



STANFORD UNIVERSITY MEDICAL CENTER
LUCILE PACKARD CHILDREN'S HOSPITAL
Department of Pediatric Radiology
725 Welch Road, Suite 150
Stanford, CA 94305



Pediatric Radiology Fellowship Application Procedure

The following materials and documents are required for a complete application file.

1. **Stanford Pediatric Radiology Fellowship Application** – available at http://pedrad.stanford.edu/education/clinical_fel.html Please consider including a recent photograph; the selection committee has found it helpful due to the lapse in time between interviews and final selection.
2. **Current CV**
3. **Personal statement**
4. **Three (3) letters of recommendation** – one from either the chairperson of your present department or the director of your residency program and two from additional faculty members in your department. **All letters should be addressed to Richard Barth, MD.** Letters will be accepted via email or by regular mail.
5. **Copy of medical school diploma**
6. **Copy of USMLE scores (Steps 1, 2, and 3)**
7. **Copy of medical school transcripts**
8. **Verification of an ACGME-accredited residency** – a letter from your program director or program coordinator verifying your good standing and expected graduation date in an ACGME-accredited program will be sufficient.
9. **Copy of ECFMG certificate** – if you are an international medical school graduate. Please note that Stanford Hospital and Clinics uses the J-1 visa program sponsored by the Educational Commission for Foreign Medical Graduates. Stanford does not sponsor H-1B visas for graduates of international medical schools.

All application materials should be sent by email or mailed to:

Molly Murphy
Pediatric Radiology Fellowship Coordinator
Department of Radiology
Stanford University School of Medicine
725 Welch Road, Rm 1667
Stanford, CA 94305-5913
mollym3@stanford.edu
(650) 723-8087

Your file will not be reviewed by the selection committee until we have received all the required materials. Upon review of your complete application file, you will be contacted if selected for an interview.



**LUCILE SALTER PACKARD CHILDREN'S HOSPITAL
and
STANFORD UNIVERSITY MEDICAL CENTER**

**Department of Radiology
725 Welch Road
Palo Alto, California 94304**

Application for Pediatric Radiology Fellowship: _____ To begin _____

Please append a copy of your curriculum vitae

Name in Full: _____
Last First Middle

Address: _____

Telephone: () _____ () _____
daytime evening

Date of Birth: _____ Citizenship: _____

College: _____ Major: _____ Year Completed: _____

Degree: _____ Advanced Studies: _____ Degree: _____

Medical School: _____ Degree and Date: _____

Class Standing: Known _____ If unknown, your impression:

Upper 10% _____ Upper 1/3 _____ Middle 1/3 _____ Lower 1/3 _____

Honors and Awards

College _____

Medical School _____

Residency _____

Other _____

List internship, residencies, or fellowships served, using a separate sheet to complete the list, if necessary. Give dates and names of schools and hospitals involved. If you have ever left a training position for any reason other than the expiration of the usual term, please state the reason.

American Board of Radiology status:

Eligible: _____ Certified: _____ Date: _____

Other Board Certification: Specify: _____ Date: _____

Any research experience: (Attach separate sheet, if necessary) Yes ____ No ____

If yes, what? _____

Publications: _____

States in which licensed: _____

National and State Board Exams: (give dates and numerical results)

Membership in scientific and professional organizations: _____

Present state of health: _____

Extra-curricular activities: _____

(You may staple a recent
2" x 3" photo of yourself
in this space, if you wish)

Signature

Date

Objective and Goals Guideline

The educational program in pediatric radiology shall meet training objective so that on completion of the program the resident is able to

1. Understand the developmental and acquired disease processes of the newborn, infant, child, and adolescent, which are basic to the practice of pediatric and adolescent medicine
2. Perform and interpret radiological and imaging studies of the pediatric patient.
3. Supervise and teach the elements of radiography and radiology as they pertain to infants and children.
4. Understand how to design and perform research (clinical, biomedical, educational, health service).
5. Five one year fellowship positions are currently available beginning July 1st. The position comprises 12 months of clinical rotation, with 1 research day per week. It is particularly suitable for residents interested in an academic career.
6. The advanced training program in pediatric radiology includes application and interpretation of roentgenography, computing tomography, ultrasonography, scintigraphy, magnetic resonance imaging, and fluoroscopy for the unique clinical/pathophysiologic problems of the newborn, infant, child, and adolescent. The training program is designed to build on the basis experience that the applicant in pediatric radiology has acquired during the diagnostic radiology residency.

Pediatric Radiology Fellowship Curriculum

Revised 11/2010ER

Our goal is to provide excellent clinical care and education in an environment of cohesiveness and cooperation. Therefore, every pediatric radiology service should check-in personally to the first floor at the completion of the workday and during slow periods to offer assistance. Everyone on service should complete the workday together.

The Cleveland Clinics Pediatric Radiology division has created an online site, which offers excellent interactive teaching modules by many nationally recognized experts in pediatric radiology. If this series was not completed during your residency, please utilize this excellent resource. If the series was already completed during your residency, you should check for additional modules, which have been created in the interim. Access the site at: <http://pediatricradiology.clevelandclinic.org>

Please use the above site to complete the following required modules in compliance with the ACGME mandated competencies and return the certificate of completion to Silvia Arriaga by January of your fellowship year:

- **Patient Care**
- **Professionalism**
- **Fluoroscopic Techniques**
- **Radiation Safety**

The RRC requires you to keep a log of cases performed in the subspecialty sections of Neuroradiology, Interventional Radiology and Nuclear Medicine. (The required minimum number of cases is noted below under each section heading.) Please use your Med-Hub site to log this information.

