



May 15, 2019

TO: Internal Medicine, Medicine-Pediatric, and Anesthesiology Residents  
Cardiology Fellows, Faculty, and Advanced Practice Providers

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CC: Ron Falk, MD, Chair, Department of Internal Medicine  
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Tracy Carroll, RN, Mary Lynn Billet, RN  
Ian Hollis, PharmD, Kayla Waldron, PharmD  
Sarah Duggins, RN, Danielle Miller, RN, Kate Burnett, RN (Transplant and VAD Coordinators)  
Carrie Neal, RN (HF coordinator)  
Joanne Lowry (Medical Admitting Officers)

RE: MDD (Heart failure/transplant/LVAD) service, June 24, 2019 onward

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Beginning 6/24/19, internal medicine (IM) and anesthesia interns (PGY-1) will join the MDD inpatient team during their rotation on the MDD service. As a follow-up to the previous memo dated 9/25/17, this memo describes the updated structure of the MDD service. As before, MDD patients requiring ICU care will still be managed by the CICU team of housestaff and CICU fellow. The following pages review the process for the care of the MDD floor patients, as well as the expectations of the MDD intern, MDD cardiology NP, cardiology fellows (MDD, MDC, CICU), and MDC residents. Since there is no additional resident on MDD, coverage for the MDD intern will be the MDD cardiology fellow during the weekdays, and the MDC or CICU cardiology fellow when the MDD fellow is in clinic or off. The specific learning objectives are detailed below. The MDD intern and MDD NP share the floor patients, with the most "educational" patients assigned to the intern (as determined by the MDD fellow and attending) and a weekday cap of 6 for the intern.

Please direct questions to either Drs. Chang, Weickert, Rose-Jones, Bynum, Sines, or Raybould. We appreciate everyone's collaboration to optimize patient care.

## Heart Failure/Transplant/VAD Service (MDD) June 2019

### A. Overview:

The Heart Failure/Transplant/VAD Service (MED D or MDD) is an inpatient cardiology service that cares for patients with acute heart failure in advanced stage of their cardiomyopathy, and patients status post cardiac transplantation or left ventricular assist device (LVAD). MDD patients include such patients on the floor/stepdown and in the CICU. The MDD attending and fellow also provide consultative care in the co-management of patients who are immediately s/p heart transplant or LVAD (typically on the cardiac surgery service, SRS). The MDD team consists of the MDD attending, fellow, NP, intern, and (MEDI 475) medical student.

*This memo focuses on the FLOOR service of MDD patients, reviewing the process of care.*

### B. Specific Learning Objectives for Interns and Students:

1. Demonstrate understanding of the different etiologies of heart failure with reduced ejection fraction (HFrEF) and preserved ejection fraction (HFpEF) and how this influences care (i.e., ischemia and role of revascularization, amyloidosis and specific treatment, etc)
2. Understand how to identify and manage acute and chronic heart failure
3. Recognize hallmarks of advanced heart failure
4. Perform observed volume status examinations alongside the attending on rounds
5. Understand the management of patients with advanced heart failure, and how it differs from the care of less severe heart failure
6. Appreciate the importance of timing in referring patients for advanced heart failure therapies, such as chronic inotropic support, LVAD, heart transplant.
7. Understand the role of palliative care in the treatment of the advanced heart failure patient
8. Become familiar with the care and management of patient with LVAD or a transplanted heart.
9. Have the opportunity to observe advanced heart failure surgeries (LVAD implantation, heart transplantation) and review endomyocardial biopsy pathology slides in Surgical Pathology.

### C. Floor patients:

The MDD floor patients are generally the following types of patients, admitted on a daily basis, and managed by the MDD Intern, NP, and Fellow during the day:

- All LVAD patients and heart transplant patients requiring medical inpatient care will generally be hospitalized on MDD (typically 3 Anderson/ICCU, 4 Anderson/CTSU, occasionally 5 Anderson). Of note, heart transplant patients may be admitted to a non-cardiology service if they would clearly benefit from another medical or surgical service (e.g., primary surgical problem; combined heart-kidney transplant patient with acute renal failure but normal cardiac function). In this scenario, the MDD Fellow and Attending can and should provide consultation.
- All “MDD” heart failure patients will need to be approved by the MDD Fellow and Attending to be on the MDD floor service. These patients are typically those on chronic home inotrope support, hospitalized specifically for pre-transplant or pre-LVAD evaluation, and select advanced heart failure patients (new or established) who are frequently hospitalized with severe heart failure and may require evaluation for advanced HF therapies (chronic inotropic support/LVAD/transplant). (In the past, all established heart failure patients of the heart failure cardiologists were admitted to MDD; these patients will need to be screened by the MDD Fellow and Attending). The MDD attending and MDD fellow can provide consultation on select HF patients hospitalized on the MDC service on a case-by-case basis.

