

## **Advanced Heart Failure and Transplant Service Curriculum Temple University Internal Medicine Residency Program**

\*Adapted from the Michigan State University Internal Medicine Inpatient Curriculum dated December, 2003

### **I. Educational Goals**

The Advanced Heart Failure and Transplant (aHF&T) service is an essential inpatient educational experience of the Temple University internal medicine residency. With graded responsibility and appropriate supervision, our residents actively participate in the care of the wide variety of patients seen on the aHF&T service. From direct experience, they hone their skills in history taking, physical examination, differential diagnosis, clinical decision making, communication and all aspects of management of a patient requiring invasive hemodynamic monitoring. In the process, our residents expand their knowledge of the diseases seen in internal medicine, foster altruistic attitudes, learn to actively improve their own practice of medicine, and appreciate the delivery of their patients' care in the larger context of the U.S. health care system.

### **II. Principal Teaching Methods**

#### **A. Supervised direct patient care**

- i. The aHF&T team – The aHF&T team consists of one to two attending cardiology physician(s), two upper year resident, two interns, occasionally a resident pharmD, and two HF and two transplant coordinators. The ward attending is the attending of record for any patient on the service.
- ii. First encounter – Patients cared for on the medicine service may be admitted through the emergency department or directly from a Temple University outpatient practice, may be transferred from the RICU or CCU, or may be transferred from other services in the hospital when cardiac problems supersede the problems being cared for on the non-cardiology service. Once a patient has been assigned to a service from one of these sources, the resident on the receiving team performs the initial evaluation. This initial evaluation is expected to include a comprehensive history and physical, review of appropriate medical records, and generation of a comprehensive assessment and plan, all of which are recorded in the medical record. Any laboratory or radiographic studies that are immediately obtainable and necessary to the immediate evaluation of the patient are expected to be performed. Within two hours of the completion of the initial evaluation, the resident presents that patient in person or by phone to the attending physician of record. The attending is responsible for personally confirming the history and physical in a timely fashion, but within a period not to exceed 24 hours.
- iii. Follow up patient care – The aHF&T team, minus the attending, performs the initial patient re-evaluation each day on work rounds that immediately follow the pick up of sign out from the team covering the service overnight. The ongoing care of the patients assigned to a service are discussed at least daily with the attending physician of record, including weekends. The diagnostic and therapeutic plan is communicated both in the daily progress notes in the medical record and verbally in person or by

- phone. The attending of record is responsible for personally confirming the interim history and physical exam on a daily basis.
- iv. Teaching attending rounds – Teaching attending rounds occur for 2 ½ hours (per team), 5 days per week. Bedside teaching is complemented by more formal didactic sessions. Because the majority of the patients on a service are under the care of the Cardiology attending, most of the educational content of teaching attending rounds springs directly from the care of the patients on service. Although day-to-day management discussions occur as part of teaching attending rounds, the emphasis is strongly on education. The educational content typically includes medical knowledge, the association of findings and data with underlying pathology, modeling productive, respectful interactions with patients, the principles of clinical decision making, the application of medical literature to clinical scenarios, ethics and professionalism, and the appropriate utilization of health care resources. Bedside teaching promotes the direct observation by the attending of the patient interactions and physical examinations of the resident.
  - v. Discussions outside of teaching attending rounds – Additional face-to-face or phone encounters occur throughout the typical work day related to patient care, supplementing teaching attending rounds on weekdays and serving as the primary management discussions on weekends. Although usually focused on the execution of the care plan, they offer additional focused teaching opportunities.
- B. Conferences
- Residents are expected to attend all of the conferences described in the general medicine inpatient ward service curriculum. Additionally:
- i. Heart Failure and Transplant Working group
    1. Frequency – one hour, weekly, Monday 8 am – 9 am
    2. Attendees - aHF&T attendings, research coordinators
    3. Presenters – All involved with active research projects or those wanting to formulate new ideas
    4. Content - description and enrollment status of all active clinical trials and the generation of new ideas for research products
  - ii. Heart Transplant and mechanical assist device evaluation meeting
    1. Frequency – Every Wednesday from 7:00 am to 8:30 am
    2. Attendees- aHF&T Cardiology attendings, all Cardiothoracic Surgeons, all Transplant coordinators, financial coordinator, transplant psychologist, transplant social worker, cardiology fellow rotating on aHF&T, 3 data coordinators, Immunologist, immunology technician, transplant PharmD, and a dietician.
    3. Presenters- aHF&T attending cardiologists and CT surgeons and heart transplant coordinators. All other attendees who have had contact with the patient being presented also contribute to discussion.
  - iii. Cardiology Conferences: Heart failure and transplant topics are with in the curriculum of the Cardiology conferences, please refer to the Service Curriculum for General Cardiology. All housestaff are encouraged to attend.