The ACGME requires submission of one scholarly work for presentation to a national meeting. We will hold a meeting early in the year in which the faculty will present their current and upcoming investigative projects. At this time, we hope to identify your area of research interest and to connect you with the appropriate mentor and project. The submission deadline for the SPR comes up quickly (November) and therefore, our goal is to connect you with a mentor or project or as soon as possible. The department will fund your attendance at the SPR.

The ACGME now mandates that objective goals and criteria be set for fellow training. Also required is the implementation of objective assessment methods including assessment in the areas of the “6 competencies”. To this end, the following educational curriculum has been devised.

ROTATION: NICU/PICU

A. Goal and performance objectives:

To become proficient in the interpretation of newborn and intensive care examinations.

- You should load current unread studies for the NICU, PICU, and cardiovascular patients with their comparison studies and preview cases
- Cases will be reviewed with the attending radiologist and then dictated
- Pertinent findings will be relayed to the appropriate team
- You will be shown the correct method for neonatal head imaging by the portable ultrasound technologist and will perform at least 10 cranial ultrasound studies under their direct supervision.
- You will then review the above studies with the attending radiologist
- You will be expected to discuss and perform a head ultrasound with a supervising radiologist in attendance
- Present the weeks' interesting cases at Interesting Case Conference

Graduated responsibility by the end of the fellowship:

- a) During this rotation you should progressively present the working conference to the ICU teams*
- b) To teach medical student or residents (if present during your rotation) under the supervision of the attending.*
- c) To be able to perform independently ultrasounds in the NICU (head and abdomen)*

Medical Knowledge Objectives:

- Access (<http://pediatricradiology.clevelandclinic.org>) and complete web-based curriculum on:

- Neonatal chest
- Necrotizing enterocolitis
- Newborn low intestinal obstruction
- Esophageal atresia
- Congenital duodenal obstruction
- Omphalocele, Gastroschisis, CDH
- Lines and catheters
- Jejunal and ileal stenosis/atresia
- Pneumoperitoneum
- Newborn cranial ultrasound

- Attend all didactic and case conferences related to:
 - Head Ultrasound
 - Neonatal Gastrointestinal Disease

Congenital Cardiac Disease
Neonatal Chest Disease
Infection / Inflammation of the Lung

- Read the following chapters from: Pediatric Sonography by Marilyn Siegel:

Physical Principals
Ultrasound Artifacts
Brain

- Read the following chapters in: Donnelly's Diagnostic Imaging: Pediatrics:

Section 2: Chest
Section 3: Cardiac

Patient Care Objectives:

- Understand plain radiographs obtained in the newborn and ICU settings with particular attention to:
 - o Correct placement of supportive lines and tubes
 - o Recognition of emergent conditions and their unique imaging appearance in children including pneumothorax, pneumomediastinum and pneumoperitoneum.
- Identify incorrectly placed supportive equipment and recognize the related complications
- Independently perform head ultrasound on newborn infants
- Interpret head ultrasound examinations with understanding of the unique pathophysiology of disease of the mature and premature infant

Interpersonal / Communication Objectives:

- Lead working conferences with NICU, PICU, and Cardiovascular clinical services
- Lead imaging portion of the Friday noon Perinatal Conference
- Discuss radiation safety issues as they relate to adequate positioning and coning
- Communication with patients and families

Professionalism Objectives:

- Practice sensitive methods for answering parent questions
- Act as radiologist consultant for neonatal / ICU services
- Completion of Pediatric Radiology Online Teaching Module: "Professionalism" (<https://www.cchs.net/pediatricradiology/>)
- Series on professional development by Dr. Moskowitz

- Generation of clear oral and written reports of diagnostic findings with focus on accuracy and expediency

Practice-based Learning Objectives:

- To learn to utilize available information technology to access patients history and management to provide the best radiological diagnosis
- To integrate the clinical information from the working conferences with NICU, PICU, and Cardiovascular clinical services to the radiological diagnosis
- Review of recent cases at weekly “Interesting Case Conference” with focus on improving patient care and departmental processes as well as reviewing recent literature

Systems-based Practice Objectives:

- To integrate the clinical information provided by the clinical colleagues on the requisition forms to provide the best diagnostic differentials
- Recommend appropriate studies for further evaluation of the patients
- Review of literature regarding use of competing imaging options for specific clinical scenarios at the weekly “Interesting Case Conference” and “Hot Topics” conference

B. Evaluation Methods:

- Oversight of all studies and review of interpretations by Pediatric Radiology Faculty
- Portfolio: Log attendance for all lectures on Med Hub. Show proof of any online modules completed by providing “completed courses” page from the Cleveland Clinics site when requested. Log any procedures completed.
- Global Rating Forms: assessment forms provided to MD (faculty, residents, medical students) and non-MD staff (technologists, nurses).
- Oversight of case discussion by Pediatric Radiology Faculty
- Pediatric Radiology in-service written / oral examination
- Participation and presentation of conferences with clinicians

ROTATION: PEDIATRIC FLUOROSCOPY, ULTRASONOGRAPHY AND OUTPATIENT RADIOGRAPHY

A. Goal and performance objectives

To develop the professional and technical skills necessary to provide quality ultrasonographic and fluoroscopic imaging in pediatric patients.

