Rotation: Adult Congenital Heart Disease

Due to the increasing survival of children with all forms of congenital heart disease, the adult cardiologist will likely encounter these adult patients through their career. Thus, an exposure and familiarity of the growing complications is an important part of cardiology training. We have 2 options for fellows to gain additional ACHD exposure during fellowship. The first is a 6 month long largely outpatient rotation which is intended for 3rd year fellows or late 2nd year fellows. In addition, 3rd year fellows or late 2nd year fellows can elect a more in-depth month long rotation with additional ACHD involvement. Fellows will be exposed to the anatomy, physiology, and current management of adults with congenital heart disease through didactic instruction as well as both outpatient and inpatient clinical experiences. The curriculum includes understanding of the anatomy, operative procedures, and expected consequences, interpretation of congenital imaging, catheterization hemodynamics, and cardiopulmonary exercise testing in simple and complex lesions. The trainee will have the opportunity to participate in the range of tertiary/quaternary outpatient services available including: general ACHD cardiology clinic, ACHD electrophysiology clinic, and joint ACHD / maternal-fetal medicine clinic for pre-pregnancy counseling and/or pregnant CHD patients.

Expectations:
<u>All fellows</u>:

- Attend monthly ACHD lectures
- Attend at least 1 multi-disciplinary monthly ACHD Monday morning meeting and help prep the presentation of a patient seen in clinic for this conference

<u>6 month outpatient:</u>

- Participate in 10-12 sessions of ACHD outpatient clinic over the span of 6 months, alternating weeks with their general cardiology clinics.
- As part of clinic, the fellow will perform history, exam, and review/discuss diagnostic studies with ACHD cardiologist.

<u>1 month ACHD elective</u>:

- In addition to participating in any number of the outpatient clinics outlined above, the fellow would be expected to participate in inpatient rounds with one of our ACHD cardiologists.
- Attend and participate in the monthly ACHD Disposition conference on 2nd Monday morning.
- Attend the weekly Pediatric Cardiology Disposition conference on Thursday morning.

Learning Objectives

Patient Care

1. Develop a management plan for simple ACHD lesions (ASD, VSD, PDA, PS, Bicuspid aortic valve, and coarctation).

2. Interpret transthoracic and transesophageal echocardiograms for simple ACHD lesions.
3. Interpret cardiopulmonary stress tests.
4. Develop a basic understanding of complex ACHD lesions (Ebstein's anomaly, TOF, complex cyanotic CHD, TGA, single ventricle/Fontan physiology)
5. Become familiar with and promote adherence to ACHD guidelines
6. Know when to prescribe antibiotic prophylaxis for dental procedures
7. Know when pregnancy is contraindicated in ACHD patients (i.e. Eisenmenger's syndrome)

Medical Knowledge

1. Know the types of ASDs and associated genetic syndromes with a high prevalence of ASDs (Holt-Oram syndrome with secundum ASDs)
2. Know the types of VSDs, calculate shunt hemodynamics by hand (Qp:Qs), and know indications (Qp:Qs>2) and contraindications (Eisenmenger's syndrome, Qp:Qs<1) for repair
3. Know complications of AVSDs and strong association with Down's syndrome
4. Know common clinical manifestations of unrepaired PDAs (differential cyanosis is an ACCSAP favorite)
5. Know common clinical manifestations of coarctations (HTN, brachio-femoral delay) and indications for repair (peak gradient >20 mmHg)
6. Know indications for surgical vs. percutaneous repair of PS (percutaneous favored by lack PR and absence of dysplastic valve) and associated genetic syndromes (Noonan)
7. Know that aortopathy is associated with bicuspid aortic valves and the associated genetic syndromes (Turner's syndrome)
8. Know common CV manifestations of Marfan's syndrome (MVP, AoV prolapse, Aortic aneurysm, PA dilatation) and NEJM data for TGF-beta blockade
9. Know potential systemic complications of the Fontan circuit (obstructions, hypercoagulability/paradoxical emboli, FALD, **PLE**, Plastic bronchitis)
10. Know indications for PVR in TOF and risk factors for SCD
11. Know the difference between L-TGA and D-TGA and have a general sense of surgical correction and potential complications (ACCSAP loves the 2%/year risk of CHB in L-TGA)
12. Know the echocardiographic diagnostic criteria for Ebstein's anomaly and a commonly associated arrhythmia (20% have WPW)
13. Know the definition of Eisenmenger's syndrome and indications for phlebotomy and iron supplementation

Practice Based Learning and Improvement

1. Appropriately identify areas of weakness in own skills in caring for ACHD patients and works to make improvements
2. Respond appropriately to feedback from clinical encounters

Systems Based Practice

1. Work as an effective member of a health care team during ACHD clinic as a 3rd year fellow rotating in ACHD clinic
2. Identify medical knowledge deficits within ACHD that need improvement

Interpersonal and Communication Skills

1. Provide accurate and timely documentation
2. Communicate effectively with patients and families
3. Accurately and effectively obtain informed consent for ACHD procedures

Professionalism

1. Maintain patient privacy and comfort throughout clinical encounters and procedures
2. Demonstrate appropriate sensitivity to patient and family needs
3. Remain accessible to colleagues and promote interdisciplinary collaboration