### III. Schedules

- A. Overnight call – Overnight call occurs every fifth day.
- B. Service cap – aHF & T services are limited to 15 patients per service.

#### **IV. Educational Resources**

- A. The patients cared for – Temple University Hospital is located in and serves the poor, urban, largely minority population of North Philadelphia. As a practice which delivers “quaternary care” to practices in the surrounding region and beyond, we not only serve the local residents who reflect the demographic and ethnic mix of the neighborhood, but also patients from other cardiology practices requiring advanced cardiac care.
- B. The aHF & T attending – aHF & T attendings are a select group of faculty members chosen from the section of cardiology, who have demonstrated skill and interest in resident education in the field of advanced cardiac care and transplantation. Their success as educators as measured by resident evaluations, the residency program director, and their section chief or department head influences their individual salaries. An aHF & T attending’s role includes, but is not limited to, expanding their assigned residents’ fund of knowledge, refining their clinical judgment, physical examination and medical decision making skills, understanding invasive hemodynamic monitoring and management, and identifying gaps in knowledge or skills for the resident to remediate. Also modeling productive and respectful interactions with patients and colleagues, exemplifying professional and ethical behavior, and serving as a role model as an educator. The attending also has the role of reviewing the tiered objectives organized by competency with the resident at the beginning of the rotation.
- C. Clinical pharmacists – Residents frequently interact with the hospital-based clinical pharmacists in the course of the care of their patients. These pharmacists provide information on scheduling, dosing, drug-drug interactions, cost, availability, and adverse events. One PharmD and one PharmD resident also round daily with group.
- D. Nursing support- The nursing support staff on rounds include: Floor RN assigned to the patient of interest, 2 Heart Failure Coordinators and 2 Heart Transplant Coordinators.
- E. The rest of the resources listed in the general medicine inpatient ward service curriculum are available to residents rotating on the aHF & T service.

#### **V. Methods of Evaluation**

- A. Rotation – Each resident on a ward service is evaluated by each teaching attending who works with him for more than one week. The evaluation is communicated both verbally in a face-to-face meeting between the attending and resident and on a written, competency-based form developed along internal medicine RRC guidelines. The written evaluation is filed in the resident’s folder and remains available to the resident to review. Additionally, each of those evaluations is reviewed by the program director, deputy program director, or associate program director in the presence of the resident in a biannual meeting. Because the teaching attending is also the attending of record for the majority of patients cared for by the resident on the ward service, opportunities for evaluation occur not only in didactic sessions and discussions, but also on bedside rounds, in review of all of the resident’s admission and daily progress notes, and in direct observation of the resident addressing and examining patients and interacting with colleagues in the course of the delivery of medical care.
- B. The rest of the evaluation methods described in the general internal medicine ward service curriculum are applied in the CHF rotation.

## VI. Tiered Objectives Organized by Competency

Note: Some objectives may address more than one competency. Such instances are identified with the additional competencies noted in italics following the item.

Where tiered objectives are listed, it is expected that residents in each year will have mastered the competencies outlined for the previous levels of training.