Required minimum number of procedures performed:

- **Fluoroscopy: 300**
- **Ultrasound: 300**

- Load current unread outpatient plain radiographs as they are obtained throughout the day. Studies should be loaded with their comparison studies and previewed before reviewing with the attending radiologist if possible.

- Cases should then be dictated
- Pertinent findings will be relayed to the appropriate team

- You will learn the correct method of performing an ultrasound exam by the ultrasound technologist or staff. The fellow will perform as many examinations as possible under the technologist or staff direct supervision
- Review the above studies with the attending radiologist, dictate studies and relay pertinent findings
- Discuss and perform spine, hip, and pyloric ultrasound with a supervising radiologist in attendance

- You will be shown the correct method for performing fluoroscopic studies in the pediatric patient.
- You will then perform fluoroscopic studies independently for review with the attending radiologist.
- Keep track of interesting fluoroscopic, ultrasound, and plain film cases for the weekly interesting case conference

Graduated responsibility by the end of the fellowship:

- a) Independently perform fluoroscopic procedures, including catheterization of the patients and tubes placement in presence of supervising attending*
- b) Be able to explain the procedure to the child and family, give oral and written consent*
- c) Teach residents the fluoroscopic procedures and patient care under the supervision of an attending*

Medical Knowledge Objectives:

- Access (<http://pediatricradiology.clevelandclinic.org>) and take web-based curriculum on:

- Airway disorders
- Childhood pneumonia
- Hypertrophic pyloric stenosis
- Intussusception
- Malrotation and midgut volvulus
- Appendicitis
- Testicular torsion
- Septic arthritis
- Childhood fractures
- Child abuse: non-cerebral
- Lymphoma/leukemia
- Esophageal atresia
- Esophageal foreign body
- GE reflux
- UPJ obstruction
- Duplication of collecting systems
- Multisystic dysplastic kidney
- Vesicoureteral reflux
- Posterior urethral valves
- Testicular neoplasms
- Developmental dysplasia of the hip
- SCFE
- Legg Perthes disease
- LCH
- Rickets
- Skeletal dysplasias
- Clubfoot
- Spine: sacral dimple

- Attend all didactic and case conferences related to:

- Imaging of pediatric GI tract
- Imaging of pediatric GU tract
- Imaging of the pediatric skeleton
- Childhood chest and airway disease
- Pediatric ultrasound

- Read chapters from Pediatric Sonography by Marilyn Siegel as pertain to cases seen on service with special attention to GI, GU, and Musculoskeletal sections

- Read the following chapters in Donnelly's Diagnostic Imaging: Pediatrics:

Section 1: Airway

Section 4: Gastrointestinal (pp 4-2 to 4-81)

Section 5: Genitourinary (pp 5-2 to 5-49 and 5-90 to 5-119)

Section 6: Musculoskeletal (pp6-2 to 6-41 and 6-74 to end)

Patient Care Objectives:

- Interpret plain radiographs obtained in the outpatient setting with particular attention to:
 - o Recognition of traumatic musculoskeletal injuries including child abuse
 - o Recognition of acute infectious processes including pneumonia
- Understand the appropriate use and limitations for ultrasound and fluoroscopy in children
- Independently perform ultrasound examinations in children (as outlined in the protocol manual) including: renal transplant, hepatic transplant, pylorus, intussusception, appendix, spine and hip ultrasound
- Independently perform fluoroscopic procedures in children (as outlined in the protocol manual)
- Interpret ultrasound and fluoroscopic examinations with understanding of the unique pathophysiology of disease in infants and children
- Discuss ultrasound physics and radiation safety issues

Interpersonal / Communication Objectives:

- Provide preliminary reading on plain films, fluoroscopic studies and ultrasound to referring clinicians
- Discuss radiation safety issues as they relate to adequate positioning and coning
- Discuss the imaging protocols and procedures with the patients and families
- Management of children and parents in situation of stress due to radiological procedures
- Conduct conferences for clinicians (surgery, urology, nephrology, gastroenterology and general pediatrics)

Professionalism Objectives:

- Be able to explain procedures to families in a professional manner
- Practice sensitive methods for answering parent questions and relaying results
- Act as radiologist consultant for fluoroscopy and ultrasound services

Practice-based Learning Objectives:

- To learn to utilize available information technology to access patients history and management to provide the best radiological diagnosis
- To integrate the clinical information from the clinical patients history to the radiological diagnosis
- Review of recent cases at weekly “Interesting Case Conference” with focus on improving patient care and departmental processes as well as reviewing recent literature.

