A cardiologist view

Patrick Jourdain

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Heart failure management, a cardiologist point of view

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Heart failure department
Pontoise France
Heart failure mortality in Europe

Laribi S. Eur Journal of Heart Failure 2012;14:234-239
HF is still a severe disease despite all our efforts.
Mortality is high especially after discharge.

More hospitalizations less life expectancy
CV diseases: medical costs 2010-2030 (USA)

<table>
<thead>
<tr>
<th>Year</th>
<th>Ischaemic heart disease</th>
<th>HF</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>billions 2008$</td>
<td>billions 2008$</td>
<td>billions 2008$</td>
</tr>
<tr>
<td>2010</td>
<td>35.7</td>
<td>24.7</td>
<td>272.5</td>
</tr>
<tr>
<td>2015</td>
<td>46.8</td>
<td>32.4</td>
<td>358.0</td>
</tr>
<tr>
<td>2020</td>
<td>61.4</td>
<td>42.9</td>
<td>470.3</td>
</tr>
<tr>
<td>2025</td>
<td>81.1</td>
<td>57.5</td>
<td>621.6</td>
</tr>
<tr>
<td>2030</td>
<td>106.4</td>
<td>77.7</td>
<td>818.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>% Change</th>
<th>Ischaemic heart disease</th>
<th>HF</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>198</td>
<td>215</td>
<td>200</td>
</tr>
</tbody>
</table>

* Includes hypertension, CAD, HF, stroke

Heidenreich PA. Circulation 2011;123:933-944
What are the determinants of an efficient heart failure management?

- Optimizing detection
- Optimizing medical therapy
- Optimizing prognostic analysis
- Optimizing patient and relatives information
- Optimizing pathways during in and out hospitalisation phase

It’s really more complex than testing a new molecule… because it’s a complex process involving doctors, nurses, patients, health care system, policy makers,…
The gap between « here » and the « real world »

Inside/ outside the meeting room

• HF is managed by: experts / low expertise
• HF perception: Severe / less severe
• HF specialist: Cardiologist / GP
• HF patients: younger / older
• HF guideline use: High / low
• HF education : Usual/ what is it ?
• HF therapy intolerance: Low / high
• Our patient hospitalization structure: Cardiology / Non cardiologic structure
The hope /ESC - Heart failure long term registry: Drugs

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Total population (n. 7041)%</th>
<th>Reduced EF (≤45%) (n. 4792)%</th>
<th>Preserved EF (&gt;45%) (n. 1499)%</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACE-I/ARBs</td>
<td>89.2</td>
<td>92.2</td>
<td>79.7</td>
</tr>
<tr>
<td>Beta-blockers</td>
<td>88.9</td>
<td>92.7</td>
<td>78.8</td>
</tr>
<tr>
<td>MRAs</td>
<td>59.3</td>
<td>67.0</td>
<td>40.8</td>
</tr>
<tr>
<td>Diuretics</td>
<td>83.1</td>
<td>84.3</td>
<td>78.5</td>
</tr>
<tr>
<td>Digitalis</td>
<td>23.0</td>
<td>23.9</td>
<td>19.0</td>
</tr>
<tr>
<td>Ivabradine</td>
<td>8.5</td>
<td>10.5</td>
<td>4.9</td>
</tr>
<tr>
<td>Antiplatelets</td>
<td>48.7</td>
<td>51.5</td>
<td>40.4</td>
</tr>
<tr>
<td>Oral anticoagulant</td>
<td>42.4</td>
<td>41.9</td>
<td>45.6</td>
</tr>
<tr>
<td>Statins</td>
<td>60.9</td>
<td>61.8</td>
<td>55.6</td>
</tr>
</tbody>
</table>

The reality: French real life

![Bar chart showing the comparison between treatments before hospitalization and 30 days after.](chart.png)

Avant l'hospitalisation vs A 30 jours

First hospitalization for heart failure in France in 2009: Patient characteristics and 30-day follow-up

Figure 1. Incidence rate of a first hospitalization for heart failure by age and sex among subjects covered by the general scheme in France in 2009 (n = 69,958).
Improve prevention

- Prevention of Heart failure:
  - Treating Hypertension, renal dysfunction, diabetitis,…
  - Information of general population

