

Cardiac Imaging Fellowship Program

University of California, San Diego

Policy and Procedures Manual

Revision Effective August 1, 2019

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Kate Greathouse: Fellowship Program Coordinator

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1. **Definition of Program:** A 12-24 month program to provide an integrated training program in all current cardiovascular imaging procedures so that such universal expertise can exist in a single individual.

2. **Executive Committee:**

Anthony DeMaria, M.D. ademaria@ucsd.edu	Judith and Jack White Chair in Cardiology Professor of Medicine Founding Director, Sulpizio Cardiovascular Center Director, Cardiac Imaging Fellowship Program
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Daniel Blanchard, M.D. dblanchard@ucsd.edu	Professor of Medicine Director, Cardiology Fellowship Program
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Bruno Cotter, M.D. bcotter@ucsd.edu	Professor of Medicine
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Ajit Raisinghani, M.D. araisinghani@ucsd.edu	Professor of Medicine Clinical Services Chief Director, Noninvasive Lab
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Sharon Brouha, M.D. sbrouha@ucsd.edu	Assistant Clinical Professor of Radiology Co-Director, Advanced Cardiac Imaging Director, UCSD Radiology 3D Imaging Lab
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Andrew Kahn, M.D. akahn@ucsd.edu	Associate Professor of Medicine
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Carl Hoh, M.D. ckhoh@ucsd.edu	Professor of Radiology Chief, Nuclear Medicine Chief, PET & PET/CT
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Albert Hsiao, M.D., Ph.D. a3hsiao@ucsd.edu	Assistant Professor of Radiology Associate Director of Cardiac and Vascular Imaging Center for Translational Imaging and Precision Medicine (CTIPM)
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3. **Facilities and Resources Available to Cardiac Imaging Fellowship Program:**

Facilities available to the Cardiac Imaging Fellowship Program for patient care, education, training and research at UCSD Hillcrest, UCSD Thornton, Sulpizio Cardiovascular Center, Jacobs, ACTRI and the Outpatient Pavilion include dedicated Noninvasive Laboratories, Nuclear Medicine Laboratories, Cardiac MRI and CT Laboratories

Ambulatory Clinics, Research Laboratories. All performance sites also have additional Ancillary Personnel (e.g. secretary, nurses, technicians) and the ability to perform a full complement of imaging procedures. Imaging services delivered at each site will conform to the policies and procedures of the site at which care is being delivered and to the policies and procedures of the UCSD Cardiac Imaging Program.

All fellows must ensure that they complete all necessary training for electronic medical record (EMR) and order entry systems at SCVC/Thornton (EPIC).

4. **Educational Goals:**

The educational goals of the program will be to have the trainees acquire the knowledge underlying the physics of imaging techniques, assess acquired diagnostic skills to properly interpret these studies clinically, and have the judgment to know which studies are best suited to answer which clinical questions. The educational goals will therefore include a clear understanding of the physics of ultrasound, x-ray, radionuclides, and magnetic resonance as applied to cardiac imaging techniques. In addition, the educational goal will include becoming proficient at interpreting echocardiograms, radionuclide studies, magnetic resonance imaging, and computed tomographic images of the heart and circulation. To this end, a bi-weekly cardiac imaging conference will be implemented which will rotate on a weekly basis between the various cardiac imaging technologies included in the program. These conferences will include formal lectures on the physics and instrumentation of imaging technology, as well as case presentations and interpretation of cardiac images. Attached is a copy of the proposed conference schedule and topics to be covered.

5. **Absences:**

Fellows are granted three weeks of vacation per year. Vacation requests must be submitted to Kate Greathouse.

6. **Procedure Logs:** it is the fellow's responsibility to keep a log of all procedures performed during this fellowship.

7. **Research:** It is anticipated that the scholarly activities to be undertaken will largely relate to the imaging procedures being studied. Once the trainee has identified a project and protocol, research time will be allotted based upon the needs assessed from a research proposal. Each of the Executive Committee members will be available to act as a mentor for scholarly activities for the fellows either individually or in conjunction with other faculty.

