor
10. Musculoskeletal: arthritis/arthralgia, bone and soft tissue trauma, limb pain, limp
11. Neurologic: ataxia, coma, delirium, diplopia, headache, hypotonia, head trauma, lethargy, seizure, vertigo, weakness
12. Psychiatric/Psychosocial: acute psychosis, child abuse or neglect, conversion symptoms, depression, suicide attempt

GOAL: Common Conditions. Recognize and manage common childhood conditions presenting to the Inpatient Unit.

Evaluate and manage, with consultation as indicated, patients with conditions that commonly present to the Inpatient Unit (examples below).

1. General: failure to thrive, fever of unknown origin
2. Allergy/Immunology: acute drug allergies/reactions, anaphylaxis, immunodeficiencies, including graft vs. host disease, recurrent pneumonia, serum sickness, severe angioedema
3. Cardiovascular: bacterial endocarditis, cardiomyopathy, congenital heart disease, congestive heart failure, Kawasaki disease, myocarditis, rheumatic fever
4. Endocrine: diabetes (including diabetic ketoacidosis), electrolyte disturbances secondary to underlying endocrine disease
5. GI/Nutrition: appendicitis, bleeding, cholangitis, complications of inflammatory bowel disease, complications of liver transplantation, cystic fibrosis, gastroenteritis (with/without dehydration), gastroesophageal reflux, hepatic dysfunction (including alpha-1-antitrypson disease), bowel obstruction, pancreatitis, severe malnutrition
6. GU/Renal: electrolyte and acid-base disturbances, glomerulonephritis, hemolytic-uremic syndrome, nephrotic syndrome, urinary tract infection/pyelonephritis
7. Gynecologic: genital trauma, pelvic inflammatory disease, sexual assault
8. Hematologic/Oncologic: abdominal and mediastinal mass, common malignancies, fever and neutropenia, thrombocytopenia, severe anemia, tumor lysis syndrome, vaso-occlusive crises and other complications of sickle cell disease
9. Infectious Disease: cellulitis (including periorbital and orbital), cervical adenitis, dental abscess with complications, encephalitis, HIV, infections in immunocompromised hosts, laryngotracheobronchitis, late presentation of congenital infections (CMV, syphilis, tuberculosis, abscesses), line infection, meningitis (bacterial or viral), osteomyelitis, pneumonia (viral or bacterial), sepsis/bacteremia (including newborns), septic arthritis, tuberculosis
10. Pharmacology/Toxicology: common drug poisoning or overdose, dose adjustment for special conditions or serum drug levels
11. Neurology: acute neurologic conditions (acute cerebellar ataxia, Guillain Barre syndrome, movement disorders), developmental delay with acute medical conditions, seizures, shunt infections
12. Respiratory: airway obstruction, asthma exacerbation, bacterial tracheitis, bronchiolitis, croup, cystic fibrosis, epiglottitis
13. Rheumatologic: Henoch Schonlein purpura (HSP), juvenile rheumatoid arthritis (JRA), systemic lupus erythematosus (SLE)
14. Surgery: pre- and post-op consultation and evaluation of surgical patients (general, ENT, orthopedics, urology, neurosurgical, etc.), special needs of technology-dependent children (blocked trachea, gastric tube dysfunction)

GOAL: Diagnostic and Screening Procedures. Utilize common diagnostic tests and imaging studies appropriately in the inpatient setting.

Demonstrate an understanding of the common diagnostic tests and imaging studies used in the inpatient setting, by being able to:

1. Explain the indications for and limitations of each study.
2. Know or be able to locate age-appropriate normal ranges (lab studies).
3. Apply knowledge of diagnostic test properties, including the use of sensitivity, specificity, positive predictive value, negative predictive value, false-positive and negative results, likelihood ratios, and receiver operating characteristic curves, to assess the utility of tests in various clinical settings.
4. Recognize cost and utilization issues.
5. Interpret test results in the context of the specific patient.
6. Discuss therapeutic options for correction of abnormalities.

Use common laboratory studies when indicated for patients in the inpatient setting.

1. CBC with differential, platelet count, RBC indices

2. Blood chemistries: electrolytes, glucose, calcium, magnesium, phosphate
3. Renal function tests
4. Tests of hepatic function (PT, albumin) and damage (liver enzymes, bilirubin)
5. Serologic tests for infection (e.g., hepatitis, HIV)
6. C-reactive protein, erythrocyte sedimentation rate
7. Therapeutic drug concentrations
8. Coagulation studies
9. Arterial, capillary, and venous blood gases
10. Detection of bacterial, viral, and fungal pathogens
11. Urinalysis
12. Cerebrospinal fluid analysis
13. Gram stain
14. Stool studies
15. Other fluid studies (e.g. pleural fluid, joint fluid)
16. Electrocardiogram

Use common imaging or radiographic studies when indicated for patients on the inpatient unit.

1. Plain radiographs of the chest, extremities, abdomen, skull, sinuses
2. Other imaging techniques such as CT, MRI, angiography, ultrasound, nuclear scans, contrast studies (interpretation not expected)
3. Echocardiogram

GOAL: Monitoring and Therapeutic Modalities. Understand how to use physiologic monitoring and special technology in the general inpatient setting, including issues specific to care of the chronically ill child.

Demonstrate understanding of the monitoring techniques and special treatments commonly used in the inpatient setting, by being able to:

1. Discuss indications, contraindications and complications.
2. Demonstrate proper use of technique for children of varying ages.
3. Determine which patients need continuous monitoring or special monitoring (e.g., neurological checks).
4. Interpret and respond appropriately to results of monitoring based on method used, age and clinical situation.

Use appropriate monitoring techniques in the inpatient setting.

1. Monitoring of temperature, blood pressure, heart rate, respirations
2. Cardiac monitoring
3. Pulse oximetry

Use appropriately the treatments and techniques used in the inpatient setting.

1. Universal precautions
2. Nasogastric tube placement
3. Administration of nebulized medication
4. Injury, wound and burn care
5. Oxygen delivery systems
6. I.V. fluids
7. I.V. pharmacotherapy (antibiotics, antiepileptics, etc.)
8. Transfusion therapy

Describe key issues in the inpatient and home management of the technology-dependent child with the following care needs:

1. Tracheostomy
2. Chronic mechanical ventilation
3. Chronic parenteral nutrition (HAL)
4. Gastrostomy tube for feedings
5. Permanent central venous catheter

Recognize normal and abnormal findings at tracheostomy, gastrostomy, or central venous catheter sites, and demonstrate appropriate intervention or referral for problems encountered.

Demonstrate the skills for assessing and managing pain.

1. Use age-appropriate pain scales in assessment.
2. Describe indications for use and side effects of common narcotic and non-narcotic analgesics.
3. Administer medications to control pain in appropriate dose, frequency and route.
4. Describe indications for and use of behavioral techniques and supportive care, and other non-pharmacologic methods of pain control.

GOAL: Pediatric Competencies: Demonstrate high standards of professional competence while working with patients on the Inpatient Service.

Competency 1: Patient Care. Provide family-centered patient care that is development- and age-appropriate, compassionate, and effective for the treatment of health problems and the promotion of health.

1. Use a logical and appropriate clinical approach to the care of hospitalized patients, applying principles of evidence-based decision-making and problem-solving, demonstrating:

1. Careful data collection and synthesis
2. Appropriate orders for vital signs, I & Os, medications, nutrition, activity
3. Well thought-out daily care plans
4. Good clinical judgment and decision-making
5. Careful discharge plans (orders, patient education, followup)

2. Provide sensitive support to patients with acute and chronic illnesses and to their families, and arrange for ongoing support and preventive services at discharge.

Competency 2: Medical Knowledge. Understand the scope of established and evolving biomedical, clinical, epidemiological and social-behavioral knowledge needed by a pediatrician; demonstrate the ability to acquire, critically interpret and apply this knowledge in patient care.

1. Demonstrate a commitment to acquiring the base of knowledge needed to care for children in the inpatient setting.

2. Know and/or access medical information efficiently, evaluate it critically, and apply it to inpatient care appropriately.

Competency 3: Interpersonal Skills and Communication. Demonstrate interpersonal and communication skills that result in information exchange and partnering with patients, their families and professional associates.

1. Provide effective patient education, including reassurance, for condition(s) commonly seen on the inpatient service.

2. Participate and communicate effectively as part of an interdisciplinary team, as both the primary provider and the consulting pediatrician (e.g., patient presentations, sign-out rounds, communication with consultants and primary care physicians of hospitalized patients).

3. Develop effective strategies for teaching students, colleagues, other professionals and laypersons.

4. Maintain accurate, legible, timely and legally appropriate medical records.

Competency 4: Practice-based Learning and Improvement. Demonstrate knowledge, skills and attitudes needed for continuous self-assessment, using scientific methods and evidence to investigate, evaluate and improve one's patient care practice.
1. Use scientific methods and evidence to investigate, evaluate and improve one's patient care practice in the inpatient setting.
2. Identify personal learning needs, systematically organize relevant information resources for future reference, and plan for continuing acquisition of knowledge and skills.
Competency 5: Professionalism. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to diversity.
1. Demonstrate personal accountability to the well being of patients (e.g., following-up on lab results, writing comprehensive notes, and seeking answers to patient care questions).
2. Demonstrate a commitment to professional behavior in interactions with staff and professional colleagues.
3. Adhere to ethical and legal principles and sensitivity to diversity while providing care in the inpatient setting.
Competency 6: Systems-Based Practice. Understand how to practice high-quality health care and advocate for patients within the context of the health care system.
1. Identify key aspects of health care systems, cost control, billing and reimbursement in the hospital inpatient setting.
2. When providing care in the inpatient setting, consider cost and resource allocation without compromising quality of care.
3. Take steps to avoid medical errors by recognizing the limits of one's knowledge and expertise; work with the health care team to recognize and address systems errors.

Level Specific Competencies

INTERN (PL-1)

Patient Care:

1. Prioritizes a patient's problems
2. Prioritizes a day of work
3. Gathers essential/accurate information via interviews and physical exams in a manner that is respectful of patients and families
4. Can provide an organized and precise patient presentation
5. Works with all health care professionals to provide family centered care
6. Able to obtain informed consent
7. Competently understands/performs/interprets procedures:

_____ Physiologic Monitoring: Cardiac, Resp, and Oximetry
_____ Capillary Blood Collection
_____ Conjunctival Swab
_____ Lumbar Puncture (Some Successful)
_____ NG/OG tube placement
_____ Bladder Catheterization
_____ Intravenous Line Placement
_____ Medication Delivery: IV, Inhaled, rectal
_____ Skin Scraping
_____ Wound Care

Medical Knowledge:

1. Uses written and electronic references and literature to learn about patient diseases
2. Demonstrates knowledge of basic and clinical sciences
3. Applies knowledge to therapy

Interpersonal Skills and Communication:

1. Writes pertinent and organized notes
2. Updates and maintains the ongoing patient data sheets
3. Uses effective listening, narrative, and non-verbal skills to elicit and provide information
4. Works effectively as a member of the health care team

Practice-based Learning and Improvement:

1. Understands his or her limitations of knowledge
2. Asks for help when needed
3. Is self motivated to acquire knowledge
4. Accepts feedback and develops self-improvement plans

Professionalism:

1. Is honest, reliable, cooperative, and accepts responsibility
2. Shows regard for opinions and skills of colleagues
3. Is responsive to needs of patients and society, which supersedes self-interest
4. Acknowledges errors and works to minimize them

Systems Based Practice:

1. Is a patient advocate
2. Works within the system based model to optimized and ensure quality patient care

SECOND YEAR (PL-2)

Patient Care:

1. Understands and weighs alternatives for diagnosis and treatment
2. Elicits subtle findings on physical examination
3. Is able to manage multiple problems at once
4. Develops and carries out management plans
5. Competently understands/performs/interprets procedures:

_____ Physiologic Monitoring: Cardiac, Resp, and Oximetry
_____ Capillary Blood Collection
_____ Conjunctival Swab
_____ Lumbar Puncture (Mostly Successful)
_____ NG/OG tube placement
_____ Bladder Catheterization
_____ Intravenous Line Placement
_____ Medication Delivery: IV, Inhaled, rectal
_____ Skin Scraping
_____ Wound Care
_____ Radiology Interpretation: CXR, AXR, CT scans
_____ Abscess: Aspiration and I&D

Medical Knowledge:

1. Is aware of indications, contraindications, and risks of commonly used medications and procedures
2. Applies the basic science, clinical, epidemiologic, and social-behavioral knowledge to the care of the patient

Interpersonal Skills and Communication:

1. Creates and sustains therapeutic and ethically sound relationships with

patients and families
2. Provides education and counseling to patients, families, and colleagues
3. Works effectively as a member of the health care team

Practice-based Learning and Improvement:
1. Undertakes self-evaluation with insight and initiative
2. Facilitates the learning of students and other health care professionals

Professionalism:
1. Displays initiative and leadership
2. Is able to delegate responsibility to others
3. Is responsive to needs of patients and society, which supersedes self-interest

Systems Based Practice:
1. Applies knowledge of how to partner with health care providers to assess, coordinate and improve patient care
2. Uses systematic approach to reduce errors

Third Year (PL-3)

Patient Care:
1. Makes informed decisions about diagnosis and therapy after analyzing clinical data
2. Includes the family when making medical decisions
3. Reasons well in ambiguous situations
4. Obtains a precise, logical, and efficient history
5. Spends time appropriate to the complexity of the problem
6. Competently understands/performs/interprets procedures:
   - _____ Physiologic Monitoring: Cardiac, Resp, and Oximetry
   - _____ Capillary Blood Collection
   - _____ Conjunctival Swab
   - _____ Lumbar Puncture (Mostly Successful)
   - _____ NG/OG tube placement
   - _____ Bladder Catheterization
   - _____ Intravenous Line Placement
   - _____ Medication Delivery: IV, Inhaled, rectal
   - _____ Skin Scraping
   - _____ Wound Care
   - _____ Radiology Interpretation: CXR, AXR, CT scans
   - _____ Abscess: Aspiration and I&D

Medical Knowledge:
1. Is aware of indications, contraindications, and risks of commonly used medications and procedures
2. Demonstrates an investigatory and analytic approach to clinical situations

Interpersonal Skills and Communication:
1. Creates and sustains therapeutic and ethically sound relationships with patients and families
2. Provides education and counseling to patients, families, and colleagues
3. Works effectively as a member of the health care team

Practice-based Learning and Improvement:

1. Analyzes personal practice patterns and looks to improve
2. Compares personal practice patterns to larger populations
3. Facilitates the learning of students and other health care professionals

Professionalism:

1. Demonstrates commitment to on-going professional development
2. Is effective as a consultant
3. Is responsive to needs of patients and society, which supersedes self-interest

Systems Based Practice:

1. Demonstrates ability to adapt to change
2. Provides cost effective care
3. Practices effective allocation of health care resources that does not compromise the quality of care

References:

1. American Board of Pediatrics, Content Specification, 2007
2. Ambulatory Pediatric Association
3. Association of Pediatric Program Directors
4. Pediatric RRC, January 2006

INPATIENT DAY/NIGHT FLOAT

Description:

The resident will gain experience, knowledge, and skills related to the care of children in the inpatient setting. Patients will be admitted from the Marshall Pediatrics outpatient departments, CHH ED, PICU transfer, private office settings, and transports from referring hospitals.

As the night float resident, you are responsible for receiving an adequate and systematic check-out on each individual patient. You are responsible for a supervising all PL-1 work-ups on all new admissions to the floor as well as any new admissions to the PICU. All assessments and plans should be discussed with the general floor attending or pediatric intensivist.

Note:
The goals and objectives described in detail below are not meant to be completed in a single one month block rotation but are meant to be cumulative, culminating in a thorough and complete inpatient experience at the end of residency.

Primary Goals for this Rotation

GOAL: Common Signs and Symptoms. Evaluate and manage common signs and symptoms associated with acute illness and hospitalization.

Evaluate and manage, with consultation of indicated, patients with signs and symptoms that commonly present to the Inpatient Unit (examples below).

13. General: acute life-threatening event (ALTE), constitutional symptoms, hypothermia, excessive crying, failure to thrive, fatigue, fever without localizing signs, hypothermia, weight loss
14. Cardiorespiratory: apnea, chest pain, cough, cyanosis, dyspnea, heart murmur, hemoptysis, hypertension, hypotension, inadequate respiratory effort, rhythm disturbance, shock, shortness of breath, stridor, syncope, tachypnea, respiratory failure, wheezing
15. Dermatologic: ecchymoses, edema, petechiae, purpura, rashes, urticaria
16. EENT: acute visual changes, conjunctival injection, edema, epistaxis, hoarseness, nasal discharge, stridor, trauma
17. Endocrine: heat/cold intolerance, polydipsia, polyuria
18. GI/Nutrition/Fluids: abdominal masses or distention, abdominal pain, ascites, dehydration, diarrhea, dysphagia, hematemesis, inadequate intake, jaundice, melena, rectal bleeding, regurgitation, vomiting
19. Genitourinary/Renal: change in urine color, dysuria, edema, hematuria, oliguria, scrotal mass or edema
20. GYN: abnormal vaginal bleeding, pelvic pain, vaginal discharge
21. Hematologic/Oncologic: abnormal bleeding, bruising, hepatosplenomegaly, lymphadenopathy, masses, pallor
22. Musculoskeletal: arthritis/arthralgia, bone and soft tissue trauma, limb pain, limp
23. Neurologic: ataxia, coma, delirium, diplopia, headache, hypotonia, head trauma, lethargy, seizure, vertigo, weakness
24. Psychiatric/Psychosocial: acute psychosis, child abuse or neglect, conversion symptoms, depression, suicide attempt

GOAL: Common Conditions. Recognize and manage common childhood conditions presenting to the Inpatient Unit.

Evaluate and manage, with consultation as indicated, patients with conditions that commonly present to the Inpatient Unit (examples below).

15. General: failure to thrive, fever of unknown origin
16. Allergy/Immunology: acute drug allergies/reactions, anaphylaxis, immunodeficiencies, including graft vs. host disease, recurrent pneumonia, serum sickness, severe angioedema
17. Cardiovascular: bacterial endocarditis, cardiomyopathy, congenital heart disease, congestive heart failure, Kawasaki disease, myocarditis, rheumatic fever
18. Endocrine: diabetes (including diabetic ketoacidosis), electrolyte disturbances secondary to underlying endocrine disease
19. GI/Nutrition: appendicitis, bleeding, cholangitis, complications of inflammatory bowel disease, complications of liver transplantation, cystic fibrosis, gastroenteritis (with/without dehydration), gastroesophageal reflux, hepatic dysfunction (including alpha-1-antitrypson disease), bowel obstruction, pancreatitis, severe malnutrition
20. GU/Renal: electrolyte and acid-base disturbances, glomerulonephritis, hemolytic-uremic syndrome, nephrotic syndrome, urinary tract infection/pyelonephritis
21. Gynecologic: genital trauma, pelvic inflammatory disease, sexual assault
22. Hematologic/Oncologic: abdominal and mediastinal mass, common malignancies, fever and neutropenia, thrombocytopenia, severe anemia, tumor lysis syndrome, vaso-occlusive crises and other complications of sickle cell disease
23. Infectious Disease: cellulitis (including periorbital and orbital), cervical adenitis, dental abscess with complications, encephalitis, HIV, infections in immunocompromised hosts, laryngotracheobronchitis, late presentation of congenital infections (CMV, syphilis, tuberculosis, abscesses), line infection, meningitis (bacterial or viral), osteomyelitis, pneumonia (viral or bacterial), sepsis/bacteremia (including newborns), septic arthritis, tuberculosis
24. Pharmacology/Toxicology: common drug poisoning or overdose, dose adjustment for special conditions or serum drug levels
25. Neurology: acute neurologic conditions (acute cerebellar ataxia, Guillain Barre syndrome, movement disorders), developmental delay with acute medical conditions, seizures, shunt infections
26. Respiratory: airway obstruction, asthma exacerbation, bacterial tracheitis, bronchiolitis, croup, cystic fibrosis, epiglottitis

27. Rheumatologic: Henoch Schonlein purpura (HSP), juvenile rheumatoid arthritis (JRA), systemic lupus erythematosus (SLE)
28. Surgery: pre- and post-op consultation and evaluation of surgical patients (general, ENT, orthopedics, urology, neurosurgical, etc.), special needs of technology-dependent children (blocked trachea, gastric tube dysfunction)

GOAL: Diagnostic and Screening Procedures. Utilize common diagnostic tests and imaging studies appropriately in the inpatient setting.

Demonstrate an understanding of the common diagnostic tests and imaging studies used in the inpatient setting, by being able to:

1. Explain the indications for and limitations of each study.
2. Know or be able to locate age-appropriate normal ranges (lab studies).
3. Apply knowledge of diagnostic test properties, including the use of sensitivity, specificity, positive predictive value, negative predictive value, false-positive and negative results, likelihood ratios, and receiver operating characteristic curves, to assess the utility of tests in various clinical settings.
4. Recognize cost and utilization issues.
5. Interpret test results in the context of the specific patient.
6. Discuss therapeutic options for correction of abnormalities.

Use common laboratory studies when indicated for patients in the inpatient setting.

17. CBC with differential, platelet count, RBC indices
18. Blood chemistries: electrolytes, glucose, calcium, magnesium, phosphate
19. Renal function tests
20. Tests of hepatic function (PT, albumin) and damage (liver enzymes, bilirubin)
21. Serologic tests for infection (e.g., hepatitis, HIV)
22. C-reactive protein, erythrocyte sedimentation rate
23. Therapeutic drug concentrations
24. Coagulation studies
25. Arterial, capillary, and venous blood gases
26. Detection of bacterial, viral, and fungal pathogens
27. Urinalysis
28. Cerebrospinal fluid analysis
29. Gram stain
30. Stool studies
31. Other fluid studies (e.g. pleural fluid, joint fluid)
32. Electrocardiogram

Use common imaging or radiographic studies when indicated for patients on the inpatient unit.

4. Plain radiographs of the chest, extremities, abdomen, skull, sinuses
5. Other imaging techniques such as CT, MRI, angiography, ultrasound, nuclear scans, contrast studies (interpretation not expected)
6. Echocardiogram

GOAL: Monitoring and Therapeutic Modalities. Understand how to use physiologic monitoring and special technology in the general inpatient setting, including issues specific to care of the chronically ill child.