- Prevention of decompensation
  - Early identification of high risk patients
  - Use of strategies in order detect LVD prior to HF decompensation with a sustainable cost for the national health system (an high efficacy strategy is not ever a high efficiency strategy).
Limiting time « admission to treatment » at the emergency department

- Time is life…
- Acute HF is associated with an high rate of mortality (3 *AMI mortality in france).
- Natriuretic peptides have dramatically cut the risk of clinical indecision and are helpful to focus on high risk patients.
- Despite change in diagnostic algorithm nothing has change in numerous hospitals.
- Only a minority of patients are hospitalized in cardiology department and this lead to a significant lower rate and daily dose of HF therapeuticu and an higher daily dose of diuretics.
- The intraveinous therapeutic is mosty initiated in the hospitalization unit
Heterogenous time between admission to first intraveinous diuretics

Figure  Distribution of delay times in patients with acute heart failure: metropolitan Worcester, Massachusetts.
### The ADHERE Registry
#### Use of IV Diuretics and IV Vasoactive Drugs

<table>
<thead>
<tr>
<th>IV Diuretic Treatments</th>
<th>The Nation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discharges who were given IV diuretic Tx (%)</td>
<td>88</td>
</tr>
<tr>
<td>Mean duration of IV diuretic Tx (days)</td>
<td>3.0</td>
</tr>
<tr>
<td>Mean duration to first IV diuretic Tx time (hr)</td>
<td>7.8</td>
</tr>
<tr>
<td>IV diuretic Tx started in ED and/or Obs (%)</td>
<td>81</td>
</tr>
<tr>
<td>Mean duration to first IV diuretic Tx time (hr)</td>
<td>2.2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IV Vasoactive Treatments</th>
<th>The Nation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discharges who were given IV vasoactive Tx (%)</td>
<td>29</td>
</tr>
<tr>
<td>Mean duration of IV vasoactive (days)</td>
<td>2.9</td>
</tr>
<tr>
<td>Mean duration to first IV vasoactive time (hr)</td>
<td>22.4</td>
</tr>
<tr>
<td>IV vasoactive Tx started in ED and/or Obs (%)</td>
<td>50</td>
</tr>
<tr>
<td>Mean duration to first IV vasoactive Tx time (hr)</td>
<td>2.2</td>
</tr>
</tbody>
</table>

ADHERE Registry Data. All enrolled discharges (n=150,745); October 2001 to December 2004
In emergency room therapy a key for improving management?

<table>
<thead>
<tr>
<th></th>
<th>IV Vasoactives Started</th>
<th></th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ED (n = 4096)</td>
<td>In-patient Unit (n = 3499)</td>
<td></td>
</tr>
<tr>
<td>Mortality (%)</td>
<td>4.3</td>
<td>10.9</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Hospital LOS (days, median)</td>
<td>4.5</td>
<td>7.0</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Transfer to ICU/CCU (%)</td>
<td>4</td>
<td>20</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>ICU/CCU time (days, median)</td>
<td>2.1</td>
<td>3.0</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Invasive procedure (%)</td>
<td>19</td>
<td>27</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Prolonged hospitalization (&gt;7.1 days, 3rd quartile)</td>
<td>26</td>
<td>49</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

Improving and speed intra hospital pathways

• Creating specific access for ambulatory HF patients already follow up with a direct access to cardiology department
• Creating a central software for HF patients with reading access by ED cardiologist and HF nurses.
• Creating specific facilities to anticipate transferts of very severe patients from local hospital to academic and transplantation centers.
• Facilitating access to echocardiography depending on local possibilities (small handling echographs, ED doctors formation, …) especially for elderly patients.
• Opening Intensive care unit/ coronary care to high risk HF patients before cardiogenic shock in order to increase the survey.
• Using natriuretic peptides.
Creating Acute HF teams in each regional hospital

- A team associating
  - ED nurses + doctors including juniors.
  - Cardiology/ internal medicine HF specialist
  - Echocardiographist (if not done by cardiology department).
  - Pivotal nurse or equivalent

- The goals of this team are to:
  - Re-inform the colleagues
  - Create local protocols focusing on early diagnostic/therapy/rule in and out.
  - Help non HF specialists during in patient stay.
  - Creating a specific quality plan
  - Identify high risk patients

- Could be associate to HF units
- Could be associate to mobile HF units
- Could be associate to educational structures
Try to reduce in hospital stay

