The Epidemic of Heart Failure: Who is Certified to Care for these Patients?

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Professor of Medicine
University of Pennsylvania
President, American Heart Association
Disclosure:
Mariell Jessup MD

- **Speakers Bureau:**
  none

- **Advisory Board:**
  none

- **Organizations:**
  Chair, ABIM Advanced Heart Failure and Transplant Cardiology test committee.
  Chair, ACCF COCATS writing committee, HF task force
AHA Policy Statement

Forecasting the Impact of Heart Failure in the United States

Projected prevalence of U.S. heart failure

<table>
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</thead>
<tbody>
<tr>
<td>Indirect: Morbidity</td>
<td>9.80</td>
<td>0.91</td>
<td>2.54</td>
<td>4.48</td>
<td>1.87</td>
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</tr>
<tr>
<td>Indirect: Mortality</td>
<td>6.84</td>
<td>0.98</td>
<td>3.32</td>
<td>2.16</td>
<td>0.37</td>
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</tr>
<tr>
<td>Total</td>
<td>69.7</td>
<td>2.48</td>
<td>11.7</td>
<td>29.9</td>
<td>25.6</td>
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</tr>
</tbody>
</table>
Hospitalization rates are decreasing somewhat....
Even if one-year mortality rates are not...
Heart Failure is deadly and costly.
In 1941, the subspecialty of **Cardiovascular Disease** was one of the first four subspecialties of Internal Medicine in which an examination was administered and certificates awarded.

*The other three subspecialties were in Allergy, Gastroenterology, and Tuberculosis;*

Nearly 50 years passed before certification in the cardiovascular secondary subspecialty of **Clinical Cardiac Electrophysiology (CCEP)** began in 1992.

Seven years later the secondary subspecialty of **Interventional Cardiology (IC)** was formed in 1999.

2008 witnessed the approval of the 3rd secondary subspecialty in Cardiology.....
The ACGME has now accredited the first set of training programs for the secondary subspecialty of Advanced Heart Failure and Transplant Cardiology.
Quick facts about ABIM Certification

- ABIM certifies one out of every four practicing physicians in the United States
- There are more than 200,000 ABIM Board Certified physicians
- A patient’s most frequent encounter is with an internist
- The subspecialties of Internal Medicine include:

  Adolescent Medicine
  Advanced Heart Failure & Transplant Cardiology
  Cardiovascular Disease
  Clinical Cardiac Electrophysiology
  Critical Care Medicine
  Endocrinology, Diabetes & Metabolism
  Gastroenterology
  Geriatric Medicine
  Hematology
  Hospice & Palliative Medicine
  Infectious Disease
  Interventional Cardiology
  Medical Oncology
  Nephrology
  Pulmonary Disease
  Rheumatology
  Sleep Medicine
  Sports Medicine
  Transplant Hepatology
About ACGME

The Accreditation Council for Graduate Medical Education (ACGME) is a private professional organization responsible for the accreditation of about 9,200 residency education programs. Residency education is the period of clinical education in a medical specialty that follows graduation from medical school, and prepares physicians for the independent practice of medicine. The ACGME’s volume of accredited programs makes it one of the largest private accrediting agencies in the country, if not the world.

Stakeholders of the ACGME’s accreditation process are residency programs, their sponsoring institutions, residents, medical students, the specialty boards of the American Board of Medical Specialties (ABMS), patients, payers, government and the general public. Accreditation offers these stakeholders assurance that a given residency program and its sponsoring institutions meet an accepted set of educational standards. The ACGME accredits residency programs in 133 specialty and subspecialty areas of medicine, including all programs leading to primary Board certification by the 24 member boards of the American Board of Medical Specialties.
ACCF 2008 Recommendations for Training in Adult Cardiovascular Medicine Core Cardiology Training (COCATS 3)
(Revision of the 2002 COCATS Training)

George A. Beller, MD, MACC, Co-Chair
Robert O. Bonow, MD, FACC, Co-Chair
Valentin Fuster, MD, PhD, FACC, Co-Chair

Task Force 8: Training in Heart Failure

Endorsed by the Heart Failure Society of America

James B. Young, MD, FACC, Chair
William T. Abraham, MD, FACC, Robert C. Bourge, MD, FACC, Marvin A. Konstam, MD, FACC (Heart Failure Society of America Representative)
Lynne Warner Stevenson, MD, FACC
ACGME Program Requirements for Graduate Medical Education in Advanced Heart Failure and Transplant Cardiology (Internal Medicine)

Effective: February 4, 2012

Fellows must be instructed in practice management relevant to advanced heart failure and transplant cardiology.