Demonstrate understanding of the monitoring techniques and special treatments commonly used in the inpatient setting, by being able to:

5. Discuss indications, contraindications and complications.
6. Demonstrate proper use of technique for children of varying ages.
7. Determine which patients need continuous monitoring or special monitoring (e.g., neurological checks).

8. Interpret and respond appropriately to results of monitoring based on method used, age and clinical situation.

Use appropriate monitoring techniques in the inpatient setting.

4. Monitoring of temperature, blood pressure, heart rate, respirations
5. Cardiac monitoring
6. Pulse oximetry

Use appropriately the treatments and techniques used in the inpatient setting.

9. Universal precautions
10. Nasogastric tube placement
11. Administration of nebulized medication
12. Injury, wound and burn care
13. Oxygen delivery systems
14. I.V. fluids
15. I.V. pharmacotherapy (antibiotics, antiepileptics, etc.)
16. Transfusion therapy

Describe key issues in the inpatient and home management of the technology-dependent child with the following care needs:

6. Tracheostomy
7. Chronic mechanical ventilation
8. Chronic parenteral nutrition (HAL)
9. Gastrostomy tube for feedings
10. Permanent central venous catheter

Recognize normal and abnormal findings at tracheostomy, gastrostomy, or central venous catheter sites, and demonstrate appropriate intervention or referral for problems encountered.

Demonstrate the skills for assessing and managing pain.

5. Use age-appropriate pain scales in assessment.
6. Describe indications for use and side effects of common narcotic and non-narcotic analgesics.
7. Administer medications to control pain in appropriate dose, frequency and route.
8. Describe indications for and use of behavioral techniques and supportive care, and other non-pharmacologic methods of pain control.

GOAL: Pediatric Competencies: Demonstrate high standards of professional competence while working with patients on the Inpatient Service.

Competency 1: Patient Care. Provide family-centered patient care that is development- and age-appropriate, compassionate, and effective for the treatment of health problems and the promotion of health.

1. Use a logical and appropriate clinical approach to the care of hospitalized patients, applying principles of evidence-based decision-making and problem-solving, demonstrating:

6. Careful data collection and synthesis
7. Appropriate orders for vital signs, I & Os, medications, nutrition, activity
8. Well thought-out daily care plans
9. Good clinical judgment and decision-making
10. Careful discharge plans (orders, patient education, followup)

2. Provide sensitive support to patients with acute and chronic illnesses and to their families, and arrange for ongoing support and preventive services at discharge.

Competency 2: Medical Knowledge. Understand the scope of established and evolving biomedical, clinical, epidemiological and social-behavioral knowledge needed by a pediatrician; demonstrate the ability to acquire, critically interpret and apply this knowledge in patient care.

1. Demonstrate a commitment to acquiring the base of knowledge needed to care for children in the inpatient setting.

2. Know and/or access medical information efficiently, evaluate it critically, and apply it to inpatient care appropriately.

Competency 3: Interpersonal Skills and Communication. Demonstrate interpersonal and communication skills that result in information exchange and partnering with patients, their families and professional associates.

1. Provide effective patient education, including reassurance, for condition(s) commonly seen on the inpatient service.

2. Participate and communicate effectively as part of an interdisciplinary team, as both the primary provider and the consulting pediatrician (e.g., patient presentations, sign-out rounds, communication with consultants and primary care physicians of hospitalized patients).

3. Develop effective strategies for teaching students, colleagues, other professionals and laypersons.

4. Maintain accurate, legible, timely and legally appropriate medical records.

Competency 4: Practice-based Learning and Improvement. Demonstrate knowledge, skills and attitudes needed for continuous self-assessment, using scientific methods and evidence to investigate, evaluate and improve one's patient care practice.

1. Use scientific methods and evidence to investigate, evaluate and improve one's patient care practice in the inpatient setting.

2. Identify personal learning needs, systematically organize relevant information resources for future reference, and plan for continuing acquisition of knowledge and skills.

Competency 5: Professionalism. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to diversity.

1. Demonstrate personal accountability to the well being of patients (e.g., following-up on lab results, writing comprehensive notes, and seeking answers to patient care questions).

2. Demonstrate a commitment to professional behavior in interactions with staff and professional colleagues.

3. Adhere to ethical and legal principles and sensitivity to diversity while providing care in the inpatient setting.

Competency 6: Systems-Based Practice. Understand how to practice high-quality health care and advocate for patients within the context of the health care system.

1. Identify key aspects of health care systems, cost control, billing and reimbursement in the hospital inpatient setting.

2. When providing care in the inpatient setting, consider cost and resource allocation without compromising quality of care.

3. Take steps to avoid medical errors by recognizing the limits of one's knowledge and expertise; work with the health care team to recognize and address systems errors.

Level Specific Competencies

SECOND YEAR (PL-2)

Patient Care:

1. Understands and weighs alternatives for diagnosis and treatment
2. Elicits subtle findings on physical examination
3. Is able to manage multiple problems at once
4. Develops and carries out management plans
5. Competently understands/performs/interprets procedures:

_____ Physiologic Monitoring: Cardiac, Resp, and Oximetry

_____ Capillary Blood Collection

_____ Conjunctival Swab
_____ Lumbar Puncture (Mostly Successful)
_____ NG/OG tube placement
_____ Bladder Catheterization
_____ Intravenous Line Placement
_____ Medication Delivery: IV, Inhaled, rectal
_____ Skin Scraping
_____ Wound Care
_____ Radiology Interpretation: CXR, AXR, CT scans
_____ Abscess: Aspiration and I&D

Medical Knowledge:

1. Is aware of indications, contraindications, and risks of commonly used medications and procedures
2. Applies the basic science, clinical, epidemiologic, and social-behavioral knowledge to the care of the patient

Interpersonal Skills and Communication:

1. Creates and sustains therapeutic and ethically sound relationships with patients and families
2. Provides education and counseling to patients, families, and colleagues
3. Works effectively as a member of the health care team

Practice-based Learning and Improvement:

1. Undertakes self-evaluation with insight and initiative
2. Facilitates the learning of students and other health care professionals

Professionalism:

1. Displays initiative and leadership
2. Is able to delegate responsibility to others
3. Is responsive to needs of patients and society, which supersedes self-interest

Systems Based Practice:

1. Applies knowledge of how to partner with health care providers to assess, coordinate and improve patient care
2. Uses systematic approach to reduce errors

Third Year (PL-3)

Patient Care:

1. Makes informed decisions about diagnosis and therapy after analyzing clinical data
2. Includes the family when making medical decisions
3. Reasons well in ambiguous situations
4. Obtains a precise, logical, and efficient history
5. Spends time appropriate to the complexity of the problem
6. Competently understands/performs/interprets procedures:
   _____ Physiologic Monitoring: Cardiac, Resp, and Oximetry
   _____ Capillary Blood Collection
   _____ Conjunctival Swab
   _____ Lumbar Puncture (Mostly Successful)
   _____ NG/OG tube placement
   _____ Bladder Catheterization
   _____ Intravenous Line Placement

_____ Medication Delivery: IV, Inhaled, rectal
_____ Skin Scraping
_____ Wound Care
_____ Radiology Interpretation: CXR, AXR, CT scans
_____ Abscess: Aspiration and I&D

Medical Knowledge:

1. Is aware of indications, contraindications, and risks of commonly used medications and procedures
2. Demonstrates an investigatory and analytic approach to clinical situations

Interpersonal Skills and Communication:

1. Creates and sustains therapeutic and ethically sound relationships with patients and families
2. Provides education and counseling to patients, families, and colleagues
3. Works effectively as a member of the health care team

Practice-based Learning and Improvement:

1. Analyzes personal practice patterns and looks to improve
2. Compares personal practice patterns to larger populations
3. Facilitates the learning of students and other health care professionals

Professionalism:

1. Demonstrates commitment to on-going professional development
2. Is effective as a consultant
3. Is responsive to needs of patients and society, which supersedes self-interest

Systems Based Practice:

1. Demonstrates ability to adapt to change
2. Provides cost effective care
3. Practices effective allocation of health care resources that does not compromise the quality of care

Pediatric Critical Care

Description:

The Pediatric Critical Care rotation will give the pediatric resident exposure to acute emergencies, airway management, and complete the process of disease progression from emergency department and clinic to PICU and the pediatric floor.

By managing these patients one-on-one with the pediatric intensivist, the resident will gain an appreciation of physiology, anatomy, respiratory mechanics, and hemodynamics. In addition, the resident will acquire

the ability to stabilize acutely ill patients and give anticipatory guidance to the families of critically ill children and adolescents.

The pediatric residents will be required to master technical procedures including vascular access, airway, and ventilator management.

Note:
The goals and objectives described in detail below are not meant to be completed in a single one month block rotation but are meant to be cumulative, culminating in a thorough and complete Pediatric Critical Care experience at the end of residency.

Primary Goals for this Rotation

GOAL: Resuscitation and Stabilization. Recognize the critically ill patient and initiate appropriate stabilization and/or resuscitative measures.

Explain and perform steps in resuscitation and stabilization, particularly airway management, volume replacement and resuscitative pharmacology.

Describe the common causes of acute deterioration in the previously stable patient in the PICU.

Function appropriately in codes and resuscitations as part of the PICU team.

GOAL: Common Signs and Symptoms. Evaluate and manage, under the supervision of an intensivist, common signs and symptoms seen in critically ill infants, children and adolescents in the intensive care setting.

Evaluate and manage, under supervision of an intensivist, patients with signs and symptoms that present commonly to the intensive care unit (examples below).

1. Cardiovascular: acute life-threatening event, bradycardia, cardiopulmonary arrest, congestive heart failure, cyanosis, hypertension, hypotension, poor capillary perfusion, rhythm disturbances, tachycardia
2. Endocrine: signs and symptoms suggestive of hypo- and hyperglycemia and adrenal insufficiency/crisis
3. GI: abdominal distension, hematemesis and melena, icterus, peritoneal signs, vomiting
4. Hematologic: pallor, petechiae, purpura, uncontrolled bleeding
5. Infectious Diseases: endotoxic shock, fever
6. Neurologic: acute weakness, altered mental status, coma, delirium, encephalopathy, seizures, tetany, thermoregulatory abnormalities
7. Renal: anuria, hematuria, oliguria, polyuria, severe electrolyte disturbance
8. Respiratory: apnea, cyanosis, dyspnea, hemoptysis, hypercarbia, hyperpnea, hypoxemia, increased or decreased respiratory effort, poor air movement, pulmonary edema, respiratory failure, stridor, tachypnea, wheezing

GOAL: Common Conditions. Recognize and manage, under the supervision of an intensivist, conditions that commonly present to the intensive care unit, using consultation when appropriate.

Evaluate and manage, under the supervision of an intensivist, patients with conditions that present commonly to the intensive care unit (examples below).

1. General: burns (thermal, electrical), common intoxications, drug overdose, shock (cardiogenic, hypovolemic, distributive, toxic), inhalation injury, malignant hyperthermia, non-accidental trauma, submersion injury, toxic or caustic ingestion or inhalation injury, toxic shock syndrome
2. Allergy Immunology: anaphylaxis, life-threatening angioedema, Stevens Johnson Syndrome
3. Cardiovascular: arrhythmias, cardiac tamponade, congestive heart failure, cyanotic congenital heart disease, malignant hypertension, myocarditis/cardiomyopathy
4. Endocrine: diabetes insipidus and adrenal insufficiency/crisis, diabetic ketoacidosis, hypo- and hyperglycemia, syndrome of inappropriate antidiuretic hormone (SIADH)
5. Fluids, electrolytes, metabolic: inborn errors of metabolism, severe dehydration (hyper-, normo-, or hyponatremic), severe acid-base disturbances, severe electrolyte disturbance

6. GI/Surgery: abdominal trauma (blunt/penetrating), acute abdomen, acute GI bleeding, fulminant hepatic dysfunction, hepatic dysfunction, pancreatitis, pre- and post-operative management, stress ulcer
7. Hematologic: anemia (severe), disseminated intravascular coagulopathy (DIC), Deep venous thrombosis (DVT), neutropenia, sickle crisis, polycythemia, thrombocytopenia, tumor lysis syndrome
8. Infectious disease: encephalitis, infant botulism, meningitis, nosocomial infections, sepsis
9. Neurologic: acute increased intracranial pressure, brain death, cerebral edema, cerebrovascular accident (CVA), coma, encephalopathy, Guillain-Barre, head injury, spinal muscle atrophy, status epilepticus
10. Pulmonary: acute respiratory distress syndrome (ARDS), epiglottitis, pulmonary edema, pneumothorax, respiratory failure/impending respiratory failure, severe croup and bacterial tracheitis, status asthmaticus, upper airway obstruction (infectious, structural, foreign body)
11. Renal: acute renal failure, hemolytic uremic syndrome

GOAL: Diagnostic Testing. Utilize common diagnostic tests and imaging studies appropriately in the intensive care unit, obtaining consultation as indicated for interpretation of results.

Demonstrate understanding of common diagnostic tests and imaging studies used in the PICU by being able to:

1. Explain the indications for and limitations of each study.
2. Know or be able to locate readily age-appropriate normal ranges (lab studies).
3. Apply knowledge of diagnostic test properties, including the use of sensitivity, specificity, positive predictive value, negative predictive value, likelihood ratios, and receiver operating characteristic curves, to assess the utility of tests in various clinical settings
4. Discuss cost and utilization issues.
5. Interpret the results in the context of the specific patient.
6. Discuss therapeutic options for correction of abnormalities.

Use appropriately the following laboratory and imaging studies when indicated for patients in the PICU setting:

1. CBC with differential, platelet count, RBC indices
2. Blood chemistries: electrolytes, glucose, calcium, magnesium, phosphate
3. Renal function tests
4. Tests of hepatic function (PT, albumin) and damage (ammonia, bilirubin, liver enzymes)
5. Serologic tests for infection (e.g., hepatitis, HIV)
6. C-reactive protein, erythrocyte sedimentation rate
7. Therapeutic drug concentrations
8. Coagulation studies: platelets, PT/PTT, fibrinogen, FSP, D-dimers, "DIC screen"
9. Arterial, capillary, and venous blood gases
10. Detection of bacterial, viral, and fungal pathogens
11. Urinalysis
12. CSF analysis
13. Gram stain
14. Stool studies
15. Toxicologic screens/drug levels
16. Other fluid studies (e.g., pleural fluid, joint fluid)
17. Chest X-ray
18. Abdominal series
19. Skeletal survey
20. Cervical spine films
21. CT scans of abdomen, chest and head
22. MRI scans
23. Basic concepts of cerebral blood flow studies

GOAL: Monitoring and Therapeutic Modalities. Understand how to use the physiologic monitoring, special technology and therapeutic modalities used commonly in the intensive care setting.

Demonstrate understanding of the monitoring techniques and special treatments commonly used in the PICU by being able to:

1. Discuss the indications, contraindications and complications
2. Have a basic understanding of the general techniques (e.g., Seldinger technique for central venous line placement)
3. Interpret the results of monitoring

Use appropriately the following monitoring techniques in the intensive care unit under supervision of an intensivist:

1. Central venous pressure monitoring
2. Invasive arterial blood pressure monitoring
3. Intracranial pressure monitoring
4. Pulse oximetry
5. End-tidal carbon dioxide monitoring

Use appropriately or be familiar with the following treatments and techniques in the intensive care unit, including monitoring effects and anticipating potential complications specific to each therapy:

1. Oxygen administration by cannula, masks, hood
2. Positive pressure ventilation, including non-invasive modalities such as nasal/mask BiPAP/CPAP, bag and mask ventilation
3. Principles of ventilator management, intubation and extubation procedures and criteria
4. Analgesics, sedatives, and paralytics
5. Enteral and parenteral nutrition
6. Blood and blood product transfusions
7. Vasoactive drugs (pressors and inotropes)

GOAL: Pediatric Competencies: Demonstrate high standards of professional competence while working with patients in the Pediatric Intensive Care Unit.

Competency 1: Patient Care. Provide family-centered patient care that is development- and age-appropriate, compassionate, and effective for the treatment of health problems and the promotion of health.

1. Use a logical and appropriate clinical approach to the care of critically ill patients, applying principles of evidence-based decision-making and problem-solving.

2. Provide sensitive support to patients with serious illness and to their families, and arrange for on-going support or preventive services if needed.

Competency 2: Medical Knowledge. Understand the scope of established and evolving biomedical, clinical, epidemiological and social-behavioral knowledge needed by a pediatrician; demonstrate the ability to acquire, critically interpret and apply this knowledge in patient care.

1. Demonstrate a commitment to acquiring the knowledge base expected of general pediatricians caring for seriously ill children under the guidance of an intensivist.

2. Know and/or access medical information efficiently, evaluate it critically, and apply it appropriately to care of patients in the PICU.

Competency 3: Interpersonal Skills and Communication. Demonstrate interpersonal and communication skills that result in information exchange and partnering with patients, their families and professional associates.

1. Provide effective and sensitive communication with patients and families in the intensive care setting.

2. Participate effectively as part of an interdisciplinary team in the intensive care unit to create and sustain information exchange, including communication with the primary care physician.

3. Maintain accurate, timely and legally appropriate medical records on complex and critically ill children.

Competency 4: Practice-based Learning and Improvement. Demonstrate knowledge, skills and attitudes needed for continuous self-assessment, using scientific methods and evidence to investigate, evaluate, and improve one's patient care practice.

1. Use scientific methods and evidence to investigate, evaluate and improve one's patient care practice in PICU setting.
2. Identify personal learning needs, systematically organize relevant information resources for future reference, and plan for continuing acquisition of knowledge and skills.
Competency 5: Professionalism. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles and sensitivity to diversity.
1. Demonstrate a commitment to carrying out professional responsibilities while providing care in the PICU setting.
2. Adhere to ethical and legal principles, and be sensitive to diversity in the care of critically ill children.
Competency 6: Systems-Based Practice. Understand how to practice high quality health care and advocate for patients within the context of the health care system.
1. Identify key aspects of health care systems, cost control, and mechanisms for payment as they relate to the intensive care setting.
2. Recognize the limits of one's knowledge and expertise and take steps to avoid medical errors.

Level Specific Competencies

Second Year (PL-2)

Patient Care:

1. Understands and weighs alternatives for diagnosis and treatment
2. Elicits subtle findings on physical examination
3. Is able to manage multiple problems at once
4. Is able to prioritize patient problems
5. Develops and carries out management plans
6. Competently understands/performs/interprets procedures:

_____ Physiologic Monitoring: Cardiac, Resp, & Oximetry
_____ Radiologic Evaluation: CXR, AXR, CT Scans
_____ Abscess: Aspiration
_____ Pain Management: Conscious Sedation & Analgesia
_____ Arterial Puncture
_____ Burn Management: 1st & 2nd Degree
_____ Resuscitation: BLS, PALS, ACLS
_____ Ventilation: BVM
_____ Central Line: Use & Care
_____ Thoracentesis (Attempts)
_____ Chest Tube Placement (Need and Management)
_____ Intubation (Attempts)
_____ Intubation (Rapid Sequence - Attempts)
_____ OG/NG placement
_____ Bladder Catheterization
_____ Gastric Lavage
_____ Intravenous Line Placement
_____ Intraosseous Line Placement (during PALS course)
_____ Lumbar Puncture
_____ Tracheostomy Care
_____ Ventilator Management: Initiation
_____ Trauma Care: Stabilization
_____ Peripheral Arterial Line Placement
_____ Able to Direct Transport of Critical Ill Patients

Medical Knowledge:

1. Is aware of indications, contraindications, and risks of commonly used medications

and procedures in PICU
2. Applies the basic science, clinical, epidemiologic, and social-behavioral knowledge to the care of the patient
3. Appropriate use of sedatives, analgesics and neuromuscular blockers as well as their risks and complications.

Interpersonal Skills and Communication:

1. Creates and sustains therapeutic and ethically sound relationships with patients and families
2. Provides education and counseling to patients, families, and colleagues
3. Works effectively as a member of the health care team

Practice-based Learning and Improvement:

1. Undertakes self-evaluation with insight and initiative
2. Facilitates the learning of students and other health care professionals

Professionalism:

1. Displays initiative and leadership
2. Is able to delegate responsibility to others
3. Is responsive to needs of patients and society, which supersedes self-interest

Systems Based Practice:

1. Applies knowledge of how to partner with health care providers to assess, coordinate and improve patient care
2. Uses systematic approach to reduce errors

Third Year (PL-3)

Patient Care:

1. Makes informed decisions about diagnosis and therapy after analyzing clinical data
2. Includes the family when making medical decisions
3. Reasons well in ambiguous situations
4. Spends time appropriate to the complexity of the problem
5. Competently understands/performs/interprets procedures:

_____ Physiologic Monitoring: Cardiac, Resp, & Oximetry
_____ Radiologic Evaluation: CXR, AXR, CT Scans
_____ Abscess: Aspiration, I&D
_____ Pain Management: Procedural, Conscious Sedation & Analgesia
_____ Arterial Puncture
_____ Burn Management: 1st & 2nd Degree
_____ Resuscitation: BLS, PALS, ACLS
_____ Ventilation: BVM
_____ Central Line: Use & Care
_____ Thoracentesis (Successful)
_____ Chest Tube Placement (Participation)
_____ Intubation (Mostly Successful)
_____ Intubation (Rapid Sequence – Mostly Successful)
_____ OG/NG placement
_____ Bladder Catheterization
_____ Gastric Lavage
_____ Intravenous Line Placement (Mostly Successful)
_____ Intraosseous Line Placement (during PALS course)
_____ Lumbar Puncture

_____ Tracheostomy Care
_____ Ventilator Management: Initiation & Ongoing Management
_____ Trauma Care: Stabilization & Ongoing Management
_____ Central Line Placement (Participation)
_____ Peripheral Arterial Line Placement

Medical Knowledge:

1. Is aware of indications, contraindications, and risks of commonly used medications and procedures
2. Demonstrates an investigatory and analytic approach to clinical situations

Interpersonal Skills and Communication:

1. Creates and sustains therapeutic and ethically sound relationships with patients and families
2. Provides education and counseling to patients, families, and colleagues
3. Works effectively as a member of the health care team

Practice-based Learning and Improvement:

1. Analyzes personal practice patterns and looks to improve
2. Compares personal practice patterns to larger populations
3. Facilitates the learning of students and other health care professionals

Professionalism:

1. Demonstrates commitment to on-going professional development
2. Is effective as a consultant
3. Is responsive to needs of patients and society, which supersedes self-interest

Systems Based Practice:

1. Demonstrates ability to adapt to change
2. Provides cost effective care
3. Practices effective allocation of health care resources that does not compromise the quality of care

Neonatal ICU

Description:

This rotation is designed to provide the resident exposure to and experience with a variety of neonatal conditions and complications. Residents will admit and manage a core group of patients appropriate to their level of training. They will complete history and physical exams and then review them with the attending neonatologist. They will be expected to initiate treatment at a level appropriate for their training. With each successive rotation, the resident will be expected to increase the complexity and responsibility of their patient care as well as increase their supervision and teaching of junior members of the NICU team. The will also be required to achieve "Code Pink" status. The resident will participate in multidisciplinary rounds and patient care planning, prenatal counseling, family conferences and ethical discussions.