- Duration of stay is really heterogeneous depending on many criteria:
- Doctors focus on comorbidities and patient severity
- Health care policy makers focus on type of payment (enter ticket / day payment).
Durée de séjour classique ou étendue et risque de décès
Bridging from hospital to patient home rather than to discharge the patient

- 1/3 of discharged patients in France haven’t seen a GP in 3 months and 60% haven’t seen any cardiologist (Tuppin 2012).
- Most of patients are discharged without education (therapeutic but also clinical signs).
- A large proportion of patients are discharged only on diuretics (especially the oldest).
- The first weeks after discharge are the highest risk period.
How to bridge?

- Short time education before discharge in all the patients and or relatives.
- Optimize therapy before discharge in REF HF
- Proposal of a therapy optimization plan in the discharge report.
- Identification of the GP and the cardiologist of the patient before discharge
- Analysis of the risk profile (renal function, compliance, Number of hospitalization, natriuretic peptides,…)
- Plan the first medical appointment depending on the risk profile
- Doing a phone call per week for the first two weeks.
Discharge BNP and prognosis

Predischarge BNP < 350 ng/l
n=111, events = 18

Predischarge BNP 350 - 700 ng/l
n=50, events = 30

Predischarge BNP > 700 ng/l
n=41, events = 38

Death or readmission (%)

Follow-up (days)

Hazard ratios of 2nd and 3rd versus 1st BNP range

Logeart D Tabut A Jourdain P, JACC 2004
When making a phone call to the GP or to the cardiologist?
Creating a nationwide scoring system

• Oncology is a complex medical speciality and is focusing on management of very different diseases in term of aetiology, severity, ...

• Like in other pathologies, there are numerous prognostic markers.

• Me know that “classic definitions” (A-D, NYHA, HF types) have a high variability depending on cardiologists hospitals and countries.

• It is difficult to compare studies and to help clinicians to optimize the therapeutic regarding to comorbidities and the risk of intolerance.
### Table 5: Risk-Prediction Nomogram

<table>
<thead>
<tr>
<th>Age, yrs</th>
<th>Heart Rate, beats/min</th>
<th>SBP, mm Hg</th>
<th>Sodium, mEq/l</th>
<th>SCr, mg/dl</th>
<th>Primary Cause of Admission</th>
<th>LVSD</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>0</td>
<td>65</td>
<td>0</td>
<td>50</td>
<td>110</td>
<td>13</td>
<td>0</td>
</tr>
<tr>
<td>25</td>
<td>2</td>
<td>70</td>
<td>1</td>
<td>60</td>
<td>115</td>
<td>11</td>
<td>0.5</td>
</tr>
<tr>
<td>30</td>
<td>3</td>
<td>75</td>
<td>1</td>
<td>70</td>
<td>120</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>35</td>
<td>5</td>
<td>80</td>
<td>2</td>
<td>80</td>
<td>125</td>
<td>7</td>
<td>1.5</td>
</tr>
<tr>
<td>40</td>
<td>6</td>
<td>85</td>
<td>3</td>
<td>90</td>
<td>130</td>
<td>4</td>
<td>2</td>
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<tr>
<td>45</td>
<td>8</td>
<td>90</td>
<td>4</td>
<td>100</td>
<td>135</td>
<td>2</td>
<td>2.5</td>
</tr>
<tr>
<td>50</td>
<td>9</td>
<td>95</td>
<td>4</td>
<td>110</td>
<td>140</td>
<td>0</td>
<td>3</td>
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<tr>
<td>55</td>
<td>11</td>
<td>100</td>
<td>5</td>
<td>120</td>
<td>145</td>
<td>2</td>
<td>3.5</td>
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<td>60</td>
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<td>70</td>
<td>16</td>
<td>115</td>
<td>7</td>
<td>150</td>
<td>160</td>
<td>8</td>
<td></td>
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<tr>
<td>75</td>
<td>17</td>
<td>120</td>
<td>8</td>
<td>160</td>
<td>165</td>
<td>10</td>
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<tr>
<td>80</td>
<td>19</td>
<td>125</td>
<td>9</td>
<td>170</td>
<td>170</td>
<td>12</td>
<td></td>
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<tr>
<td>85</td>
<td>20</td>
<td>130</td>
<td>10</td>
<td></td>
<td></td>
<td></td>
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<td>90</td>
<td>22</td>
<td>135</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>95</td>
<td>24</td>
<td>140</td>
<td>12</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Predictors of In-Hospital Mortality in Patients Hospitalized for Heart Failure: Insights From the Organized Program to Initiate Lifesaving Treatment in Hospitalized Patients With Heart Failure (OPTIMIZE-HF)

