Effectiveness of heart failure management: what are the key components?

T. Jaarsma
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HF management

ESC HF Guidelines:

Heart failure management programmes

- Heart failure management programmes are recommended for patients with HF recently hospitalized and for other high-risk patients.

Class of recommendation I, level of evidence A
Table 32  Recommended components of heart failure management programmes

- Multidisciplinary approach frequently led by HF nurses in collaboration with physicians and other related services
- First contact during hospitalization, early follow-up after discharge through clinic and home-based visits, telephone support, and remote monitoring
- Target high-risk, symptomatic patients
- Increased access to healthcare (telephone, remote monitoring, and follow-up)
- Facilitate access during episodes of decompensation
- Optimized medical management
- Access to advanced treatment options
- Adequate patient education with special emphasis on adherence and self-care management
- Patient involvement in symptom monitoring and flexible diuretic use
- Psychosocial support to patients and family and/or caregiver
Disease management programmes for older people with heart failure: crucial characteristics which improve post-discharge outcomes

Doris S.F. Yu¹⁺, David R. Thompson² and Diana T.F. Lee²
Effective Disease management

- Multi-facetted
- Include an in-hospital phase of care
- Intense patient education
- Exercise training and psychosocial care
- Self-care supportive strategy
- Optimization of medical regimen
- Ongoing surveillance and management of clinical deterioration

Involve cardiac nurse and cardiologist
Flexible follow-up approach

Yu et al., 2006
First reports disease management HF

1971: 50 patients

1983: 15 patients
Effectiveness of comprehensive disease management improving clinical outcomes in heart failure patients.

Rosa Roccaforte a,b,*, Catherine Demers a,c, Fulvia Baldassarre d, Koon

Systematic review of multidisciplinary interventions in heart failure

R Holland, J Battersby, I Harvey, E Lenaghan, J Smith, L Hay

Metaanalysis and review of heart failure disease randomized controlled clinical trials

Telemonitoring or structured telephone support programmes for patients with chronic heart failure: systematic review and meta-analysis

Robyn A Clark, scholar,1 Sally C Inglis, scholar,2 Finlay A McAlster, associate professor,3 John G F Cleden, professor,4 Simon Stewart, professor 5

ABSTRACT
Objective To determine whether remote monitoring (structured telephone support or telemonitoring) without regular clinic or home visits improves outcomes for patients with chronic heart failure.

Data sources 15 electronic databases, hand searches of previous studies, and contact with authors and experts.

Data extraction Two investigators independently screened the results.

Review methods Published randomised controlled trials comparing remote monitoring programmes with usual care in patients with chronic heart failure managed within the community.

Conclusion Most populations access to these programmes is limited as a result of barriers related to funding or geography. As a result, interest is increasing in remote monitoring models for delivering care, which incorporate information communication technology either as telemonitoring (transfer of physiological data such as blood pressure, weight, electrocardiographic details, and oxygen saturation through telephone or digital cable from home to healthcare provider) or as regular structured telephone contacts between patients and healthcare providers, which may or may not include the transfer of physiological data.

Earlier reviews of multidisciplinary programmes for
Estimation by local experts

Jaarsma et al, EJCN 2006
Coordinating study evaluating Outcomes of Advising and Counseling in Heart failure

T Jaarsma, DJ. van Veldhuisen, M van der Wal, I. Lesman ML Luttik, J. Hogenhuis, N Veeger, R Sanderman, AW Hoes, WH van Gilst, DJA Lok, PHJM Dunselman, JGP Tijssen, HL. Hilleg
COACH Primary and Secondary outcomes

HF readmission + death
Basic vs control
Intensive vs control

All cause mortality
Basic vs control
Intensive vs control

HF readmission
Basic vs control
Intensive vs control

Hazard Ratio

0.4 0.6 0.8 1.0 1.2 1.4 1.6

P=0.73
P=0.93
P=0.39
P=0.15
P=0.89
P=0.60
Heart failure program

- Knowledge
- Attitude
- Skills
- Treatment

Self-care behavior
- Symptom
- Daily function

Compliance
- Readmission
- Quality of life

Cost
- Survival
Heart failure program

Rehabilitation

Nurse led

Multidisciplinary

Palliative care

Diagnosis

Education only

Self management

Prevention

Telemonitoring

Self monitoring

HF clinic extra

HF clinic

Hibrid model

homecare
At least 14 million people in Europe have heart failure.

With simple lifestyle changes and a better understanding of the condition, many people live full and active lives. The time to take charge of your health is today.