The goals and objectives described in detail below are not meant to be completed in a single one month block rotation but are meant to be cumulative, culminating in a thorough and complete NICU experience at the end of residency.

Primary Goals for this Rotation

GOAL: Perinatal Prevention. Understand the pediatrician's role in and become an active advocate for programs to reduce morbidity and mortality from high-risk pregnancies.

Identify and describe strategies to reduce fetal and neonatal mortality, including use of group B strep prophylaxis, perinatal steroids.

Understand and know how to access:

1. Basic vital statistics that apply to newborns (neonatal and perinatal mortality, etc)
2. Prenatal services available in one's region
3. Tests commonly used by obstetricians to measure fetal well-being
4. Neonatal transport systems

Describe effective intervention programs for teens and other high-risk mothers.

Recognize potential adverse outcomes for the fetus and neonate of common prenatal and perinatal conditions, and demonstrate the pediatrician's role in assessment and management strategies to minimize the risk to the fetus and/or newborn in the following situations:

1. Maternal infections/exposure to infection during pregnancy
2. Fetal exposure to harmful substances (alcohol, tobacco, environmental toxins, medications, street drugs)
3. Maternal insulin-dependent diabetes and pregnancy-induced glucose intolerance
4. Multiple gestation
5. Placental abnormalities (placenta previa, abruption, abnormal size, function)
6. Pre-eclampsia, eclampsia
7. Chorioamnionitis
8. Polyhydramnios
9. Oligohydramnios
10. Premature labor, premature ruptured membranes
11. Complications of anesthesia and common delivery practices (e.g., Caesarian, vacuum, forceps assisted, epidural, induction of labor)
12. Fetal distress during delivery
13. Postpartum maternal fever or infection
14. Maternal blood group incompatibilities
15. Other common maternal conditions having implications for the infant's health such as lupus, HELLP syndrome, maternal thrombocytopenia

GOAL: Resuscitation and Stabilization. Assess, resuscitate and stabilize critically ill neonates.

Explain and perform steps in resuscitation and stabilization, particularly airway management, vascular access, volume resuscitation, indications for and techniques of chest compressions, resuscitative pharmacology and management of meconium deliveries.

Describe the common causes of acute deterioration in previously stable NICU patients.

Function appropriately in codes and neonatal resuscitations as part of the NICU team by:

1. Participating in resuscitations
2. Completing Neonatal Resuscitation Program (NRP) or comparable training
3. Using neonatal resuscitation drugs appropriately

GOAL: Common Signs and Symptoms. Evaluate and manage, under the supervision of a neonatologist, common signs and symptoms of disease in premature and ill newborns.

Under supervision, evaluate and manage patients with the signs and symptoms that present commonly in the NICU (examples below).

1. General: feeding problems, history of maternal infection or exposure, hyperthermia, hypothermia, intrauterine growth failure, irritability, jitteriness, large for gestational age, lethargy, poor post-natal weight gain, prematurity (various gestational ages)

2. Cardiorespiratory: apnea, bradycardia, cyanosis, dehydration, heart murmur, hypertension, hypotension, hypovolemia, poor pulses, respiratory distress (flaring, grunting, tachypnea), shock

3. Dermatologic: birthmarks, common skin rashes/conditions, discharge and/or inflammation of the umbilicus, hyper- and hypopigmented lesions, proper skin care for extreme prematures

4. GI/surgical: abdominal mass, bloody stools, diarrhea, distended abdomen, failure to pass stool, gastric retention or reflux, hepatosplenomegaly, vomiting

5. Genetic/metabolic: apparent congenital defect or dysmorphic syndrome, metabolic derangements (glucose, calcium, acid-base, urea, amino acids, etc.)

6. Hematologic: abnormal bleeding, anemia, jaundice in a premature or seriously ill neonate, neutropenia, petechiae, polycythemia, thrombocytopenia

7. Musculoskeletal: birth defects and deformities, birth trauma and related fractures and soft tissue injuries, dislocations

8. Neurologic: birth trauma related nerve damage, early signs of neurologic impairment, hypotonia, macrocephaly, microcephaly, seizures, spina bifida

9. Parental stress and dysfunction: anxiety disorders, child abuse and neglect, poor attachment, postpartum depression, substance abuse, teen parent

10. Renal/urologic: abnormal genitalia, edema, hematuria, oliguria, proteinuria, renal mass, urinary retention

GOAL: Common Conditions. Recognize and manage, under the supervision of a neonatologist, the common conditions in patients encountered in the NICU.

Under supervision, evaluate and manage patients with conditions that present commonly in the NICU (examples below):

1. General: congenital malformations
2. Cardiovascular: cardiomyopathy, congenital heart disease (cyanotic and acyanotic--e.g., common disorders such as patent ductus arteriosus, ventricular septal defect, tetralogy of Fallot, transposition of the great arteries), congestive heart failure, dysrhythmias (e.g. supraventricular tachyarhythmia, complete heart block), pericarditis
3. Genetic, endocrine disorders: abnormalities discovered from neonatal screening programs as they affect the premature infant, common chromosomal anomalies (Trisomy 13, 18, 21, Turner's), inborn errors of metabolism, infant of a diabetic mother, infant of a mother with thyroid disease (e.g. maternal Graves Disease), uncommon conditions such as congenital adrenal hyperplasia, hypothyroidism, hyperthyroidism
4. GI/nutrition: biliary atresia, breast feeding support for mothers and infants with special needs (high risk premature, maternal illness, multiple birth, etc.), complications of umbilical catheterization, gastroesophageal reflux, growth retardation, hepatitis, hyperbilirubinemia, meconium plug, necrotizing enterocolitis, nutritional management of high risk neonates or those with special needs (cleft lip/palate, other facial anomalies, etc.)
5. Hematologic conditions: coagulopathy of the newborn, erythroblastosis fetalis, hemophilia, hydrops fetalis, hyperbilirubinemia, splenomegaly
6. Infectious disease: central line infections, Group B Streptococcal infections, hepatitis, herpes simplex, immunization of the premature neonate, infant of mother with HIV, intrauterine viral infections, neonatal sepsis and meningitis, nosocomial infections in the NICU, syphilis, ureaplasma, varicella exposure
7. Neurologic disorders: central apnea, CNS malformations (e.g. encephalocele, porencephaly, holoprosencephaly), drug withdrawal, hearing loss in high risk newborns (prevention and screening), hydrocephalus, hypoxic-ischemic encephalopathy, intraventricular hemorrhage, retinopathy of prematurity, seizures, spina bifida
8. Pulmonary disorders: atelectasis, bronchopulmonary dysplasia, meconium aspiration, persistent pulmonary hypertension of the newborn, pneumonia, pneumothorax, respiratory distress syndrome, transient tachypnea of the newborn
9. Renal: acute and chronic renal failure, hematuria, hydronephrosis, oliguria, proteinuria

10. Surgery [assess and participate in management under supervision of a pediatric surgeon or cardiac surgeon]: congenital heart disease, (cyanotic, patent ductus arteriosus, obstructive left-sided cardiac lesions, pre- and post-operative care), diaphragmatic hernia, esophageal or gut atresia, gastroschisis, omphalocele, intestinal obstruction, necrotizing enterocolitis, perforated viscus, Pierre Robin syndrome, volvulus

GOAL: Diagnostic Testing. Under the supervision of a neonatologist, order and understand the indications for, limitations of, and interpretation of laboratory and imaging studies unique to the NICU setting.

Demonstrate understanding of common diagnostic tests and imaging studies used in the NICU by being able to:

1. Explain the indications for and limitations of each study.
2. Know or be able to locate readily gestational age-appropriate normal ranges (lab studies).
3. Apply knowledge of diagnostic test properties, including the use of sensitivity, specificity, positive predictive value, negative predictive value, likelihood ratios, and receiver operating characteristic curves, to assess the utility of tests in various clinical settings.
4. Recognize cost and utilization issues.
5. Interpret the results in the context of the specific patient.
6. Discuss therapeutic options for correction of abnormalities.

Use appropriately the following evaluations that may have specific application to neonatal care:

1. Serologic and other studies for transplacental infection
2. Direct and indirect Coomb's tests
3. Neonatal drug screening
4. Cranial ultrasound for intraventricular hemorrhage
5. Abdominal X-rays for placement of umbilical catheter
6. Chest X-rays for endotracheal tube placement, air leak, heart size, and vascularity

Use appropriately the following laboratory tests when indicated for patients in the neonatal intensive care setting:

1. CBC with differential, platelet count, RBC indices
2. Blood chemistries: electrolytes, glucose, calcium, magnesium, phosphate
3. Renal function tests
4. Tests of hepatic function (PT, albumin) and damage (liver enzymes, bilirubin)
5. Serologic tests for infection (e.g., hepatitis, HIV)
6. CRP, ESR
7. Therapeutic drug concentrations
8. Coagulation studies: platelets, PT/PTT, fibrinogen, fibrin split products, D-dimers, DIC screen
9. Arterial, capillary, and venous blood gases
10. Detection of bacterial, viral, and fungal pathogens
11. Urinalysis
12. CSF analysis
13. Gram stain
14. Stool studies
15. Toxicologic screens/drug levels
16. Other fluid studies (e.g., pleural fluid, joint fluid)
17. Newborn screening tests

Appropriately use the following imaging or radiographic or other studies when indicated for patients in the NICU setting:

1. Chest X-ray
2. Abdominal series
3. Skeletal survey

4. CT scans
5. MRI
6. Nuclear medicine scans
7. Electrocardiogram and echocardiogram
8. Cranial ultrasonography

GOAL: Monitoring and Therapeutic Modalities. Understand how to use the physiologic monitoring, special technology and therapeutic modalities used commonly in the care of the fetus and newborn.

Demonstrate understanding of the monitoring techniques and special treatments commonly used in the NICU by being able to:

1. Discuss the indications, contraindications and complications.
2. Describe the general technique for use in infants.
3. Interpret the results of monitoring.

Use appropriately the following monitoring and therapeutic techniques in NICU.

1. Physiologic monitoring of temperature, pulse, respiration, blood pressure
2. Pulse oximetry
3. Neonatal pain and drug withdrawal scales

Demonstrate understanding of the following techniques and procedures used by obstetricians and perinatal specialists:

1. Fetal ultrasound for size and anatomy
2. Fetal heart rate monitors
3. Scalp and cord blood sampling
4. Amniocentesis
5. Cardiocentesis
6. Intrauterine transfusion including exchange transfusions
7. Chorionic villus sampling

Use appropriately the following treatments and techniques in the neonatal intensive care unit under supervision by the attending neonatologist, monitoring effects and anticipating potential complications specific to each procedure. (The degree of supervision should take into consideration the skill required, acuity of the patient, and relative risk of the procedure.)

1. Oxygen administration by hood, CPAP or assisted ventilation
2. Endotracheal intubation
3. Administration of surfactant therapy
4. Positive pressure ventilation and basic ventilator management
5. Extracorporeal membrane oxygenation/nitric oxide therapy
6. Phototherapy
7. Umbilical arterial and venous catheterization
8. Central hyperalimentation and parenteral nutrition
9. Enteral nutrition
10. Analgesic, sedatives and paralytics
11. Blood and blood product transfusions, including exchange transfusion
12. Vasoactive drugs (pressors and inotropes)
13. Judicious use of antibiotics
14. Administration of medications specific to the needs of the newborn (e.g., Vitamin K)
15. Arterial puncture
16. Venous access by peripheral vein

17. Umbilical artery and vein catheterization
18. Chest tube placement
19. Paracentesis

Describe home medical equipment and services needed for oxygen-dependent and technology-dependent graduates of the NICU (oxygen, apnea monitor, ventilator, home hyperalimentation, etc.).

Use appropriate resources to facilitate the transition to home of the technology-dependent neonate.

4.24.7 : Guide mothers in the use of electric and manual breast pumps.

GOAL: Pediatric Competencies: Demonstrate high standards of professional competence while working with patients in the Neonatal Intensive Care Unit.

Competency 1: Patient Care. Provide family-centered patient care that is development- and age-appropriate, compassionate, and effective for the treatment of health problems and the promotion of health.

1. Use a logical and appropriate approach to the assessment and daily management of seriously ill neonates and their families, under the guidance of a neonatologist, using evidence-based decision-making and problem-solving skills.

2. Provide emotional, social, and culturally sensitive support to families of NICU infants, including those at home.

Competency 2: Medical Knowledge. Understand the scope of established and evolving biomedical, clinical, epidemiological and social-behavioral knowledge needed by a pediatrician; demonstrate the ability to acquire, critically interpret and apply this knowledge in patient care.

1. Demonstrate a commitment to acquiring the knowledge base expected of general pediatricians caring for seriously ill neonates under the guidance of a neonatologist.

2. Know and/or access medical information efficiently, evaluate it critically, and apply it appropriately to the care of ill newborns

Competency 3: Interpersonal Skills and Communication. Demonstrate interpersonal and communication skills that result in information exchange and partnering with patients, their families and professional associates.

1. Provide effective and sensitive communication with families of infants in the NICU setting.

2. Function effectively as part of an interdisciplinary team member in the NICU to create and sustain information exchange and teamwork for patient care.

3. Maintain accurate, timely, and legally appropriate medical records in the critical care setting of the NICU.

Competency 4: Practice-based Learning and Improvement. Demonstrate knowledge, skills and attitudes needed for continuous self-assessment, using scientific methods and evidence to investigate, evaluate, and improve one's patient care practice.

1. Use scientific methods and evidence to investigate, evaluate, and improve one's patient care practice in NICU setting.

2. Identify personal learning needs, systematically organize relevant information resources for future reference, and plan for continuing acquisition of knowledge and skills.

Competency 5: Professionalism. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles and sensitivity to diversity.

1. Demonstrate a commitment to carrying out professional responsibilities while providing care in the NICU setting.

2. Adhere to ethical and legal principles, and be sensitive to diversity in caring for critically ill newborns.

Competency 6: Systems-Based Practice. Understand how to practice high-quality health care and advocate for patients within the context of the health care system.

1. Identify key aspects of health care systems, cost control and mechanisms for payment in the NICU setting.

2. Recognize the limits of one's knowledge and expertise and take steps to avoid medical errors.

Level Specific Competencies

First Year (PL-1)

Patient Care:

1. Prioritizes a patient's problems
2. Prioritizes a day of work
3. Gathers essential/accurate information via interviews and physical exams in a manner that is respectful of patients and families
4. Can provide an organized and precise patient presentation
5. Works with all health care professionals to provide family centered care
6. Competently understands/performs/interprets procedures:
   - _____ Physiologic Monitoring: Cardiac, Resp, and Oximetry
   - _____ Capillary Blood Collection
   - _____ Neonatal Resusciation (as team member)
   - _____ Use/Care of Central Lines (PICC/Umbilical Lines)
   - _____ Conjunctival Swab
   - _____ Lumbar Puncture
   - _____ Umbilical Line Placement (attempts)
   - _____ Endotracheal Intubation (attempts)
   - _____ NG/OG tube placement
   - _____ Inguinal Hernia (simple reduction)
   - _____ Breast Pump Use
   - _____ Modes of Ventilation
   - _____ Initiation of TPN

Medical Knowledge:
1. Uses written and electronic references and literature to learn about patient diseases
2. Demonstrates knowledge of basic and clinical sciences
3. Applies knowledge to therapy

Interpersonal Skills and Communication:
1. Writes pertinent and organized notes
2. Updates and maintains the ongoing patient data sheets
3. Uses effective listening, narrative, and non-verbal skills to elicit and provide information
4. Works effectively as a member of the health care team

Practice-based Learning and Improvement:
1. Understands his or her limitations of knowledge
2. Asks for help when needed
3. Is self motivated to acquire knowledge
4. Accepts feedback and develops self-improvement plans

Professionalism:
1. Is honest, reliable, cooperative, and accepts responsibility
2. Shows regard for opinions and skills of colleagues
3. Is responsive to needs of patients and society, which supersedes self-interest
4. Acknowledges errors and works to minimize them

Systems Based Practice:
1. Is a patient advocate
2. Works within the system based model to optimized and ensure quality patient care

Second Year (PL-2)

Patient Care:
1. Understands and weighs alternatives for diagnosis and treatment

2. Elicits subtle findings on physical examination
3. Is able to manage multiple problems at once
4. Develops and carries out management plans
5. Competently understands/performs/interprets procedures:
   - _____ Physiologic Monitoring: Cardiac, Resp, and Oximetry
   - _____ Capillary Blood Collection
   - _____ Neonatal Resusciation (as team leader)
   - _____ Use/Care of Central Lines (PICC/Umbilical Lines)
   - _____ Conjunctival Swab
   - _____ Lumbar Puncture
   - _____ Umbilical Line Placement (some successful)
   - _____ Endotracheal Intubation (some successful)
   - _____ NG/OG tube placement
   - _____ Inguinal Hernia (simple reduction)
   - _____ Breast Pump Use
   - _____ Radiology Interpretation: AXR, CXR
   - _____ Arterial Puncture
   - _____ Initiation of Mechanical Ventilation
   - _____ Modes of Ventilation (NCPAP, HFOV, Conventional)
   - _____ Initiation/Ongoing management of TPN
   - _____ Thoracentesis

Medical Knowledge:

1. Is aware of indications, contraindications, and risks of commonly used medications and procedures in NICU
2. Applies the basic, clinical, epidemiologic, and social-behavioral science knowledge to the care of the patient

Interpersonal Skills and Communication:

1. Creates and sustains therapeutic and ethically sound relationships with patients and families
2. Provides education and counseling to patients, families, and colleagues
3. Works effectively as a member of the health care team

Practice-based Learning and Improvement:

1. Undertakes self-evaluation with insight and initiative
2. Facilitates the learning of students and other health care professionals

Professionalism:

1. Displays initiative and leadership
2. Is able to delegate responsibility to others
3. Is responsive to needs of patients and society, which supersedes self-interest

Systems Based Practice:

1. Applies knowledge of how to partner with health care providers to assess, coordinate and improve patient care
2. Uses systematic approach to reduce errors

Third Year (PL-3)

Patient Care:

1. Makes informed decisions about diagnosis and therapy after analyzing clinical data

2. Includes the family when making medical decisions
3. Reasons well in ambiguous situations
4. Spends time appropriate to the complexity of the problem
5. Competently understands/performs/interprets procedures:
   _____ Physiologic Monitor: Cardiac, Resp, and Oximetry
   _____ Capillary Blood Collection
   _____ Neonatal Resusciation (as team leader)
   _____ Use/Care of Central Lines (PICC/Umbilical Lines)
   _____ Conjunctival Swab
   _____ Lumbar Puncture
   _____ Umbilical Line Placement (mostly successful)
   _____ Endotracheal Intubation (mostly successful)
   _____ NG/OG tube placement
   _____ Inguinal Hernia (simple reduction)
   _____ Breast Pump Use
   _____ Radiology Interpretation: AXR, CXR, HUS
   _____ Arterial Puncture
   _____ Ongoing Management of Mechanical Ventilation
   _____ Modes of Ventilation (NCPAP, HFOV, Conventional)
   _____ Ongoing management of TPN
   _____ Thoracentesis
   _____ Chest Tube (understand need/management)
   _____ Independent and Competent at Resuscitation
   (Code Pink Status)

Medical Knowledge:

1. Is aware of indications, contraindications, and risks of commonly used medications and procedures in the NICU
2. Demonstrates an investigatory and analytic approach to clinical situations

Interpersonal Skills and Communication:

1. Creates and sustains therapeutic and ethically sound relationships with patients and families
2. Provides education and counseling to patients, families, and colleagues
3. Works effectively as a member of the health care team

Practice-based Learning and Improvement:

1. Analyzes personal practice patterns and looks to improve
2. Compares personal practice patterns to larger populations
3. Facilitates the learning of students and other health care professionals

Professionalism:

1. Demonstrates commitment to on-going professional development
2. Is effective as a consultant
3. Is responsive to needs of patients and society, which supersedes self-interest

Systems Based Practice:

1. Demonstrates ability to adapt to change
2. Provides cost effective care
3. Practices effective allocation of health care resources that does not compromise the quality of care

Allergy/Immunology – Marshall University Pediatrics

Description:

This is a clinical rotation about the most common chronic diseases affecting both children and adults. Residents will be introduced to allergy, asthma, and clinical immunology. They will become familiar with the skills of history taking, examination of patients, laboratory assessment, and interpretation of the results as they relate to the specialty. There will be involvement with outpatient management of conditions such as asthma, rhinitis, atopic dermatitis, anaphylaxis, drug reactions, food reactions, urticarial, and primary immunodeficiency. Residents will learn how to approach and resolve problems of immunodeficiency states. They should become familiar with allergy skin testing, pulmonary function testing, and the indications for allergen immunotherapy.

Note:

The goals and objectives described in detail below are not meant to be completed in a single one month block rotation but are meant to be cumulative, culminating in a thorough and complete Allergy and Immunology experience at the end of residency.

Primary Goals for this Rotation

GOAL: Prevention, Counseling and Screening (Allergy/Immunology). Understand the role of the pediatrician in preventing allergy and immunologic diseases, and in counseling and screening individuals at risk for these diseases.