William T. Abraham, Gregg C. Fonarow, Nancy M. Albert, Wendy Gattis Stough, Mihai Gheorghiade, Barry H. Greenberg, Christopher M. O’Connor, Jie Lena Sun, Clyde W. Yancy, James B. Young, on behalf of the OPTIMIZE-HF Investigators and Coordinators. *J. Am. Coll. Cardiol.* 2008;52;347-356

**Figure 3** Association Between Risk Prediction Score and Probability of Death
Could we define a new system for standardization of HF analysis?

- Oncology have T (tumor) N (nodes) M (metastatic localization)...
- HF may use a derivation system:

<table>
<thead>
<tr>
<th>Heart</th>
<th>Lung</th>
<th>Malfunction of Other Organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>H-1: impaired systolic or diastolic function of LV without structural damage</td>
<td>L-0: no lung involvement</td>
<td>M-0: no malfunction of other organs</td>
</tr>
<tr>
<td>H-2: LV with systolic or diastolic dysfunction and structural damage (hypertrophy, previous myocardial infarction)</td>
<td>L-1: Hemodynamic congestion</td>
<td>M-1: single organ damage due to HF</td>
</tr>
<tr>
<td>H-3: systolic and diastolic dysfunction (and/or EF&lt; 35%) with left ventricular remodeling</td>
<td>L-2: Clinical congestion</td>
<td>M-2: double organ damage due to HF</td>
</tr>
<tr>
<td>H-4: biventricular systolic and diastolic dysfunction</td>
<td>L-3: Cardiac lung*</td>
<td>M-3: multiple organ damage</td>
</tr>
</tbody>
</table>

Parameters of pulmonary damage:
- Precapillary pulmonary hypertension (mPAP > 25mmHg; PAWP < 15mmHg)
- Post-capillary pulmonary hypertension (mPAP > 25mmHg; PAWP > 15mmHg)
- Pleural effusion
- Pulmonary edema

Other Organs:
- Kidney
- Liver
- Central nervous system
Fighting medical inertia

• We all are « good » cardiologist
• We all have read (many times) the ESC guidelines.
• But in real life we are not as good as recommended by the guidelines…
• Especially in high risk populations..

• JUST FOLLOW THE GUIDELINES
Adding therapies is adding life

Change in Odds of 24-Month Mortality (%)

Heart Failure Therapies

- Beta-blocker: -39% (-26% to -48%) P < 0.0001
- Beta-blocker + ACE/ARB: -63% (-54% to -71%) P < 0.0001
- Beta-blocker + ACE/ARB + ICD: -76% (-68% to -81%) P < 0.0001
- Beta-blocker + ACE/ARB + ICD + HF education: -81% (-75% to -86%) P < 0.0001
- Beta-blocker + ACE/ARB + ICD + HF education + anticoagulation for AF: -83% (-72% to -87%) P < 0.0001
- Beta-blocker + ACE/ARB + ICD + HF education + anticoagulation for AF + CRT: -81% (-72% to -87%) P = 0.6001

Number of Therapies (vs 0 or 1 therapy)
- 2 therapies: Odds Ratio 0.63 (0.47-0.85) P = 0.0026
- 3 therapies: Odds Ratio 0.38 (0.29-0.51) P < 0.0001
- 4 therapies: Odds Ratio 0.30 (0.23-0.41) P < 0.0001
- 5, 6, or 7 therapies: Odds Ratio 0.31 (0.23-0.42) P < 0.0001

J Am Heart Assoc 2012, 1:16-26
**MAHLER SURVEY**

6 month hospitalisation rate (%)

- **P = 0.0003**
- **P = 0.0003**

<table>
<thead>
<tr>
<th>CHF HOSPITALISATION</th>
<th>CV HOSPITALISATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good</td>
<td>Good</td>
</tr>
<tr>
<td>Moderate Adherence</td>
<td>Moderate Adherence</td>
</tr>
<tr>
<td>Low</td>
<td>Low</td>
</tr>
</tbody>
</table>