Fellows must have clinical experience in:

- caring for patients in the context of a multidisciplinary disease management program;
- end-of-life care;
- evaluating at least 30 patients for cardiac transplant or mechanical assist devices; and,

must demonstrate competence in prevention education, evaluation, and management of inpatients and outpatients with:

- acute cellular and antibody mediated rejection;
- acute decompensation of chronic heart failure;
- cardiac allograft vasculopathy;
- cardiac transplant (at least 30 patients, of whom at least five are seen during initial transplant hospitalization and peri-operative management);
- cytomegalovirus and other opportunistic infections;
- heart failure secondary to cancer chemotherapy;
- heart failure and congenital heart disease;
- heart failure and arrhythmias;
- heart failure, and who are being evaluated for implantable cardioverter-defibrillators (at least 50 patients);
- heart failure, and who are being evaluated for cardiac resynchronization therapy (at least 50 patients);
- heart failure and other transplanted organs;
Procedural Competencies

“Formal instruction, clinical experience & demonstrated proficiency”:

- Patients:
  - Evaluated for transplant or LVADs (≥ 30)
  - Undergone transplant (≥ 30; ≥ 5 init. hosp.)
  - On assist devices (≥ 10; ≥ 2 peri-op)
  - Evaluated for ICDs (≥ 50)
  - Evaluated for CRT (≥ 50)

- Device interrogation and interpretation in ICD or CRT pts (≥ 100)
- Endomyocardial biopsies (≥ 30)
Advanced Heart Failure and Transplant Cardiology Policies

General Requirements

To become certified in the subspecialty of Advanced Heart Failure and Transplant Cardiology, physicians must:

- Be previously certified in internal medicine by ABIM.
- Maintain a valid underlying certificate in cardiovascular disease.
- Satisfactorily complete the requisite graduate medical education fellowship training.
- Demonstrate clinical competence in the care of patients.
- Meet the licensure and procedural requirements.
- Pass the Certification Exam in Advanced Heart Failure and Transplant Cardiology.

No credit will be granted toward certification in a subspecialty for training completed outside of an accredited U.S. or Canadian program.

Fellowship training taken before completing the requirements for the MD or DO degree, training as a chief medical resident, practice experience, and attendance at postgraduate courses may not be credited toward the requirements for subspecialty certification.

To be admitted to an examination, candidates must have completed the required training in the subspecialty, including vacation time, by October 31st of the year of examination.
<table>
<thead>
<tr>
<th>Discipline</th>
<th>Total</th>
<th></th>
<th>All States and US Territories</th>
<th></th>
<th>All Countries (Non-US)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All</td>
<td>Valid</td>
<td>All</td>
<td>Valid</td>
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</tr>
<tr>
<td></td>
<td>Certificates</td>
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<td>General Internal Medicine</td>
<td>254929</td>
<td>210937</td>
<td>234330</td>
<td>199040</td>
<td>5208</td>
<td>3627</td>
</tr>
<tr>
<td>Advanced Heart Failure /Transplant Cardiology</td>
<td>488</td>
<td>488</td>
<td>484</td>
<td>484</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Cardiovascular Disease</td>
<td>29249</td>
<td>27073</td>
<td>27442</td>
<td>25879</td>
<td>618</td>
<td>448</td>
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<tr>
<td>Clinical Cardiac Electrophysiology</td>
<td>2486</td>
<td>2161</td>
<td>2438</td>
<td>2149</td>
<td>38</td>
<td>21</td>
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<tr>
<td>Critical Care Medicine</td>
<td>12705</td>
<td>9256</td>
<td>12280</td>
<td>9123</td>
<td>283</td>
<td>179</td>
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<tr>
<td>Endocrinology Diabetes and Metabolism</td>
<td>7433</td>
<td>6832</td>
<td>6901</td>
<td>6455</td>
<td>239</td>
<td>178</td>
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<tr>
<td>Gastroenterology</td>
<td>15606</td>
<td>14630</td>
<td>14634</td>
<td>13968</td>
<td>218</td>
<td>165</td>
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</table>
American Association of Heart Failure Nurses
Certification Board