SAMPLE DAILY SCHEDULE

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
8 AM-12 PM	CCTA/CMR ACI Conference* (12-1)	CCTA/CMR	CCTA/CMR Structural TEE- MitraClip /Watchman	CCTA/CMRI	Grand Rounds (8-9) CCTA/CMR
1 PM	Nuclear Read-outs (optional)	Nuclear Read-outs (optional)	Nuclear Read-outs (optional)	Cover all inpatient and outpatient TEEs*	Nuclear Read-outs (optional)
1-5 PM	CCTA/CMR Read-out Nuclear lecture** (5 PM w/Dr. Hoh)	CCTA/CMR Read-out	CCTA/CMR Structural TEE- MitraClip /Watchman Read-out	Readout Cath Conference (430-6)	CCTA/CMR Read-out

ATTENDING SCHEDULE

ATTENDING STAFF READING DAYS (JULY-SEP)	
Monday	Dr. Sharon Brouha
Tuesday	Dr. Sharon Brouha
Wednesday	Dr. Andrew Kahn
Thursday	Dr. Albert Hsiao /Dr. Seth Kligerman
Friday	Dr. Albert Hsiao /Dr. Seth Kligerman

ATTENDING STAFF READING DAYS (OCT-DEC)	
Monday	Dr. Ajit Raisinghani
Tuesday	Dr. Daniel Blanchard
Wednesday	Dr. Luis Castellanos AM / Dr. Anna McDivit PM
Thursday	Dr. Bruno Cotter or Dr. Andrew Kahn or Dr. Anna McDivit
Friday	Dr. Andrew Kahn

ATTENDING CONTACTS

Dr. Anthony Demaria: ademaria@ucsd.edu
Dr. Sharon Brouha: sbrouha@ucsd.edu
Dr. Andrew Kahn: akahn@ucsd.edu
Dr. Albert Hsiao: a3hsiao@mail.ucsd.edu
Dr. Seth Kligerman: skligerman@ucsd.edu
Dr. Ajit Raisinghani: araisinghani@ucsd.edu
Dr. Daniel Blanchard: dblanchard@ucsd.edu
Dr. Luis Castellanos: lrcastellanos@ucsd.edu
Dr. Anna McDivit: amcdivit@ucsd.edu
Dr. Bruno Cotter: bcotter@ucsd.edu

ADVANCED CARDIOVASCULAR IMAGING (ACI) CONFERENCE

What: Biweekly conference that takes place on the 2nd and 4th Monday of each month and alternates between case presentations and lectures given by faculty members from different imaging backgrounds (Echo, Nuclear, CMR, CCTA). The conference includes both Radiology and Cardiology faculty, fellows, and residents. Logistics and presentations should be coordinated with the Cardiothoracic Fellow.

When: The 2nd and 4th Monday of each month from 12-1pm. The schedule may change depending on the holiday schedule and Dr. Demaria's schedule. Confirm with Kate Greathouse.

Where: SCVC 4th Floor Conference Room (North Side). The presentation is also streamed to other hospital locations (Hillcrest, VA, JMC) via Zoom. Cardiothoracic Fellow can assist with setup.

NUCLEAR STUDIES

If interested and want to increase your nuclear volume, read-outs occur at 1:00PM at Thornton with Dr. Hoh, Dr. Obrzut, or Dr. Moradi.

****Nuclear lectures with Dr. Hoh will start in August or September, and are held every other Monday evening from 5-6 pm in the 4th floor SCVC conference room. Dr. Hoh will email the lecture schedule with dates and topics.**

ECHOCARDIOGRAMS (TTE):

UCSD has a very active/busy echo lab (~ 10,000 echos per year). It is the primary responsibility of the general fellow on the echo rotation to coordinate and read 2D TTEs. If desired, you can read echos with the Thursday attending (this is the post-call day for the general fellow). Echo reading occurs throughout the day in the echo reading-room located on the north-side of the echo lab.

TRANSESOPHAGEAL ECHOCARDIOGRAM (TEE):

The General Cardiology fellow on the echo rotation typically covers all inpatient and outpatient TEEs on Monday, Tuesday, Wednesday and Friday. The ACI fellow covers all inpatient and outpatient TEEs on Thursday when the general fellow is post call. The TEE schedule can be found in Master Daily Schedule in Epic.

Michelle, Megan or Monet can assist with any logistical question regarding the echo lab.

Attending on Thursday tends to vary between Dr. Cotter, Dr. Kahn, or Dr. McDivit. Please inform them if/when TEE's are scheduled and ask their availability. Furthermore, you will cover all TEEs during days which the general cardiology fellow has Hillcrest (every other Wednesday)/VA Clinic (one Tuesday a month)

- For inpatient TEE requests, you must call the Patient Treatment Unit (PTU) at 858-657-8260 for availability. Once they give you a time, then you must call Central Scheduling at 619-543-6363 (day in advance) or the Operating Room Scheduler 858-657-6500 (day of) to have that patient officially placed on the schedule. Then please do not forget to coordinate and inform the sonographers.
- Please inform the lead sonographer when you are covering TEEs. If there are inpatient TEE's, you must let the lead sonographer know when you are scheduling the TEE (see above).
- TEE's that require DCCV must be coordinated with anesthesia. Call the main OR and ask for the anesthesia on-call/covering DCCV. You will need to page them and ask for their availability before scheduling. You will then need to call Central Scheduling or the OR (depending on timing) to schedule both the TEE and then DCCV.
- Most inpatient and outpatient TEE's will occur in the SCVC PTU located on the 2nd floor. ICU patients who require TEE's are performed at bedside.
- You are responsible for writing the H&P and medication orders (TEE Orderset). For outpatient TEE's, you are responsible for writing the discharge instructions and discharge orders.
- You are responsible for writing the TEE Report in Syngo.

