HEALTH
UNIVERSITY OF UTAH

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Pediatric Cardiology 7140 Syllabus

Contact Information

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Course Information

Brief Description of Course

This is a 4-week rotation for a third or fourth-year medical student that incorporates an inpatient and outpatient pediatric cardiology experience. Students will be exposed to all aspects of the field including echocardiography, electrophysiology, transplant, adult congenital heart disease and interventional catheterization. There will be exposure to the assessment of children with innocent murmurs, children with congenital heart disease that are new to the clinic as well as children with more long-standing disease. The student will assess the ECGs, CXR and echocardiograms on these patients when available and with the clinic preceptor.

Course Goals

As a result of successfully completing this course, students will be able to:

Required Objectives

1. Students will be exposed to a wide spectrum of cardiac disease in children and to adults with congenital heart disease. Patient contacts will be the primary source of learning in the following topic areas:
   - Innocent murmurs
   - Chest pain
   - Syncope
   - Acyanotic congenital heart disease
   - Cyanotic congenital heart disease
   - Pulmonary hypertension
   - Heart failure
   - Cardiomyopathy
   - Arrhythmias
   - Acquired heart disease (myocarditis, endocarditis, Kawasaki Disease rheumatic fever, and traumatic cardiac disease)
   - Adults with congenital heart disease

2. Students should be able to explain the mechanism for the production of heart sounds and murmurs and differentiate between physiologic and pathologic heart sounds.
   - Explain findings on history and physical exam suggestive of cardiovascular disease.
   - Begin to assimilate the clinical findings and the laboratory tests to assist in the diagnosis of cardiovascular disease.

3. Students should be able to describe the presenting symptoms, signs and physical findings, pathophysiology, treatment and prognosis for the most common congenital heart diseases such as VSD, Coarctation, ASD, and Aortic Stenosis.

4. Students should be aware of the association of congenital heart disease with genetic syndromes.

5. Students should be able to evaluate a child with a murmur or other possible indications of cardiac problems and begin to decide which patients should have further evaluation with a cardiology consultation and come up with a plan for appropriate further testing. Student should be able to determine abnormal cardiovascular signs and symptoms.

6. The Student should understand the general pediatrician's role in diagnosis and management of heart disease in children.

7. Students should become familiar with the appropriate diagnostic evaluation and the initial management of patients with acyanotic and cyanotic heart disease in the inpatient and outpatient setting.

8. Students will gain experience diagnosing and treating patients with a wide range of cardiac disease including analysis of the CXR and ECG and the appropriate use of the echocardiogram and the diagnostic strengths and weakness of these tests. When on the inpatient service the student will be encouraged to review all of their assigned patient's tests and when possible be present at catheterizations and echocardiograms.

9. Students should begin to become familiar with the interpretation of a pediatric ECG, for rate, rhythm, intervals and hypertrophy.

10. Students should understand when to refer patients/parents for fetal echocardiography

Course Format & Schedule

Sample Timeline

	MON	*TUES*	WED	*THUR*	*FRI*
7:30 a.m.			***CT/Card Conference**, Main auditorium		
7:45 a.m.	Sign-in rounds Cardiology Conference Room				
8:00 a.m.		*Ped Research Conference*, Classroom A/B		*Pediatric Grand Rounds*, Lecture Hall	
8:15 a.m.					
12:00 p.m.		***Echo Teaching Conference**, Cardio Conf Room	**12:15 *Angio conference Cath lab**		***Noon Conference**, Cardio Conf Room.

Inpatient Rotation (Consult Service)
2-week rotation
Locate fellow on ward team for more detailed instructions
Students will be assigned several patients to follow for their 2 weeks of inpatient rotation (2-3 /day).
Responsibilities:

- Students are assigned to the "Consult" team
  - This team is responsible for:
    - All non CTS (Cardiothoracic Surgery) patients
    - Cardiology consult patients in the NICU
    - Ward patients not on the CTS team
    - Consults in ED, PCMC NICU, Wards, U of U NICU
- Students will have responsibility for several inpatients and some of the consults
- The student should
  - See the patient

- Generate a differential diagnosis and begin to outline a treatment plan
- Staff with faculty/fellow
- Review with inpatient team housestaff
- Follow test results
- Students are not allowed to generate an inpatient chart note while on this service but should be able to present the patients as if they were the resident caring for the patient

- Students should research pertinent literature on their consult patient and inpatients so they can discuss the up to date treatments for the conditions present in their patients.