Certification Promotes High Standards in Heart Failure Care

Welcome To Heart Failure Certification
## Clinician Skill Set

<table>
<thead>
<tr>
<th>Heart failure</th>
<th>Transplant</th>
<th>VADs</th>
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</thead>
<tbody>
<tr>
<td>differential diagnosis</td>
<td>listing process</td>
<td>assess RV</td>
</tr>
<tr>
<td>determine etiology</td>
<td>sensitized pts.</td>
<td>assess pulm HT</td>
</tr>
<tr>
<td>evidence-based Tx</td>
<td>immunosuppress</td>
<td>post-op issues</td>
</tr>
<tr>
<td>disease management</td>
<td>post-op issues</td>
<td>long-term care:</td>
</tr>
<tr>
<td>assess inc. severity</td>
<td>long-term care</td>
<td>infection</td>
</tr>
<tr>
<td>end of life issues</td>
<td>recognize rejection</td>
<td>GI bleeding</td>
</tr>
<tr>
<td>advanced therapies</td>
<td>recognize PTLD</td>
<td>suck-down</td>
</tr>
</tbody>
</table>

**GDMT for HF**

**VADs**
- assess RV
- assess pulm HT
- post-op issues
- long-term care:
  - infection
  - GI bleeding
  - suck-down
  - AI, HTN
  - GDMT for HF
ACCF/AHA/HFSA 2011 Survey Results:
Current Staffing Profile of Heart Failure Programs,
Including Programs That Perform Heart Transplant
and Mechanical Circulatory Support Device Implantation

A Report of the ACCF Heart Failure and Transplant Committee,
AHA Heart Failure and Transplantation Committee, and Heart Failure Society of America

*Sent to the members of all 3 organizations who had identified themselves as interested in HF, heart transplant, or both.
*Between March 12, 2009, and May 12, 2009.

Results
The response rate to the 1,823 e-mail surveys was 23%.
257 unique practices in the United States (81% of total sites)
58 international sites (19%);
### U.S. and International Practice Descriptors

**Primary Practice Setting**

<table>
<thead>
<tr>
<th>Setting</th>
<th>Total</th>
<th>Small Program (&lt;4 staff)</th>
<th>Small-Medium Program (4-10 staff)</th>
<th>Medium Program (11-20 staff)</th>
<th>Large Program (&gt;20 staff)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiovascular group</td>
<td>28%</td>
<td>9.26</td>
<td>41.75</td>
<td>43.85</td>
<td>40.18</td>
</tr>
<tr>
<td>Government hospital</td>
<td>14%</td>
<td>41.75</td>
<td>43.85</td>
<td>43.85</td>
<td>43.85</td>
</tr>
<tr>
<td>Non-government hospital</td>
<td>18%</td>
<td>43.85</td>
<td>43.85</td>
<td>43.85</td>
<td>43.85</td>
</tr>
<tr>
<td>HMO group/staff model</td>
<td>2%</td>
<td>40.18</td>
<td>40.18</td>
<td>40.18</td>
<td>40.18</td>
</tr>
<tr>
<td>Medical school</td>
<td>31%</td>
<td>43.85</td>
<td>43.85</td>
<td>43.85</td>
<td>43.85</td>
</tr>
</tbody>
</table>

### U.S. Program Volume: # of cases

<table>
<thead>
<tr>
<th>Category</th>
<th>Total</th>
<th>Small Program (&lt;4 staff)</th>
<th>Small-Medium Program (4-10 staff)</th>
<th>Medium Program (11-20 staff)</th>
<th>Large Program (&gt;20 staff)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HF visits per year</td>
<td>366,117</td>
<td>107,926</td>
<td>121,290</td>
<td>99,425</td>
<td>37,476</td>
</tr>
<tr>
<td>% of total</td>
<td>29%</td>
<td>33%</td>
<td>27%</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>Average HF visits per year per program</td>
<td>1,641</td>
<td>1,008</td>
<td>1,410</td>
<td>2,209</td>
<td>2,676</td>
</tr>
<tr>
<td>Destination MCSDs implanted per year</td>
<td>868</td>
<td>23</td>
<td>302</td>
<td>423</td>
<td>120</td>
</tr>
<tr>
<td>% of total</td>
<td>2%</td>
<td>35%</td>
<td>49%</td>
<td>14%</td>
<td></td>
</tr>
<tr>
<td>Heart transplants in 2007</td>
<td>1,991</td>
<td>84</td>
<td>590</td>
<td>774</td>
<td>543</td>
</tr>
<tr>
<td>% of total</td>
<td>4%</td>
<td>30%</td>
<td>39%</td>
<td>27%</td>
<td></td>
</tr>
<tr>
<td>Heart transplants in 2006</td>
<td>1,938</td>
<td>65</td>
<td>551</td>
<td>752</td>
<td>570</td>
</tr>
<tr>
<td>% of total</td>
<td>3%</td>
<td>28%</td>
<td>39%</td>
<td>29%</td>
<td></td>
</tr>
<tr>
<td>Heart transplants in 2005</td>
<td>1,832</td>
<td>75</td>
<td>517</td>
<td>718</td>
<td>522</td>
</tr>
<tr>
<td>% of total</td>
<td>4%</td>
<td>28%</td>
<td>39%</td>
<td>28%</td>
<td></td>
</tr>
<tr>
<td>MCSDs/HF visits per year</td>
<td>1:422</td>
<td>1:4,692</td>
<td>1:402</td>
<td>1:235</td>
<td>1:312</td>
</tr>
<tr>
<td>Heart transplants/HF visits in 2007</td>
<td>1:184</td>
<td>1:1,285</td>
<td>1:205</td>
<td>1:128</td>
<td>1:69</td>
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</table>
## Average U.S. Staffing by practice staff size