Identify individuals at risk for developing allergic or immunologic disease by providing routine allergy/immunology screening of all patients and parents and offering prevention counseling that addresses:

1. Understand and apply current recommendations for feeding infants who are at risk for the development of food allergy
2. Recognize the effects of a restricted diet for multiple food allergies on the nutritional adequacy of a patient's diet
3. Smoking and household chemicals/irritants that may exacerbate allergic diseases
4. "Myths" related to allergic disease, e.g., its role in behavioral disorders such as ADHD and autism
5. Risk factors for development of asthma and allergic diseases including family history

Provide allergy/immunology prevention counseling to parents and patients with identified allergic diseases, including:

1. Allergen avoidance and environmental control, e.g., pets and indoor allergens
2. Access to lay organizations and support groups

3. Proper use of epinephrine self-injectors
4. Proper use of spacer/aerochamber devices with metered-dose inhalers

GOAL: Normal Vs. Abnormal. Develop a working knowledge of normal development of the immune system, and recognize pathophysiologic and other clinical findings that indicate deviations from the norm.

Describe the normal development and pathophysiology of the immune system, including the cellular, humoral, phagocytic and complement-based systems.

Discuss the classification of hypersensitivity reactions, e.g. Gell and Coombs classification.

Explain the clinical history and findings on physical examination that suggest the presence of allergic-based disease or immunologic dysfunction that requires further evaluation and treatment. Include discussion of family history and genetic factors.

Develop a strategy for the work-up of suspected allergic disease or immunodeficiency, based on presenting symptoms and signs.

Interpret clinical and laboratory tests to identify allergic disease or immunologic dysfunction, including: screening tests for immune deficiency (e.g., CBC with absolute lymphocyte and neutrophil counts, Immunoglobulin levels, DTH skin tests); delayed hypersensitivity; allergy skin testing; serology (e.g., screening with RAST); and pulmonary function tests.

Describe the relationship of allergic disease and immunodeficiency to otitis media, sinusitis, pharyngitis, meningitis and pneumonia.

GOAL: Undifferentiated Signs and Symptoms. Evaluate, treat, and/or refer patients with presenting signs and symptoms that suggest an allergic or immunologic disease process.

Create a strategy to investigate whether the following presenting signs and symptoms are caused by an allergic process or immunologic dysfunction, and determine if the patient should be treated or referred:

1. Cough
2. Wheezing
3. Skin rash
4. Recurrent pneumonia
5. Recurrent skin infections
6. Recurrent otitis, sinusitis, pharyngitis
7. Rhinorrhea
8. Red eyes
9. Gastrointestinal symptoms (vomiting, diarrhea, abdominal pain, etc.)
10. Failure to thrive
11. Vomiting, diarrhea (including bloody or mucoid stools)
12. Dyspnea or cough with exercise
13. Snoring

GOAL: Common Conditions Not Referred. Diagnose and manage patients with common allergic/immunologic conditions that generally do not require referral.

Diagnose, explain and manage the following allergic/immunologic conditions when they are mild to moderate in severity and without complications:

1. Allergic rhinitis
2. Allergic conjunctivitis
3. Atopic dermatitis
4. Asthma

5. Urticaria/angioedema
6. Food allergies
7. Common drug allergies
8. Insect sting allergy-local reactions
9. Primary Immunodeficiency (congenital, acquired, or metabolic)
10. Sinusitis and recurrent otitis media

GOAL: Conditions Generally Referred. Recognize, initiate management of, and refer patients with allergic/immunologic conditions that generally require referral.

Identify, explain, initially manage and refer the following allergic/immunologic conditions:

1. Allergic/immunologic conditions that are severe or refractory to therapy
2. Asthma, moderate or severe persistent
3. Patients who require diagnostic testing and/or immunotherapy
4. Chronic urticaria
5. Hereditary or severe angioedema
6. Anaphylaxis
7. Latex allergy
8. Immunodeficiency (congenital, acquired, or metabolic) with compatible symptoms
9. Serum sickness

Identify the role and general scope of practice of pediatric allergists and immunologists; recognize situations where children will benefit from the skills of specialists trained in the care of children; and work effectively with these professionals to care for children with allergies, asthma, and immunologic disorders.

GOAL: Anaphylaxis, Angioedema and Urticaria. Understand the role of the general pediatrician in the assessment and management of anaphylaxis, angioedema and urticaria.

Recognize the signs and symptoms of urticaria, angioedema and anaphylaxis.

Discuss the pathophysiology of urticaria, angioedema, and anaphylaxis.

Identify triggers for urticaria, angioedema, and anaphylaxis and provide counseling about avoidance.

Develop a treatment plan for initial management of urticaria, angioedema and anaphylaxis, including indications for use of epinephrine, antihistamines and steroids.

Establish an educational plan for a child with urticaria, angioedema, or anaphylaxis, including medical alert systems, trigger avoidance, and proper use of epi-pens and antihistamines.

Identify the indicators for an allergy referral of a child with urticaria, angioedema and anaphylaxis.

GOAL: Allergic Rhinitis and Conjunctivitis. Diagnose and manage patients with allergic rhinitis and conjunctivitis.

Identify the signs and symptoms of allergic rhinitis and conjunctivitis, including differentiation of allergic from other causes of rhinorrhea and red eyes.

Describe causes of rhinitis and conjunctivitis other than allergic disease.

Identify co-morbidities associated with allergic rhinitis and conjunctivitis, including asthma, eczema, sleep-disordered breathing, sinusitis, etc.

Discuss the indications, clinical significance and limitations of diagnostic tests for allergic rhinitis and conjunctivitis. Interpret the results of these tests: total peripheral eosinophil count, prick and intradermal skin tests, serum specific IgE tests, and total IgE levels.

Educate families and child care facilities about environmental and allergen controls that can alleviate allergic and nonallergic rhinitis and conjunctivitis, and discuss the non-infectious nature of allergic conjunctivitis.

Compare pharmacologic options for treatment of allergic and non-allergic rhinitis and conjunctivitis, considering potential side effects and drug interactions. These therapies include: oral and topical antihistamines and anticholinergics, topical steroids and vasoconstrictive agents, mast cell stabilizers, decongestants, anticholinergic agents, leukotriene modifiers, combination medications and emerging therapies (e.g. monoclonal IgE).
Identify the indicators for an allergy referral of a child with allergic rhinitis and conjunctivitis.
Discuss the guidelines for safe administration of immunotherapy. Administer immunotherapy prescribed by an allergist to a patient and establish a plan to monitor for untoward reactions.
GOAL: Asthma. Diagnose and manage patients with asthma.
Identify the signs, symptoms, and pathophysiology of asthma, and differentiate asthma from other causes of cough, wheezing, shortness of breath and exercise intolerance.
Discuss the indications, clinical significance, and limitations of diagnostic tests and procedures for asthma. Interpret the results of these tests and procedures: chest X-ray, pulmonary function testing, peak flow monitoring, spirometry, inhaler use (MDI, DPI), spacing devices (e.g. aero-chambers, inspirease,etc.), nebulizers, and asthma action plans.
Classify the baseline disease severity of a patient with asthma according to current national guidelines, e.g., mild-intermittent, mild-persistent, moderate-persistent or severe-persistent.
Identify associated diseases or co-morbid conditions related to asthma (e.g., GER, allergic rhinitis, etc.).
Identify triggers that exacerbate a patient's asthma (environmental, seasonal, infectious) and provide counseling about avoidance where feasible.
Compare the indications, effectiveness, side effects and costs of the different pharmacologic agents used in the treatment of asthma, and discuss "reliever" and "controller" therapy.
Establish a treatment plan for the child with asthma that includes routine follow-up for reassessment, and the initial treatment and referral of the patient with impending respiratory failure due to asthma.
Based on a patient's symptoms and disease severity classification, develop a written asthma action plan for home and school. Include assessment and recognition of asthma symptoms (e.g., symptom-driven vs. peak flow assessments), a step-wise pharmacological approach to the management of acute symptoms ("reliever" therapy) and chronic symptoms ("controller" therapy), and instructions about when to seek professional medical care.
Educate a patient and family about all aspects of asthma, including course of disease, quality of life, risk factors for sudden death, strategies to improve adherence to treatment, trigger avoidance, symptom recognition and monitoring, asthma action plans, medications and delivery systems, and seeking professional medical care.
Discuss the factors that affect patient/family and school adherence to treatment protocols and the key role of support services in reducing barriers to care.
Identify the indicators for an allergy or pulmonary referral of a child with asthma.
GOAL: Atopic Dermatitis. Understand the role of the general pediatrician in the assessment and management of atopic dermatitis.
Recognize the signs and symptoms of atopic dermatitis, differentiating atopic dermatitis from other causes of chronic skin disease.
Understand associations of atopic dermatitis with other allergic disorders, such as food allergy, rhinitis and asthma.
Identify triggers, both allergic and irritant, that worsen the atopic dermatitis condition and provide counseling for avoidance.
Design a treatment plan to manage atopic dermatitis that may include skin hydration and moisturization, options for topical anti-inflammatory medication, and use of antihistamines.
Develop a working knowledge of the side effects of topical ointments, in particular corticosteroids.

Identify the indicators for referral to allergy or dermatology specialists for the child with atopic dermatitis.
GOAL: Drug Allergy. Understand the principles, diagnosis and management of drug allergy.
Discuss the pathophysiology of drug allergy.
Recognize the signs and symptoms of drug allergies, including differentiating drug allergy from other causes of skin rash, joint swelling and anaphylaxis.
Discuss the genetic basis, mechanisms and manifestations of drug allergy including urticaria, serum sickness, Stevens Johnson Syndrome, and anaphylaxis.
List the medications most commonly used to treat drug allergy and anaphylactic reactions.
Establish an education and treatment plan for a child with a drug allergy that includes drug avoidance and the use of antihistamines, epinephrine, steroids and supportive treatment.

Pediatric Cardiology

Description:

This rotation is designed to provide first year pediatric residents with experiences in clinical cardiology. They will participate in supervised clinical evaluations of patients in the outpatient clinic and the inpatient services including those who are critically ill in the specialized intensive care units.

Note:

The goals and objectives described in detail below are not meant to be completed in a single one-month block rotation but are meant to be cumulative, culminating in a thorough and complete Pediatric Cardiology experience at the end of residency

Primary Goals for this Rotation

GOAL: Prevention, Counseling and Screening. Understand the role of the pediatrician in preventing cardiovascular diseases, and in counseling and screening individuals at risk for these diseases.

Offer cardiovascular risk prevention counseling to all patients and parents and routinely screen for cardiovascular disease to identify individuals at increased risk.

1. Identify risk factors and provide information to patients and families regarding atherosclerotic heart disease and hypertension (family history or genetic predisposition to heart disease, lifestyle issues such as weight control, diet, exercise, and tobacco use).
2. Provide regular screening for prevention of heart disease and hypertension (regular monitoring and plotting of BMI, cholesterol and lipid screening as indicated, and periodic blood pressure measurement).

Provide cardiovascular preventive counseling to parents and patients with specific cardiac diseases about:

1. Indications, duration, and appropriate antibiotic regimens for bacterial endocarditis prophylaxis
2. Indications and appropriate antibiotic treatment for rheumatic fever prophylaxis

3. Routine influenza and pneumococcal immunization in children with cardiac disease

GOAL Normal Vs. Abnormal. Distinguish normal from abnormal cardiovascular signs and symptoms.

Describe normal perinatal circulation and changes at birth and during the first year of life.

Describe age-related changes in heart rate and blood pressure, including normal ranges from birth through adolescence.

Explain the mechanism for the production of heart sounds and murmurs and differentiate between physiologic (normal, functional or innocent) and pathologic heart murmurs.

Explain the findings on history and physical examination that suggest congenital heart disease or cardiovascular disease needing further evaluation and treatment.

Interpret clinical and laboratory tests to identify cardiovascular disease, including: pulse and blood pressure monitoring, chest X-ray interpretation, pulse oximetry, hyperoxia test, electrocardiography, ECG monitoring reports and echocardiography reports.

Describe the principles of electrocardiography, including normal voltages and rhythms. Differentiate normal from abnormal rhythms and voltages that suggest cardiovascular disease.

GOAL: Undifferentiated Signs and Symptoms. Evaluate, treat, and/or refer patients with presenting signs and symptoms that suggest a cardiovascular disease process.

Create a strategy to determine if the following presenting signs and symptoms are caused by a cardiovascular disease process and determine if the patient should be treated or needs referral to a subspecialist.

1. Shortness of breath
2. Chest pain
3. Cyanosis
4. Syncope
5. Wheezing
6. Apparent life threatening event
7. Failure to thrive
8. Exercise intolerance
9. Unexplained tachypnea, dyspnea
10. Palpitations
11. Abnormal heart sounds

GOAL: Common Conditions Not Referred. Diagnose and manage patients with common cardiovascular conditions that generally do not require referral.

Diagnose, explain and manage the following cardiovascular conditions:

1. Tachycardia related to fever
2. Peripheral pulmonic stenosis
3. Functional (innocent) heart murmur
4. Small, hemodynamically insignificant and closing VSD
5. Small, hemodynamically insignificant and closing PDA within the neonatal period
6. Musculoskeletal chest pain
7. Mild hypertension
8. Premature atrial contractions
9. Benign premature ventricular contractions

GOAL: Conditions Generally Referred. Recognize, provide initial management of, and refer patients with cardiovascular conditions that generally require referral.

Identify, explain, provide initial management and refer the following cardiovascular conditions:

1. Hypertension, moderate and severe
2. Supraventricular tachycardia
3. Bradycardia

4. Congestive heart failure
5. Cardiovascular collapse
6. Cardiovascular syncope
7. Chest pain associated with exercise
8. Pathologic heart murmurs
9. Congenital heart disease for initial diagnosis and follow-up

Identify the role and general scope of practice of pediatric cardiologists; recognize situations where children benefit from the skills of specialists trained in the care of children; and work effectively with these professionals in the care of children with congenital heart disease and other cardiovascular disease processes.

GOAL: Congenital Heart Disease. Understand the general pediatrician's role in diagnosis and management of congenital heart disease in children.

Describe the presenting symptoms, signs/physical findings, pathophysiology, treatment and prognosis for the following congenital cardiovascular conditions:

1. Ventricular septal defect
2. Atrial septal defect
3. Tetralogy of Fallot
4. Patent ductus arteriosus
5. Coarctation of the aorta
6. Transposition of great vessels
7. Tricuspid atresia
8. Pulmonary atresia
9. Hypoplastic left heart
10. Aortic stenosis
11. Pulmonic stenosis
12. Total anomalous pulmonary venous return
13. Mitral valve prolapse
14. Truncus Arteriosis
15. Atrioventricular canal

Describe the association of congenital heart disease with the following genetic syndromes:

1. Down's syndrome
2. Marfan syndrome
3. VACTERL association
4. Trisomy 13
5. Trisomy 18
6. Williams syndrome
7. Turner syndrome
8. Chromosome 22 microdeletion (i.e., Velocardial facial, DiGeorge syndrome)

GOAL: Acquired Heart Disease. Understand the general pediatrician's role in diagnosis and management of acquired heart disease in children.

Describe the presenting signs and symptoms, physical findings, pathophysiology, treatment and prognosis for the following acquired cardiovascular conditions:

1. Supraventricular tachycardia
2. Myocarditis/cardiomyopathy
3. Kawasaki disease
4. Acute rheumatic fever
5. Bacterial endocarditis
6. Essential hypertension
7. Dyslipidemia

8. Long QT Syndrome 9. Complete atrioventricular block 10. Ventricular tachycardia
GOAL: Hypertension. Understand the general pediatrician's role in diagnosis and management of hypertension in children.
Classify a patient with hypertension as to severity according to current national guidelines, e.g., elevated BP, stage I, and stage II.
Develop a diagnostic plan for a child with hypertension that accounts for severity of the condition, including recognition of hypertensive emergencies.
Manage a patient with hypertension using a step-wise approach that includes the role of diet, exercise, weight control, and medications.
Compare the commonly used antihypertensive drugs, considering indications and contraindications for use, mechanism of action and side effects.
Identify the indicators for a cardiology or nephrology referral in a child with hypertension.
GOAL: Cardiovascular Drugs. Understand key principles related to the use of cardiovascular drugs.
Identify the indications, contraindications, mechanism of action and side effects of the commonly used cardiovascular drugs (antiarrhythmic, chromotropes, inotropes, diuretics, vasodilator, vasopressors).
GOAL: Pediatric Competencies. Demonstrate high standards of professional competence while working with patients under the care of a subspecialist.
Competency 1: Patient Care. Provide family-centered patient care that is development- and age-appropriate, compassionate, and effective for the treatment of health problems and the promotion of health.
1. Use a logical and appropriate clinical approach to the care of patients presenting for cardiology care, applying principles of evidence-based decision-making and problem-solving.
2. Describe general indications for cardiology procedures and interpret results for families.
Competency 2: Medical Knowledge. Understand the scope of established and evolving biomedical, clinical, epidemiological and social-behavioral knowledge needed by a pediatrician; demonstrate the ability to acquire, critically interpret and apply this knowledge in patient care.
1. Acquire, interpret and apply the knowledge appropriate for the generalist regarding the core content of cardiology.
2. Critically evaluate current medical information and scientific evidence related to cardiology and modify your knowledge base accordingly.
Competency 3: Interpersonal Skills and Communication. Demonstrate interpersonal and communication skills that result in information exchange and partnering with patients, their families and professional associates.
1. Provide effective patient education, including reassurance, for a condition(s) common to cardiology,
2. Communicate effectively with primary care and other physicians, other health professionals, and health-related agencies to create and sustain information exchange and teamwork for patient care.
3. Maintain accurate, legible, timely and legally appropriate medical records, including referral forms and letters, for cardiology patients in the outpatient and inpatient setting.
Competency 4: Practice-based Learning and Improvement. Demonstrate knowledge, skills and attitudes needed for continuous self-assessment, using scientific methods and evidence to investigate, evaluate, and improve one's patient care practice.
1. Identify standardized guidelines for diagnosis and treatment of conditions common to cardiology and adapt them to the individual needs of specific patients.
2. Identify personal learning needs related to cardiology; systematically organize relevant information resources for future reference; and plan for continuing acquisition of knowledge and skills.
Competency 5: Professionalism. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to diversity.
1. Demonstrate personal accountability to the well-being of patients (e.g., following up on lab results, writing comprehensive notes, and seeking answers to patient care questions).

2. Demonstrate a commitment to carrying out professional responsibilities.

3. Adhere to ethical and legal principles, and be sensitive to diversity.

Competency 6: Systems-based Practice. Understand how to practice high-quality health care and advocate for patients within the context of the health care system.

1. Identify key aspects of health care systems as they apply to cardiology, including the referral process, and differentiate between consultation and referral.

2. Demonstrate sensitivity to the costs of clinical care in cardiology, and take steps to minimize costs without compromising quality

3. Recognize and advocate for families who need assistance to deal with systems complexities, such as the referral process, lack of insurance, multiple medication refills, multiple appointments with long transport times, or inconvenient hours of service.

4. Recognize one's limits and those of the system; take steps to avoid medical errors.

Rotation Specific Competencies

Patient Care:

1. Understands and weighs alternatives for diagnosis and treatment
2. Elicits subtle findings on physical examination
3. Gathers essential/accurate information via interviews and physical exams in a manner that is respectful of patients and families
4. Develops and carries out management plans
5. Competently understands/performs/interprets procedures:
   - _____ Radiology Interpretation: CXR
   - _____ Electrocardiogram (EKG): Performs/Interprets
   - _____ Echocardiogram: Interpretation
   - _____ Holter Monitor: Indications/Findings

Medical Knowledge:

1. Is aware of indications, contraindications, and risks of commonly used medications and procedures
2. Applies the basic science, clinical, epidemiologic, and social-behavioral knowledge to the care of the patient

Interpersonal Skills and Communication:

1. Creates and sustains therapeutic and ethically sound relationships with patients and families
2. Provides education and counseling to patients, families, and colleagues
3. Works effectively as a member of the health care team

Practice-based Learning and Improvement:

1. Undertakes self-evaluation with insight and initiative
2. Facilitates the learning of students and other health care professionals

Professionalism:

1. Displays initiative and leadership
2. Shows regard for opinions and skills of colleagues
3. Is responsive to needs of patients and society, which supersedes self-interest

Systems Based Practice:

1. Applies knowledge of how to partner with health care providers to assess, coordinate and improve patient care
2. Provides cost effective care

Suggested Reading (residents provided with digital copies of articles):

Cardiology Basics

-Chapter 3: History and Physical Examination. Moss and Adams' Heart Disease in Infants, Children, and Adolescents. 7th Edition, 2008

-Presentation of Congenital Heart Disease in the Neonate and Young Infant. Silberach, et al. Pediatrics in Review 2007;28;123

Syncope and Chest Pain

-Chest pain and syncope in children: a practical approach to the diagnosis of cardiac disease. Friedman, et al. J Pediatr. 2013 Sep;163(3):896-901.e1-3.

-Fainting freshmen and sinking sophomores: cardiovascular issues of the adolescent. DiVastaa, et al. Current Opinion in Pediatrics 2004, 16:350–356

SVT/arrhythmias

-Current Management of the Infant and Child with Supraventricular Tachycardia. Kertesz NJ, et al. Cardiol Rev. 1998 Jul;6(4):221-230

-The infant with supraventricular tachycardia: Diagnosis and management. Etheridge SP, et al. Progress in Pediatric Cardiology 35 (2013) 1–6

-PACES/HRS Expert Consensus Statement on the Management of the Asymptomatic Young Patient with a Wolff-Parkinson-White. (WPW, Ventricular Preexcitation) Electrocardiographic Pattern. Heart Rhythm. Volume 9, Issue 6, June 2012, Pages 1006-1024

Basic ECG

-The pediatric Electrocardiogram: Part II: Dysrhythmias. O'Connor M, McDaniel N, Brady WJ. Am J Emerg Med. 2008 Mar;26(3):348-58.

Acquired Heart Disease

-Hypertrophic Cardiomyopathy in Childhood. Colan SD, *Heart Fail Clin*. 2010 October ; 6(4): 433–444. doi:10.1016/j.hfc.2010.05.004

-Diagnosis, Treatment, and Long-term Management of Kawasaki Disease. McCrindle, et al. *Circulation*. 2017;135:00–00.