Create a real nurse / doctors coopération process

- Nurse and doctors are not concurrent but associates.
- Two different roles but one goal: optimizing patient life.
- In some countries nurses missions are very limited in others, nurses is not only a member of the team but the manager of the HF unit.
- Two main different options:
  - HF clinics leads by a tandem Nurse and cardiologists
  - Ambulatory care based on « at home » nurse visits (PRADO system in France)
Integrate patient self management education into basic HF management

- Patient education is often confounded with patient information.
- The « holy grail » is to motivate the patient and moving from « passive patient » to an active ambassador from the positive impact of self management.
- Education is not equivalent to complexity
- Education is not only empathy but empathy is mandatory.
- Education in not only knowledge even knowledge is mandatory.
- Initial educational diagnostic/ cognitive techniques / negotiated objective
Patient perception may be different from doctor expectation

Table V
Patients’ perceptions of the importance of heart failure signs and symptoms

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Not much importance n (%)</th>
<th>Some importance n (%)</th>
<th>A lot of importance n (%)</th>
<th>A whole lot of importance n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shortness of breath during activity</td>
<td>11 (8.1)</td>
<td>39 (28.9)</td>
<td>45 (33.3)</td>
<td>40 (29.6)</td>
</tr>
<tr>
<td>Shortness of breath at rest</td>
<td>37 (27.2)</td>
<td>37 (27.2)</td>
<td>24 (17.6)</td>
<td>38 (27.9)</td>
</tr>
<tr>
<td>Difficulty walking around or climbing stairs</td>
<td>16 (12.0)</td>
<td>27 (20.3)</td>
<td>46 (34.6)</td>
<td>44 (33.1)</td>
</tr>
<tr>
<td>Decrease in energy level</td>
<td>8 (5.9)</td>
<td>40 (29.4)</td>
<td>48 (35.3)</td>
<td>40 (29.4)</td>
</tr>
<tr>
<td>Inability to do normal activities of daily living</td>
<td>12 (9.0)</td>
<td>39 (29.3)</td>
<td>35 (26.3)</td>
<td>47 (35.3)</td>
</tr>
<tr>
<td>Sudden weight gain of 3 or more pounds</td>
<td>65 (50.4)</td>
<td>22 (17.1)</td>
<td>18 (14.0)</td>
<td>24 (18.6)</td>
</tr>
<tr>
<td>Unintentional weight loss of 3 or more pounds</td>
<td>63 (51.2)</td>
<td>29 (23.6)</td>
<td>13 (10.6)</td>
<td>18 (14.6)</td>
</tr>
<tr>
<td>Chest pain never felt before</td>
<td>49 (37.7)</td>
<td>21 (16.2)</td>
<td>16 (12.3)</td>
<td>44 (33.8)</td>
</tr>
<tr>
<td>Increased severity or frequency of chest pain</td>
<td>56 (43.1)</td>
<td>16 (12.3)</td>
<td>18 (13.8)</td>
<td>40 (30.8)</td>
</tr>
<tr>
<td>Ankle swelling</td>
<td>39 (30.2)</td>
<td>24 (18.6)</td>
<td>37 (28.7)</td>
<td>29 (22.5)</td>
</tr>
<tr>
<td>Coughing</td>
<td>47 (34.3)</td>
<td>47 (34.3)</td>
<td>27 (19.7)</td>
<td>16 (11.7)</td>
</tr>
<tr>
<td>Difficulty sleeping</td>
<td>34 (25.6)</td>
<td>33 (24.8)</td>
<td>31 (23.3)</td>
<td>35 (26.3)</td>
</tr>
<tr>
<td>Dizziness or lightheadedness</td>
<td>42 (31.3)</td>
<td>34 (25.4)</td>
<td>33 (24.6)</td>
<td>25 (18.7)</td>
</tr>
<tr>
<td>Heart palpitations</td>
<td>27 (20.0)</td>
<td>30 (22.2)</td>
<td>43 (31.9)</td>
<td>35 (25.9)</td>
</tr>
<tr>
<td>Increased blood pressure</td>
<td>50 (38.5)</td>
<td>28 (21.5)</td>
<td>26 (20.0)</td>
<td>26 (20.0)</td>
</tr>
</tbody>
</table>
220 I-CARE centers; among them, 61 ODIN centers