<table>
<thead>
<tr>
<th>Patient office visits</th>
<th>Total</th>
<th>Small Program (&lt;4 staff)</th>
<th>Small-Medium Program (4-10 staff)</th>
<th>Medium Program (11-20 staff)</th>
<th>Large Program (&gt;20 staff)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1,641</td>
<td>1,186.31</td>
<td>1,555.46</td>
<td>2,425.53</td>
<td>3,123.67</td>
</tr>
<tr>
<td>MD/DO FTEs</td>
<td>2.65</td>
<td>0.82</td>
<td>2.26</td>
<td>5.41</td>
<td>10.13</td>
</tr>
<tr>
<td>NP/PA FTEs</td>
<td>2.21</td>
<td>0.81</td>
<td>2.09</td>
<td>3.78</td>
<td>8.55</td>
</tr>
<tr>
<td>RN coordinator FTEs</td>
<td>2.61</td>
<td>0.60</td>
<td>2.17</td>
<td>5.39</td>
<td>11.79</td>
</tr>
<tr>
<td>Financial consultant</td>
<td>0.47</td>
<td>0.01</td>
<td>0.47</td>
<td>0.78</td>
<td>1.14</td>
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<tr>
<td>Social worker</td>
<td>0.75</td>
<td>0.17</td>
<td>0.75</td>
<td>1.03</td>
<td>1.81</td>
</tr>
<tr>
<td>Exercise physiologist</td>
<td>0.37</td>
<td>0.20</td>
<td>0.44</td>
<td>0.42</td>
<td>0.67</td>
</tr>
<tr>
<td>Nutritionist</td>
<td>0.55</td>
<td>0.28</td>
<td>0.63</td>
<td>0.71</td>
<td>0.89</td>
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<tr>
<td>Psychologist</td>
<td>0.45</td>
<td>0.18</td>
<td>0.48</td>
<td>0.67</td>
<td>0.70</td>
</tr>
<tr>
<td>Pharmacist</td>
<td>0.59</td>
<td>0.31</td>
<td>0.74</td>
<td>0.70</td>
<td>0.75</td>
</tr>
</tbody>
</table>

## Average U.S. staffing by practice size: role composition

<table>
<thead>
<tr>
<th></th>
<th>Total (%)</th>
<th>Small Program (&lt;4 staff) (%)</th>
<th>Small-Medium Program (4-10 staff) (%)</th>
<th>Medium Program (11-20 staff) (%)</th>
<th>Large Program (&gt;20 staff) (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MD/DO FTEs</td>
<td>28.0</td>
<td>29.6</td>
<td>25.5</td>
<td>29.4</td>
<td>28.4</td>
</tr>
<tr>
<td>NP/PA FTEs</td>
<td>23.3</td>
<td>29.2</td>
<td>23.6</td>
<td>20.6</td>
<td>24.0</td>
</tr>
<tr>
<td>RN coordinator FTEs</td>
<td>27.6</td>
<td>21.4</td>
<td>24.4</td>
<td>29.3</td>
<td>33.0</td>
</tr>
<tr>
<td>Financial consultant</td>
<td>3.1</td>
<td>0.2</td>
<td>3.6</td>
<td>3.9</td>
<td>2.7</td>
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<tr>
<td>Social worker</td>
<td>5.2</td>
<td>2.8</td>
<td>6.1</td>
<td>5.4</td>
<td>5.1</td>
</tr>
<tr>
<td>Exercise physiologist</td>
<td>2.2</td>
<td>3.2</td>
<td>2.9</td>
<td>1.8</td>
<td>1.3</td>
</tr>
<tr>
<td>Nutritionist</td>
<td>3.8</td>
<td>5.1</td>
<td>4.9</td>
<td>3.3</td>
<td>2.1</td>
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<tr>
<td>Psychologist</td>
<td>2.7</td>
<td>2.8</td>
<td>3.2</td>
<td>3.0</td>
<td>1.5</td>
</tr>
</tbody>
</table>
Yet more skills are needed......
How Many Patients, How Many Staff?

