Innovations in Outpatient Care of Heart Failure

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Innovation

• Function: noun
  1 : the introduction of something new
  2 : a new idea, method or device

• If an invention improves some product, process or service for the public, then that invention transforms into an innovation

• There are always barriers to intervention, including resistance to change, existing culture or lack of new inventions
Recent Innovations in OP Care

• Transitional Care Teams
• HF Observation Units
• Device Diagnostics
<table>
<thead>
<tr>
<th>Recommendation or Indication</th>
<th>COR</th>
<th>LOE</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance improvement systems in the hospital and early postdischarge outpatient setting to identify HF for GDMT</td>
<td>I</td>
<td>B</td>
<td>(151,332-338)</td>
</tr>
</tbody>
</table>
| Before hospital discharge, at the first postdischarge visit, and in subsequent follow-up visits, the following should be addressed:  
  a. initiation of GDMT if not done or contraindicated;  
  b. causes of HF, barriers to care, and limitations in support;  
  c. assessment of volume status and blood pressure with adjustment of HF therapy;  
  d. optimization of chronic oral HF therapy;  
  e. renal function and electrolytes;  
  f. management of comorbid conditions;  
  g. HF education, self-care, emergency plans, and adherence; and  
  h. palliative or hospice care | I   | B   | (57,337,339-341) |
| Multidisciplinary HF disease-management for patients at high risk for hospital readmission | I   | B   | (336,342-344) |
| A follow-up visit within 7 to 14 d and a telephone follow-up within 3 d of hospital discharge is reasonable | IIa | B   | (345,346) |
| Use of clinical risk-prediction tools and/or biomarkers to identify higher-risk patients is reasonable | IIa | B   | (62) |

Transitional Care Team

• Goal: An integrated, holistic, "macro view" of the needs of the patients, instead of reacting to data in a patchwork fashion
• Includes medicine, nursing, case management, pharmacy, home care, patient-caregiver, and others as needed
• CMS introduced TOC reimbursement codes
  – Moderately complex: face-to-face visit within 14 days
  – Complex pt: face-to-face visit within 7 days
Discharge Orders, Pending Tests, “Red Flags”

• Reinforce self management/care
• Specific instructions regarding “red flags”
• Complete medication reconciliation
• Resources needed upon return to community
• Communication of care delivered, plan of care, outstanding tests, etc to next providers of care
  – Timely and comprehensive
• Identification of “Captain of the Ship”
ED, HF Docs Team Up to Cut Readmissions

Published: Sep 23, 2013

By Chris Kaiser, Cardiology Editor, MedPage Today
Reviewed by Zalman S. Agus, MD, Emeritus Professor, Perelman School of Medicine at the University of Pennsylvania

ORLANDO – An early alert system from the emergency department (ED) to a 24/7 dedicated heart failure team significantly cut down readmission rates, researchers found.

Thirty-day readmission rates decreased to a mean of 18.4% at 12 months following the implementation of the system, compared with 24.5% in the 12 months before implementation (P=0.003), according to Azam Hadi, MD, of the Indiana University School of Medicine in Indianapolis, and colleagues.

In addition, patients were more likely to be
Observation Units (OUs)

- OUs have emerged as a viable solution due to limited ED bed capacity or lack of inpatient beds
- OUs are associated with readmission reduction initiatives
  - Treatment provided in OU does not “count” as a readmission; no limit on number of OU visits
  - Must be medically necessary – “significant risk of deterioration in the immediate future”
- Pts incur greater out-of-pocket expenses than if had been admitted
  - Also fail to meet requirement for skilled care
A HF OU Must...

- Be located in an acute care setting
- Provide a bed and “periodic monitoring” by professional staff
- Assess / reassess response to treatment
- Have LOS of at least 8 hrs to max of 48 hrs
  - Time frame intent to assist with determining medical necessity and to reduce denials
- Adequate document need for admission for those failing to meet discharge standards
  - IF care required can only be delivered in IP setting
- Transition Care Team is imperative
AdaptivCRT Algorithm

1. Regular rhythm?
   - no
   - yes
     - Evaluate intrinsic conduction
       - no
       - yes
         - Intrinsic AV conduction present and normal?
           - no
           - yes
             - Any HR?
               - no
               - yes
                 - Adaptive LV pacing
                   - Optimal AV Delay?
                 - Adaptive BiV pacing
                   - Optimal AV and VV Delay?
             - Adaptive BiV pacing
               - Optimal AV and VV Delay?
### Adaptive CRT Trial¹: Results

#### Secondary End Points at 6 months

<table>
<thead>
<tr>
<th>End Point</th>
<th>aCRT (n=318)</th>
<th>Echo (n=160)</th>
<th>Difference (95% CI)</th>
<th>P-value* (Margin)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ΔLVESVi (mL/m²)</td>
<td>-8.3 ± 23.3</td>
<td>-10.5 ± 24.2</td>
<td>2.3 (-2.8, 7.4)</td>
<td>&lt;0.0001 (15)</td>
</tr>
<tr>
<td>ΔLVEF (%)</td>
<td>3.9 ± 10.0</td>
<td>2.9 ± 9.8</td>
<td>1.0 (-1.2, 3.1)</td>
<td>0.0009 (-2.5)</td>
</tr>
<tr>
<td>ΔNYHA</td>
<td>-1.0 ± 0.8</td>
<td>-0.8 ± 0.8</td>
<td>-0.15 (-0.3, 0.0)</td>
<td>&lt;0.0001 (0.3)</td>
</tr>
<tr>
<td>Δ6-min HW (m)</td>
<td>42.4 ± 103.3</td>
<td>29.0 ± 123.0</td>
<td>13.4 (-8.9, 35.7)</td>
<td>0.0002 (-30)</td>
</tr>
<tr>
<td>ΔMLWHF QoL</td>
<td>-19.3 ± 20.7</td>
<td>-17.6 ± 23.8</td>
<td>-1.7 (-6.3, 2.8)</td>
<td>0.002 (5.1)</td>
</tr>
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* - non-inferiority p-value

AdaptivCRT Reduced AF Risk by 46%

As compared to patients receiving echo optimized CRT

% Patients with ≥48 Hours of AT/AF

<table>
<thead>
<tr>
<th>Months Since Randomization</th>
<th>Number remaining</th>
<th>% Patients with ≥48 Hours of AT/AF</th>
</tr>
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<tbody>
<tr>
<td>0</td>
<td>160</td>
<td>8.8%</td>
</tr>
<tr>
<td>6</td>
<td>141</td>
<td>16.2%</td>
</tr>
<tr>
<td>12</td>
<td>126</td>
<td>8.8%</td>
</tr>
<tr>
<td>18</td>
<td>109</td>
<td>16.2%</td>
</tr>
<tr>
<td>24</td>
<td>33</td>
<td>8.8%</td>
</tr>
</tbody>
</table>

Number remaining: 312 280 260 241 83

p = 0.03

HR = 0.54 (0.31-0.93)

Closing

Innovation has nothing to do with how many R&D dollars you投入... It's not about money. It's about the people you have, how you lead them, and how much you get it.

Steve Jobs