Cyanotic Congenital Heart Disease

-Transposition of the great arteries. (Adult Congenital). Warnes CA Circulation. 2006 Dec 12;114 (24):2699-709.
-Hypoplastic left heart syndrome – Review. Connor JA, Thiagarajan R. Orphanet Journal of Rare Diseases 2007, 2:23 doi:10.1186/1750-1172-2-23

Hypertension and Hyperlipidemia

-Flynn JT, Kaelber DC, Baker-Smith CM, et al. Clinical Practice Guideline for Screening and Management of High Blood Pressure in Children and Adolescents. *Pediatrics.*2017;140(3):e20171904

-Hypertension in infancy: diagnosis, management and outcome. Dionne JM, Abitbol CL, Flynn JT. Pediatr Nephrol (2012) 27:17–32
-Expert Panel on Integrated Guidelines for Cardiovascular Health and Risk Reduction in Children and Adolescents: Summary Report. Pediatrics. Volume 128, Supplement 6, December 2011 (Read lipid section)

Pulmonary Hypertension

-Diagnostics, monitoring and outpatient care in children with suspected pulmonary hypertension/ paediatric pulmonary hypertensive vascular disease. Expert consensus statement on the diagnosis and treatment of paediatric pulmonary hypertension. Lammers AE, et al. Heart 2016;102:ii1–ii13. doi:10.1136/heartjnl-2015-307792
-Persistent Pulmonary Hypertension of the Newborn. NeoReviews. December 2015, VOLUME 16 / ISSUE 12

Miscellaneous reading

-ADHD Drugs and Serious Cardiovascular Events in Children and Young Adults. Cooper WO, et al. New Engl. J. Med., 365 (2011), pp. 1896–1904
-Roman B. Nourishing little hearts: Nutritional implications for congenital heart defects. August 2011. Practical gastroenterology 35(8):11-3
-Cardiac: Syndromes Associated with Congenital Cardiac Defects. NCCU Clinical Practice Guidelines. https://www.kemh.health.wa.gov.au/For-health-professionals/Clinical-guidelines/NEO

Infective Endocarditis

-Infective Endocarditis in Childhood: 2015 Update - A Scientific Statement From the American Heart Association. *Circulation*. 2015;132:00-00

Athletic Participation

-Eligibility and Disqualification Recommendations for Competitive Athletes With Cardiovascular Abnormalities: Preamble, Principles, and General Considerations. Maron, et al. J Am Coll Cardiol 2015

******Read the following chapters in Park's Pediatric Cardiology for Practitioners (a copy will be provided for your temporary use):
Chapter 3: ECG
Chapter 9: Pathophysiology of Left-to-Right Shunts
Chapter 11: Pathophysiology of Cyanotic Congenital Heart Defects
Chapter 18: Primary Myocardial Disease
Chapter 27: Congestive Heart Failure
-Park's pediatric cardiology for practitioners. Park, Myung K. Sixth edition. Philadelphia, PA : Elsevier/Saunders, [2014]

References:

1. American Board of Pediatrics, Content Specification, 2007 and 2017
2. Ambulatory Pediatric Association
3. Association of Pediatric Program Directors
4. Pediatric RRC, January 2006

Pediatric Emergency and Acute Care Medicine

Description:

Emergency and Acute Illness experiences occur in two different settings. First, pediatric residents are exposed to emergency care in the Emergency Department at Cabell Huntington Hospital in one month blocks. Residents complete three ED blocks over the course of the residency, one at each level of training. While rotating through the ED, pediatric residents are the first contact individual for most pediatric patients present for acute care. The CHH ED also serves as the areas only pediatric trauma and EMS receiving center.

The second setting is the ongoing experience received in the University Pediatric outpatient department. During these ongoing experiences residents see patients with a variety of acute illnesses. In this setting, they also serve as the first contact caretaker and report their findings and management plans to the general pediatrician staffing the outpatient clinic.

Note:

The goals and objectives described in detail below are not meant to be completed in a single one month block rotation but are meant to be cumulative, culminating in a thorough and complete Emergency and acute care experience at the end of residency.

Primary Goals for this Rotation

GOAL: EMS System for Children. Understand the basic principles and utilization of emergency medical services for children.

Describe the organization and utilization of emergency medical systems for children in one's local area, including:

1. Pre-hospital care: access, training, roles, and limitations of providers; transportation systems; state and local resources and pediatric treatment protocols
2. Availability of trauma centers and other centers capable of providing care for critically ill and injured children

Describe the equipment, staff training, and reference material needed to insure office preparedness for emergencies.

Discuss how principles of injury prevention apply to the role of EMS for children (e.g., in minimizing the consequences of injury).

Demonstrate the ability to activate and use the local EMS for children, including interhospital transport.

Describe indications for use of the automated external defibrillator (AED) in children.

Describe the role of the pediatrician in preparing for and responding to disasters.

GOAL: Resuscitation and Stabilization. Assess, resuscitate, and stabilize critically ill or injured children in the Emergency Department setting in a timely fashion.

Rapidly recognize and assess emergent patients, such as those in respiratory failure or shock.

1. Perform the primary survey (ABCs) for all patients in an efficient manner.
2. Formulate a differential diagnosis quickly, especially with respect to conditions that may need respiratory or cardiovascular support or an immediate intervention (e.g. tension pneumothorax, increased intracranial pressure, cardiac tamponade, tracheostomy care, poisoning/toxicants).
3. Differentiate between cardiogenic, distributive, and hypovolemic shock.
4. Differentiate between respiratory distress and failure.
5. Assist in evaluating and stabilizing a child with multiple traumas.

Establish and manage the airways of infants, children and teens, recognizing the need for assistance with ventilation and/or oxygenation.

1. When caring for the critically ill child in the ED, demonstrate proficiency in proper airway positioning and suctioning, administration of supplemental oxygen, bag-valve-mask ventilation, management of nasal and oral airways, endotracheal intubation, rapid sequence induction, mechanical ventilation, oro- and naso-gastric tube placement, and C-spine immobilization to protect the airway in a head trauma patient.
2. Explain indications and describe technique for and complications of nasotracheal intubation, needle thoracotomy, emergency cricothyroidotomy, transtracheal ventilation and laryngeal mask airway.

Establish vascular access in the critically ill child as indicated, including cannulation of peripheral veins and intraosseous needle insertion.

Explain indications and describe technique for central venous access and arterial access.

Manage fluid and pressor therapy in the initial resuscitation of patients in distributive, hypovolemic, and cardiogenic shock.

Demonstrate proficiency at cardiopulmonary resuscitation by:

1. Obtaining and maintaining certification as a provider of Advanced Pediatric Life Support
2. Directing resuscitation efforts in mock codes and in actual emergency situations
3. Using resuscitation drugs appropriately

GOAL: Common Signs and Symptoms. Evaluate and manage common signs and symptoms in infants, children, and adolescents that present to the ED and urgent care center.

Evaluate and manage patients with signs and symptoms that present in the ED setting (examples below).

1. General: acute life threatening event (ALTE), agitated/disturbed child, alleged or suspected child abuse or neglect, dehydration, exercise intolerance, failure to thrive, fatigue, fever, hypothermia, malaise, septic or ill-appearing infant/child, sudden death, weight loss, unexplained crying
2. Allergy/immunology: acute allergic reactions, anaphylaxis
3. Cardiorespiratory: apnea, bradycardia, chest pain, cough, cyanosis, hypertension, hypotension (including orthostatic), palpitations, respiratory distress, respiratory failure, stridor, syncope tachycardia, tachypnea or shortness or breath, wheezing
4. Dental: pain or trauma of mouth, jaw or tooth; tooth injury or loss
5. Dermatologic: hair loss, itching, skin rash
6. EENT: abnormal pupils or eye movement, dizziness, earache, ear discharge, eye pain, hearing loss, nosebleed, painful swallowing, sore throat, sudden red eye, visual disturbances
7. Endocrine: heat/cold intolerance, polyphagia, polydipsia
8. GI: abdominal pain, constipation, diarrhea, difficulty swallowing, distension, GI bleeding, jaundice, vomiting (bilious and non-bilious)

9. GU/Renal: bloody or discolored urine, edema, decreased or increased urination, dysuria, groin or scrotal mass or pain, urinary frequency or urgency
10. GYN: menstrual problems, vaginal bleeding, vaginal discharge
11. Hematologic/Oncologic: abnormal bleeding, acute illness or fever in a neutropenic child/cancer patient, bruising, hepatosplenomegaly, lymphadenopathy, masses, pallor, petechiae
12. Musculoskeletal: arthralgia, back pain, inability to move an extremity, joint swelling, limb pain, limp, trauma
13. Neurologic: abnormal movements, ataxia, bulging fontanel, coma, confusion, dizziness, fainting spells, headache, head injury, lethargy, paralysis, seizures, spasticity, stiff neck, weakness
14. Psychiatric: anxiety, depression, hallucinations, hysteria, suicidal ideation, violent behavior
15. Surgery/trauma: acute abdomen, burns, lacerations, trauma (Note: for major trauma, work with surgical trauma team)

GOAL: Common Conditions. Recognize and manage common illnesses and injuries that present emergently.

Evaluate and manage patients with common diagnoses that present in the ED setting (examples below).

1. Allergy/immunology: acute illness in an immunocompromised child, anaphylaxis, angioedema, asthma, serum sickness, urticaria
2. Cardiovascular: acute illness in a patient with congenital heart disease, congestive heart failure, cardiomyopathy, dysrhythmias (asystole, atrial fibrillation and flutter, bradycardia, electromechanical dissociation, SVT, ventricular fibrillation and tachycardia,), endocarditis, Kawasaki's disease, myocarditis, shock (hypovolemic, cardiogenic, distributive), pericarditis, rheumatic fever
3. Dermatology: acute drug reactions, bite and sting injuries, contact dermatitis, cutaneous manifestation of systemic and/or contagious diseases, infections of skin and hair (bacterial, fungal, and viral), pediculosis, scabies, warts
4. Endocrine/Metabolic: acute adrenal insufficiency, acute illness in a child with underlying endocrine/metabolic disease, diabetes insipidus, diabetes mellitus and ketoacidosis, hypocalcemia, hypoglycemia, hypo- and hypernatremia, inborn error of metabolism, syndrome of inappropriate secretion of antidiuretic hormone (SIADH), thyroid disease
5. GI/surgical: acute abdomen, appendicitis, biliary tract disease, bowel obstruction, caustic ingestion, constipation, dehydration, foreign body in GI tract, gastroenteritis, gastroesophageal reflux, hepatitis, hepatosplenomegaly, ileus, incarcerated hernia, inflammatory bowel disease, intussusception, malrotation, pancreatitis, peptic ulcer disease, peritonitis, pyloric stenosis, upper and lower GI tract bleeding
6. GU/renal: acute hypertension, acute illness in a child on chronic dialysis or with transplanted kidney, acute renal failure, balanitis, edema, epididymitis, hematuria, labial adhesions, paraphimosis, phimosis, proteinuria, STD, renal lithiasis, testicular torsion, urinary tract infection
7. GYN: cervicitis, dysfunctional vaginal bleeding, ovarian torsion, pelvic inflammatory disease (PID), pregnancy (intrauterine, ectopic, abortion), ruptured ovarian cyst, sexually transmitted diseases
8. Hematologic/Oncologic: anemia, fever in a child with sickle cell disease or leukemia, coagulopathy, hemophilia with acute trauma, Henoch Schönlein purpura, possible tumor (masses), sickle cell pain crisis, sequestration and chest syndrome, thrombocytopenia
9. Infectious disease: adenitis, cervical cellulitis (especially facial/orbital), dental abscess, encephalitis, fever without source, HIV/AIDS, infected wounds and bites, meningitis, otitis media/externa, pelvic inflammatory disease, pharyngitis, stomatitis, sinusitis, sepsis/bacteremia, [also infections in other categories]
10. Neurologic: afebrile seizures, altered mental status, ataxia, brain tumor, febrile seizures, increased intracranial pressure, migraine, muscle contraction headache, paresis/paralysis, shunt malfunction/infection, status epilepticus
11. Ophthalmologic: corneal abrasion, conjunctivitis, infection, ocular foreign body, hyphema, trauma
12. Orthopedic: arthritis, common dislocations, discitis, fractures, gait disturbance, Osgood Slatter's Disease, overuse syndromes, osteomyelitis, septic arthritis, sprains, strains
13. Otolaryngologic: epistaxis, foreign body aspiration, peritonsillar or retropharyngeal abscess

14. Pulmonary: acute illness in a child with cystic fibrosis, asthma (including status), bacterial tracheitis, bronchiolitis, bronchopulmonary dysplasia (BPD), croup, epiglottitis, foreign body aspiration, pleural effusion, pneumonia, pneumothorax, respiratory failure, smoke inhalation
15. Trauma/surgical: burns, closed head injury, dental injuries, intracranial hemorrhages (subdural, epidural, subarachnoid), skull fractures, soft tissue injury (including lacerations, abrasions, and contusions), major trauma to head or face, neck or spine, chest, abdomen, urogenital tract, major vessels or organs (with surgeon/trauma team)
16. Toxicants/environmental injuries: electrical injury, heat and cold injury, ingestion/poisoning (unknown substance or common poisons: acetaminophen, antidepressants, benzodiazepines, carbon monoxide, cocaine, cough and cold medicines, digitoxin, drugs of abuse, hydrocarbons, iron, narcotics, neuroleptics), smoke inhalation, submersion injury/near drowning, weapons of mass destruction or biological/chemical weapons
17. Psychiatric: combative patient, conversion reaction, depression, suicide attempt/ideation, panic attacks
18. Rheumatologic: arthritis, dermatomyositis, lupus, joint or soft tissue pain
19. Social: child abuse or neglect, intimate partner violence, rape, sexual abuse, substance abuse

GOAL: Diagnostic Testing. Use common diagnostic tests and imaging studies appropriately in the ED setting.

Demonstrate understanding of common diagnostic tests and imaging studies used in the ED by being able to:

1. Explain the indications for and limitations of the study.
2. Understand the benefits and disadvantages of family presence during procedures.
3. Know or be able to locate readily age-appropriate normal values for lab studies.
4. Apply knowledge of diagnostic test properties, including the use of sensitivity, specificity, positive predictive value, negative predictive value, likelihood ratios, and receiver operating characteristic curves, to assess the utility of tests in various clinical settings.
5. Discuss cost and utilization issues.
6. Interpret test results in the context of the care of the specific patient.
7. Discuss therapeutic options for correction of abnormalities.

Use appropriately the following laboratory studies when indicated for patients in the ED setting:

1. CBC with differential count, platelets, RBC indices
2. Bacterial, viral, and fungal cultures and rapid screens
3. Serologic tests for infection (e.g., monospot, VDRL, hepatitis)
4. Blood chemistries: electrolytes, calcium, magnesium, phosphate, and glucose
5. Arterial, venous, and capillary blood gases
6. Renal function tests
7. Tests of hepatic function and damage
8. Drug levels and toxic screens
9. Gram stain
10. Wet mount
11. Urinalysis
12. CSF studies
13. Stool studies
14. Coagulation studies
15. Pregnancy test (urine, blood)
16. Other fluid studies (e.g., pleural fluid, joint aspiration fluid)

Use the following imaging or radiographic studies when indicated for patients in the ED setting:

1. Plain radiographs of chest, skull, extremity bones, abdomen, cervical spine
2. Other imaging techniques, such as CT, MRI, ultrasound, and nuclear scans (interpretation not expected)

3. Contrast or air enema for suspected intussusception or upper GI series for suspected malrotation

Use the following screening and diagnostic studies when indicated for patients in the ED setting:

1. Electrocardiogram
2. Vision screening
3. Appropriate urgent use of echocardiography

GOAL: Monitoring and Therapeutic Modalities. Understand how to use physiologic monitoring and special technology and treatment in the ED setting.

Demonstrate understanding of the monitoring techniques and special treatments commonly used in the ED by being able to:

1. Discuss indications, contraindications, and complications.
2. Demonstrate proper use of technique or treatment for children of varying ages.
3. Interpret results of monitoring based on method used, age, and clinical situation.

Use appropriately the monitoring techniques used in the ED:

1. Physiologic monitoring of temperature, blood pressure, heart rate, respirations
2. Pulse oximetry

Utilize appropriately the treatments and techniques used in the ED:

1. Universal precautions
2. Gastrointestinal decontamination for poisoning
3. Administration of nebulized medication
4. Injury, wound and burn care
5. Suturing and topical adhesive
6. Splinting
7. Oxygen delivery systems
8. Gastric button replacement

Demonstrate understanding of the following methods of anesthesia or pain management used in the ED:

1. Methods for recognizing and evaluating pain
2. Topical/local/regional anesthesia
3. ASA classification system
4. Procedural sedation
5. Rapid sequence intubation
6. Sedatives, non-narcotic and narcotic analgesics
7. Behavioral techniques and supportive care
8. Other non-pharmacologic methods of pain control (e.g., distraction techniques and humor therapy)

GOAL: Pediatric Competencies. Demonstrate high standards of professional competence while working with patients in the Emergency Department.

Competency 1: Patient Care. Provide family-centered patient care that is development- and age-appropriate, compassionate, and effective for the treatment of health problems and the promotion of health.

1. Use a logical and appropriate clinical approach to the care of emergency patients, applying principles of evidence-based decision-making and problem-solving, and demonstrating the ability to prioritize. Perform accurate ED triage.

1. Demonstrate the ability to multi-task by providing simultaneous care to multiple patients, with varying levels of acuity and severity of illness.
2. Use appropriate timing of diagnostic and therapeutic interventions.
3. Adjust pace to ED patient acuity, volume and flow.

2. Provide sensitive support to patients and families in the ED.

1. Provide sensitive support to critically ill patients and their families; arrange for ongoing support and/or preventive services if needed.
2. Be sensitive to the needs of families who use the ED for minor illness care (e.g., need for better orientation to the health care system, lack of community services or medical home).

Competency 2: Medical Knowledge. Understand the scope of established and evolving biomedical, clinical, epidemiological and social-behavioral knowledge needed by a pediatrician; demonstrate the ability to acquire, critically interpret and apply this knowledge in patient care.

1. Demonstrate a commitment to acquiring the base of knowledge needed for the care of children in the ED.

2. Demonstrate the ability to efficiently access medical information, evaluate it critically and apply it to pediatric care in the ED.

Competency 3: Interpersonal Skills and Communication. Demonstrate interpersonal and communication skills that result in information exchange and partnering with patients, their families and professional associates.

1. Provide effective patient education, including reassurance, for a condition(s) commonly seen in the ED.

2. Participate effectively as part of an interdisciplinary team in the ED to create and sustain information exchange, including communication with the primary care physician.

3. Provide case-based teaching related to clinical situations encountered in ED (for students, colleagues, other professionals and/or laypersons).

4. Maintain accurate, timely and legally appropriate medical records in the ED and urgent care settings.

Competency 4: Practice-based Learning and Improvement. Demonstrate knowledge, skills and attitudes needed for continuous self-assessment, using scientific methods and evidence to investigate, evaluate, and improve one's patient care practice.

1. Use scientific methods and evidence to investigate, evaluate and improve one's patient care practice in the ED.

2. Identify personal learning needs, systematically organize relevant information resources for future reference, and plan for continuing acquisition of knowledge and skills.

Competency 5: Professionalism. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to diversity.

1. Demonstrate a commitment to professionalism despite the pace and stress of the ED setting.

2. Adhere to ethical and legal principles, and be sensitive to diversity.

1. Identify and describe potential ethical dilemmas that one may encounter in the ED (e.g., such as resuscitation of patients with little hope of recovery; treatment of disabled patients; providing confidential care to mature minors [pregnancy termination, STDs, substance abuse]; foregoing life-sustaining treatment; identifying and referring organ donors).
2. Discuss key principles and identify resources for information about legal issues of importance to practice in the ED (e.g., emergency care for indigent patients; laws regarding interhospital patient transfer; consent-to-treat issues in the emergency treatment of minors; rights of parents to refuse treatment and legal options of providers; reporting of child abuse and neglect; death reports; and obligations of physicians in the ED to facilitate follow-up care).

Competency 6: Systems-Based Practice. Understand how to practice high-quality health care and advocate for patients within the context of the health care system.

1. Identify key aspects of health care systems, cost control, billing, and reimbursement as this relates to ED care and follow-up.
2. Demonstrate sensitivity to the costs of care in the ED setting and take steps to minimize costs without compromising quality.
3. Recognize and advocate for families who need assistance to deal with system complexities.
4. Recognize one's limits and those of the system; take steps to avoid medical errors.