- UNDERSTANDING HEART FAILURE
  What is heart failure? The causes, symptoms and tests

- WHAT CAN YOUR DOCTOR DO?
  Medications, devices, surgery and procedures

- WHAT CAN YOU DO?
  Diet, exercise, managing your medicines and monitoring your symptoms

- LIVING WITH HEART FAILURE
  Lifestyle, relationships, emotions and support

- CAREGIVERS AND FAMILIES
  How to help, looking after yourself, support and finances

- WARNING SIGNS
  Monitoring your symptoms and when to call for help

- FAQs
  Answers to frequently asked questions

USEFUL TOOLS
- Weight Chart
- Symptom Diary
- Exercise Diary
- Appointment Record

QUICK POLL
On average, how long do people live life with heart failure before it's properly diagnosed?
- 6 months
- 1 year
- 2 years
- 5 years
Submit
- Characteristics
- Components
Characteristics

- Multidisciplinary approach
- Target high-risk, symptomatic patients
- Include competent and professionally educated staff
What Works In Chronic Care Management: The Case Of Heart Failure

Multidisciplinary provider teams with in-person communication lead to fewer hospital readmissions for people with heart failure.

by Julie Sochalski, Tiny Jaarsma, Harlan M. Krumholz, Ann Laramee, John J.V. McMurray, Mary D. Naylor, Michael W. Rich, Barbara Riegel, and Simon Stewart

ABSTRACT: The evidence base of what works in chronic care management programs is underdeveloped. To fill the gap, we pooled and reanalyzed data from ten randomized clinical trials of heart failure care management programs to discern how program delivery methods contribute to patient outcomes. We found that patients enrolled in programs using multi-
### Percentage Reduction in All-Cause Hospital Readmissions and Hospital Readmission Days Per Month Associated With Delivery Personnel and Method of Communication in Chronic Care Management Programs

<table>
<thead>
<tr>
<th></th>
<th>Percent reduction in readmissions per month</th>
<th>Percent reduction in readmission days per month</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Delivery personnel</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single heart failure expert</td>
<td>0.9</td>
<td>2.6</td>
</tr>
<tr>
<td>Multidisciplinary team</td>
<td>2.9***</td>
<td>6.4****</td>
</tr>
<tr>
<td><strong>Method of communication</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Telephonic</td>
<td>0.4</td>
<td>1.5</td>
</tr>
<tr>
<td>In-person</td>
<td>2.5***</td>
<td>5.7****</td>
</tr>
<tr>
<td><strong>Delivery + communication</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single expert + telephonic</td>
<td>0.4</td>
<td>1.5</td>
</tr>
<tr>
<td>Single expert + in-person</td>
<td>1.8&lt;sup&gt;a&lt;/sup&gt;</td>
<td>4.3&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Team + in-person</td>
<td>2.9***</td>
<td>6.4****</td>
</tr>
</tbody>
</table>

**Source:** Authors’ analysis.

**Notes:** Figures in the exhibit represent authors’ conversion of log-transformed regression coefficients from linear mixed-model regressions adjusted for age, sex, history of hypertension, prior heart attack, and original trial. Routine care patients are the reference group in each comparison. N = 2,028.

<sup>a</sup> $p = 0.05$.

<sup>b</sup> $p = 0.06$.

<sup>****</sup>$p < 0.001$
‘Traditional’ HF clinic model

Annema et al, 2009
‘New’ HF Management?

[Diagram showing a proposed heart failure management model with a central case manager connecting to various healthcare professionals such as cardiologist, pharmacist, geriatrician, physiotherapist, other medical specialities, psychologist, district nurse, dietician, social services, and general practitioner.]
Components

- Assessment and intervention of risks and comorbidity
- **Optimized medical management**
- Patient education and self care management
- Follow-up
- Access to healthcare
- Patient involvement
- Psychosocial support
MAHLER study

- Overall physician adherence to ESC treatment guidelines was 63%.

- Adherence to treatment guidelines was independently and strongly correlated to outcome measured by rate of CHF or CV hospitalization and time to CV hospitalization.
Kaplan-Meier curve of cardiovascular hospitalizations according to GA13 tertiles

Components

- Assessment and intervention of risks and comorbidity
- Optimized medical management
- **Patient education and self care management**
- Follow-up
- Access to healthcare
- Patient involvement
- Psychosocial support
Self-efficacy and Educational Interventions in Heart Failure

A Review of the Literature

Karen S. Yehle, PhD, MS, RN; Kimberly S. Plake, PhD, RPh

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Vol. 25, No. 3, pp 175–188 | Copyright © 2010 Wolters Kluwer Health | Lippincott Williams & Wilkins
Research article

