

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

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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

Crucial characteristics

European Heart Journal



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Disease management programmes for older people with heart failure: crucial characteristics which improve post-discharge outcomes

Doris S.F. Yu^{1,*}, David R. Thompson² and Diana T.F. Lee²

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Effective Disease management

- Multi- faceted
- 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

First reports disease management HF

Technical Reports

Patient Education Leads to Better Care for Heart Patients

STANLEY G. ROSENBERG, M.A., M.P.H.

As the nation's economists join leaders in the health field in looking for ways to halt spiraling hospital costs, one avenue of approach that holds great promise for further exploration is well-organized treatment and education programs for patients.

Recognizing that congestive heart failure is an important public health problem, particularly in persons over 60, the staff of the heart and circulatory disease program, New Jersey State Department of Health, initiated a special heart project early in 1964 (1). The project was conducted at St. Peter's General Hospital, New Brunswick, N.J., from 1964 to 1966.

In essence, the New Jersey study showed that an education program for 50 patients with congestive heart failure increased the patient's knowledge of his disease, medication, and diet as well as his adherence to a prescribed regimen. When studied against the previous experiences of these patients as well as against the experiences of a control group, readmissions and total readmission days were significantly reduced.

It is known that a myocardial infarction may precede the onset of decompensation and congestive heart failure. Other causes may be acute rheumatic carditis, infections, and pulmonary embolus. In many if not most recurrences, none of

these rather obvious causes have existed. Other factors that might precipitate an acute bout of congestive heart failure are stress, dietary indiscretions, failure to take medication as prescribed, and failure to follow limitations in activity.

Each study patient had a history of congestive heart failure, characterized by recurrent attacks requiring immediate hospitalization, which might be prolonged into a period of weeks. Such recurrences disrupted the patient's life, were costly to him and to his family or to the community, and caused him acute anxiety because of the fear of recurrences, which might result in death.

Criteria and Objectives

Project plans called for a multidisciplinary team of hospital, community agency, and State agency persons who could provide services organized

Mr. Rosenberg is assistant director, Office of Education and Training, Health Care Facilities Service, Health Services and Mental Health Administration. At the time of the study he was assigned by the Heart Disease Control Program, Public Health Service, to the New Jersey State Department of Health. *Teachings requests to Stanley G. Rosenberg, Room 9-06, Parkview Building, 3600 Fishers Lane, Rockville, Md. 20852.*

September 1971, Vol. 86, No. 9 783

1971: 50 patients

CLINICAL STUDIES IN CRITICAL CARE

Nurse practitioner role in a chronic congestive heart failure clinic: In-hospital time, costs, and patient satisfaction

Guillermo Cintron, MD, Carmen Bigas, MSN, Esteban Linares, MD, Juan M. Aranda, MD, and Edgardo Hernandez, MD, San Juan, Puerto Rico

Most institutional outpatient medicine clinics provide medical care to a large group of patients with chronic diseases of varying severity. This type of clinic practice is usually criticized by both providers and recipients of medical care as being inefficient, impersonal, and economically wasteful.

In 1976 we introduced a nurse practitioner (NP) in the San Juan Veterans Administration cardiology clinic in an effort to improve the medical services provided to the patients attending that clinic.

The purpose of this study was to compare in-hospital time, medical costs and patient satisfaction before and after the introduction of an NP in a cardiology/chronic congestive heart failure clinic.

METHODS

The charts of all patients that were followed at the NP chronic heart failure clinic were reviewed by the authors. The main criterion used for inclusion in the study was that a patient have a minimum follow-up period in the NP clinic of 3 months plus an equivalent preceding follow-up time in the regular staff clinic.

The algorithm established for the clinic is outlined in Fig. 1. The clinic population was obtained from the in-hospital service or the outpatient clinics at the San Juan Veterans Administration Hospital. All the patients were initially screened by a member of the cardiology section and the diagnosis of chronic congestive heart failure, class III or IV, was established. Once all diagnostic tests were completed and the patient

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HEART & LUNG

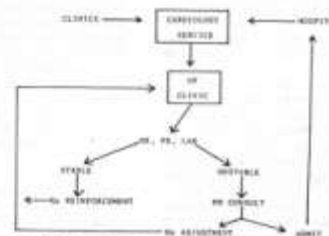


Fig. 1. Algorithm established for NP chronic heart failure clinic.

was stabilized, the patient was then referred to the NP clinic with the appropriate background material and therapeutic recommendations. The patient was evaluated by the NP with an interval history, physical examination, and appropriate laboratory tests. A decision was then made by the NP as to whether the patient was stable or unstable. If stable, medications were repeated and reviewed with the patient and a return clinic appointment was scheduled. If the NP decided that the patient was unstable, the referring cardiologist was consulted. A consensus decision was then reached on whether to try to adjust the therapeutic regimen on an outpatient basis or to admit the patient to the hospital for further management.