The ACI fellow is to do all interventional TEE for structural cases (ASD closure/Mitraclip/Watchman) with Dr. Castellanos or Dr. Raisinghani.

- Cases usually take place on Wednesdays, but very rarely can be scheduled on a Friday.
- Watchmans are typically performed in the EP lab, but occasionally take place in the cath lab. Mitraclips and ASD closures are performed in the cath lab.
- You are responsible for writing the TEE Report in Syngo after each structural case.
- Touch base with Megan or Monet the day prior to coordinate.

CARDIAC CT ANGIOGRAPHY (CCTA) and CARDIAC MRI (CMR):

We are an active academic center with growing volume in both Cardiac CT and Cardiac MRI. We perform CTA Coronaries, CTA Structural Morphology/TAVR/Function/Congenital, and pre-procedural planning for TAVR and Afib ablation. We perform MRI for viability, VT/VF ablation, cardiomyopathy, congenital heart disease, cardiac masses, etc. We perform any of the aforementioned as outpatient or inpatient studies.

- For the Faculty Reading Schedule for CCTA/CMR, go to: <https://radres.ucsd.edu> → SCHEDULES → FACULTY SCHEDULE
- You need to call MRI suites (Thornton, Hillcrest, KOP) to find out what outpatients and inpatients are scheduled for the day. For the outpatient and inpatient Cardiac CTAs, you need to just call the scanner room.
- The Cardiothoracic fellow will typically take care of protocoling studies. For initial experience, you can coordinate with the other fellow to protocol studies together. If you have any questions regarding protocols, speak with the cardiac attending on-service.
- You are expected to be “on-call” and available to the technologist for assistance.
 - Cardiac MRI: It is ideal to be at the scanner to assist the tech with imaging planes (if necessary) and choosing inversion times. Furthermore, it is necessary to be at the scanner for more difficult studies (i.e. congenital, ARVC/D, and cardiac masses).
 - Cardiac CT: It is ideal to be at the scanner to give additional medications and setup the scan.
- You are responsible for all cardiac segmentation and coronary reconstructions using Circle (MRI) and TeraRecon (CT).
- You are responsible for dictating all Cardiac MRIs and Cardiac CTs. If there is a Cardiothoracic Radiology fellow, then this volume will be split (however, you can log every procedure into your own procedure log if read with attending or independently).
- You will often be called by the General Cardiology fellows to expedite studies and/or facilitate scheduling with the scanner.

PHONE NUMBERS

MRI - Thornton

Scanner Room	858-657-6674 858-657-6673
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MRI – Hillcrest

Scanner Room	619-543-7040
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MRI - ACTRI

Scanner Room	858-245-2557
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MRI- KOP

Scanner Room	858-249-3772
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CT – Thornton (Revolution)/ CVC (GE 64 Slice)

Scanner Room CVC	858-657-8128
Scanner Room Thornton	858-249-0616
Tim Spivey (3D Tech)	858-657-6329

CT – Hillcrest

Scanner Room	619-543-7348 619-543-7347
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TEE/Procedure Scheduling

Central Scheduling	619-546-6363
Main OR	858-249-6200

SCVC PTU

Central Scheduling	858-657-8260
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PACS SUPPORT

PACS IT	619-471-0244
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CARDIAC IMAGING PAGER: 619-290-3566

→ If you are covering TEEs, then you must coordinate with the Cardiothoracic fellow OR Cardiac attending to cover the pager. You must remember to forward the pager back to yourself when you are covering.

1. If you are in-house, dial 1373566
2. When you hear the tone, quickly press 9 followed immediately by 0
3. Next, you'll hear an automated voice asking for the access code. Press 1234
4. Next, you'll hear an automated voice saying that there is a certain number of messages. Ignore this and press 16
5. Next, press 3
6. Then, press 6

7. Now press the 7-digit pager number you are forwarding to and press # after
8. Repeat the 7-digit pager number you are forwarding to and press # after
9. The Cardiac Imaging Pager is now forwarded.

WEBSITES

Radiology Intranet: <http://radres.ucsd.edu/>

- This website contains the faculty call schedule, radiology resident schedule, most hospital phone numbers, and Zoom links.

On-Call/Paging: <https://secure-web2.ucsd.edu/webpaging/search.aspx>

Remote Access (Epic, PACS, etc.): <https://cwp.ucsd.edu/vpn/index.html>