

RESPONSIBILITIES OF CARDIOLOGY FELLOW DURING ADULTS WITH CONGENITAL HEART DISEASE (ACHD) ROTATION

I. Learning Objectives:

1. To obtain COCATS 4 Level I competency in ACHD through two 3 week rotations on the ACHD service during the second year of training, attendance at the monthly didactic ACHD lecture generally held on the first or second Thursday morning of each month, and attendance at the monthly ACHD Patient Management Conference conference held on the second Friday of each month. Level II competency is not available for ACHD. Level III competency requires a 2 year dedicated ACHD Fellowship beyond the 3 year general cardiology fellowship.
2. To understand the embryology, anatomy, physiology, natural history, and therapeutic options (medical, interventional, and surgical), for common congenital heart disease seen in adults, including simple anomalies (e.g., ASD, VSD, PDA, bicuspid aortic valve disease, coarctation of the aorta), and complex cyanotic and/or acyanotic lesions (Tetralogy of Fallot, univentricular heart anomalies, pulmonary atresia, truncus arteriosus, L transposition and D transposition, Ebstein's anomaly).
3. To understand the genetic syndromes associated with congenital heart disease including Marfan syndrome, Williams' syndrome, Holt-Oram syndrome, atrioventricular septal defect, conotruncal defects including CATCH-22, DiGeorge syndrome, and Shprintzen's syndrome, Down syndrome.
4. To evaluate patients for congenital heart defects integrating:
 - A. Findings from history and physical exam.
 - B. EKG.
 - C. Common and advanced imaging modalities, including transthoracic and transesophageal echocardiography, diagnostic cardiac catheterization, magnetic resonance imaging, high resolution and/or high speed CT imaging, exercise studies (particularly cardiopulmonary stress test/VO₂ max).
4. To diagnose and assess left to right and right to left shunts in adult patients with congenital heart disease and to calculate shunt ratios and resistance ratios by oximetry, echocardiography, etc.
5. To understand the cause, pathophysiology, therapeutic, and prognostic implications of pulmonary hypertension in the adult patient with congenital heart disease.
6. To interpret diagnostic interventions including nitric oxide, nitroprusside, and interpret exercise studies designed to assess reversibility of pulmonary hypertension in the cath lab.
7. Operative Conditions:
 - A. To understand the anatomy and physiology of surgical interventions for adult patients with congenital heart disease, particularly including the Mustard or Senning procedure; the Arterial Switch operation; surgical shunts intended to enhance pulmonary blood flow including Waterston, Potts, Blalock-Taussig, Glenn and Fontan; the Rastelli procedure; the Ross procedure; valve repair and/or replacement procedures; left and right ventricular outflow tract reconstruction, etc.
 - B. To understand the role of cardiac transplantation in adults with congenital heart disease.
 - C. To participate in postoperative care in patients who have undergone surgery for congenital heart disease.
 - D. To recognize and manage the short and long-term sequelae and/or residua of surgery in adults with congenital heart disease.
 - E. To understand the indications for repeat surgery and/or percutaneous intervention.
9. To become familiar with state-of-the-art interventional techniques currently utilized in both adult and pediatric patients with congenital heart disease including closure devices for atrial septal defects and PFOs, ventricular septal defect, and patent ductus arteriosus; stenting for coarctation; stenting and device closure of Baffle stenosis and leaks such as in patients who have undergone Mustard or Senning procedures and atrial septostomy for patients with pulmonary arterial hypertension; Rashkind procedure.
10. To become familiar with the ambulatory care of adult patients with congenital heart disease, particularly advanced treatment of congestive heart failure and electrophysiological abnormalities, and recognition of the indications for specialized consultation by CHF and/or EP consultants.

11. To understand the psycho-social/economic/insurance/domestic problems affecting adult patients with congenital heart disease and management thereof.
12. Research opportunities: Case reports, reviews, etc. Discuss with ACHD Attending.