Systems-based Practice Objectives:

- Completion of Pediatric Radiology Online Teaching Module: “Radiation Safety” (<https://www.cchs.net/pediatricradiology/>)
- Discussion of the importance of radiation reduction techniques in both case-based and didactic conferences
- Review of literature regarding use of competing imaging options for specific clinical scenarios at the weekly “Interesting Case Conference” and “Hot Topics” conference
- To learn proper terminology for radiology reporting related to insurance and billing

B. Evaluation Methods:

- Oversight of all studies and review of interpretations by Pediatric Radiology Faculty
- Portfolio: Log attendance for all lectures on Med Hub. Show proof of any online modules completed by providing “completed courses” page from the Cleveland Clinics site when requested. Log any procedures completed.
- Global Rating Forms: assessment forms provided to MD (faculty, residents, medical students) and non-MD staff (technologists, nurses).
- Pediatric Radiology in-service written / oral examination
- Participation and presentation of conferences with clinicians

ROTATION: BODY CT & MRI

A. Goal and performance objectives:

To develop skill in cross-sectional imaging of pediatric patients. Required minimum number of procedures performed:

- Body imaging (CT/MRI): 200

- Check the days schedule on arrival to the department and review protocols for the day's studies. Any questions will be addressed to the clinical service and to the CT/MRI attending
- Protocol all studies that are waiting scheduling
- Load current unread CT and MRI studies with their comparison studies and preview cases
- Check cases for completeness before patients are released
- Cases will be previewed using prior studies for comparison and then reviewed with the attending radiologist
- Studies will be dictated and pertinent findings will be relayed to the appropriate team
- Enter interesting cases into file on PACS for weekly interesting case conference

Graduated responsibility by the end of the fellowship:

- a) Independently protocol the CT /MRI examinations, adapt the protocols radiation doses to the individual needs of patients*
- b) Teach residents and medical students under the supervision of an attending*
- c) Discuss the findings with clinical colleagues*

Medical Knowledge Objectives:

- Access (<http://pediatricradiology.clevelandclinic.org>) and take web-based curriculum on:

- Cardiac disease: all 5 modules
- Bronchopulmonary foregut malformation
- Mediastinal masses
- Sickle cell disease
- Wilms and other renal tumors
- Neuroblastoma, Ganglioneuroma
- Osteomyelitis
- Ewing sarcoma
- Osteogenic sarcoma

- Attend lectures on:
 - Abdominal and Pelvic Masses

- Read the following chapters in Donnelly's Diagnostic Imaging:
Pediatrics:
 - Section 4: Gastrointestinal (pp 4-82 to end)
 - Section 5: Genitourinary (pp 5-50 to 5-89 and 5-118 to end)
 - Section 6: Musculoskeletal (pp 6-42 to 6-73)

- Read Musculoskeletal MRI by Kaplan and Helms with particular attention to chapters on:
 - Marrow
 - Infection
 - Tumors
 - Trauma
 - Knee
 - Hip

Patient Care Objectives:

- Understand the appropriate indications for use of CT vs. MRI (vs. other imaging modalities) in children
- Protocol CT scans with particular understanding of the radiation risks and methods for decreasing dose
- Interpret CT scans in pediatric patients with understanding of the unique disease processes in children
- Protocol MRI studies in children as outlined in the protocol manual with focus on customizing and streamlining the procedure
- Interpret MRI studies in children with understanding of the unique disease processes in children

Interpersonal / Communication Objectives:

- Communication with patients and families
- Develop confident discussion with clinical colleagues on the appropriate diagnostic modalities, protocols in the setting of patient requirements and radiation risks
- Act as radiologist consultant for CT / MRI services
- Conduct conferences for clinicians (surgery, urology, nephrology, gastroenterology and general pediatrics)

Professionalism Objectives:

- Practice sensitive methods for answering parent questions
- Consultant to referring services.
- Generation of clear oral and written reports of diagnostic findings with focus on accuracy and expediency

Practice-based Learning Objectives:

- To learn to utilize available information technology to access patients history and management to provide the best radiological diagnosis
- To integrate the clinical information from the clinical patients history to the radiological diagnosis
- Review of recent cases at weekly “Interesting Case Conference” with focus on improving patient care and departmental processes as well as reviewing recent literature

Systems-based Practice Objectives:

- To integrate the clinical information provided by the clinical colleagues on the requisition forms and in the clinical reports to provide the best diagnostic differentials
- Recommend appropriate studies for further evaluation of the patients
- Review of literature regarding use of competing imaging options for specific clinical scenarios at the weekly “Interesting Case Conference” and “Hot Topics” conference

B. Evaluation Methods:

- Oversight of all studies and review of interpretations by Pediatric Radiology Faculty
- Portfolio: Log attendance for all lectures on Med Hub. Show proof of any online modules completed by providing “completed courses” page from the Cleveland Clinics site when requested. Log any procedures completed.
- Global Rating Forms: assessment forms provided to MD (faculty, residents, medical students) and non-MD staff (technologists, nurses).
- Pediatric Radiology in-service written / oral examination
- Participation and presentation of conferences with clinicians

ROTATION: PEDIATRIC NEURORADIOLOGY

A. Goal and performance objectives

To develop skill in the performance, interpretation and reporting of pediatric neuroradiology cases.