3 publications:

**CARE Program:**
*Arch Mal Cœur 2005; 98: 300-307*

- **I-CARE Educational tools:**
  *Int J Cardiol 2006; 113: 355-363*

- **Education units for HF:**
  *Arch Cardiovasc Dis*
Kaplan–Meier cumulative 2-year survival curve of all-cause mortality according to the existence of therapeutic patient education (TPE) in the overall population:

Unadjusted HR = 0.48 (0.40 to 0.57)
Adjusted HR = 0.70 (0.58 to 0.84)
p<0.001

Self management programs impact

<table>
<thead>
<tr>
<th>Study</th>
<th>Treatment n/N</th>
<th>Control n/N</th>
<th>Peto OR 95% CI</th>
<th>Weight</th>
<th>Peto OR 95% CI</th>
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<td>RICH, 1993</td>
<td>21/63</td>
<td>16/35</td>
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<td>NAYLOR, 1994*</td>
<td>16/72</td>
<td>23/70</td>
<td>1.66 0.59 [0.28, 1.23]</td>
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<td>RICH, 1995</td>
<td>41/142</td>
<td>59/140</td>
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<td>WEINBERGER, 1996</td>
<td>130/249</td>
<td>106/255</td>
<td>7.31 1.52 [1.08, 2.17]</td>
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<td>CLINE, 1998</td>
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<td>43/79</td>
<td>1.92 0.55 [0.28, 1.08]</td>
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<td>EKMAN, 1998</td>
<td>48/79</td>
<td>45/79</td>
<td>2.24 1.17 [0.62, 2.20]</td>
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<td>STEWART, 1998</td>
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<td>31/48</td>
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<td>JAARSA, 1999</td>
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<td>NAYLOR, 1999*</td>
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<td>PHARM, 1999</td>
<td>29/90</td>
<td>31/91</td>
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<td>RAINVILLE, 1999</td>
<td>4/17</td>
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<td>STEWART, 1999</td>
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<td>51/100</td>
<td>2.90 0.64 [0.37, 1.12]</td>
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<td>VARMA, 1999</td>
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<td>27/41</td>
<td>1.22 0.28 [0.12, 0.65]</td>
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<td>BLUE, 2001</td>
<td>47/84</td>
<td>49/81</td>
<td>2.35 0.83 [0.45, 1.54]</td>
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<td>JERANT, 2001</td>
<td>8/25</td>
<td>7/12</td>
<td>0.47 0.35 [0.19, 0.99]</td>
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<td>PUGH, 2001</td>
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<td>11/31</td>
<td>0.77 0.91 [0.31, 2.67]</td>
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<tr>
<td>CAPOMOLLA, 2002</td>
<td>9/112</td>
<td>37/122</td>
<td>2.15 0.25 [0.13, 0.47]</td>
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<tr>
<td>DOUGHTY, 2002</td>
<td>64/100</td>
<td>59/97</td>
<td>2.70 1.34 [0.64, 2.03]</td>
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<td></td>
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<tr>
<td>HARRISON, 2002</td>
<td>18/79</td>
<td>24/78</td>
<td>1.60 0.67 [0.33, 1.35]</td>
<td></td>
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</tr>
</tbody>
</table>

Total (95% CI): 3639/3748

Total events: 1465 (Treatment), 1755 (Control)
Test for heterogeneity: $\chi^2 = 71.01$, df = 31 ($P < 0.0001$), $I^2 = 56.3\%$
Test for overall effect: $Z = 5.67$ ($P < 0.000001$)

Favours treatment Favours control

Roccaforte R... Eur J Heart Fail 2005; 7: 1133-44
Create a national quality control program

• « All my patients are well managed but I spend a lot of time with the patients of my colleagues » Anonymous french cardiologist

In HF like in all pathologies we are sure that we are doing the maximum and we used guidelines,… Reality is totally different.
Global conformity is not too bad but there is a huge differences between high quality and low quality hospitals.
Quality system

• Need guidelines..... We have guidelines
• Need proofs of concepts... We have proofs
• Need support from physicians.... As expert we support the improvement of therapy and management
• Need Incentive...
  – Accredidation
  – Financial incentive
    • for clinicians (private practice)
    • For hospital (30 days rehospitalisations limit)
• Need a pilot... In some countries it already exist NICE/ HAS ...
Introduction and overview