In this snapshot of the heart failure scene:

- More sites performing MCS than transplant

- Additional staffing needed for VAD programs, 3.25 FTE

- 6-7 clinicians to deliver care to 1,641 HF outpatients

  - 140 patients/month
  - <1 new heart transplant recipient/month
Heart Failure Program Resources

• Access to state of the art imaging – echocardiography, CT scans, MRI, PET and nuclear imaging
• Cardiopulmonary Exercise Laboratory
• Dedicated hemodynamic/endomyocardial biopsy laboratory
• Electronic Medical Record with patient and referring physician portals
• Penn Heart and Vascular Diagnostic Center
## Currently Approved Disease Programs

<table>
<thead>
<tr>
<th>Abdominal Aortic Aneurysm</th>
<th>Chronic Kidney Disease</th>
<th>Normal Delivery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Coronary Syndrome</td>
<td>Chronic Obstructive Pulmonary Disease</td>
<td>Orthopedic Trauma</td>
</tr>
<tr>
<td>Acute Myocardial Infarction</td>
<td>Colorectal Cancer</td>
<td>Pancreatic Cancer</td>
</tr>
<tr>
<td>Advanced Chronic Kidney Disease</td>
<td>Coronary Artery Bypass Graft</td>
<td>Pediatric Asthma</td>
</tr>
<tr>
<td>Advanced Chronic Obstructive Pulmonary Disease</td>
<td>Coronary Artery Disease</td>
<td>Pediatric Diabetes</td>
</tr>
<tr>
<td><strong>Advanced Congestive Heart Failure</strong></td>
<td>Dementia</td>
<td>Pediatric Eating Disorder</td>
</tr>
<tr>
<td>Advanced Inpatient Diabetes</td>
<td>Depression</td>
<td>Pediatric Obesity</td>
</tr>
<tr>
<td>Advanced LVRS</td>
<td>Diabetes Mellitus</td>
<td>Pediatric Sleeping Disorder</td>
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<tr>
<td>Advanced Primary Stroke Center</td>
<td>Discectomy</td>
<td>Pediatric Trauma</td>
</tr>
<tr>
<td>Advanced VAD</td>
<td>Eating Disorders</td>
<td>Peripheral Vascular Disease</td>
</tr>
<tr>
<td>Alzheimer’s Disease</td>
<td>End Stage Renal Disease</td>
<td>Pneumonia</td>
</tr>
<tr>
<td>Asthma</td>
<td>Epilepsy</td>
<td>Prostate Cancer</td>
</tr>
<tr>
<td>Bariatric Surgery</td>
<td>Fetal Cardiac Anomaly</td>
<td>Pulmonary Rehabilitation</td>
</tr>
<tr>
<td>Bone Marrow Transplant</td>
<td>Hip Fracture</td>
<td>Renal Cancer</td>
</tr>
<tr>
<td>Brain Injury Rehab</td>
<td>Hyperlipidemia</td>
<td>Respiratory Distress in Preterm Infants</td>
</tr>
<tr>
<td>Breast Cancer</td>
<td>Joint Replacement Hip</td>
<td>Respiratory Failure</td>
</tr>
<tr>
<td>Burn</td>
<td>Joint Replacement Knee</td>
<td>Self Injury</td>
</tr>
<tr>
<td>Cardiac Rehab</td>
<td>Joint Replacement Shoulder</td>
<td>Sickle Cell Disease</td>
</tr>
<tr>
<td>Carotid Stenosis</td>
<td>Lamineectomy</td>
<td>Sleeping Disorders</td>
</tr>
<tr>
<td>Carpal Tunnel Syndrome</td>
<td>Low Back Pain</td>
<td>Spinal Cord Injury</td>
</tr>
<tr>
<td>Chemical Dependency</td>
<td>Lung cancer</td>
<td>Spinal Fusion</td>
</tr>
<tr>
<td></td>
<td>Morbid Obesity</td>
<td>Stroke Rehabilitation</td>
</tr>
<tr>
<td></td>
<td>Multi-system Trauma</td>
<td>Traumatic Brain Injury</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Wound Care</td>
</tr>
</tbody>
</table>

*Highlighted: Congestive Heart Failure*
What does advanced certification in heart failure require?