Required minimum number of procedures performed:

- **Neuroimaging studies: 200**

Performance objectives:

- Check the days schedule on arrival to the department and review protocols for the day studies. Any questions will be addressed to the clinical service and to the neuroradiology attending
- Protocol studies pending scheduling
- Load current unread CT and MRI studies with their comparison studies and preview cases
- Check cases for completeness before patients are released
- Cases will be previewed using prior studies for comparison and then reviewed with the attending radiologist
- Studies will be dictated and pertinent findings will be relayed to the appropriate team

Graduated responsibility by the end of the fellowship:

- Independently protocol the CT /MRI examinations, adapt the protocols radiation doses to the individual needs of patients*
- Teach residents and medical students under the supervision of an attending*
- Discuss the findings with clinical colleagues*

Medical Knowledge Objectives:

- Access (<http://pediatricradiology.clevelandclinic.org>) and take web-based curriculum on:
 - The orbit
 - Child abuse: cerebral trauma
 - Temporal bone
 - Congenital abnormalities of the face
 - Bacterial infections of the brain
 - TORCH
 - Malformations of cortical development
 - Chiari malformations
 - Dandy Walker

The holoprosencephalies
Hydrocephalus
Supratentorial Brain tumors
Posterior fossa tumors
Pediatric neck masses

- Attend weekly neuroradiology (Tues am), pediatric neuroncology (Mon am), pediatric neurology (Tues am), pediatric neurosurgery (Tues am) conferences while on service.

- Read the following chapters in Donnelly's Diagnostic Imaging:
Pediatrics:

Section 7: Neuro

Patient Care Objectives:

- Protocol, monitor, and interpret brain, spine, and head and neck imaging of the neonate, infant, juvenile, and adolescent. Imaging modalities include Ultrasound, Computed Tomography, and Magnetic Resonance Imaging.

Interpersonal / Communication Objectives:

- Communication with patients and families
- Develop confident discussion with clinical colleagues on the appropriate diagnostic modalities, protocols in the setting of patient requirements and radiation risks
- Act as radiologist consultant for neuro CT / MRI services

Professionalism Objectives:

- Practice sensitive methods for answering parent questions
- Act as radiologist consultant for neuro-CT / MRI services

Practice-based Learning Objectives:

- To learn to utilize available information technology to access patients history and management to provide the best radiological diagnosis
- To integrate the clinical information from the clinical patients history to the radiological diagnosis

Systems-based Practice Objectives:

- To integrate the clinical information provided by the clinical colleagues on the requisition forms and in the clinical reports to provide the best diagnostic differentials
- Recommend appropriate studies for further evaluation of the patients
- Review of literature regarding use of competing imaging options for specific clinical scenarios at the weekly neurological conferences

B. Evaluation Methods:

- Oversight of all studies and review of interpretations by Pediatric Radiology Faculty
- Portfolio: Log attendance for all lectures on Med Hub. Show proof of any online modules completed by providing “completed courses” page from the Cleveland Clinics site when requested. Log any procedures completed.
- Global Rating Forms: assessment forms provided to MD (faculty, residents, medical students) and non-MD staff (technologists, nurses).
- Pediatric Radiology in-service written / oral examination

ROTATION: FETAL IMAGING / CVI

A. Goal and performance objectives:

To become proficient in the interpretation of fetal ultrasound, fetal MRI and pediatric cardiac imaging.

Fetal Imaging

- On Mondays AM, Tuesdays and Wednesdays, you should work in the Perinatal Diagnostic Center (3rd floor LPCH)
- You should scan the patients coming for fetal Ultrasound
- You will become familiar with the imaging requirements of first trimester ultrasound screening (NT measures)
- You will become familiar with the second anatomy scan
- You will scan the patients under the attending supervision
- You will be expected to discuss the abnormal findings with the attending
- You will be expected to become familiar with the congenital anomalies of fetuses that should be diagnosed in utero
- You will be expected to protocol the fetal MRI
- You will learn how to consent pregnant patients for fetal MRI
- You will interpret fetal MRI under the supervision of the attending
- You will learn to discuss the findings with the obstetricians

Graduated responsibility by the end of the fellowship:

- a) Independently scan patients for first trimester screening (nuchal translucency) and second trimester anatomy scan (under the supervision of an attending)*
- b) Be able to discuss the fetal MRI procedure with the patient and consent the patients for the procedure*
- c) Independently protocol and check fetal MRI studies before the patient is released*

Cardiac imaging

- On Mondays PM, Thursdays and Fridays you will work with the CVI attending (CT/MRI)
- Check the days schedule on arrival to the department and review protocols for the days studies
- Load current unread CT and MRI studies with their comparison studies and preview cases
- Cases will be previewed using prior studies for comparison and then reviewed with the attending radiologist
- Studies will be dictated and pertinent findings will be relayed to the appropriate team

Graduated responsibility by the end of the fellowship:

- a) Independently protocol CVI (CT and MRI) studies and check images for quality*
- b) Be able to discuss independently the findings with the clinical teams*

Medical Knowledge Objectives:

- Access (<http://pediatricradiology.clevelandclinic.org>) and complete web-based curriculum on:

- Acyanotic Congenital Heart Disease
- Coarctation of the Aorta and Hypoplastic Left Heart
- Cyanotic Congenital Heart Disease

- Attend all didactic and case conferences related to:

Fetal Imaging

- Fetal ultrasound
- Fetal MRI
- Congenital fetal abnormalities
- Fetal GU and GU system
- Congenital lung masses