Level Specific Competencies

First Year (PL-1)

Patient Care:

1. Prioritizes a patient's problems
2. Gathers essential/accurate information via interviews and physical exams in a manner that is respectful of patients and families
3. Can provide an organized and precise patient presentation
4. Works with all health care professionals to provide family centered care
5. Competently understands/performs/interprets procedures:
   - _____ Bladder Catheterization
   - _____ Analgesia: Local and Topical, Nerve Blocks
   - _____ Wound Management: Care and Suturing
   - _____ Burn Management
   - _____ Cervical Spine Immobilization and Clearance
   - _____ Simple Fracture: Reduction and Stabilization
   - _____ Eye Care: Fluoroscein, Irrigation, Patching
   - _____ Foreign Body Removal: Eye, Ear, Nose, Soft tissue, GI
   - _____ Lumbar Puncture
   - _____ Reduction of Nursemaid Elbow

Medical Knowledge:

1. Uses written and electronic references and literature to learn about patient diseases
2. Demonstrates knowledge of basic and clinical sciences
3. Applies knowledge to therapy

Interpersonal Skills and Communication:

1. Writes pertinent and organized notes
2. Updates and maintains the ongoing patient data sheets
3. Uses effective listening, narrative, and non-verbal skills to elicit and provide information
4. Works effectively as a member of the health care team

Practice-based Learning and Improvement:

1. Understands his or her limitations of knowledge
2. Asks for help when needed
3. Is self motivated to acquire knowledge
4. Accepts feedback and develops self-improvement plans

Professionalism:

1. Is honest, reliable, cooperative, and accepts responsibility
2. Shows regard for opinions and skills of colleagues
3. Is responsive to needs of patients and society, which supersedes self-interest
4. Acknowledges errors and works to minimize them

Systems Based Practice:

1. Is a patient advocate
2. Works within the system based model to optimized and ensure quality patient care

Second Year (PL-2)

Patient Care:

1. Understands and weighs alternatives for diagnosis and treatment
2. Elicits subtle findings on physical examination
3. Is able to manage multiple problems at once
4. Develops and carries out management plans
5. Competently understands/performs/interprets procedures:

_____ Bladder Catheterization
_____ Analgesia: Local and Topical, Nerve Blocks
_____ Wound Management: Care and Suturing
_____ Burn Management
_____ Resuscitation: BLS, PALS, ACLS
_____ Cervical Spine Immobilization and Clearance
_____ Simple Fracture: Reduction and Stabilization
_____ Eye Care: Fluoroscein, Irrigation, Patching
_____ Foreign Body Removal: Eye, Ear, Nose, Soft tissue, GI
_____ Gastric Lavage
_____ Lumbar Puncture
_____ Reduction of Nursemaid Elbow
_____ Sexual Abuse Exam and Evaluation
_____ Radiology Interpretation: Extremities, CXR, AXR, CT Head & abdomen
_____ Abscess Incision and Drainage
_____ Pediatric Trauma Care: Initial Stabilization and Management

Medical Knowledge:

1. Is aware of indications, contraindications, and risks of commonly used medications and procedures
2. Applies the basic, clinical, epidemiologic, and social-behavioral science knowledge to the care of the patient

Interpersonal Skills and Communication:

1. Creates and sustains therapeutic and ethically sound relationships with patients and families
2. Provides education and counseling to patients, families, and colleagues
3. Works effectively as a member of the health care team

Practice-based Learning and Improvement:

1. Undertakes self-evaluation with insight and initiative
2. Facilitates the learning of students and other health care professionals

Professionalism:

1. Displays initiative and leadership
2. Is able to delegate responsibility to others
3. Is responsive to needs of patients and society, which supersedes self-interest

Systems Based Practice:

1. Applies knowledge of how to partner with health care providers to assess, coordinate and improve patient care
2. Uses systematic approach to reduce errors

Third Year (PL-3)

Patient Care:

1. Makes informed decisions about diagnosis and therapy after analyzing clinical data
2. Includes the family when making medical decisions
3. Reasons well in ambiguous situations
4. Spends time appropriate to the complexity of the problem
5. Competently understands/performs/interprets procedures:

_____ Bladder Catheterization
_____ Analgesia: Local and Topical, Nerve Blocks
_____ Wound Management: Care and Suturing
_____ Burn Management
_____ Resuscitation: BLS, PALS, ACLS
_____ Cervical Spine Immobilization and Clearance
_____ Simple Fracture: Reduction and Stabilization
_____ Eye Care: Fluoroscein, Irrigation, Patching
_____ Foreign Body Removal: Eye, Ear, Nose, Soft tissue, GI
_____ Gastric Lavage
_____ Lumbar Puncture
_____ Reduction of Nursemaid Elbow
_____ Sexual Abuse Exam and Evaluation
_____ Radiology Interpretation: Extremities, CXR, AXR, CT Head & abdomen
_____ Abscess Incision and Drainage
_____ Pediatric Trauma Care: Initial Stabilization and Management

Medical Knowledge:

1. Is aware of indications, contraindications, and risks of commonly used medications and procedures in the NICU
2. Demonstrates an investigatory and analytic approach to clinical situations

Interpersonal Skills and Communication:

1. Creates and sustains therapeutic and ethically sound relationship with patients and families
2. Provides education and counseling to patients, families, and colleagues
3. Works effectively as a member of the health care team

Practice-based Learning and Improvement:

1. Analyzes personal practice patterns and looks to improve
2. Compares personal practice patterns to larger populations
3. Facilitates the learning of students and other health care professionals

Professionalism:

1. Demonstrates commitment to on-going professional development
2. Is effective as a consultant
3. Is responsive to needs of patients and society, which supersedes self-interest

Systems Based Practice:

1. Demonstrates ability to adapt to change
2. Provides cost effective care
3. Practices effective allocation of health care resources that does not compromise the quality of care

References:

1. American Board of Pediatrics, Content Specification, 2007
2. Ambulatory Pediatric Association
3. Association of Pediatric Program Directors
4. Pediatric RRC, January 2006

Otolaryngology

Note:

The goals and objectives described in detail below are not meant to be completed in a single one month block rotation but are meant to be cumulative, culminating in a thorough and complete Pediatric Otolaryngology experience at the end of residency.

Primary Goals for this Rotation
GOAL: Hearing Loss. Understand the morbidity of hearing loss, intervention strategies, and the pediatrician's and other specialists' roles in prevention, recognition and management.
Understand the epidemiology and prevalence of conductive and sensorineural hearing loss in childhood and adolescence.
Recognize the broad impact of hearing impairment on child and family, including social, psychological, educational and financial consequences.
Screen for hearing loss, interpret results and counsel parents, including: 1. Family and patient health history 2. Age-appropriate physical exam 3. Developmental assessment (behavior, language, speech) 4. Screening audiology and tympanometry exam
Describe timing and strategies for newborn hearing screening, school and office hearing screening.
Recognize thresholds of hearing loss associated with communication difficulties in office, school and group settings.
Be familiar with common interventions for hearing-impaired children and the age at which each should be initiated (e.g., hearing aids, amplification devices, cochlear implants, speech training, sign language, lip reading, communication devices).
Refer and coordinate school, speech and psychological services for the hearing-impaired child as early as possible.
Describe the roles of audiologists and general pediatricians in the ongoing management of hearing-impaired children.

GOAL: Prevention and Counseling. Understand the pediatrician's role in preventing otolaryngologic disease and dysfunction through screening and counseling.
Screen children for hearing loss. 1. Universal newborn screening and follow-up 2. Routine hearing screening at health maintenance visits
Screen for speech and language delays and disorders.
Provide strategies for preventing foreign bodies in nose, airway and ear.
Encourage smoking cessation in parents in order to optimize a child's respiratory health.
Counsel teenagers about dangers of smoking and chewing tobacco.
Counsel families and adolescents about reducing noise-related hearing loss.
GOAL: Normal vs. Abnormal. Differentiate normal otolaryngologic conditions from abnormal ones
Recognize normal development of the ear, sinuses, nose, pharynx, and of hearing, speech and language from birth to adolescence.
Determine whether a child's otolaryngological dysfunction (e.g., hoarse voice, nasal discharge) is a temporary state caused by a minor problem or represents a potentially serious pathological process.
Demonstrate ability to perform and/or interpret the following clinical studies or procedures: 1. Cerumen removal from ear canal 2. Simple foreign body removal from nose and ear 3. Pneumatic otoscopy 4. Suctioning of nares, oropharynx, tracheostomy 5. Tracheostomy tube replacement 6. Tracheal aspirates, including via tracheostomy (collection, culture, interpretation) 7. Nasopharyngeal wash specimens (collection and interpretation) 8. Nasal smears for polymorphonuclear cells (collection and interpretation) 9. Head CT 10. Sinus, airway radiographs 11. Airway fluoroscopy 12. Tympanocentesis
GOAL: Undifferentiated Signs and Symptoms. Evaluate and appropriately treat or refer these presenting otolaryngological signs and symptoms.
Create a strategy to determine if the following presenting signs and symptoms are caused by an otolaryngologic condition, and then treat or refer appropriately: 1. Ear pain/drainage 2. Nasal discharge 3. Snoring 4. Sore throat 5. Stridor 6. Nasal polyps 7. Neck mass or anomaly 8. Hoarse voice 9. Nosebleed
GOAL: Common Conditions Not Referred. Diagnose and manage common otolaryngological conditions that generally do not require referral.
Diagnose and manage these conditions: 1. Allergic rhinitis

2. Blunt nasal trauma
3. Cervical adenitis
4. Epistaxis
5. Otitis media and externa, uncomplicated
6. Parotitis (mild)
7. Pharyngitis (viral and streptococcal)
8. Routine care for the child with a tracheostomy
9. Simple nasal and ear canal foreign bodies
10. Sinusitis
11. Stridor, mild (croup, laryngomalacia)
12. Tonsillar hypertrophy without obstruction
13. Uvulitis

GOAL: Conditions Generally Referred. Recognize, provide initial management and refer appropriately conditions that usually require otolaryngologic referral.

Diagnose, provide initial management of, and refer appropriately conditions such as:

1. Abscess (retropharyngeal, peritonsillar)
2. Airway obstruction (acute, chronic, tonsillar, adenoidal, nasal, and lower airway)
3. Cholesteatoma
4. Congenital anomalies of the pinna, nose, lip, palate, jaw, neck
5. Complicated otitis media, sinusitis, epistaxis and parotitis
6. Epiglottitis
7. Facial nerve palsy
8. Foreign body of the aerodigestive tract
9. Head and neck masses
10. Nasal polyp
11. Significant hearing loss
12. Significant trauma to the middle or external ear, nose, lip, palate, pharynx
13. Sleep apnea
14. Tympanic membrane perforation (traumatic or persistent)

Identify the role and general scope of practice of the otolaryngologist; recognize situations where children benefit from the skills of pediatric specialists; and work effectively with these professionals in the care of children.

GOAL: Otitis Media. Diagnose and manage acute and chronic suppurative otitis media and otitis media with effusion.

Demonstrate successful removal of cerumen from ear canals to achieve satisfactory visualization of the tympanic membrane (TM).

Describe an optimal means of holding the child and the optimal equipment necessary for visualization of the TM in an infant, including type of speculum, light source, type of bulb, type of examination head, and use of the bulb to observe for TM mobility.

Demonstrate correct interpretation of the tympanogram for a child with: AOM, middle ear effusion, obstruction of the ear canal, ossicular disruption, and perforation of the TM.

Differentiate between complicated and uncomplicated AOM, mild and severe AOM, and the appropriate management of each variety.

Diagnose acute otitis media, using visual and pneumatic otoscopy, tympanometry, history, and signs and symptoms (e.g., fever, ear pain).

Diagnose and treat persistent otitis media, identifying treatment options, including indications for tympanocentesis.

Use antibiotic therapy judiciously to treat acute otitis media, taking into account the typical pathogens involved, and their antibiotic sensitivities and resistance patterns. Be prepared to explain to parents the need to limit antibiotic use in cases of mild illness.

Explain the role of antibiotic prophylaxis for recurrent acute otitis media.
Follow-up children with acute otitis media at appropriate intervals, monitoring for the development of chronic or recurrent acute otitis media or persistent otitis media with effusion.
Monitor infants and children with chronic middle ear effusion, recurrent acute otitis media or chronic otitis media for hearing loss and language delay; recognize indications for referral for formal audiologic and speech evaluation.
Describe the generally accepted criteria for insertion of pressure equalizing tubes (PET) in children, with specific reference to published guidelines.
Recognize clinical cases warranting referral to an otolaryngologist for evaluation of need for pressure equalizing tubes (PET) for middle ear ventilation. Refer appropriately, providing medical information about medical course under your care and special circumstances that may affect the decision.
Counsel families regarding the risks and benefits of pressure equalizing tubes (PET).
Describe the means of preventing acute otitis media for which there is evidence in the literature.
GOAL: Sinusitis. Diagnose and manage patients with sinusitis, and refer when appropriate.
Diagnose acute sinusitis accurately, using information from the history and physical examination.
Explain the role of radiologic tests in diagnosing sinusitis, including cost factors and limitations of each study (radiographs and computed tomography).
Manage cases of sinusitis, judiciously using the appropriate antibiotics, with an awareness of sensitivity and resistance patterns of common bacterial pathogens.
Prescribe adjunctive pharmacotherapy for sinusitis as needed (e.g., nasal drops or sprays, antihistamines).
Explain to parents the pathophysiology, epidemiology and management of sinusitis, especially viral rhinosinusitis.
Monitor patients and recognize complications of sinusitis (e.g., Pott's puffy tumor, meningitis, chronic or recurrent sinusitis).
Refer sinusitis patients when appropriate (e.g., with chronic/recurrent disease), explaining rationale for referral and possible therapeutic interventions (e.g., endoscopic surgery).
Describe characteristics that help differentiate allergic, viral and bacterial sinusitis; as well as acute and chronic sinusitis.
Explain conditions that mimic sinusitis and how to sort through the differential diagnosis.
GOAL: Tonsillar and Adenoidal Hypertrophy. Screen, diagnose and manage patients with symptoms secondary to tonsillar and adenoidal hypertrophy, and refer when appropriate.
Screen for tonsillar and adenoidal hypertrophy at health maintenance visits, using information from the physical examination and history.
Counsel parents about the pathophysiology of conditions associated with tonsillar and adenoidal hypertrophy and the possibility of normal developmental regression in some cases.
Explain to parents the reasons for referral to otolaryngology and general issues related to surgical intervention.
Describe the use of diagnostic tests for assessing tonsils and adenoids (e.g., airway films, sleep studies).
GOAL: Pediatric Competencies in Brief. Demonstrate high standards of professional competence while working with patients under the care of a subspecialist.
Competency 1: Patient Care. Provide family-centered patient care that is development- and age-appropriate, compassionate, and effective for the treatment of health problems and the promotion of health.
1. Use a logical and appropriate clinical approach to the care of patients presenting for otolaryngology care, applying principles of evidence-based decision-making and problem-solving.
2. Describe general indications for otolaryngology procedures and interpret results for families.
Competency 2: Medical Knowledge. Understand the scope of established and evolving biomedical, clinical, epidemiological and social-behavioral knowledge needed by a pediatrician; demonstrate the ability to acquire, critically interpret and apply this knowledge in patient care.
1. Acquire, interpret and apply the knowledge appropriate for the generalist regarding the core content of otolaryngology.
2. Critically evaluate current medical information and scientific evidence related to otolaryngology and modify your knowledge base accordingly.

Competency 3: Interpersonal Skills and Communication. Demonstrate interpersonal and communication skills that result in information exchange and partnering with patients, their families and professional associates.
1. Provide effective patient education, including reassurance, for a condition(s) common to otolaryngology.
2. Communicate effectively with primary care and other physicians, other health professionals, and health-related agencies to create and sustain information exchange and teamwork for patient care.
3. Maintain accurate, legible, timely and legally appropriate medical records, including referral forms and letters, for otolaryngology patients in the outpatient and inpatient setting.
Competency 4: Practice-based Learning and Improvement. Demonstrate knowledge, skills and attitudes needed for continuous self-assessment, using scientific methods and evidence to investigate, evaluate, and improve one's patient care practice.
1. Identify standardized guidelines for diagnosis and treatment of conditions common to otolaryngology and adapt them to the individual needs of specific patients.
2. Identify personal learning needs related to otolaryngology; systematically organize relevant information resources for future reference; and plan for continuing acquisition of knowledge and skills.
Competency 5: Professionalism. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to diversity.
1. Demonstrate personal accountability to the well-being of patients (e.g., following up on lab results, writing comprehensive notes, and seeking answers to patient care questions).
2. Demonstrate a commitment to carrying out professional responsibilities.
3. Adhere to ethical and legal principles, and be sensitive to diversity.
Competency 6: Systems-based Practice. Understand how to practice high-quality health care and advocate for patients within the context of the health care system.
1. Identify key aspects of health care systems as they apply to specialty care, including the referral process, and differentiate between consultation and referral.
2. Demonstrate sensitivity to the costs of clinical care in otolaryngology, and take steps to minimize costs without compromising quality
3. Recognize and advocate for families who need assistance to deal with systems complexities, such as the referral process, lack of insurance, multiple medication refills, multiple appointments with long transport times, or inconvenient hours of service.
4. Recognize one's limits and those of the system; take steps to avoid medical errors.

Rotation Specific Competencies

Patient Care:

1. Understands and weighs alternatives for diagnosis and treatment
2. Elicits subtle findings on physical examination
3. Obtains a precise, logical, and efficient history
4. Develops and carries out management plans
5. Competently understands/performs/interprets procedures:

_____ Audiometry: Interpretation
_____ Tympanometry: Performance and Interpretation

Medical Knowledge:

1. Is aware of indications, contraindications, and risks of commonly used medications and procedures
2. Applies the basic science, clinical, epidemiologic, and social-behavioral knowledge to the care of the patient

Interpersonal Skills and Communication:

1. Creates and sustains therapeutic and ethically sound relationships with patients and

families
2. Provides education and counseling to patients, families, and colleagues
3. Works effectively as a member of the health care team

Practice-based Learning and Improvement:
1. Undertakes self-evaluation with insight and initiative
2. Facilitates that learning of students and other health care professionals

Professionalism:
1. Is honest, reliable, cooperative, and accepts responsibility
2. Shows regard for opinions and skills of colleagues
3. Is responsive to needs of patients and society, which supersedes self-interest

Systems Based Practice:
1. Applies knowledge of how to partner with health care providers to assess, coordinate and improve patient care
2. Advocates for high quality patient care and assists patients in dealing with system complexity

References:

1. American Board of Pediatrics, Content Specification, 2007
2. Ambulatory Pediatric Association
3. Association of Pediatric Program Directors
4. Pediatric RRC, January 2006

Reviewed 9/2018

Gastroenterology

Description:

The resident will be exposed to various clinical symptoms and diseases of the gastrointestinal tract which are commonly seen by the gastroenterologist. The resident will be exposed to various diagnostic tools which are currently utilized for the the diagnosis and treatment of various GI diseases including endoscopic procedures, pH monitoring, rectal biopsies, PEG placement, etc. Topics which will be discussed will be closely related to the patients seen during the rotation. The resident can specifically ask for any GI subject he/she is interested in learning. Subjects for future clinical/basic science research are also encouraged.

Note:

The goals and objectives described in detail below are not meant to be completed in a single one month block rotation but are meant to be cumulative, culminating in a thorough and complete Pediatric Gastroenterology experience at the end of residency.

Primary Goals for this Rotation

GOAL. Food Allergy. Understand the role of the general pediatrician in the assessment and management of patients with food allergy.

Identify the signs and symptoms of food allergy and differentiate food allergy from other causes of skin rash, and GI or pulmonary symptoms.
Differentiate IgE-mediated food allergy from non-IgE mediated food allergy.
List the foods and formulas most commonly associated with food allergy.
Discuss the indications, clinical significance, and limitations of diagnostic tests and procedures to diagnose food allergies and interpret the results of skin testing, RAST testing, elimination diets, food challenges.
Explain the natural history of food allergies, including when suspected allergens may be introduced into the diet.
Create a treatment plan for a child with food allergies that includes food avoidance, food challenges, management of allergic symptoms, and emergencies.
Identify the indicators that would lead to subspecialist referral for a child with food allergy.
GOAL: Prevention, Counseling and Screening. Understand the role of the pediatrician in preventing gastrointestinal disease or nutritional deficiencies, and in counseling and screening individuals at risk for these diseases.
Provide routine preventive counseling on nutrition and GI health to all parents and patients that addresses: 1. Good nutrition--breast feeding and age-appropriate diet, good eating habits, food safety (choking, food preparation, and storage), prevention of dietary deficiencies or excesses, prudent diet to reduce risks of cardiovascular disease or cancer in adulthood, and safe methods of weight gain or weight loss 2. Bowel training and dietary prevention of constipation 3. Prevention of hepatitis A and B through immunization 4. Good hand washing and food preparation techniques for the prevention of gastrointestinal infections
Provide counseling to parents and patients with specific GI conditions that addresses: 1. Importance of compliance with medications for inflammatory bowel and liver disease 2. Need for surgery in specific gastroenterology conditions (ulcerative colitis, Peutz Jaeger's, etc.) 3. Need for specialized diets in certain gastroenterology conditions (IBD, celiac disease, failure to thrive, obesity, lactose intolerance, etc.) 4. Dealing with abdominal pain of apparent psychosomatic origin
As part of regular GI screening, plot growth parameters using appropriate growth charts (e.g., charts for Down's, achondroplasia, Turner, prematurity), and measure BMI to monitor trends suggestive of failure to thrive, overweight and obesity.
GOAL: Normal Vs. Abnormal. Differentiate between normal and pathological states related to gastroenterology.
Describe the normal eating patterns from birth through adolescence, including expected weight gain and typical feeding behaviors.
Describe normal developmental patterns in gastrointestinal development, including gastro-esophageal reflux, bowel habits, and stool color and consistency.
Explain the findings on clinical history and examination that suggest gastrointestinal disease needing further evaluation and/or treatment. Such findings include symptomatic gastro-esophageal reflux, vomiting, diarrhea, constipation, abdominal pain, hematemesis, hematochezia, melena and weight loss.
Differentiate transient and functional abdominal pain from pathologic abdominal pain.
Discuss the evaluation of liver function and liver abnormalities, and differentiate transient elevation of liver enzymes from serious liver disease.
GOAL: Undifferentiated Signs and Symptoms. Evaluate, treat, and/or refer patients with presenting signs and symptoms that suggest a gastrointestinal disease process.
Create a strategy to determine if the following presenting signs and symptoms are caused by a gastrointestinal disease process and decide if the patient needs treatment or referral:

1. Fatigue
2. Vomiting
3. Growth failure, weight loss, failure to thrive
4. Diarrhea
5. Constipation
6. Abdominal pain
7. Jaundice
8. Obesity
9. Colic
10. Chest pain
11. Sore throat

Describe the evaluation and management of a child with possible psychosomatic abdominal pain.

GOAL: Common Conditions Not Referred. Diagnose and manage patients with gastrointestinal conditions generally not requiring referral.

Diagnose, explain, and manage the following gastrointestinal conditions:

1. Diarrhea due to infectious causes, including bacterial enteritis, giardiasis and viral gastroenteritis
2. Diarrhea due to non-infectious causes, including chronic nonspecific diarrhea, milk protein intolerance, and lactose intolerance
3. Common nutritional deficiencies
4. Constipation, encopresis
5. Exogenous obesity
6. Gastroesophageal reflux
7. Non-specific intermittent abdominal pain
8. Irritable bowel syndrome
9. Jaundice associated with breast feeding
10. Transient hematemesis due to a Mallory Weiss tear
11. Viral hepatitis, uncomplicated

GOAL: Conditions Generally Referred. Recognize and initiate management of patients with gastrointestinal conditions that generally require referral.