Attend all conferences detailed below.

Weekly Schedule Inpatient weeks
Monday:
7:45 am sign-in rounds Cardiology conference room
~9:00 am meet with cardiology consult team
Tuesday:
~9:00 rounds with cardiology consult team
See patients and complete consults
12 noon Echo conference
+/- afternoon rounds
Wednesday
7:30 CT Surgery conference (main PCH auditorium)
~9:00 rounds on wards cardiology consult team
See patients and complete consults
+/- afternoon rounds
Thursday
~8:30 rounds on wards with Cardiology Consult Team
See patients and complete consults
+/- afternoon rounds
Friday
~9:00 rounds on wards with ward team and Consult Team
10:30 rounds on wards with ward team and Cardiology Consult Team
See patients and complete consults
+/- afternoon rounds
12 noon fellows Conf. Cardiology conference room

Outpatient
2-week outpatient rotation
The student is responsible for preparing to pre-evaluate approximately ~4 patients daily the faculty. The student should review old records on Results Review if available. The student therefore has a chance to read about the cardiac abnormality prior to clinic. This should give the student the opportunity to think through the cardiac anatomy and focus the history and examination.

All the mandatory conferences should be attended except when at Continuity Clinic
Clinic Faculty
1 = primary faculty
2 = secondary faculty – if primary is on ward service or vacation or outreach clinics

Clinics 8:30-5 pm
The faculty days for clinic are variable and so defining a set schedule is difficult but try to attend the adult congenital heart disease clinics at least once as these patients have complex issues and definitive cardiac pathology. We will try NOT to have you see patients in the fellow's clinic unless this is unavoidable and try not to see patient with the same faculty as the resident on the same day. It just gets too crowded. I will meet with you and try to direct your clinic schedule.

Logs of all cardiology patients should be kept that includes age, diagnosis, therapy

Educational and Instructional Modalities

Role of the Student in this Course

Student Activities

- The major emphasis of the rotation is to educate students in general clinical cardiology and expose the student to a variety of types of congenital and acquired heart diseases in the inpatient and outpatient setting
- The cardiology service has many sub-specialty areas and students are encouraged to take full advantage of the educational opportunities these areas provide especially as they pertain to patients about whom they have clinical knowledge.
- Students will also perform inpatient consults covering the spectrum of disease listed above.
- This is a no call rotation. Therefore, students are expected to be present all weekdays.

Student Responsibilities

- Students are responsible for meeting with Dr. Etheridge at the beginning of the rotation for orientation.
  - Orientation includes an overview of the rotation
  - Outline of the resident responsibilities will be reviewed
  - Explanation of how the student will be evaluated
  - Orientation to the physical layout of the clinic, echo lab, catheterization lab, etc.
- Students will fill out the resident rotation form:
  - the residents name,
  - pager #
  - dates of the rotation,
  - weekly schedule (i.e., conferences and meetings that will result in the student being away from clinic/wards)
  - vacation
- Students are responsible for attending conferences detailed below
- At the end of the rotation students meet with Dr. Etheridge for an exit interview.