CVI

- Lecture series on Cardiac imaging

- Read the following chapters from:

Fetal Imaging

Author: Callen – Book: Ultrasound in Obstetrics and Gynecology

- Fetal chromosome disorders
- Ultrasound evaluation during the first trimester
- Ultrasound evaluation of multiple gestations
- Sonographic anatomy of the normal fetus
- Sonographic evaluation of the umbilical cord and placenta
- Ultrasound evaluation of the fetal heart

CVI

Author Donnelly – Book: Diagnostic Imaging Pediatrics

- Cardiac Imaging

Patient Care Objectives:

Fetal Imaging

- Interpret fetal ultrasound and MRI examinations with understanding normal fetal development, and the complex spectrum of prenatal presentation of congenital abnormalities
- Understand and appropriately manage the patients pre and postnatal follow up

CVI

- Interpret cardiac and CT studies in patient with complex cardiac diseases

Interpersonal / Communication Objectives:

- Lead imaging portion of the Monday morning Fetal Conference
- Communication and consent of families for fetal imaging and cardiac studies
- Communication of the findings and diagnosis with referring doctors and teams

Professionalism Objectives:

- Practice sensitive methods for answering parent questions
- Completion of Pediatric Radiology Online Teaching Module: “ Professionalism” (<https://www.cchs.net/pediatricradiology/>)
- Generation of clear oral and written reports of diagnostic findings with focus on accuracy and expediency

Practice-based Learning Objectives:

- To learn to utilize available information technology to access patients history and management to provide the best radiological diagnosis
- To integrate the clinical information from the working conferences with Fetal and Cardiovascular clinical services to the radiological diagnosis
- Review of recent cases at weekly “Interesting Case Conference” with focus on improving patient care and departmental processes as well as reviewing recent literature

Systems-based Practice Objectives:

- To integrate the clinical information provided by the clinical colleagues on the requisition forms to provide the best diagnostic differentials
- Recommend appropriate studies for further evaluation of the patients
- Review of literature regarding use of competing imaging options for specific clinical scenarios at the weekly “Interesting Case Conference”

B. Evaluation Methods:

- Oversight of all studies and review of interpretations by Pediatric Radiology Faculty
- Portfolio: Log attendance for all lectures on Med Hub. Show proof of any online modules completed by providing “completed courses” page from the Cleveland Clinics site when requested. Log any procedures completed.
- Global Rating Forms: assessment forms provided to MD (faculty, residents, medical students) and non-MD staff (technologists, nurses).
- Oversight of case discussion by Pediatric Radiology Faculty
- Participation and presentation of conferences with clinicians

ROTATION: NUCLEAR MEDICINE

A. Goal and performance related objectives

To develop skill in nuclear medicine imaging of pediatric patients including PET-CT.

Required minimum number of procedures performed:

- **Pediatric nuclear medicine: 50**

- Check the days schedule on arrival to the department and review protocols for the day's studies. Any questions will be addressed to the clinical service and to the attending nuclear medicine physician
- Protocol studies pending scheduling
- Check cases for completeness before patients are released
- Cases will be previewed using prior studies for comparison and then reviewed with the attending nuclear medicine physician
- Studies will be dictated and pertinent findings will be relayed to the appropriate team

Medical Knowledge Objectives:

- Attend all nuclear medicine lectures which pertain to pediatrics
- Read chapters assigned by Nuclear Medicine division

Patient Care Objectives:

- Understand the appropriate indications for use of nuclear medicine imaging in children
- Protocol nuclear medicine studies for pediatric patients
- Interpret nuclear medicine studies in pediatric patients with understanding of the unique disease processes in children

Interpersonal / Communication Objectives:

- Practice sensitive methods for answering parent questions
- Act as radiologist consultant for nuclear medicine service

Professionalism Objectives:

- Practice sensitive methods for answering parent questions
- Act as radiologist consultant for the nuclear medicine service

Practice-based Learning Objectives:

- To learn to utilize available information technology to access patients history and management to provide the best radiological diagnosis
- To integrate the clinical information from the clinical patients history to the radiological diagnosis

Systems-based Practice Objectives:

- To integrate the clinical information provided by the clinical colleagues on the requisition forms and in the clinical reports to provide the best diagnostic differentials
- Recommend appropriate studies for further evaluation of the patients
- Review of literature regarding use of competing imaging options for specific clinical scenarios

B. Evaluation Methods:

- Oversight of all studies and review of interpretations by Pediatric Radiology Faculty
- Portfolio: Log attendance for all lectures on Med Hub. Show proof of any online modules completed by providing “completed courses” page from the Cleveland Clinics site when requested. Log any procedures completed.
- Global Rating Forms: assessment forms provided to MD (faculty, residents, medical students) and non-MD staff (technologists, nurses).
- Pediatric Radiology in-service written / oral examination

ROTATION: INTERVENTIONAL RADIOLOGY

A. Goal and performance objectives:

To develop skill in performing interventional and angiographic procedures in Pediatric patients.