The diagnosis of chronic congestive heart failure was established by a history of dyspnea and fatigue or edema plus the presence of systemic venous congestion, pulmonary rales, cardiomegaly, and a third heart sound gallop. Criteria for

1983: 15 patients

368

237

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ELSEVIER

The European Journal of Heart Failure 7 (2005) 1133 – 1144

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

Rosa Roccaforte^{a,b,*}, Catherine Demers^{a,c}, Fulvia Baldassarre^d, Koon L

CARDIOVASCULAR MEDICINE

Systematic review of multidisciplinary interventions in heart failure

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

Heart 2005;91:899–906. doi: 10.1136/hrt.2004.048389

BMJ

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 McAlister, associate professor,³ John G F Cleland, professor,⁴ Simon Stewart, professor⁵

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.

most populations access to these programmes is limited as a result of barriers related to funding or geography.⁸ 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.⁹

Earlier reviews of multidisciplinary programmes for

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[Review]

Clinical service organisation for heart failure

[Review]

Clinical service organisation for heart failure

S Taylor, J Bestall, S Cotter, M Falshaw, S Hood, S Parsons, L Wood, M Underwood

Review Article

A Systematic Meta-Analysis of the Effectiveness and Heterogeneity of Disease Management Programs in Congestive Heart Failure

Metaanalysis and review of heart failure disease management programs

RESEARCH of randomized controlled clinical trials

HS,^a Vic Hasselblad, PhD,^b Eric Peterson, MD, MPH,^b Christopher M. O'Connor, MD^b *Philadelphia, Pa, and Durham, NC*

medical community has turned to disease management (DM) to bridge the gap between evidence and practice for patients with heart failure (HF). The aim of this study was to assess the effectiveness of HF DM programs on hospitalization and mortality in patients with HF on the basis of the results of existing trials. We conducted a systematic review of the published results from 19 randomized controlled clinical trials evaluating HF DM programs. A meta-analysis model was used to combine the hazards ratio for all-cause hospitalization across studies.

19 relevant studies, with 5752 enrolled patients, which assessed the benefits of HF DM programs. There was a significant decrease in all-cause hospitalization for patients with HF. There was significant heterogeneity among studies ($P < .0001$).

Results of this analysis indicate that HF DM is an intervention that could significantly reduce hospitalizations and mortality in patients with HF. However, due to differences in the types of strategies and the variety of outcomes evaluated, further studies of HF DM programs with multiple participating centers with standardized outcomes are needed.