II. Responsibilities of Cardiology Fellows and Residents:

1. Attend all of the Adult Congenital Heart Disease outpatient clinics held at the Heart and Vascular Center (Suite A, 8th floor) in the CAM building.
 Monday 9-12 Billadello
 Tues 9-12 Billadello
 Tues 1-4 Barger
 Wed 1-4 Barger
 Thurs 9-12 Billadello
 Fri 8:45-12 Billadello
 Fri PM TBA Ludbrook 1-2x/month

If you are unable to attend a clinic for any reason, such as it conflicts with continuity clinic, please notify the attending in advance. If the fellow has flexibility, an attempt should be made to move their continuity clinic to avoid conflict. The outpatient ACHD clinic is where most of your hands on learning will take place, thus an emphasis is placed on being present for all of the clinics.

2. Perform inpatient new consultations and follow congenital heart disease consultation patients during their hospital stays, and after surgery or percutaneous interventional procedures. Round on all ACHD Inpatients with the weekly on-service attending Monday through Friday. Scheduling of rounds should be mutually agreed upon between fellow and service attending and should not conflict with scheduled outpatient clinics or ACHD cath lab. Fellows are responsible for rounding on select patients one weekend day each week with phone communication with the on-call ACHD attending. Daily notes in electronic format are required and should be prepared for attending review and signature.
3. Participate in diagnostic cardiac catheterizations for patients with congenital heart disease with Dr. Billadello. This is typically Wed AM. Participation in diagnostic ACHD catheterization procedures takes precedence over clinic; however the fellow should go to clinic even if late when done in the cath lab.
4. Review all echocardiograms done on our patients with the appropriate Attending.
5. Review CT and MRI studies with the cardiovascular radiologists [Drs. Gutierrez (beeper 444-9590), Bhalla (beeper 841-9608), Woodard (beeper 790-2057), Javidan-Nejad (510-7308), Bierhals (663-0242), or Raptis (841-0564)]. Check with the radiologists if you would like to attend their formal reading sessions and conferences. Beeper for CT Radiology service for off hours is 663-1010.
6. ***Attend the ACHD Patient Management Conference on the 2nd Friday of each month at 7:30 AM. The ACHD monthly Fellow's will prepare and present all ACHD cases scheduled for presentation on the second Friday of each month at 7:30 AM in Sobel Conference room, 801 CSRB, NTA. ACHD cases for presentation will be identified to you by the ACHD Attendings, coordinated by Dr. Billadello. Please prepare and perform the oral presentation of the case, and include all imaging and cath data, and comment on current management guidelines/literature and notify the radiology team regarding CT, MRI, and outside studies that will be presented.***
7. The ACHD rotation provides an excellent opportunity to identify and write up case reports. Fellows are strongly encouraged to participate in this with the support of the ACHD faculty. We encourage each fellow can complete a case report by the end of their second ACHD rotation.
8. Resources:
 - A. Textbooks by Fink (Congenital Heart Disease), Perloff (The Clinical Recognition of Congenital Heart Disease), Perloff and Child (Congenital Heart Disease in Adults) and Gersony and Rosenbaum (Congenital Heart Disease in the Adult); and Adult Congenital Heart Disease by Gatzoulis, Webb, Daubeney. (There is a small, condensed version of Gatzoulis which is an excellent resource for

Fellows and Residents. It's well worth owning. It can easily be read cover-to-cover during your one-month rotation in the Center for Adults with Congenital Heart Disease.)

- B. Read in full the ACC/AHA Guidelines for Management of ACHD (*Circulation*. 2008;118: e714-e833.) <http://circ.ahajournals.org/cgi/reprint/CIRCULATIONAHA.108.190690>
- C. Read the 2015 AHA Scientific Statement which updates the guidelines. *Circulation*. 2015; 131:00-00.

Important Phone Numbers:

Dr. Joseph J. Billadello, Director
855-4486 - Pager
286-2556 - Kim (Secretary)

Dr. Philip Barger
855-6220 – Pager
286-2556 – Kim (Secretary)

Karen Sneed, R.N., Nurse Coordinator
424-0140 - Pager (M-F 8:00 AM - 4:30 PM)
7-3544 office/voicemail

Elizabeth Mortka, R.N., Nurse Coordinator
419-1702 – Pager (Monday, Tuesday, Thursday 8:00 AM - 4:30pm)
2-9321 office/voicemail

ACHD Office Fax
314-747-8213

Appointments
314-362-1291
1-888-210-8375

Pediatric Cardiology (SLCH)
454-6095 (office)

Revised 5/27/2015