List of statements

Quality statement 1: Urgent referral for people with previous myocardial infarction

Quality statement 2: Measuring serum natriuretic peptides

Quality statement 3: 2-week assessment and diagnosis

Quality statement 4: Optimising treatment and care

Quality statement 5: Reducing readmissions

Quality statement 6: Continuous quality improvement

Quality statement 7: Ensuring access to high-quality care

Quality statement 8: Ensuring access to acute care

Quality statement 9: Ensuring access to specialist care

This NICE quality standard defines clinical best practice within this topic area. It provides specific, concise quality statements, measures and audience descriptors to provide patients and the public, health and social care professionals, commissioners and service providers with definitions of high-quality care.

This quality standard covers the assessment, diagnosis and management of chronic heart failure in adults.

Supporting organisations

A number of organisations recognise the benefit of this quality standard in improving care. They work with us to promote it to commissioners and service providers:
Integrate telemedicine into healthcare process

• Telemedicine is like patient education a mix of very different concepts, programs, ....

• Telemedicine could be divide into three segments:
  – **Teleconsultation**: medical examination through internet/TV,...
  – **Teleexpertise**: medical expertise through the whole country based on an exchange between GP and cardiologist
  – **Telemonitoring**: home based follow up of clinical data and transmission to a nurse or a doctor **in order to improve management and/or therapeutic**

• Telemedicine could be helpful in order to reduce heterogeneity of care, facilitate access to expertise, improve daily follow up of patients with chronic conditions
More than 50% of HF patients had clinical signs 5 days before ED hospitalisation

Publications are difficult to compare because of the technical changes.
Impact of telemonitoring in CHF in Cochrane database
Translation from acute setting to ambulatory disease like in oncology

• When the diagnostic is done there is an announcement consultation (explanation of the cancer and the care plan)… We can do the same rather to send the patient to “Google or wikipedia”.

• Before discharge radiotherapy and chemotherapy are planned. The “post first line” prognostic analysis is planned and the therapy will be increased if the patient is not totally cured…. We know that we need at least 4 meeting to improve HF therapy, so we can plan the different meeting before discharge

• The therapy options are discussed in a multi professional meeting (oncologist, radiotherapist, surgeon, radiologist,...)… Why don’t doing the same with HF specialist, HF nurses, rythmologists,...)
Improving early detection of HF degradation and need for LVAD

• Due to the change in management of HF management and to the improvement of diuretic strategies, the face of advanced HF is changing.
• Cachexia and asthenia are associated with high risk of mortality.
• Degradation of functional capacity are often earlier than crackles and rales.
• A low rate of patient benefit from real advanced HF therapies (transplantation / LVAD)
• Wee need to use check lists
Why not creating your heart failure unit?

- Structure including in hospitalization unit or outpatient hospital or specific programs focusing on CHF.
- A « dream team » including cardiologists, nurses, dieteticians and physiotherapists.
- Aim: to improve therapy as recommended by guidelines and to optimize follow up.
- Promote (or try to) rehabilitation and patient education.
The Heart Failure Clinic: A Consensus Statement of the Heart Failure Society of America

PAUL J. HAUPTMAN, MD,1 MICHAEL W. RICH, MD,2 PAUL A. HEIDENREICH, MD,3 JOHN CHIN, MD,4 NANCY CUMMINGS, MSN,5 MARK E. DUNLAP, MD,6 MICHELLE L. EDWARDS, MSN,7 DOUGLAS GREGORY, PhD,8 CHRISTOPHER M. O’CONNOR, MD,9 STEPHEN M. PEZZELLA, MD,10 AND EDWARD PHILBIN, MD11

Table 2. Candidates for Referral to a Heart Failure Clinic Providing Disease Management*

| Patients recently hospitalized for heart failure |
| Other high-risk patients, including those with: |
| Renal insufficiency |
| Diabetes |
| Chronic obstructive pulmonary disease |
| Persistent New York Heart Association Class III or IV symptoms |
| Frequent hospitalizations for any cause |
| Elderly patients and other patients with multiple active comorbidities |
| A history or depression, cognitive impairment, persistent nonadherence to therapeutic regimens, or inadequate social or economic support |