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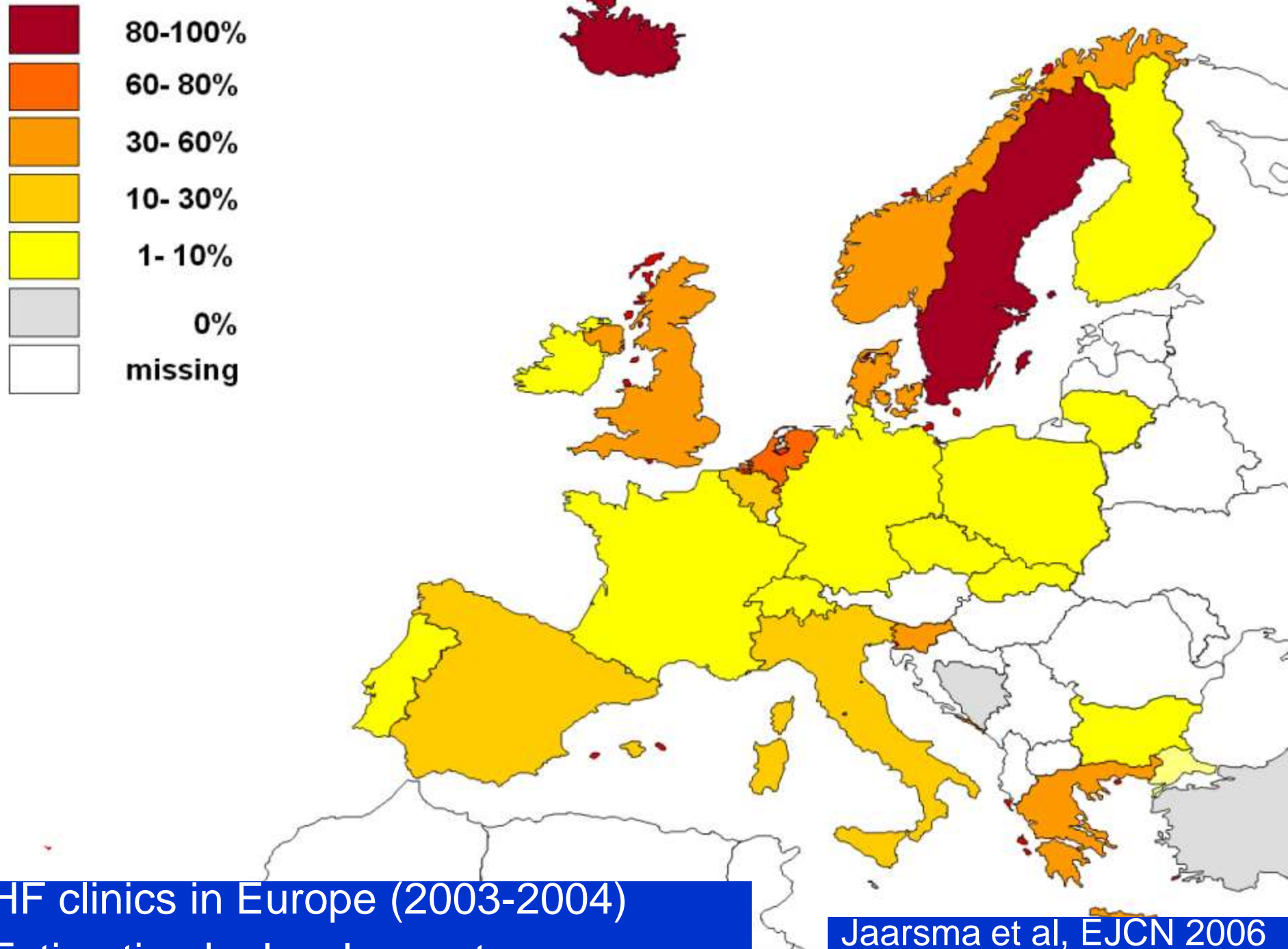
²Faculty of Health Sciences, University of Queensland, Brisbane, Australia

³Division of General Internal Medicine, University of Alberta, Edmonton, Canada

⁴Academic Cardiology, University of Hull, Hull

⁵Preventative Cardiology Unit, Baker Heart Research Institute, Prahran, Melbourne, Vic 3004, Australia

Correspondence to: S Stewart



HF clinics in Europe (2003-2004)
Estimation by local experts

Jaarsma et al, EJCN 2006



C oordinating study evaluating
O utcomes of
A dvising and
C ounseling in
H eart 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. Hillege