General: The MDD floor service admits on a daily basis, and the primary provider will be the MDD NP and MDD Intern with the MDD Fellow as back-up. The patients will be divided between the NP and Intern, with the goal of assigning the “educational” patients to the Intern, to be determined by the MDD Fellow and Attending. The Intern will have a cap of 6 patients on weekdays.

Admissions: Patients will be admitted by the MDD Intern and NP Monday-Friday 7AM-7PM, with the MDD Fellow and/or the CICU fellow as back-up. The Intern, NP, and Fellow should confirm which days each will stay until 7PM for admissions (“long-call”), with the general expectation that the long-call schedule is

generally the Intern on Tuesdays/Thursdays, the Fellow on Mondays, and the NP on Wednesday/Fridays. On the MDD Intern's "long-call" day, the MDD Intern should generally manage 4 established MDD patients in order to manage potentially 2 new admissions, to maintain the intern's patient cap of 6. For admissions after 7PM and "after-hours" during weekends, these patients will be admitted by the on-call MDC Resident, who will present the case to the on-call fellow, and, as part of their education and process of care, examine the patient together, learn how to interrogate LVADs, and do a bedside ECHO where indicated. The MDD Fellow and Intern will get sign-out together every morning at 7AM from the post-call MDC resident re: new admissions and overnight events. The MDD Fellow will determine who (Intern or NP) gets the overnight admission(s).

Daily rounds: The MDD Intern and NP will pre-round on these patients and round with the MDD Fellow, Attending, and pharmacists for morning rounds. When rounds start, the NP will alert the floor nurse to join rounds on their respective patients; the Fellow should page the VAD and Transplant Coordinators ("VAD Coordinator On-Call", pager # 216-2095; Anna Luchene or Transplant Coordinator On-Call). The HF Coordinator (Carrie Neal) typically also join rounds to facilitate care. The MDD NP or Intern will join CAP rounds at ~11:30AM, Mon-Fri. The respective coordinator will help coordinate discharges with the team.

Overnight coverage: The MDD Intern or NP or Fellow will provide clear sign-out every evening (7PM) about these patients to the on-call MDC resident, and the MDD Intern, NP or Fellow will receive sign-out the next morning. The on-call MDC resident should involve the on-call CICU night fellow with coverage issues as needed.

Weekends: The MDD Intern will cover one weekend day responsibilities (generally Sunday), and the MDD Fellow will cover the other weekend day responsibilities (Saturday). Both will make sure the WebXChange on-call schedule and MDD pager #1237271 reflect the correct physician. The weekend Intern and Fellow will admit from 7 AM-3 PM; new patients after 3PM will be admitted by the MDC on-call team.

On the weekend day that the MDD Intern is working, s/he should present admissions to and discuss patient issues with the on-call MDC (Anderson) cardiology fellow or the CICU cardiology fellow, and can of course discuss these patients at any time with the MDD attending. In general, the MDD intern should pre-round on the 8 sickest patients for the weekend to allow for 2 potential new admissions for the intern to see (thus the weekend cap for the intern is 10 patients and notes). While the MDD Intern and Attending will round on all the floor patients together, the MDD attending will write notes for the remaining, less sick patients when the floor census is >8.

Discharges: LVAD patients and heart transplant patients will have their respective VAD or Transplant Coordinator facilitate discharges. The HF Coordinator (Carrie Neal) or NP (Sarah Waters) will help facilitate outpatient follow-up within 1 week for the other HF patients on MDD (usually in the UNC Heart Failure Clinic with NPs Sarah Waters or Emily Baker).