(J Cardiac Fail 2008;14:801–815)
HF management is different across Europe
Developing tools in order to help us to have a strategic point of view (much higher than our eyes perception…)

• Softwares with expert systems (specific to HF or evolution of pre existent non specific system)
• Using integrated scores (they have bias and limits but even it’s not totally personalized they are sometimes helpful): seattle heart failure model, HFSS,.. 
• Follow the results of scores and health parameters (by doctor or even by patient).
• Using the Biomarkers as Warning systems
• Analyse patient compliance to prescribed therapeutics
• Standardized tools for education
Create your own check list or recycle older ones

<table>
<thead>
<tr>
<th>Performance Measure Name</th>
<th>Diagnostics</th>
<th>Patient Education</th>
<th>Treatment</th>
<th>Self-Management</th>
<th>Monitoring of Disease Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Initial laboratory tests</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Left ventricular systolic function (LVSF) assessment</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Weight measurement</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Blood pressure measurement</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>5. Assessment of clinical symptoms of volume overload (excess)</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>6. Assessment of clinical signs of volume overload (excess)</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Assessment of activity level</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Patient education</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Beta-blocker therapy</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>10. ACE inhibitor, or angiotensin receptor blocker (ARB) therapy for patients with HF who have left ventricular systolic dysfunction (LVSD)</td>
<td></td>
<td></td>
<td>✓</td>
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</tr>
<tr>
<td>11. Warfarin therapy for patients with atrial fibrillation (AF)</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
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</tr>
</tbody>
</table>
HF integrated management impact in a community hospital
Recognize expertise in HF fields

- Angioplasty, rythmology and echocardiography are recognized in most countries as specific subspecialities associating expertise and quality.
- Historically, HF was the disease of « no one » due to its severity and three therapy choice (Nitrates, diuretics, digoxin).
- Years after years HF has changed and is really a complex disease that need a specific knowledge on different topics
- HF are recognized only in 50% of European countries.
- HF is a sub speciality in only few European countries
- In France actually only 50 students per year are specifically trained on HF
You are a lonesome cardiologist:

• Ask to your patients some questions about its reaction in case of (dyspnea, weight gain, …)

• Ask to you before each medical prescription: Why I have not optimize the therapy today ?

• Is it time to analyse detect HF in specific populations/ functional capacity / send the patient for invasive measurements / transplantation- LVAD ?
You are working in an hospital

- Go to see your doctors and nurses and create an HF team.
- Acute HF team is easier to create than ambulatory HF team but the goal is to cover the whole HF spectrum.
- Discuss and write common protocols on HF management.
- Convinced non HF specialists and hospitals directors
- Develop support structures (education/ communication/ look where telemédecine could be usefull)
- Create a quality plan
You are a policy maker

• Look the reality, due to the explosion of number of elderly patients, HF costs will explodes if there is not any HF national plan.

• Change the ecosystem:
  – develop a national network on HF with a 3 levels system
  – Support ambulatory care (3 levels of care: ambulatory / outpatient hospital/ inpatient hospitalization)
  – Develop cooperation between nurses and cardiologists
  – Recognize HF need for expertise (HF nurses, HF cardiologists)
  – Proposed a portfolio of solutions for health care professionals (ambulatory nurses, pivotal nurses, telemedicine, …)
  – Support a national (or european) quality plan.
  – Develop incentives for high quality HF programs
Your choice ...

Change? NO

YES

Flow
- Fast track pathways
- Pre discharge education
- Protocols- guidelines
- Evaluation
- prevention
- HF teams

Architecture
- Specific tools
- Expert systems
- Telemedicine
- Quantify self
- National HF network
- Quality plan
- incentive

Human values
- Patient education
- ED Nurses education
- HF Team management
- Nurses doctors cooperation
- HF specificity
Conclusions

• Improving HF management is:
• improving in the same time:
  – Flow (fast track, ED early therapy, discharge planning, …)
  – Architecture (HF network, telemedicine, quality plans, incentives)
  – Human values (patient education, nurses and doctors continuous education, patient and relatives partnership)
• Improving quality control at each step
• Associating empathy and dynamism (on therapy monitoring)
• Evaluating the effectiveness of processes
In each country YOU can find something or some pathways to improve.

Find your way... and remember that changing is difficult

If you don’t change your management … your patients will pay the bill