Required minimum number of procedures performed:

- **Vascular/interventional: 25**
- Review indications for all requested exams. You should then review the patient's prior clinical notes and imaging studies and speak to the referring service. Any questions will be addressed to the vascular/IR attending
- Participate in the procedural examination as well as pre- and post-procedure care
- Studies will be dictated and pertinent findings will be relayed to the appropriate team

Medical Knowledge Objectives:

- Attend any vascular/interventional radiology lectures, which pertain to pediatric patients throughout the year. Attend all interventional radiology lectures and conferences while on service.
- Read selections assigned by the vascular/interventional radiology service

Patient Care Objectives:

- Understand the appropriate indications for use of interventional and conventional angiographic procedures in children
- Perform procedures with particular understanding of the radiation risks and methods for decreasing dose
- Interpret studies in pediatric patients with understanding of the unique disease processes in children

Interpersonal / Communication Objectives:

- Practice sensitive methods for answering parent questions
- Develop and maintain professional relationship with primary care physicians and referring doctors. Provide follow up on procedures and patient status to these physicians
- Act as consultant doctor for evaluation of diseases and treatment by interventional radiology

Professionalism Objectives:

- Practice sensitive methods for answering parent questions
- Act as radiologist consultant for vascular/ IR services
- Perform all patient care duties as specified by the vascular/IR service

Practice-based Learning Objectives:

- To learn to utilize available information technology to access patients history and management to provide the best radiological diagnosis
- To integrate the clinical information from the clinical patients history to the radiological diagnosis

Systems-based Practice Objectives:

- To integrate the clinical information provided by the clinical colleagues on the requisition forms and in the clinical reports to provide the best diagnostic differentials
- Recommend appropriate studies for further evaluation of the patients
- Review of literature regarding use of competing imaging options for specific clinical scenarios

B. Evaluation Methods:

- Oversight of all studies and review of interpretations by Pediatric Radiology Faculty
- Portfolio: Log attendance for all lectures on Med Hub. Show proof of any online modules completed by providing “completed courses” page from the Cleveland Clinics site when requested. Log any procedures completed.
- Global Rating Forms: assessment forms provided to MD (faculty, residents, medical students) and non-MD staff (technologists, nurses).
- Pediatric Radiology In-service written / oral examination

FELLOW ON-CALL

Goal: To gain experience in triage, protocol, performance, and interpretation of on-call studies.

Night call service

You will supervise on-call pediatric cases performed from:

- The emergency department of Stanford University Hospital
- Inpatient and afterhours cases at LPCH

You will act as second-call for the in-house residents and take call on pager from home. You should act as consultant and supervisor for in-house residents on pediatric after-hours cases and should provide hands-on oversight for the following:

- All fluoroscopic procedures (intussusception reduction, malrotation, etc.)
- All ultrasonographic studies (appendicitis, renal and hepatic transplant, pyloric stenosis, testicular and ovarian torsion, etc.)
- All CT and MRI studies performed emergently after hours
- Any plain radiographic case that requires assistance for interpretation

NOTE: Any imaging study that will result in an operative decision must be reviewed by a fellow or attending prior to surgery.

The fellow always has attending back-up coverage. Pager can reach attending pediatric radiologists. (See posted schedule.) The fellow will have graded responsibility over the course of the year with increased autonomy as the year progresses.

Call coverage runs for one week (from Monday to Monday). The fellow will cover call by pager on weeknights beginning at 5:00 pm.

Weekend call service

Weekend coverage requires prior discussion of meeting time with the faculty for Saturday and Sunday read-outs. The fellow is responsible for read-out of all overnight Ultrasound, CT, MRI, ED and plain radiographs with the attending radiologist. Cases will be divided with the resident on weekend call as determined by the attending radiologist. Our goal is to have everyone complete the workday at the same time.

RESEARCH

You are required to participate in the monthly **Research Forum** (Tuesday noon). It is expected that through this meeting, you will be exposed to current Pediatric Radiology research projects within our institution and that you will choose at least one project to become involved in.

The first **Research Forum** of the year is organized for the fellows. Faculty members will give a short presentation on their research activities with the potential research projects that could be completed within the academic year of your fellowship.

The ACGME requires you to “submit a presentation to a national meeting” during your fellowship year. Because submission deadlines come quickly (SPR deadline is in November) you should connect with a mentor and begin a project early in the year.

Research time will be provided to each fellow depending on his particular interest and investigational commitment. You or your mentor should contact Dr. Rubesova with your specific request for academic time.

CONFERENCES

Responsibility for presentation of conferences will be assigned to a particular fellow (as listed on the monthly schedule) but all fellows are expected to attend all clinical and teaching conferences.

A. CLINICAL CONFERENCES

You will be responsible for organizing and presenting radiological studies (with the attending listed) at the following conferences:

- 1) Weekly Tumor Board: Tuesday 5:00 pm in LPCH boardroom (CT attending)
- 2) Weekly Perinatal Conference: Friday noon in LPCH boardroom (the resident or fellow on NICU covers this conference with the NICU attending)
- 3) 3 times monthly Surgery-Radiology rounds: 3 Wednesdays of the month at 7:30 am in Parker conference room.
- 4) Urology-Nephrology-Radiology rounds: Friday afternoon, exact location and time TBA. (Dr. Barth)
- 5) Vascular Anomalies Clinic: 2nd Wed of the month at 1:00 in Parker conference room (Dr. Vasawala).
- 6) Fetal Conference: Every second and fourth Monday 7:00am in LPCH boardroom or surgery conference room (Dr Barth and Dr Rubesova)

B. RADIOLOGY TEACHING CONFERENCES

You are expected to collect interesting cases while on service to present at the following conferences:

- 1) Pediatric Radiology Interesting Case Conference (Wednesday noon). These cases should be
 - a. Classic cases or an obvious single diagnosis or
 - b. Pathologically proven

The goal of this conference is to demonstrate as many of the previous week's interesting cases as possible.