For patients who were referred to UNCH for transplant/LVAD evaluation, the MDD admission note and discharge summary should clearly list the referring physicians and PCPs; the *MDD Fellow is expected to confirm this documentation, and call and update the referring cardiologist* if the MDD Attending has not already done so.

**D. Consults.** VAD and heart transplant patients on other services (e.g., SRS in CVTICU, CTSU; Acute Inpatient Rehab; etc.) will be followed by the MDD Fellow and MDD/VAD Attending, who will round on these patients daily, as consultants. The MDD Fellow and Attending will also provide consultation on select HF patients on MDC and other services where appropriate. (The MDD note will be in the form of a daily Consult note.) Intern and NP involvement in these consults is optional.

#### **E. Intern-specific Opportunities/Expectations.**

- The Intern should join the HF faculty in seeing patients in the VAD clinic on Wednesday afternoons (Drs. Byku, Chien or Volz) (unless other clinical responsibilities preclude their attendance). While the Intern is in VAD clinic, the NP will be the primary on-call MDD provider.
- The Intern will be the primary daily point of contact for the MDD medical student (MEDI 475) to help them learn, whereas the MDD fellow will be the first point of contact for medical students on the first day of their rotation. Both should help provide guidance and feedback.

- As time and opportunities allow, the Intern can observe advanced heart failure surgeries (VAD implantation, heart transplantation), review endomyocardial biopsy pathology slides with the MDD team members, and attend multidisciplinary Transplant/VAD meetings as listed below.

**F. Other Logistics**

**1. Epic Patient List Management:** The “Heart Failure (MDD)” ADT list will include all patients officially admitted to MDD. The MDD physicians will maintain the Epic patient lists, adding consults to the “CARD - Heart Failure MED D” or “CARD LVAD & Transplant” list.

**2. Rounding Order:** The MDD Fellow and MDD Attending will start rounds on the immediate post-op heart transplants and LVADs each day with the TICU team from 8:00-8:30 AM. After TICU rounds, the MDD Attending will round either in the CICU or on the floor, depending on CICU team availability. If MDD floor rounds follow TICU rounds, the MDD floor rounds may be interrupted by CICU MDD rounds and will continue after the MDD Attending rounds with the CICU team. Rounds on the consult patients will generally occur after rounds are completed on the MDD-primary patients.

**3. Multidisciplinary Transplant/VAD Meetings:** The MDD Fellow and Attending are expected to attend the weekly Transplant/VAD Selection Conference (Wednesday 8:30-9:30 AM, Transplant Conference Room, 4<sup>th</sup> floor). The MDD Fellow should be prepared to discuss the inpatients and present relevant patient-related data. Attendance by the MDD Intern and NP is optional but encouraged as time allows.

There are other multidisciplinary transplant/VAD rounds and meetings during the week for the MDD Attending and Fellow to attend (Friday 2:30 PM; every other Friday 3-4 PM; second and third Thursday 2-3 PM); these are optional for the Intern and NP, but are considered educational.

**4. General Schedule for MDD:**

General Weekly Schedule for MDD Intern							
	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
AM	MED D	MED D	Heart Transplant/VAD Selection Meeting (8:30-9:30 AM) -- AND --- MED D	MED D	MED D	OFF	MED D
12-1 PM	Noon Conference	Noon Conference	Noon Conference	Medicine Grand Rounds	Noon Conference		
PM	MED D	MED D	VAD Clinic (Transplant Clinic – Dr. Byku/Chien/Volz)	MED D ----- VAD/TX Medical Management Meeting (2 <sup>nd</sup> and 3 <sup>rd</sup> Thurs: 2-3 PM)	MED D Meeting (2:30-3:00 PM, 3 Anderson) ----- VAD/TX Quality Meeting (1 <sup>st</sup> and 3 <sup>rd</sup> Fri: 3-4 PM)		
Long-call	Fellow	Intern	NP	Intern	NP	(Fellow)	(Intern)

Noon conference: Internal Medicine conference – 4<sup>th</sup> floor Old Clinic Auditorium, or Cardiology conference – typically Burnett-Womack 6050; Cardiology Grand Rounds every other Monday

VAD Clinic – 4<sup>th</sup> floor Transplant Clinic (4 West)

Thursday 2-3 PM meeting location changes every 2 weeks (ask MDD attending/fellow)