Identify, explain, provide initial management, and obtain consultation or refer the following gastrointestinal conditions:

1. Gastrointestinal conditions generally not referred, if severe or if management is unsuccessful
2. Conditions warranting urgent surgical or gastroenterology evaluation, such as: suspected appendicitis, abdominal mass, bowel obstruction, volvulus, intussusception, pyloric stenosis, foreign bodies lodged in esophagus, caustic ingestions (including watch batteries), biliary atresia/stones, congenital GI bleeding, persistent hematemesis due to a Mallory Weiss tear and blunt abdominal trauma
3. Hepatobiliary diseases, including: neonatal, chronic, or persistent hepatitis, direct or conjugated neonatal hyperbilirubinemia or hyperbilirubinemia outside the neonatal period; alpha 1 antitrypsin deficiency; pancreatitis; and/or hepatosplenomegaly
4. Severe acute or chronic intestinal conditions, including: suspected inflammatory bowel disease, colitis, non-infectious gastrointestinal bleeding
5. Nutritional deficiencies that are severe or uncommon, including: rickets, kwashiorkor, and/or marasmus
6. Chronic diarrhea with or without malabsorption, including: suspected celiac disease, cystic fibrosis, Schwachman's syndrome, gastrointestinal infection with prolonged diarrhea, and/or undiagnosed diarrhea

7. Gastrointestinal entities requiring special evaluation and follow-up, including: morbid obesity, anorexia nervosa, bulimia, severe failure to thrive
Identify the role and general scope of practice of gastroenterology; recognize situations where children benefit from the skills of specialists trained in the care of children; and work effectively with these professionals to care for children's gastroenterology and nutrition disease processes.
GOAL: Vomiting. Diagnose and manage vomiting.
Differentiate normal infant spitting up and functional asymptomatic gastroesophageal reflux from vomiting disorders requiring evaluation and treatment.
Describe both common and serious disorders leading to vomiting (both intestinal and extraintestinal) and the appropriate use of laboratory and imaging studies to aid in diagnosis.
Recognize symptoms and urgently refer children with vomiting caused by intestinal obstruction.
Describe the typical presentation and suspected course of viral gastroenteritis and evaluate vomiting that does not conform to this presentation and course.
Recognize signs and symptoms of dehydration in a child with vomiting. Calculate fluid deficits based on weight and clinical symptoms and manage rehydration using IV fluids or oral rehydration solutions.
Develop an evidence-based plan, based on etiology, for withholding, feeding or reintroducing solid foods during and after vomiting.
Discuss common remedies and medications used to treat vomiting, along with indications, limitations and potential adverse effects.
Identify the indicators for a gastroenterology consultation or referral of a child with vomiting.
GOAL: Abdominal Pain. Diagnose and manage abdominal pain.
Compare the common causes of abdominal pain and describe signs and symptoms that differentiate recurrent (functional) abdominal pain of childhood from other organic causes that require further evaluation and treatment.
Explain the key components of a complete history and physical examination for abdominal pain. These should include pain patterns, weight loss, complete diet history, elimination history (including stool size, pattern, and consistency), psychosocial history, rectal exam and an age/gender-dependent pelvic exam.
Develop a diagnostic and treatment plan for a patient with abdominal pain that uses step-wise evaluation and treatment.
Identify indicators that suggest need for a gastroenterology or surgery consultation or referral for a child with abdominal pain.
Counsel parents about possible behavioral and psychological sources of abdominal pain, and how to handle a child with recurrent psychosomatic pain.
GOAL: Diarrhea. Diagnose and manage diarrhea.
Compare and contrast the infectious and non-infectious causes of diarrhea. Describe signs and symptoms that differentiate self-limiting diarrhea from diarrhea requiring further evaluation and treatment.
Explain the key components of a complete history and physical examination for diarrhea, including a complete diet history, length of illness, elimination history (including stool size, pattern, and consistency), and travel history, in order to classify a diarrheal illness as acute or chronic.
Describe the appropriate diagnostic work up for a patient with acute or chronic diarrhea, including factors that suggest celiac disease or cystic fibrosis.
Recognize signs and symptoms of dehydration in a child with diarrhea. Calculate fluid deficits based on weight and clinical symptoms and manage rehydration using IV fluids or oral rehydration solutions.
Develop an evidence-based plan that is based on etiology for withholding, feeding or reintroducing solid foods during and after a diarrheal illness.
Discuss common remedies and medications used for diarrhea, along with indications, limitations and potential adverse effects.
Identify the indicators for a gastroenterology consultation or referral of a child with diarrhea.
Counsel parents about possible behavioral and psychological causes of diarrhea, and explain how to handle a child with recurrent diarrhea of apparent psychosomatic origin.
GOAL: Nutrition. Understand principles of nutrition important to the general pediatrician.

Conduct an age-appropriate nutritional history and exam for nutritional disorders.

List conditions that may present with malnutrition or which commonly occur in combination with malnutrition.

Compare and contrast the major components (e.g., carbohydrate, protein, fat sources) of the following milk types: human breast milk, cow's milk-based infant formula, soy formula, specialized formulas, and whole milk.

List common signs and symptoms of deficiency in the following nutritional components, and identify children at high risk for deficiency. Describe the adequate dietary requirements and dietary source for each component.

1. B12
2. Calcium
3. Calorie
4. Fat
5. Fluoride
6. Folate
7. Iron
8. Protein
9. Vitamins A, C, D, K, E
10. Zinc

Provide informative and accurate nutritional counseling to parents and patients suspected of a nutritional deficiency or with exogenous obesity.

Describe intervention approaches with proven efficacy in helping children, adolescents and families alter their eating and exercise habits, in order to reduce obesity and its attendant lifelong health risks.

Discuss nutritional supplements that can be added to children's diets to increase caloric and nutritional content.

1. Describe the forms of parenteral nutrition (i.e. peripheral and total parenteral nutrition) and situations that warrant the use of each.
2. Explain the components of peripheral parenteral nutrition or total parenteral nutrition, including protein, glucose, electrolytes, vitamins, minerals and lipid, and describe how to determine what is needed by the patient.

Describe the typical monitoring of a child on TPN; identify the indicators that would lead you to a nutrition consultation or referral for a child with suspected or identified nutritional deficiency and/or exogenous obesity.

Identify conditions in which weight alteration may be necessary and provide guidelines for safe weight gain or loss.

Discuss the presentation, diagnosis and management of eating disorders.

GOAL: Cystic Fibrosis. Understand the general pediatrician's role in the management of cystic fibrosis.

Discuss the presenting signs and symptoms of cystic fibrosis and refer the patient for appropriate confirmatory testing, education, and treatment. Discussion should include high-risk populations, associated symptoms, treatment options and expected course of the disease.

Participate in development and implementation of a coordinated pulmonary and nutritional treatment plan for a patient with cystic fibrosis, including recognition and treatment of acute episodic illnesses, nutritional deficiencies, intestinal obstruction and psychosocial issues. Discuss the multidisciplinary approach to cystic fibrosis care and the role of the general pediatrician.

Identify indicators that signify an exacerbation of pulmonary symptoms. Provide appropriate initial treatment and referral to a specialty center for further evaluation and treatment.

GOAL: Pediatric Competencies. Demonstrate high standards of professional competence while working with patients under the care of a subspecialist.

Competency 1: Patient Care. Provide family-centered patient care that is development- and age-appropriate, compassionate, and effective for the treatment of health problems and the promotion of health.

1. Use a logical and appropriate clinical approach to the care of patients presenting for gastroenterology care, applying principles of evidence-based decision-making and problem-solving.

Describe general indications for gastroenterology procedures and interpret results for families.

Competency 2: Medical Knowledge. Understand the scope of established and evolving biomedical, clinical, epidemiological and social-behavioral knowledge needed by a pediatrician; demonstrate the ability to acquire, critically interpret and apply this knowledge in patient care.

1. Acquire, interpret and apply the knowledge appropriate for the generalist regarding the core content of gastroenterology.

2. Critically evaluate current medical information and scientific evidence related to gastroenterology and modify your knowledge base accordingly.

Competency 3: Interpersonal Skills and Communication. Demonstrate interpersonal and communication skills that result in information exchange and partnering with patients, their families and professional associates.

1. Provide effective patient education, including reassurance, for a condition(s) common to gastroenterology

2. Communicate effectively with primary care and other physicians, other health professionals, and health-related agencies to create and sustain information exchange and teamwork for patient care.

3. Maintain accurate, legible, timely and legally appropriate medical records, including referral forms and letters, for gastroenterology patients in the outpatient and inpatient setting.

Competency 4: Practice-based Learning and Improvement. Demonstrate knowledge, skills and attitudes needed for continuous self-assessment, using scientific methods and evidence to investigate, evaluate, and improve one's patient care practice.

1. Identify standardized guidelines for diagnosis and treatment of conditions common to gastroenterology and adapt them to the individual needs of specific patients.

2. Identify personal learning needs related to gastroenterology; systematically organize relevant information resources for future reference; and plan for continuing acquisition of knowledge and skills.

Competency 5: Professionalism. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to diversity.

1. Demonstrate personal accountability to the well-being of patients (e.g., following up on lab results, writing comprehensive notes, and seeking answers to patient care questions).

2. Demonstrate a commitment to carrying out professional responsibilities.

3. Adhere to ethical and legal principles, and be sensitive to diversity.

Competency 6: Systems-based Practice. Understand how to practice high-quality health care and advocate for patients within the context of the health care system.

1. Identify key aspects of health care systems as they apply to gastroenterology, including the referral process, and differentiate between consultation and referral.

2. Demonstrate sensitivity to the costs of clinical care in gastroenterology, and take steps to minimize costs without compromising quality

3. Recognize and advocate for families who need assistance to deal with systems complexities, such as the referral process, lack of insurance, multiple medication refills, multiple appointments with long transport times, or inconvenient hours of service.

4. Recognize one's limits and those of the system; take steps to avoid medical errors.

Rotation Specific Competencies

Patient Care:

1. Understands and weighs alternatives for diagnosis and treatment
2. Elicits subtle findings on physical examination
3. Obtains a precise, logical, and efficient history
4. Is able to manage multiple problems at once
5. Develops and carries out management plans
6. Competently understands/performs/interprets procedures:
   _____ Radiology Interpretation: Abdominal x-ray, CT scan, US
   _____ Endoscopies: Indications, Risks, Benefits

_____ Rectal Exam
_____ PH Probe: Indications, Risks, Benefits

Medical Knowledge:

1. Is aware of indications, contraindications, and risks of commonly used medications and procedures
2. Applies the basic science, clinical, epidemiologic, and social-behavioral knowledge to the care of the patient

Interpersonal Skills and Communication:

1. Creates and sustains therapeutic and ethically sound relationships with patients and families
2. Provides education and counseling to patients, families, and colleagues
3. Works effectively as a member of the health care team

Practice-based Learning and Improvement:

1. Undertakes self-evaluation with insight and initiative
2. Facilitates that learning of students and other health care professionals

Professionalism:

1. Is honest, reliable, cooperative, and accepts responsibility
2. Shows regard for opinions and skills of colleagues
3. Is responsive to needs of patients and society, which supersedes self-interest

Systems Based Practice:

1. Applies knowledge of how to partner with health care providers to assess, coordinate and improve patient care
2. Advocates for high quality patient care and assists patients in dealing with system complexity

Hematology/Oncology

Description:

The pediatric hematology-oncology division sees a wide spectrum of pediatric disease including but not limited to leukemia, hemophilia, solid tumors, ITP, and other blood dyscrasias. The pediatric resident is expected to be involved in the work-up and on-going management of all patient presenting to the hem-onc service.

Note:

The goals and objectives described in detail below are not meant to be completed in a single one month block rotation but are meant to be cumulative, culminating in a thorough and complete Pediatric Hem-Onc experience at the end of residency.

Primary Goals for this Rotation

GOAL: Prevention, Counseling and Screening. Understand the role of the pediatrician in preventing hematologic or oncologic conditions, and in counseling and screening individuals at risk for these diseases.

Provide routine preventive counseling about hematology to all patients and families, addressing:

1. Adequate diet and iron intake to prevent iron deficiency
2. Signs and symptoms of malignant disease

Provide preventive counseling to parents and patients with specific hematology/oncology conditions, addressing:

1. In a child with a sickle hemoglobinopathy, the importance of antibiotic prophylaxis; pneumococcal and routine immunizations, folic acid supplementation, and urgent need for evaluation for fever
2. Risk of infections related to transfusion of blood or blood products, and alternatives to routine transfusion (i.e., direct donation, irradiation, freezing, filtration)
3. Expected course of common childhood malignancies, with good and bad prognosticators
4. Support groups and information available for children with cancer

Provide regular hematology/oncology screening for patients:

1. Screen for hemoglobinopathies in the newborn period.
2. Screen for iron deficiency anemia during the first two years of life, with particular emphasis on premature infants.
3. Screen adolescent females for signs of iron deficiency and anemia yearly after menses has begun.
4. Screen infants and toddlers for lead poisoning.

GOAL: Normal Vs. Abnormal. Distinguish normal from pathologic states of the hematologic and lymphatic systems.

Describe the changes that occur over time in the hematologic indices of the normal infant and child (e.g., hemoglobin, hematocrit, MCV).

Explain the findings on clinical history and examination that suggest a hematologic or oncologic disease that requires further evaluation and treatment.

Interpret clinical and laboratory tests to identify hematologic or oncologic disease (CBC, including indices and blood smear review, reticulocyte count, ESR, PT, PTT, hemoglobin electrophoresis, iron, iron binding capacity, ferritin, transferring, lead, uric acid, LDH, electrolytes, renal function, urinalysis).

Explain the interpretation of a bone marrow aspirate.

GOAL: Undifferentiated Signs and Symptoms. Evaluate, treat, and/or refer patients with presenting signs and symptoms that may indicate a hematologic or oncologic disease process.

Develop a strategy to determine if the following presenting signs and symptoms are caused by a hematology/oncology disease process and determine if the patient needs treatment or referral:

1. Fatigue/malaise
2. Fever
3. Bruising/bleeding
4. Headache
5. Limb pain/limp
6. Seizure
7. Lymphadenopathy
8. Hepatomegaly and/or splenomegaly
9. Weight loss
10. Abdominal pain
11. Vomiting
12. Dizziness and gait disturbances

13. Nevi

GOAL: Common Conditions Not Referred. Diagnose and manage patients with hematological disorders that generally do not need referral.

5.48.1 : Diagnose, explain, and manage the following hematologic or oncologic conditions:

1. Iron deficiency
2. Hemoglobin traits, including alpha and beta thalassemia, sickle cell, and hemoglobin E
3. Transient erythropenia of childhood
4. Minor, common reactions to blood transfusions
5. Benign bone cyst
6. Idiopathic thrombocytopenic purpura

GOAL: Conditions Generally Referred. Diagnose and initiate management of patients with hematological or oncological disorders that generally need referrals.

Identify, explain, initially manage, and seek consultation or refer the following hematology/oncology conditions:

1. Anemia (exclusive of common iron deficiency or transient erythropenia)
2. Abnormal bruising or bleeding (inherited and acquired)
3. Major complications of inherited bleeding disorders
4. Hemoglobinopathies (sickle cell and other sickling disorders), including severe pain crisis, fever, stroke, sequestration and aplastic crises
5. Urgent conditions in children under treatment for cancer, including fever and neutropenia, chicken pox exposure or illness, bleeding
6. Neutropenia
7. Thrombocytopenia including ITP
8. Abdominal masses
9. Mediastinal masses
10. Lytic bone lesions
11. Suspected or confirmed CNS tumor
12. Conditions that might predispose to malignancy (e.g., neurofibromatosis, Bloom syndrome (retinoblastoma), Down's syndrome, McCune Albright, and familial cancer)
13. Coagulation disorders

In cases of serious or life-threatening disease, counsel the patient's families with sensitivity to their desire and need to know about:

1. Prognosis and possible impact of the disease
2. Likely steps in immediate and future treatment
3. Decisions about treatment options which they may face
4. Support services that they may seek in the hospital and community

Identify the role and general scope of practice of hematology/oncology; recognize situations where children benefit from the skills of specialists trained in the care of children; and work effectively with these professionals in the care of children with hematologic or oncologic diseases.

GOAL: Common Malignancies. Discuss the presentation, pathophysiology, and prognosis of important malignancies in children and adolescents.

Summarize the common ages, presenting signs and symptoms, diagnostic procedures, principles of current therapy, prognosis, and long-term complications (due to disease or treatment) for the following malignancies and conditions:

1. Leukemia (ALL, AML)
2. Brain tumor

3. Hodgkin's and non-Hodgkin's lymphoma 4. Neuroblastoma 5. Wilms' tumor 6. Soft tissue sarcomas (rhabdomyosarcoma) 7. Bone tumors (osteosarcoma and Ewing's sarcoma) 8. Retinoblastoma 9. Langerhans cell histiocytosis
Compare and contrast the common acute side effects of frequently used chemotherapeutic drugs, including: cyclophosphamide, cytarabine, vincristine, anthracycline compounds, methotrexate and prednisone.
Be familiar with adjunctive medications that increase patients' tolerance of chemotherapy, e.g. folate, epogen, GCSF.
Discuss the common late complications of childhood cancer treatment that may present in childhood or adolescence. These include: learning disabilities, endocrine suppression and second cancers.
GOAL: Iron Disorders. Discuss the appropriate methods of diagnosis and management of a patient with iron disorders.
Describe the normal requirements, absorption, and metabolism of iron from birth through adolescence.
Identify the common causes and features of iron deficiency (including anemia) in all age groups and compare and contrast with anemia caused by chronic inflammation.
Describe the diagnosis and treatment of iron deficiency, and discuss the follow-up necessary to assure success in treatment.
Develop a treatment and education plan for managing iron deficiency. This should include: dietary management, replacement therapy, parent education, and follow-up.
GOAL: Blood Products. Understand indications for and complications related to the use of blood products.
Explain the appropriate indications for and potential risks of various blood products (e.g., red blood cell products, platelet concentrates, coagulation factors).
Describe alternatives to blood transfusions. These should include: erythropoietin, GCSF, and other cytokines.
Describe the indications for leukofiltration, irradiation of blood products, and use of CMV negative blood products.
Summarize the signs and symptoms of a transfusion reaction. Develop an effective treatment plan to manage a transfusion reaction.
GOAL: Sickle Cell Disease. Understand the general pediatrician's role in the diagnosis and management of patients with sickle cell disease.
Explain the findings on clinical history, examination, and laboratory tests (including newborn screening) that suggest a diagnosis of sickle cell disease.
Compare and contrast the different sickle cell syndromes, including presentation, treatment and complications. These syndromes include sickle cell anemia, hemoglobin SC, and hemoglobin S beta thalassemia.
Discuss the common complications seen in a child with sickle cell disease. These include: hemolysis, hand-foot syndrome, anemia, aplastic crises, bone infarction, stroke, skin ulcers, pain episodes, priapism, sepsis and infections, cholelithiasis, chest syndrome, retinopathy, renal failure, and sequestration crises.
Outline the management of a patient who presents with a sickle crisis. These should include discussion and proper use of IV fluids, analgesics, antibiotics, oxygen, blood transfusions, and indications for hydroxyurea and stem cell transplant.
Develop a preventive care plan for a patient with a sickle disease. These should include use of folate, prophylactic antibiotics, immunizations, prompt evaluation of febrile episodes and stroke screening.
Identify the indicators for a hematology referral in a child with sickle cell disease.
GOAL: Pediatric Competencies in Brief. Demonstrate high standards of professional competence while working with patients under the care of a subspecialist.
Competency 1: Patient Care. Provide family-centered patient care that is development- and age-appropriate, compassionate, and effective for the treatment of health problems and the promotion of health.
1. Use a logical and appropriate clinical approach to the care of patients presenting for hematology or oncology care, applying principles of evidence-based decision-making and problem-solving.

2. Describe general indications for hematology or oncology procedures and interpret results for families.
Competency 2: Medical Knowledge. Understand the scope of established and evolving biomedical, clinical, epidemiological and social-behavioral knowledge needed by a pediatrician; demonstrate the ability to acquire, critically interpret and apply this knowledge in patient care.
1. Acquire, interpret and apply the knowledge appropriate for the generalist regarding the core content of hematology/oncology.
2. Critically evaluate current medical information and scientific evidence related to hematology/oncology and modify your knowledge base accordingly.
Competency 3: Interpersonal Skills and Communication. Demonstrate interpersonal and communication skills that result in information exchange and partnering with patients, their families and professional associates.
1. Provide effective patient education, including reassurance, for a condition(s) common to hematology and oncology.
2. Communicate effectively with primary care and other physicians, other health professionals, and health-related agencies to create and sustain information exchange and teamwork for patient care.
3. Maintain accurate, legible, timely and legally appropriate medical records, including referral forms and letters, for hematology/oncology patients in the outpatient and inpatient setting.
Competency 4: Practice-based Learning and Improvement. Demonstrate knowledge, skills and attitudes needed for continuous self-assessment, using scientific methods and evidence to investigate, evaluate, and improve one's patient care practice.

Neurology

Description:

The Pediatric Neurology elective will give the resident the opportunity to learn how to obtain an appropriate history and perform a complete neurologic exam. Four to five half days will be spent in outpatient clinic examining patients with the neurologist. Consultations will be seen with the pediatric neurologist as requested by the treating physicians in the NICU, PICU, and General Inpatient area. It is anticipated that two half days will be available for the resident to read about the common neurologic problems. This will allow the resident to use an evidence based approach for evaluating patients.

Note:

The goals and objectives described in detail below are not meant to be completed in a single one month block rotation but are meant to be cumulative, culminating in a thorough and complete Pediatric Neurology experience at the end of residency.