In addition to presenting the images, you will be expected to provide a short summary of key points or review of the literature addressing a challenging or controversial aspect of the case in a brief power point presentation. Please provide at least one current reference.

- 2) Fellow conference (twice a month- Monday noon)

This conference is designated to the fellows and is given by an attending or invited speaker. The aim of the conference is to discuss "hot topics" in pediatric

radiology, provide more advanced lectures on MRI protocols, and topics related to the organization of a pediatric radiology department.

If you would like to have some special topic discussed during this lecture, please contact the Program Director with your request.

The fellow conference may be also replaced by a *journal club*. The papers related to the journal club will be distributed few weeks in advance and followed by a one-hour discussion.

PEDIATRIC RADIOLOGY LECTURE SERIES

You are expected to attend the (usually presented Thursday at noon in the Lucas Extension conference room. You should also check the resident lecture schedule and attend as many other conferences as possible.

Each fellow will be responsible for organizing and presenting at least **two didactic lectures** (on topics discussed with the program director) **to the radiology residents** during the second half of the year.

MEETINGS

You are expected to submit a presentation to a national meeting. You should plan to submit to the SPR meeting if possible. This is a fun meeting! If your abstract or poster is accepted, you will be given time-off to attend the meeting and the department will pay your expenses.

FELLOWS DEPARTMENTAL POLICIES

Duty Hours Policy

Call coverage adheres to the guidelines set out by the ACGME with duty hour's policy as follows:

- 1) The trainee will perform no more than 80 duty hours per week. The average workday begins at 8:30 am and ends at 6:00 pm Monday through Friday.
- 2) The trainee performs call for a one-week period (Monday pm through Monday am) on average once every four weeks. This call period involves:
 - a. Weeknights call on pager from home.
 - b. Weekend in-house coverage averaging 4 hours per morning.
 - c. Weekend after-hours coverage on pager from home.The above call schedule therefore meets the following provisions:
 - d. One day in seven off service averaged over 4 weeks.
 - e. At least 10 hours off between duty hours.
 - f. Less than q 3day in-house call.
- 3) The trainee can participate in internal or external moonlighting at the discretion of the program director to ensure that this activity does not interfere with the educational goals of the program and does not conflict with the duty hour's policy. All residents engaged in moonlighting must be licensed for unsupervised medical practice in California or the state in which the moonlighting occurs. Stanford's malpractice insurance will not cover residents for moonlighting activities. Residents must obtain written acknowledgement that the program director is aware and approves of any moonlighting activities before any moonlighting activity is undertaken. A copy of the written acknowledgement will be kept in the residents file. The program director has the discretion to decline to approve moonlighting activities if he/she believes that such activities will interfere with the resident's training progress or for other legitimate reasons. Any/all moonlighting at Stanford Hospital and Clinics and Lucile Packard Children's Hospital must have prior approval of the Graduate Medical Education Committee.

Time away policy:

You are allotted 3 weeks (15 days) of vacation time over your 12-month fellowship. Please submit vacation requests (using our internal form and MedHub) in writing to Silvia Arriaga and Dr. Rubesova. Non-emergent time away requests must be received 30 days prior to the requested time off and must be signed off by Dr. Rubesova. Time away for job interviews is allotted from vacation time.

You are allowed 4 weeks of sick leave.

One week of conference/meeting time is allowed and will be arranged on an individual basis.

A leave of absence may be granted for defined circumstances. Please visit http://gme.stanford.edu/policy/04_other_benefits.html for the institutional policy. Consultation with Drs. Barth or Rubesova is required for any leave of absence to ensure that fellowship and subspecialty Certificate for Added Qualification (CAQ) requirements are met.

For additional information, view the hospital trainee policy at this address: <http://www.stanfordhospital.com/forPhysiciansOthers/others/residents/default> Click on “house staff policies and procedures”.

Report Signing

Reports are usually available for signing within 4 hours of dictation. Our goal is to have trainee reports signed within 12 hours so that finalization can occur within 24 hours. Please sign reports before leaving the hospital each day.

Supervisory Lines of Responsibility

Fellow supervision will reflect graduated levels of responsibility based on individual skill and level of training.

All imaging examinations dictated by the pediatric radiology fellow must be reviewed and co-signed by an attending radiologist.

An attending radiologist must directly supervise all interventional procedures performed by the pediatric radiology fellow.

Please sign and return the following receipt of these policies.

Receipt of Duty Hours Policy & Supervisory Lines of Responsibility Document

I, the Pediatric Radiology Fellow, have received the documents *Pediatric Radiology Duty Hours Policy and Supervisory Lines of Responsibility* within the *Fellowship Curriculum*. I will abide by the provisions and report any breach in policy directly to the chief of Pediatric Radiology.

Signed,

Signature

Date

Printed Name