Effects of self-management intervention on health outcomes of patients with heart failure: a systematic review of randomized controlled trials

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Email: Aleksandra Jovicic - sasha@mie.utoronto.ca; Jayna M Holroyd-Leduc - jayna.holroyd-leduc@calgaryhealthregion.ca; Sharon E Straus* - sharon.straus@utoronto.ca

* Corresponding author
Self management and heart failure

- Self-management decreased all-cause hospital readmissions and heart failure readmissions
- The effect on mortality was not significant
- Adherence to prescribed medical advice improved,
- No significant difference in functional capabilities, symptom status and quality of life.
- The reported savings ranged from $1300 to $7515 per patient per year.
- It is not the amount of education (number of sessions/length of sessions) that improves self-efficacy,
- Learning activities need to be incorporated into patient education programs to provide practice time that may result in behavior changes

Jovicic 2006, Yehle 2010
Self-management Counseling in Patients With Heart Failure

The Heart Failure Adherence and Retention Randomized Behavioral Trial

Lynda H. Powell, PhD
James E. Calvin Jr, MD
Dejuran Richardson, PhD
Imke Janssen, PhD
Carlos F. Mendes de Leon, PhD
Kristin J. Flynn, PhD
Kathleen L. Grady, PhD
Cheryl S. Rucker-Whitaker, MD
Claudia Eaton, MS

Context  Motivating patients with heart failure to adhere to medical advice has not translated into clinical benefit, but past trials have had methodological limitations.

Objective  To determine the value of self-management counseling plus heart failure education, compared with heart failure education alone, for the primary end point of death or heart failure hospitalization.

Design, Setting, and Patients  The Heart Failure Adherence and Retention Trial (HART), a single-center, multiple-hospital, partially blinded behavioral efficacy randomized controlled trial involving 902 patients with mild to moderate heart failure and reduced or preserved systolic function, randomized from the Chicago metropolitan area between October 2001 and October 2004 and undergoing follow-up for 2 to 3 subsequent years.
**HART Study**

**Intervention**
- 18 contacts and 18 heart failure educational tip sheets during the course of 1 year.
- Control: telefone follow-up
- Intervention: self-management group received tip sheets in groups and were taught self-management skills to implement the advice

**Effects:**
- No difference in death or heart failure hospitalization
- No significant differences on any secondary end points, including death, heart failure hospitalization, all-cause hospitalization, or quality of life.

Powell 2010
Components

- Assessment and intervention of risks and comorbidity
- Optimized medical management
- Patient education and self care management
- **Follow-up**
- Access to healthcare
- Patient involvement
- Psychosocial support
Structured telephone support or telemonitoring programmes for patients with chronic heart failure (Review)

Inglis SC, Clark RA, McAlister FA, Ball J, Lewinter C, Cullington D, Stewart S, Cleland JGF
25 studies
- 16 evaluated structured telephone support (5613 participants),
- 11 evaluated telemonitoring (2710 participants),
- two tested both interventions

Structured telephone support and telemonitoring are effective in reducing the risk of all-cause mortality and CHF-related hospitalisations.

They improve quality of life, reduce costs, and evidence-based prescribing.
Components

- Assessment and intervention of risks and comorbidity
- Optimized medical management
- Patient education and self care management
- Follow-up
- Access to healthcare
- Patient involvement
- Psychosocial support
Increased readmission rates

Rate of all cause readmission by severity of depression

<table>
<thead>
<tr>
<th></th>
<th>No depression</th>
<th>Mild depression</th>
<th>Major depression</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>(n=231)</td>
<td>(n=54)</td>
<td>(n=46)</td>
</tr>
<tr>
<td>Readmission</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>At 3 months</td>
<td>37%</td>
<td>43%</td>
<td>52%</td>
</tr>
<tr>
<td>At 12 months</td>
<td>52%</td>
<td>56%</td>
<td>80%</td>
</tr>
</tbody>
</table>

Depression assessed by BDI and diagnostic inventory schedule (DIS)

No depression: BDI score <10
Mild depression: BDI score ≥10 with negative DIS
Major depression: BDI score ≥10 with positive DIS

Jiang et al., 2001
Impact of severity of depression on mortality in HF

Jiang et al. 2001
Conclusion

Effectiveness of heart failure management: what are the key components?

- Assessment and intervention of risks and comorbidity
- Optimized medical management
- Patient education and self care management
- Follow-up
- Access to healthcare
- Patient involvement
- Psychosocial support
FIGURE 3. Proposed heart failure management.