Primary Goals for this Rotation
GOAL: Prevention, Counseling and Screening (Neurology). Understand the role of the pediatrician in preventing neurological diseases, and in counseling and screening individuals at risk for these diseases.
Provide routine neurological prevention counseling to parents and patients about:
1. Prevention of head and spinal cord trauma through use of seat belts, car seats, helmets, firearm safety, playground safety and diving injuries

2. Avoidance of environmental toxins including lead, insecticides and other household poisons
3. Public health and legislative strategies to reduce head and spinal cord injury

Provide specific counseling to parents and patients with neurological disorders, addressing:

1. Reducing long-term sequela from neurologic injury or congenital CNS disorders through rehabilitation and early intervention
2. Providing appropriate home stimulation for preterm infants at risk for developmental delay
3. The etiology and natural course of epilepsy, and treatment options and precautions for children with this condition
4. The expected course, resolution, risk of seizure disorder, and potential treatment of simple febrile seizures

GOAL: Normal Vs. Abnormal. Identify whether a child is normal or suffers from a neuropathological condition.

Describe normal neurological development, including language acquisition, cognition, motor development, loss of primitive reflexes, and socialization.

Explain the findings on clinical history and examination that suggest neurologic dysfunction that requires further evaluation and treatment.

Differentiate a peripheral from a central nervous system lesion, diffuse from focal, and static from progressive neurologic dysfunction. Using this knowledge, correctly localize the site of any lesion.

Distinguish between a temporary neurological dysfunction (e.g., ataxia or lethargy due to anticonvulsant loading dose) from a pathological dysfunction (e.g., trauma, poisoning, severe infection, hypoglycemia, electrolyte imbalance).

Discuss the diagnostic value of tests to aid in the diagnosis of neurologic diseases, including indications, limitations, and costs. Discuss the following tests: electroencephalogram (EEG), head computerized tomography scan (CT), head magnetic resonance scan (MR), lumbar puncture, psychometric testing, electromyography (EMG) and nerve conduction velocity (NCV).

GOAL: Undifferentiated Signs and Symptoms. Evaluate, treat and/or refer patients with presenting signs and symptoms that may indicate a neurologic or neuromuscular disease process.

Create a strategy to determine if the following signs and symptoms are caused by a neurologic or neuromuscular disease process:

1. Vomiting
2. Weakness
3. Seizures
4. Failure to thrive
5. Feeding difficulties
6. Developmental delay
7. Spasticity
8. Hypotonia
9. Abnormal movement or tics
10. Headache
11. School problems
12. Behavior problems
13. Sleep problems

GOAL: Common Conditions Not Referred. Recognize and manage neurological disease conditions that generally do not require referral.

Diagnose, explain, and manage the patient with the following neurologic conditions:

1. Simple febrile seizures
2. Headaches, including migraine and tension headaches

3. Closed head trauma and simple linear skull fractures without evidence of concussion
4. Transient neurological disturbances due to drug ingestions (e.g., antihistamines, benzodiazepams)
5. Viral meningitis
6. Attention problems including ADHD
7. Simple tics

GOAL: Conditions Generally Referred. Recognize and initiate management of neurological conditions that generally require referral.

Identify, explain, initially manage and refer the following neurological or neuromuscular conditions:

1. Acute encephalopathy such as that caused by metabolic disturbances, lead ingestion, hypertension, anoxia, or drug/toxin overdose or ingestion
2. Bacterial meningitis
3. Brain tumor
4. Initial evaluation for cerebral palsy
5. Coma
6. Increased intracranial pressure
7. Encephalitis
8. Headaches that are severe, progressive, refractory to simple therapy, or suggestive of malignancy
9. Hydrocephalus
10. Abnormal movements (chorea, ataxia, complex tics)
11. Initial evaluation for mental retardation, loss of neurologic skills, autism
12. Muscle weakness, flaccidity, or paralysis suggestive of Guillain-Barre, muscular dystrophy or hypotonia
13. Neurocutaneous syndromes
14. Complex seizures that are difficult to diagnose or manage, or those that present with status epilepticus or are associated with progressive neurologic impairment
15. Stroke
16. Absence seizures
17. Static encephalopathy and cerebral palsy follow-up and co-management
18. Simple generalized tonic-clonic seizures

Identify the role and scope of practice of neurology; recognize situations where children benefit from the skills of specialists trained in the care of children; and work effectively with these professionals to care for children with neurologic disorders.

Identify the role of other specialists (e.g., neurosurgery, rehabilitative medicine, psychology, psychiatry and neuropsychology) in the treatment of children with common neurological disorders.

GOAL: Seizures. Evaluate, manage, and refer patients with seizures.

Explain the findings on clinical history, examination and investigation that suggest a seizure disorder and classify the seizure as generalized (including absence), focal or complex partial.

Manage uncomplicated seizures using a step-wise approach that begins with the most appropriate anticonvulsant for the type of seizure.

Develop a step-wise plan for evaluation and treatment for a patient in status epilepticus.

Identify the indicators that would lead to a neurology referral for a child with seizures, including infantile onset seizures, seizures that are complicated, intractable, or difficult to diagnose or manage, and status epilepticus.

Explain the characteristics of simple febrile seizures, including epidemiology, genetic predisposition, natural history, risk factors for a seizure disorder and treatment options.

Discuss common episodic events that may mimic seizures and the findings on history and examination that suggest that the event is not epileptic in origin (e.g., breath-holding spells, benign movement disorders, pseudoseizures, common sleep disorders).

GOAL: Headaches. Evaluate and manage headaches.

Take a thorough headache history including family history of headaches, location, duration, frequency, character, triggers and associated symptoms.
Compare and contrast the symptoms associated with tension headaches, migraine headaches, chronic daily headaches and headaches associated with increased intracranial pressure and sinus disease.
Compare the therapeutic options, both pharmacologic and non-pharmacologic, for treatment of migraine and tension headaches in children. Include mechanism of action, effectiveness, side effects, and costs.
Identify the indicators for radiologic imaging (CT or MRI) in a patient with headaches.
Identify the indicators for a neurology consult or referral in a child with headaches.
Counsel families about strategies for helping children with headaches of possible psychosomatic or psychosocial origin.
GOAL: Neurological Pharmacology. Understand the indications for the use, side effects, and mode of action of commonly used neurological drugs.
Compare and contrast the indications, contraindications, side effects and common drug interactions of the most commonly used neurological drugs.
For each neurological drug, describe the laboratory tests needed to follow drug therapy, side effects and drug interactions.
Describe the effect on the CNS of other commonly used drugs with known CNS action, including: antihistamines, antidepressants, stimulants for attention deficit disorder, over-the-counter cold preparations, and tranquilizers.
GOAL: Pediatric Competencies in Brief. Demonstrate high standards of professional competence while working with patients under the care of a subspecialist.
Competency 1: Patient Care. Provide family-centered patient care that is development- and age-appropriate, compassionate, and effective for the treatment of health problems and the promotion of health.
1. Use a logical and appropriate clinical approach to the care of patients presenting for neurologic care, applying principles of evidence-based decision-making and problem-solving.

Newborn Nursery

Description:
Residents are expected to see all patients on the Marshall Pediatrics service. They will round on patients with the assigned attending physician. Any problems or concerns should be addressed with the attending physician as early as possible. Residents should discuss the patient with the family on a daily basis. All discharge planning and follow-up arrangement should be made by the resident physician.

Note:
The goals and objectives described in detail below are not meant to be completed in a single one month block rotation but are meant to be cumulative, culminating in a thorough and complete newborn nursery experience at the end of residency.

Primary Goals for this Rotation

GOAL: Comprehensive Care in Level I Nursery. Provide comprehensive care in a level I nursery.
Explain the role of the primary care pediatrician in the level I nursery and how it relates to the continuum of office health supervision care.
Effectively communicate with the mother's obstetrician during the hospital stay and her primary care provider prior to the infant's discharge.
Describe normal physiologic changes in neonatal transition, signs of abnormal responses and strategies for their management.
Describe the rationale behind various nursery and delivery routines and how these affect the health and well-being of families and newborns (e.g., rooming in, on-demand feeding, 24 hour discharge of the newborn, glucose water feeds).

Function as a pediatric consultant to health professionals in the newborn nursery, obstetrical ward, and delivery room for routine, normal pregnancies, deliveries and newborn care.

Identify the role and scope of practice of general pediatricians, neonatologists, perinatologists, obstetricians, family physicians, nurse midwives, lactation consultants, primary care nurses for OB/Newborn, and social workers in relation to the normal nursery; and work collaboratively with these professionals in the care of newborns.

GOAL: Assessment, Screening and Prevention. Assess newborns, using history, physical exam and routine screening procedures, and provide preventive counseling and intervention as indicated.

Obtain and interpret information relevant to newborn health including:

1. Maternal medical, prenatal and obstetric history
2. Family history
3. Results of maternal screening tests (e.g, Rh), rubella, hepatitis B and C, serology for syphilis, HIV, tuberculosis, illicit drugs, blood type, group B streptococcus, herpes simplex virus, gonorrhea, and chlamydia
4. Maternal medication use or substance use/abuse
5. Results of prenatal ultrasound testing

Obtain and interpret a social history to assess the physical and psychosocial environment in the infant's home.

Understand and demonstrate appropriate timing for newborn exams and define the key reasons for doing the exams (e.g., determine state of transition, assess risks, identify abnormalities, and demonstrate normal findings and behaviors to parents).

Perform a neonatal physical examination and identify normal and abnormal findings related to:

1. Gestational age assessment and growth category (AGA, SGA, LGA)
2. Vital signs and measurements
3. General appearance and identification of anomalies
4. HEENT (red reflex, intact palate, short frenulum, caput, cephalohematoma)
5. Neck and clavicles
6. Neurologic system (symmetry, tone, reflexes, suck, behavioral state, head size and shape, spine)
7. Respiratory effort
8. Skin
9. Chest and breasts
10. Heart
11. Lungs
12. Abdomen (including umbilical cord)
13. Genitalia
14. Femoral and brachial pulses
15. Hips (Ortolani and Barlow maneuvers)
16. Extremities

Describe current standards for newborn screening, including:

1. National (AAP) recommendations for universal newborn hearing screening
2. State neonatal blood-screening program, including diseases screened for, timing, testing procedures and process for notification of abnormal results
3. Current recommendations for maternal Group B Streptococcus screening and the evaluation of exposed neonates
4. Appropriate use of other screening tests or protocols and their indications (e.g., blood type and Coombs, glucose, hematocrit)
5. Appropriate use of testing to identify prenatal exposure to substances of abuse

Communicate effectively with parents and family in a professional and caring manner that honors family values and enhances their parenting skills and confidence.

Provide anticipatory guidance and prevention counseling throughout hospital stay and at time of discharge, according to recommended guidelines (e.g., AAP, Bright Futures).

GOAL: Common Signs and Symptoms. Evaluate and appropriately treat or refer newborns with these commonly presenting signs and symptoms.

Recognize, describe clinical significance of, and develop a strategy to evaluate, manage and/or refer newborns with these common newborn signs and symptoms:

1. Large birth marks (mongolian spots, hemangiomas, port wine spots)
2. Rashes and markings secondary to birth trauma
3. Papular and pustular rashes (erythema toxicum, pustular melanosis, staph. Pustulosis, milia)
4. Peripheral and central cyanosis
5. High or low temperature
6. Tachypnea
7. Heart murmur-asymptomatic and symptomatic
8. Abdominal distension and masses
9. Two vessel umbilical cords
10. Abnormal findings on the Barlow or Ortolani
11. Swollen breasts
12. Vaginal bleeding
13. Subconjunctival hemorrhages
14. Corneal opacities or absent red reflex
15. Facial palsy
16. Fractured clavicle
17. Brachial plexus injury
18. Cephalohematoma or caput
19. Ear tags, pits
20. Palate abnormalities (cleft, submucous cleft)
21. Polydactyly
22. Syndactyly
23. Plethora
24. Pallor
25. Respiratory distress
26. Abnominal mass
27. Genitourinary abnormalities (ambiguous genitalia, hypospadius, undescended testicle)
28. Microcephaly
29. Macrocephaly
30. Sacral dimple, pit, hair tuft

GOAL: Common Conditions. Evaluate and appropriately treat or refer newborns with these commonly presenting conditions.

Recognize, describe clinical significance of, and develop a strategy to evaluate, manage and/or refer newborns with the following common newborn clinical situations:

1. Large and/or small for gestational age babies
2. Infant of a diabetic mother
3. Infant of substance abusing mother
4. Child with ABO/Rh incompatibility
5. Polycythemia
6. Premature/postmature infant
7. Jitteriness
8. Transient metabolic disturbances (hypoglycemia, etc.)
9. Delayed urination
10. Delayed stooling
11. Vomiting feeds/bilious emesis

12. Poor/delayed suck
13. Respiratory distress with feedings
14. Jaundice
15. Infant with risk factor for DDH (girl breech, +family hx)
16. Infant with abnormalities on prenatal ultrasound (pyelectasia, hydronephrosis, choroids plexus cyst)
17. Dysmorphic infant or infant with known chromosomal abnormality (e.g., Trisomy 21)
18. Multiple births (near and at term)
19. Eye discharge
20. Abnormal newborn hearing screen results
21. Infant born to a mother with a significant medical condition (lupus, seizure disorder, obstetrical condition such as HELLP syndrome)

Use and/or interpret clinical tests commonly used in Newborn Nursery setting, such as:

1. Physiologic monitoring (HR, RR, pulse oximetry, blood gas, doppler BP measurement)
2. Ballard exam for gestational age assessment, premature and term infant growth curves
3. CBC, ABO typing and Coombs testing, blood glucose/glucometer, bilirubin (serum and transcutaneous), maternal cord blood antibodies
4. Xray of chest, abdomen
5. Ultra sound of kidneys/bladder, head, hips, lower spine

Be familiar with common assessment tools and studies used by obstetricians to assess normal pregnancies and infant well-being close to term and during the labor and delivery process.

Discuss common post-delivery obstetrical issues that mothers face, and how these affect their recovery and ability to care for their newborn:

1. C-section delivery
2. Tubal ligation
3. Retention of placenta
4. Post-partum hemorrhage
5. Post-partum depression
6. Post-partum infections
7. Hypertension

Discuss care and communication issues for an infant being placed for adoption (including both birth and adoptive parents).

GOAL: Nutrition. Manage breast- and bottle-feeding in the newborn period.

Assess a newborn's nutritional status based on maternal medical and obstetrical history and infant's history (e.g., illness, feeding, stools, urination) and physical exam (e.g., weight expected for gestational age, subcutaneous fat, hydration, neurologic or oral/facial anomalies) and implement appropriate feeding plans.

Counsel parents about feeding choices and assess for potential risks/difficulties.

Encourage and support mothers who are breastfeeding.

Counsel and support mothers who are formula feeding.

Refer mothers to WIC and other resources for assistance with food purchase, nutrition education, and breastfeeding support equipment.

Recognize and manage these conditions:

1. Common problems for breastfeeding infants and mothers
2. Maternal use of medications that are transmitted via breast milk
3. Maternal infections and risk of transmission (Hepatitis B, Hepatitis C, HIV)
4. Preserving breastfeeding while managing jaundice
5. Newborn who is a poor feeder
6. Feeding plans for the SGA or premature infant

7. Feeding plans for the infant of a diabetic mother
8. Feeding plans for the infant with a cleft palate
9. Feeding plans for neurologically depressed/abnormal newborn

GOAL: Infections. Assess and manage common infections in the normal newborn nursery.

Identify common and important perinatal infections.

Radiology

Note:

The goals and objectives described in detail below are not meant to be completed in a single one month block rotation but are meant to be cumulative, culminating in a thorough and complete Pediatric Radiology experience at the end of residency.

Primary Goals for this Rotation

GOAL: Normal vs. Abnormal. Differentiate normal from abnormal features on radiographs.

1. Examine radiographs in a systematic manner.

2. Interpret radiographs accurately, recognizing the characteristic patterns by which physiologic and morphologic alterations are demonstrated.

3. Differentiate common normal variants and developmental features from pathologic conditions on plain radiographs.

GOAL: Interpreting Common Radiographs. Order and interpret radiographic studies in common and emergency conditions.

1. Request the radiographic study needed to clarify a clinical problem.

2. Communicate key patient information related to the radiographic study to the radiologist.

3. Manage patients effectively using radiographic information.

4. Interpret common findings on radiographs accurately. For example, identify the following features on commonly obtained radiographs:

1. Abdominal radiographs: abdominal masses, fecaliths, free intraperitoneal air, ileus, congenital and acquired intestinal obstruction, pneumatosis intestinalis, intraperitoneal and retroperitoneal calcifications
2. Chest radiographs: atelectasis, airspace and interstitial pulmonary disease, cardiomegaly, foreign bodies, abnormalities of lung volume pneumothorax, pleural fluid, tumors, abnormal pulmonary vascularity, vascular anomalies
3. Extremity radiographs: benign and malignant bone tumors, cysts, bone destruction, common fractures [Salter-Harris classification], common dislocations, osteomyelitis, arthritis, soft tissue swelling, foreign body
4. Lateral neck radiographs: adenoidal and tonsillar hypertrophy, epiglottic and glottic edema, foreign body, retropharyngeal abscess, subglottic narrowing--congenital and acquired, cervical spine abnormalities
5. Sinus radiographs: mucosal thickening, masses, air-fluid levels, bone destruction

6. Spine radiographs: vertebral dislocation and fracture, vertebral destruction, collapsed vertebra, disc space disease, segmentation anomalies, scoliosis

5. Develop a basic level of proficiency in identifying common abnormalities in these radiographic studies that pediatricians order in emergent or urgent situations:

1. Skeletal survey for suspected non-accidental trauma
2. Computer tomography of the head

GOAL: Advanced Imaging. Use appropriate imaging modalities in the diagnosis and management of pediatric patients.

1. Counsel families and patients regarding the basic indications for and risks and costs associated with specialized imaging such as the following:

1. Computed tomography (CT)
2. Contrast imaging: cystourethrography, barium esophagram, upper gastrointestinal series, small bowel follow through, contrast enema, angiogram, excretory urogram
3. Ultrasound
4. Nuclear medicine : Positron emission tomography (PET), Single photon emission computed tomography (SPECT)
5. Magnetic resonance imaging (MRI)

2. Use radiology consultation effectively for design of workup and diagnosis; provide key patient information to the radiologist and follow up as needed.

3. Consult the radiologist for interventional procedures where appropriate, such as:

1. Vascular intervention (angioplasty, thrombolysis, embolotherapy)
2. Venous intervention (central venous lines, peripherally inserted central lines, peripheral and central ports)
3. Abscess drainage
4. Percutaneous biopsies
5. Gastrostomy, gastrojejunostomy and cecostomy
6. Tracheal and esophageal intervention (esophageal dilatation, tracheobronchial stents)
7. Renal and hepatobiliary intervention (drainage catheters, stents)

4. Recognize the most suitable imaging study for evaluation of various disease conditions (e.g., bone scan vs. skeletal survey in suspected intentional trauma).

5. Conduct timely and appropriate follow-up of fetal ultrasonographic abnormalities.

GOAL: Pediatric Competencies in Brief. Demonstrate high standards of professional competence while working with patients undergoing radiology procedures.

Competency 1: Patient Care. Provide family-centered patient care that is development- and age-appropriate, compassionate, and effective for the treatment of health problems and the promotion of health.

1. Use a logical and appropriate clinical approach to the care of patients presenting for radiology procedures, applying principles of evidence-based decision-making and problem-solving.

2. Describe general indications for radiology procedures and interpret results for families.

Competency 2: Medical Knowledge. Understand the scope of established and evolving biomedical, clinical, epidemiological and social-behavioral knowledge needed by a pediatrician; demonstrate the ability to acquire, critically interpret and apply this knowledge in patient care.

1. Acquire, interpret and apply the knowledge appropriate for the generalist regarding the core content of radiology.

2. Critically evaluate current medical information and scientific evidence related to radiology and modify your knowledge base accordingly.

Competency 3: Interpersonal Skills and Communication. Demonstrate interpersonal and communication skills that result in information exchange and partnering with patients, their families and professional associates.
1. Provide effective patient education, including reassurance, for a condition(s) commonly presenting for radiology procedures.
2. Communicate effectively with primary care and other physicians, other health professionals, and health-related agencies to create and sustain information exchange and teamwork for patient care.
3. Maintain accurate, legible, timely and legally appropriate medical records, including referral forms and letters, for radiology patients in the outpatient and inpatient setting.
Competency 4: Practice-based Learning and Improvement. Demonstrate knowledge, skills and attitudes needed for continuous self-assessment, using scientific methods and evidence to investigate, evaluate, and improve one's patient care practice.
1. Identify standardized guidelines for diagnosis and treatment of conditions commonly requiring radiological intervention and adapt them to the individual needs of specific patients.
2. Identify personal learning needs related to radiology; systematically organize relevant information resources for future reference; and plan for continuing acquisition of knowledge and skills.
Competency 5: Professionalism. Demonstrate a commitment to carrying out professional responsibilities, adherence to ethical principles, and sensitivity to diversity.
1. Demonstrate personal accountability to the well-being of patients (e.g., following up on lab results, writing comprehensive notes, and seeking answers to patient care questions).
2. Demonstrate a commitment to carrying out professional responsibilities.
3. Adhere to ethical and legal principles, and be sensitive to diversity.
Competency 6: Systems-based Practice. Understand how to practice high-quality health care and advocate for patients within the context of the health care system.
1. Identify key aspects of health care systems as they apply radiology, including the referral process, and differentiate between consultation and referral.
2. Demonstrate sensitivity to the costs of clinical care as it relates to radiology procedures, and take steps to minimize costs without compromising quality
3. Recognize and advocate for families who need assistance to deal with systems complexities, such as the referral process, lack of insurance, multiple medication refills, multiple appointments with long transport times, or inconvenient hours of service.
4. Recognize one's limits and those of the system; take steps to avoid medical errors.

Rotation Specific Competencies

Patient Care:

1. Understands and weighs alternatives for diagnostic testing
2. Reasons well in ambiguous situations
3. Competently understands/performs/interprets procedures:
   - _____ Plain Films: Chest, Abdomen, Extremities
   - _____ CT Scan: Indications and Interpretation
   - _____ MRI: Indications and Interpretation
   - _____ Contrast Studies: Indications, Risks, Benefits

Medical Knowledge:

1. Is aware of indications, contraindications, and risks of commonly used contrast materials and procedures
2. Applies the basic and clinical science to the care of the patient

Interpersonal Skills and Communication:

1. Provides education and counseling to patients, families, and colleagues
2. Works effectively as a member of the health care team