New requirements for Advanced Certification in Heart Failure (effective July 1, 2011).
The new certification requirements add expectations of safe, successful transitions of care from the inpatient setting to outpatient settings, either a clinic or cardiology practice.

Structure

Organizations must comply with Joint Commission standards for disease-specific care, (Manual available on the JCR Web site.) and the appendix for Advanced Certification in Heart Failure.

The heart failure program must include either a hospital-based and hospital-owned outpatient heart failure clinic, OR have a collaborative relationship with one or more attending cardiology practices.

Disease-specific Care standards cover the following categories:

- Program management
- Clinical information management
- Delivering or facilitating clinical care
- Supporting self-management
- Measuring and improving performance.
ATTACHMENT I
TO APPENDIX B OF UNOS BYLAWS

Designated Transplant Program Criteria

XIII. Transplant Programs.

A. In order to qualify for membership, a transplant program must utilize, for its histocompatibility testing, a laboratory that meets the UNOS Standards for Histocompatibility testing, as described in UNOS Bylaws Appendix B, Attachment II, and is approved by the UNOS Membership and Professional Standards Committee.

B. In order to qualify for membership, a transplant program must have letters of agreement or contracts with either an IOPO or hospital-based organ procurement organization which complies with the criteria as outlined in Attachment III to the extent applicable to hospital-based organ procurement organizations. These membership criteria are based substantially upon the Center for Medicare/Medicaid Services (CMS). Conditions for coverage for Organ Procurement Organizations, September 29, 1996.

C. Each transplant program must identify a UNOS qualified primary surgeon and physician, the requirements for whom are described below as well as the program director.

UNOS determines ancillary services, and credentialing, in addition to maintenance of list
Destination therapy is for patients that require permanent mechanical cardiac support. The VADs used for destination therapy are covered only if they have received approval from the FDA for that purpose.

Patient Selection

The VADs are covered for patients who have chronic end-stage heart failure (New York Heart Association Class IV end-stage left ventricular failure) who are not candidates for heart transplantation, and meet all of the following conditions:

- Have failed to respond to optimal medical management (including beta-blockers and ACE inhibitors if tolerated) for at least 45 of the last 60 days, or have been balloon pump-dependent for 7 days, or IV inotrope-dependent for 14 days;

- Have a left ventricular ejection fraction (LVEF) <25%; and,

- Have demonstrated functional limitation with a peak oxygen consumption of ≤14 ml/kg/min unless balloon pump- or inotrope-dependent or physically unable to perform the test.

November 9, 2010
TABLE 2. Cardiovascular "Demand Catalysts"

<table>
<thead>
<tr>
<th>Catalyst</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>An aging population with more chronic cardiac patients living longer</td>
<td></td>
</tr>
<tr>
<td>The &quot;epidemics&quot; of obesity and type 2 diabetes leading to more</td>
<td></td>
</tr>
<tr>
<td>cardiovascular disease</td>
<td></td>
</tr>
<tr>
<td>Heart patients' outcomes are better if they receive part of their care</td>
<td></td>
</tr>
<tr>
<td>from a cardiologist</td>
<td></td>
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<tr>
<td>The demise of the gatekeeper model resulted in enhanced access to</td>
<td></td>
</tr>
<tr>
<td>cardiologists</td>
<td></td>
</tr>
<tr>
<td>A better informed public with growing expectations in terms of their</td>
<td></td>
</tr>
<tr>
<td>health care</td>
<td></td>
</tr>
<tr>
<td>More women learning they are more likely to die from cardiovascular</td>
<td></td>
</tr>
<tr>
<td>disease than cancer</td>
<td></td>
</tr>
<tr>
<td>Continuing technological and procedural innovations that diffuse</td>
<td></td>
</tr>
<tr>
<td>rapidly into practice</td>
<td></td>
</tr>
<tr>
<td>Growing use of cardiovascular screening tests that result in more</td>
<td></td>
</tr>
<tr>
<td>referrals and procedures</td>
<td></td>
</tr>
<tr>
<td>Progressive subspecialization within cardiology that result in more</td>
<td></td>
</tr>
<tr>
<td>&quot;internal&quot; referrals</td>
<td></td>
</tr>
</tbody>
</table>

*Circulation*  
February 24, 2004 Vol. 109 No. 7 813-816
Who and how we will take care of the heart failure patients?