Attending Responsibilities

- Dr. Susan Etheridge is responsible for meeting with students at the beginning and the end of the rotation
- The student should improving his/her knowledge base by
  - informal lectures
  - direct teaching in the clinic or on the inpatient service
  - use of appropriate resources including papers, textbooks, etc.
- Students can expect faculty to instruct them in:
  - obtaining a pertinent history of patients with suspected cardiac disease,
  - the physical examination of patients with suspected heart disease
  - improving auscultation skills
  - the auscultation findings in patients with innocent murmurs
  - the auscultation findings in patients with congenital heart disease
  - the physiology/pathophysiology of the cardiac anomaly in the patient being evaluated
  - the use of the CXR, ECG, and other tests in the evaluation of a child with expected heart disease

Core Competencies

Patient Care

- Use a logical and appropriate clinical approach to the pediatric cardiac history and physical examination.
- Understand and be able to manage general pediatric care of patients with underlying heart disease, applying principles of evidence-based decision-making and problem-solving.
- Describe general indications for subspecialty procedures and interpret results for families.

Medical Knowledge

- Acquire, interpret and apply knowledge appropriate for the generalist regarding the core content of this subspecialty area.
- Critically evaluate current medical information and scientific evidence related to this subspecialty area and modify knowledge base accordingly. **Interpersonal Skills and Communication**
- Provide effective patient education, including reassurance, for conditions common to cardiology.

- 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.
- Maintain accurate, legible, timely, and legally appropriate medical records in this clinical setting

Practice-based Learning and Improvement
- Identify standardized guidelines for diagnosis and treatment of conditions common to this subspecialty area and adapt them to the individual needs of specific patients.
- Attend appropriate conferences.

Professionalism
- Demonstrate personal accountability to the well-being of patients (e.g., following-up lab results, writing comprehensive notes and seeking answers to patient care questions).
- Demonstrate a commitment to professional behavior in interactions with patients and families, staff and professional colleagues.
- Adhere to ethical and legal principles and be sensitive to the diversity.

Systems-based Practice
- Demonstrate sensitivity to the costs of clinical care in this subspecialty setting, and take steps to minimize costs without compromising quality.
- Recognize one's limits and those of the system; take steps to avoid medical errors.

Required Textbook(s)/Readings

Book Title + ISBN	Author/Publisher/Edition	Appx Cost

- The Stable Program is located on the IHC home page. This includes Power Point presentations on the following:
    - Normal cardiac blood flow
    - Left heart outflow lesions
    - Pre-post ductal saturation
    - Pulmonary atresia
    - Tetralogy of Fallot
    - TAPVR
    - Transportation
    - Tricuspid atresia
    - Truncus arteriosus
- Residents will be given a collection of reprints for each resident to review
- There is a file on the V-drive containing many additional manuscripts for review, Cathy Tiller, program coordinator has directions for accessing this site, please contact her.

Additional Resources

The cardiology section in Nelson's Pediatric Textbook and The Science and Practice of Pediatric Cardiology (5 copies available to check out during the rotation)

Assessment & Grading

Preceptor Evaluations

Assessments –

Assessment/Assignment	Due Date	Weight towards Final Grade
Preceptor Evaluations		100%

Grading System
Students will receive a final letter grade of PASS (P), or FAIL (F) for this course.

PASS: A student who achieves the criteria (above 1.7) will be assigned a grade of PASS for the course.

FAIL: A student who fails to achieve the criteria for PASS (1.7 or below) will be assigned a grade of FAIL for the course.

Student Feedback

Student feedback is important and helps identify opportunities to improve the course.

At the conclusion of each course, clerkship or rotation medical students are required to complete a summative evaluation. Evaluations are completed electronically and remain confidential.

Standard Policies

Please refer to the Student Handbook (on the Student Affair's website) for these policies:

Accommodations
Addressing Sexual Misconduct
Attendance policy
Dress Code
Examination and Grading Policies
Grade or Score Appeal
Professionalism, Roles & Responsibilities
Mistreatment

Center for Disability & Access Services

The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability and Access, 162 Olpin Union Building, 581-5020 (V/TDD). Staff of the Center for Disability and Access will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in alternative format with prior notification to the Center for Disability and Access.

The Senior Director of the Academic Success Program, Dr. Steven Baumann (1C047B SOM Dean's Office, 587-3671, or (steven.baumann@hsc.utah.edu), serves as the liaison between the School of Medicine and the Center for Disability and Access.