### A. Patient Care

#### i. History taking

##### 1. PGY-1 residents will:

- (a) efficiently elicit a thorough, hypothesis-driven history from the patient or patient's representative.
- (b) incorporate verbal and non-verbal techniques in their history taking to promote disclosure of relevant information and maintenance of patient comfort.
- (c) use translator services appropriately.
- (d) include in the information they elicit their patients' emotional feelings about their illnesses and their beliefs about its causes and remedies. (*interpersonal and communication skills*)

##### 2. PGY-2 residents will take the history more efficiently without compromising accuracy or thoroughness. (*interpersonal and communication skills*)

#### ii. Researching medical records

##### 1. PGY-1 residents will:

- (a) supplement the history obtained from the patient with appropriate information gleaned from medical records, including but not limited to labs, radiologic studies, electrocardiograms, echocardiograms, stress tests, pulmonary function tests, pathology, records of previous inpatient admissions, records from outside institutions, and records from the primary care physician.
- (b) understand how to access the variety of information systems in the hospital to retrieve appropriate past medical records and studies.
- (c) understand the process by which outside medical records are obtained. (*system-based practice*)

##### 2. PGY-2 residents will:

- (a) routinely identify and prioritize the important records to be obtained.
- (b) know how and when to access the records of the department of public health. (*system-based practice*)

#### iii. Physical examination – Residents at all levels will perform a systematic, comprehensive physical examination and be able to report the physiologic and anatomic bases of normal and abnormal findings. The physical exam will be obtained discretely, with attention to patient comfort and privacy.

#### iv. Charting – Residents at all levels will record data in the medical record in a thorough, legible, systematic manner and at regular, timely intervals. Such documentation will include not only documentation of the facts, but will also reflect the reasoning underlying the resident's decision making. (*interpersonal and communication skills*)

#### v. Procedures

1. PGY-1 residents will:
    - (a) understand the indications, contraindications, necessary equipment, specimen handling, potential complications, and patient after-care of commonly performed procedures. Procedures will be performed with attention to the safety of the patient, the resident, and other medical staff. Techniques to minimize patient discomfort will be utilized. (*medical knowledge*)
    - (b) obtain appropriate informed consent and will assist in patient decision-making. Timely documentation of successful and unsuccessful procedures will be recorded in the chart. (*interpersonal and communication skills*)
    - (c) focus primarily on learning the skills and techniques that lead to successful procedural outcomes.
    - (d) achieve and maintain basic cardiac life support and advanced cardiac life support certification. (*medical knowledge*)
  2. PGY-2 residents will:
    - (a) hone their own procedural skills.
    - (b) be willing and able to assist junior colleagues in skill acquisition. (*professionalism*)
  3. PGY-3 residents will ensure that they have mastered the procedures required for certification by the ABIM. (*practice based learning and improvement*)
- vi. Medical decision making, clinical judgment, and management plans
1. PGY-1 residents will:
    - (a) interrelate findings and disease processes, including the correct interpretation of
      - (i) symptoms and abnormalities on physical examination
      - (ii) routine lab studies, including the basic metabolic panel, liver function tests, complete blood count, peripheral blood smear, coagulation studies, urinalysis, and arterial blood gases
      - (iii) microbiologic studies, including gram stains and culture results
      - (iv) chest roentgenograms and abdominal plain films
      - (v) electrocardiograms
      - (vi) pulmonary function tests (*medical knowledge*)
    - (b) be able to create a focused, thorough, appropriately prioritized problem list.
    - (c) be able to suggest a diagnostic and therapeutic plan of action based on their problem list that reflects the identified priorities and respects patient preferences.
    - (d) utilize evidence-based strategies or practice guidelines whenever applicable. Cost effective strategies will be emphasized. (*system-based practice*)
    - (e) understand the risks and benefits of the proposed diagnostic studies and therapeutic interventions. Particular attention will be given to communicating to the patient those risks and benefits and ensuring that the patient has a clear understanding of the course of action. (*interpersonal and communication skills*)
    - (f) understand how to evaluate the success of therapeutic interventions, including measurement of the desired response and recognition of complications.
  2. PGY-2 residents will:

- (a) be able to identify alternate strategies to the one they have proposed and discuss the risks and benefits of those strategies.
  - (b) be able to identify the limitations in the execution or interpretation of proposed diagnostic studies. (*medical knowledge*)
  - (c) not only have knowledge of the complications associated with therapeutic interventions, but will anticipate them.
  - (d) identify when consultation of an appropriate specialist can augment patient care. (*system-based practice*)
  - (e) anticipate when medical care can be completed in a non-hospital setting.
  - (f) be able to anticipate the likely condition of the patient at the conclusion of the hospital stay and identify and arrange for the resources necessary to ensure safe transition of care to the next setting. (*system-based practice*)
3. PGY-3 residents will make decisions in situations in which there is insufficient or ambiguous literature to make definitive recommendations.
- B. Medical Knowledge
- i. PGY-1 residents will:
    1. be able to recall the basic differential diagnosis for each item in their problem list with particular attention to those diagnoses that are immediately life threatening or which require immediate intervention.
    2. recall the approach to therapy for common diagnoses, including the information that is necessary to guide clinical decision making.
    3. be able to deliver the initial care in medical emergencies such as hypotension, acute respiratory distress, hyperkalemia, and unresponsiveness.
    4. recall the typical presentations of diseases common to internal medicine.
    5. supplement their medical knowledge with information from sources including textbooks, review articles, and on-line databases. They will begin to understand and apply information from current medical literature. (*practice based learning and improvement*)
  - ii. PGY-2 residents will:
    1. be able to recall an expanded differential diagnosis including common and uncommon causes of the patient's problems.
    2. recall the specific indications and contraindications for the treatment of common diagnoses.
    3. recall unusual presentations of diseases common to internal medicine.
    4. understand the indications for hospitalization of patients who present to the hospital. (*system-based practice*)
    5. recognize the indications for transfer of patient care to an intensive care unit setting. (*system-based practice*)
    6. begin to critically evaluate current medical literature as it applies to the care of their patients. (*practice based learning and improvement*)
    7. recognize cultural barriers to treating disease and maintaining good health. These barriers will be addressed with sensitivity and with respect for the patient's beliefs. (*interpersonal and communication skills*)
  - iii. PGY-3 residents will:
    1. be able to recall a comprehensive differential diagnosis, including rare causes of the patient's problems.

2. recall the various options for treatment of common diagnoses and understand the specific indications and contraindications for each of those options.
  3. recognize presentations of common diseases usually cared for by non-medicine services. The resident will recall usual first line treatments for those diseases.
  4. actively access and critically evaluate current medical literature as it applies to the care of their patients. (*practice based learning and improvement*)
- C. Practice Based Learning and Improvement
- i. PGY-1 residents will:
    1. identify their own weaknesses compared to the skills of their peers.
    2. be receptive and responsive to constructive criticism.
    3. routinely reevaluate their clinical decision-making when unexpected negative outcomes are encountered.
    4. continuously seek to expand their medical knowledge. (*medical knowledge, professionalism*)
  - ii. PGY-2 residents will:
    1. reflect on the types of mistakes they have made in the care of their patients and look for common themes among those mistakes.
    2. understand how their personal beliefs, biases, emotions, response to stress, and approach to decision making may have an impact on the quality of the medical care they deliver.
  - iii. PGY-3 residents, with the knowledge gained from self-reflection, will display vigilance for and develop strategies to overcome the types of mistakes they are prone to make based on their personal beliefs, biases, emotions, response to stress, and approach to decision making.
- D. Interpersonal and Communication Skills
- i. PGY-1 residents will:
    1. develop effective and respectful relationships with patients, students, peers, supervisors, and other medical and administrative workers.
    2. be effective listeners in medical and professional encounters, including recognizing verbal and non-verbal cues from the people with whom they interact.
    3. communicate respect, empathy, and concern in their encounters.
    4. write legibly in all situations.
    5. remain quickly, reliably, and easily accessible by beeper when on duty. (*professionalism*)
    6. provide effective and detailed sign-out to allow covering physicians to knowledgeably and efficiently continue their patients' care. (*system-based practice*)
    7. effectively coordinate the transition of patient care from inpatient to non-hospital settings, with particular attention given to communicating with the primary care physician. (*system-based practice*)
    8. develop skills for dealing with difficult patients and stressful situations.
    9. develop skills for handling situations of unprofessional behavior by other health care professionals.
    10. provide constructive feedback regarding the residency program. (*professionalism, system-based practice*)
  - ii. PGY-2 residents will:

1. model effective and respectful relationships with patients, students, peers, supervisors, and other medical and administrative workers.
  2. model skills for dealing with difficult patients and stressful situations.
  3. model skills for handling situations of unprofessional behavior by other health care professionals.
  4. be able to direct sensitive or difficult interactions with patients or their representatives, including the delivery of bad news or initiation of end-of-life discussions.
  5. manage and direct the intern and students on the service to ensure timely and effective completion of the tasks of patient care.
  6. anticipate duty hours issues and proactively develop a plan that ensures compliance of all team members with the requirements. (*system-based practice, professionalism*)
  7. effectively educate the students and intern in such a way as to improve their understanding and practice of internal medicine and to promote their professional success. (*professionalism*)
- E. Professionalism
- i. PGY-1 residents will:
    1. comply with all locally and nationally accepted standards of behavior for health care professionals, including but not limited to those mandated by law.
    2. in all activities demonstrate a commitment to excellence.
    3. in general, put the needs of their patients ahead of their own.
    4. ensure adequate attention to their own needs, particularly those of rest, sleep, and personal relationships, to optimize their readiness to provide the highest quality care for their patients.
    5. take ownership of the well being of the patients assigned to their care, no matter how brief the assignment.
    6. act as patient advocates.
    7. show respect at all times for the unique and individual perspectives of patients, patient families, and other health care professionals.
    8. be committed to participating in the organized curricular program offered by the residency. This participation includes attendance and, when appropriate, making contributions to enhance the education of others.
    9. manage work efficiently to allow attendance at educational conferences.
    10. respond to unpleasant patient or professional interactions with restraint, insight, and empathy. The betterment of patient care will remain the priority in all attempts at conflict resolution. (*interpersonal and communication skills*)
    11. reflect on their own behavior after difficult or unpleasant interactions. (*practice based learning and improvement*)
    12. act as a role model for medical students.
  - ii. PGY-2 residents will:
    1. actively seek to provide feedback in a constructive fashion for the students and interns with whom they work. (*interpersonal and communication skills*)
    2. be willing to challenge the accepted plan of care when their professional judgment differs from that of other providers.
    3. act as a role model for interns and fellow residents.

F. System-based Practice

i. PGY-1 residents will:

1. utilize hospital resources to deliver effective, efficient, high quality patient care.
2. remain sensitive to health care costs while providing high quality care.
3. provide timely dictation of the patient records assigned to them. Note that PGY-1 residents are not assigned charts for dictation until they have completed 6 months of their training. (*professionalism*)
4. be cooperative in complying with performance improvement initiatives developed by the hospital administration. (*practice based learning and improvement, professionalism*)

ii. PGY-2 residents will:

1. identify resources at the time of discharge that will benefit the patient in their post-hospital care. The resident will work with the case manager and social worker to integrate these resources into the discharge plan.
2. identify areas where the process of patient care can be improved.
3. be participants in the improvement of hospital-based care and of residency education by actively contributing their insights, opinions, energies, and leadership. (*professionalism*)