- 2007 HF hospital discharges: 990,000
- 2007 HF office visits: 3,434,000
  - 83% hospitalized once
  - 43% hospitalized at least 4 times

- 2010 internists, and generalists: 50,070
- 2010 Physicians and surgeons: 293,740
- 2010 cardiologists: 20,000
Who Manages Heart Failure?

- **IM**: 43%
- **FP/GP**: 29%
- **CARD**: 17%
- **Other**: 11%
Stages of CHF — ACC/AHA Guidelines 2005

A
High-risk patients
Hypertension, diabetes, coronary disease, family history, cardiotoxic drugs

B
Structural heart disease
LVH, MI, low LVEF, dilatation, valvular disease

C
Prior, current symptoms

D
Refractory

Ammar et al. Circulation 2007; 115:1563 Olmsted County survey
Stages of CHF — ACC/AHA Guidelines 2005

A
High-risk patients
Hypertension, diabetes, coronary disease, family history, cardiotoxic drugs

B
Structural heart disease
LVH, MI, low LVEF, dilatation, valvular disease

C
Prior, current symptoms

D
Refractory
0.2%

11.8%

34%

22%

A
High-risk patients
Hypertension, diabetes, coronary disease, family history, cardiotoxic drugs

Ammar et al. Circulation 2007; 115:1563
Prevalence and prognostic significance of HF Stages

Survival (years)

Ammar et al. *Circulation* 2007; 115:1563
FIGURE 1. The Innovative Care for Chronic Conditions Framework (1).

**Positive policy environment**
- Strengthen partnerships
- Support legislative frameworks
- Integrate policies
- Provide leadership and advocacy
- Promote consistent financing
- Develop and allocate human resources

**Community**
- Raise awareness and reduce stigma
- Encourage better outcomes through leadership and support
- Mobilize and coordinate resources
- Provide complementary services

**Health care organization**
- Promote continuity and coordination
- Encourage quality through leadership and incentives
- Organize and equip health care teams
- Use information systems
- Support self-management and prevention

**Links**
- Community partners
- Health care team
- Informed
- Motivated
- Prepared

**Patients and families**

**Better outcomes for chronic conditions**
**Core Competencies**

1. **Patient-centred care**
   - Interviewing and communicating effectively
   - Assisting changes in health-related behaviours
   - Supporting self-management
   - Using a proactive approach

2. **Partnering**
   - Partnering with patients
   - Partnering with other providers
   - Partnering with communities

3. **Quality improvement**
   - Measuring care delivery and outcomes
   - Learning and adapting to change
   - Translating evidence into practice

4. **Information and communication technology**
   - Designing and using patient registries
   - Using computer technologies
   - Communicating with partners

5. **Public health perspective**
   - Providing population-based care
   - Systems thinking
   - Working across the care continuum
   - Working in primary health care-led systems

**World Health Organization**

*Heart failure as a model of chronic care.*
Coordinating Care for Patients With Chronic HF

Effective systems of care coordination with special attention to care transitions should be deployed for every patient with chronic HF that facilitate and ensure effective care that is designed to achieve GDMT and prevent hospitalization.

Every patient with HF should have a clear, detailed and evidence-based plan of care that ensures the achievement of GDMT goals, effective management of comorbid conditions, timely follow-up with the healthcare team, appropriate dietary and physical activities, and compliance with Secondary Prevention Guidelines for cardiovascular disease. This plan of care should be updated regularly and made readily available to all members of each patient’s healthcare team.

Palliative and supportive care is effective for patients with symptomatic advanced HF to improve quality of life.
Where is the patient in this picture?
Contemporary Evidence About Hospital Strategies for Reducing 30-Day Readmissions

A National Study

Elizabeth H. Bradley, PhD,*† Leslie Curry, MPH, PhD,*† Leora I. Horwitz, MD,‡§ Heather Sipsma, PhD,* Jennifer W. Thompson, MPP,* MaryAnne Elma, MPH,|| Mary Norine Walsh, MD,¶ Harlan M. Krumholz, MD, SM*†‡# New Haven, Connecticut; and Washington, DC JACC 2012; 60: 607

Nearly 90% of readmissions are preventable re-reducing readmission rates teams to reduce preventable rehospitalization, readmission rates less than one-year local hospitals.

Members of QI teams focusing on readmission for patients with HF (select all that apply)†

- **Nurses**
  - 459 (98.3%)
- **QI/quality management staff**
  - 447 (95.7%)
- **Social workers and/or case managers**
  - 418 (89.5%)
- **Physicians**
  - 415 (88.9%)
- **Senior management of the hospital**
  - 407 (87.2%)
- **Pharmacists**
  - 306 (65.5%)
- **Advanced practice nurses or physician assistants**
  - 271 (58.0%)
- **Hospital governing board members**
  - 86 (18.4%)
- **Patient or family representatives**
  - 56 (12.0%)
<table>
<thead>
<tr>
<th>Risk-standardized readmission rate</th>
<th>Percentage Point Change in RSRRs</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>26.0</td>
<td>-0.33 (0.14)</td>
<td>0.017</td>
</tr>
<tr>
<td>25.0</td>
<td>-0.34 (0.15)</td>
<td>0.020</td>
</tr>
<tr>
<td>24.0</td>
<td>-0.18 (0.06)</td>
<td>0.002</td>
</tr>
<tr>
<td>23.0</td>
<td>-0.19 (0.09)</td>
<td>0.037</td>
</tr>
<tr>
<td>22.0</td>
<td>-0.21 (0.07)</td>
<td>0.004</td>
</tr>
<tr>
<td>21.0</td>
<td>-0.26 (0.13)</td>
<td>0.049</td>
</tr>
</tbody>
</table>

- Hospital has partnered with community physicians or physician groups to reduce readmission rates
- Hospital has partnered with other local hospitals to reduce readmission rates
- Higher frequency of nurses responsible for performing medication reconciliation at discharge†
- Greater frequency with which patients leave the hospital with an outpatient follow-up appointment already arranged†
- Greater proportion of patients for whom a paper or an electronic discharge summary sent directly to the patient's primary MD†
- Someone within the hospital is assigned to follow up on test results that return after the patient is discharged
Where is the patient in this picture?
ACCF/AHA/HFSA 2011 Survey Results: Current Staffing Profile of Heart Failure Programs, Including Programs That Perform Heart Transplant and Mechanical Circulatory Support Device Implantation

2010

Acute Heart Failure Syndromes: Emergency Department Presentation, Treatment, and Disposition: Current Approaches and Future Aims

2009

State of the Science
Promoting Self-Care in Persons With Heart Failure
A Scientific Statement From the American Heart Association

Barbara Riegel, DNSc, RN, FAHA, Chair; Debra K. Moser, DNSc, RN, FAHA; Stefan D. Anker, MD, PhD; Lawrence J. Appel, MD, MPH, FAHA; Sandra B. Dunbar, RN, DSN, FAHA; Kathleen L. Grady, PhD, APN; Michelle Z. Gurvitz, MD; Edward P. Havranek, MD; Christopher S. Lee, PhD, RN; JoAnn Lindenfeld, MD, FAHA; Pamela N. Peterson, MD, MSPH; Susan J. Pressler, DNS, RN, FAHA; Douglas D. Schocken, MD, FAHA; David J. Whellan, MD; on behalf of the American Heart Association Council on Cardiovascular Nursing, Council on Clinical Cardiology, Council on Nutrition, Physical Activity, and Metabolism, and Interdisciplinary Council on Quality of Care and Outcomes Research
Evidence-Based Interventions to Improve the Palliative Care of Pain, Dyspnea, and Depression at the End of Life: A Clinical Practice Guideline from the American College of Physicians

Amir Qaseem, MD, PhD, MHA; Vincenza Snow, MD; Paul Shekelle, MD, PhD; Donald E. Casey Jr., MD, MPH, MBA; J. Thomas Cross Jr., MD, MPH; and Douglas K. Owens, MD, MS, for the Clinical Efficacy Assessment Subcommittee of the American College of Physicians*

Evidence for Improving Palliative Care at the End of Life: A Systematic Review

Karl A. Lorenz, MD, MSHS; Joanne Lynn, MD, MA, MS; Sydney M. Dy, MD; Lisa R. Shugarman, PhD; Anne Wilkinson, MS, PhD; Richard A. Mularski, MD, MSHS, MCR; Sally C. Morton, PhD; Ronda G. Hughes, RN, MHS, PhD; Lara K. Hilton, BA; Margaret Maglione, PhD; Shannon L. Rhodes, MS; Cony Rolon, BA; Virginia C. Sun, BS, MSN; and Paul G. Shekelle, MD, PhD

The Epidemic of Heart Failure: *Who is Certified to Care for these Patients?*

- Certification may not be as important as collaboration…
- Certified personnel are too few to deal with this HF epidemic….
- Finding ways to put the patient back in the middle of care and share in the responsibility is of paramount importance!
Thank You.