COACH Primary and Secondary outcomes

HF readmission + death

Basic vs control

Intensive vs control

P=0.73

P=0.93

All cause mortality

Basic vs control

Intensive vs control

P=0.39

P=0.15

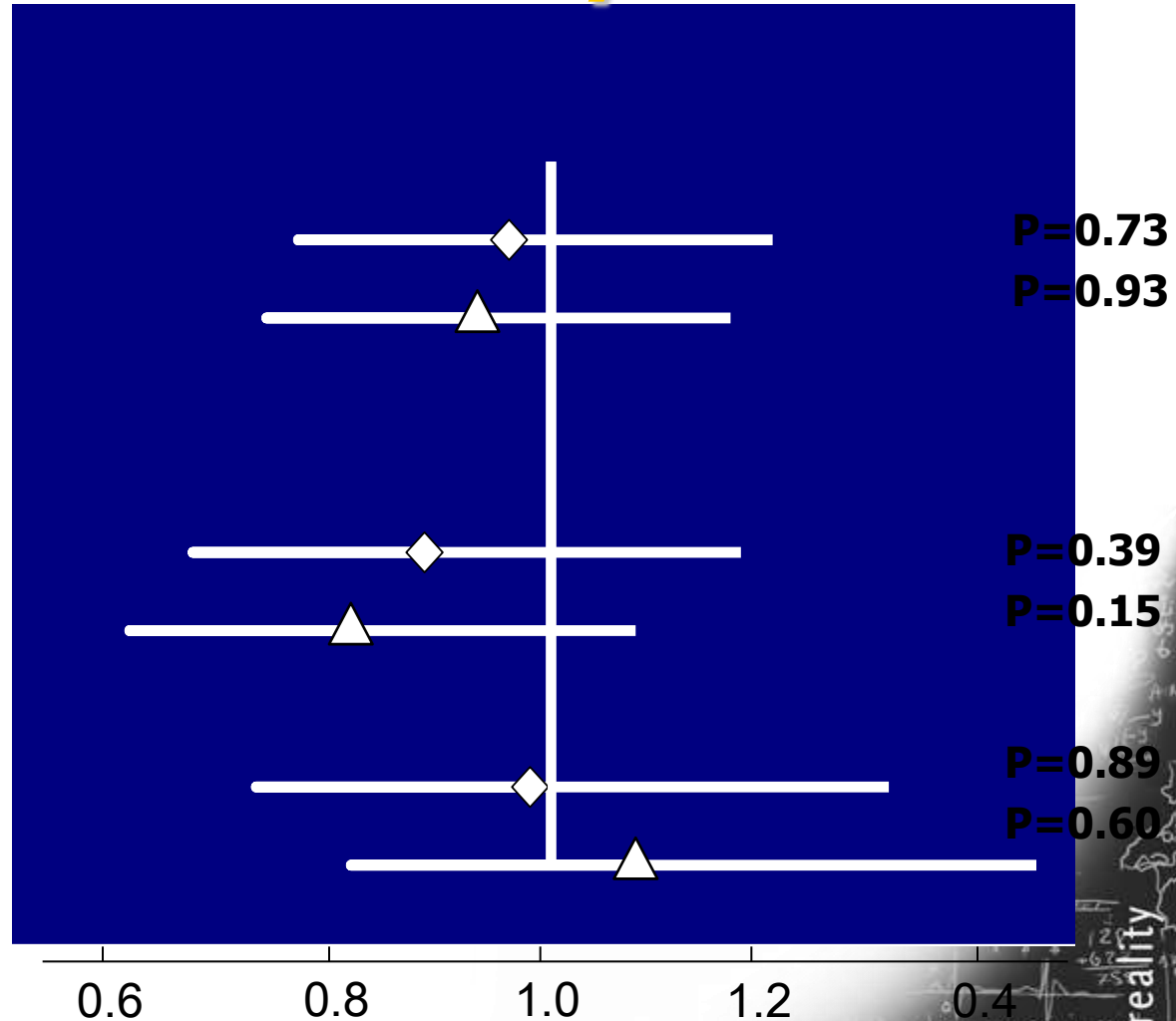
HF readmission

Basic vs control

Intensive vs control

P=0.89

P=0.60



Hazard Ratio

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Heart failure program

```
graph TD; A[Heart failure program] --> B["▲ Knowledge  
▲ Attitude  
▲ Skills  
▲ Treatment"]; B --> C["▲ Self-care behavior  
▲ Compliance"]; C --> D["▼ Symptoms  
▲ Daily function"]; D --> E["▼ Readmission  
▲ Quality of life"]; E --> F["▼ Cost  
▲ Survival"];
```

- ▲ Knowledge
- ▲ Attitude
- ▲ Skills
- ▲ Treatment

- ▲ Self-care behavior
- ▲ Compliance

- ▼ Symptoms
- ▲ Daily function

- ▼ Readmission
- ▲ Quality of life

- ▼ Cost
- ▲ Survival

Rehabilitation

Nurse led

homecare

Multidisciplinary

HF clinic

Heart failure
program

Palliative care

HF clinic extra

Diagnosis

Hibrid model

Education only

Telemonitoring

Self management

Self monitoring

Prevention

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Patient Experience

Read and listen to other people's stories in their own words

Ask Your Doctor

Be prepared to make the most of your next visit to the doctor

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

	Percent reduction in readmissions per month	Percent reduction in readmission days per month
Delivery personnel		
Single heart failure expert	0.9	2.6
Multidisciplinary team	2.9****	6.4****
Method of communication		
Telephonic	0.4	1.5
In-person	2.5****	5.7****
Delivery + communication		
Single expert + telephonic	0.4	1.5
Single expert + in-person	1.8 ^a	4.3 ^b
Team + in-person	2.9****	6.4****

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.

^a $p = 0.05$.

^b $p = 0.06$.

**** $p < 0.001$

'Traditional' HF clinic model

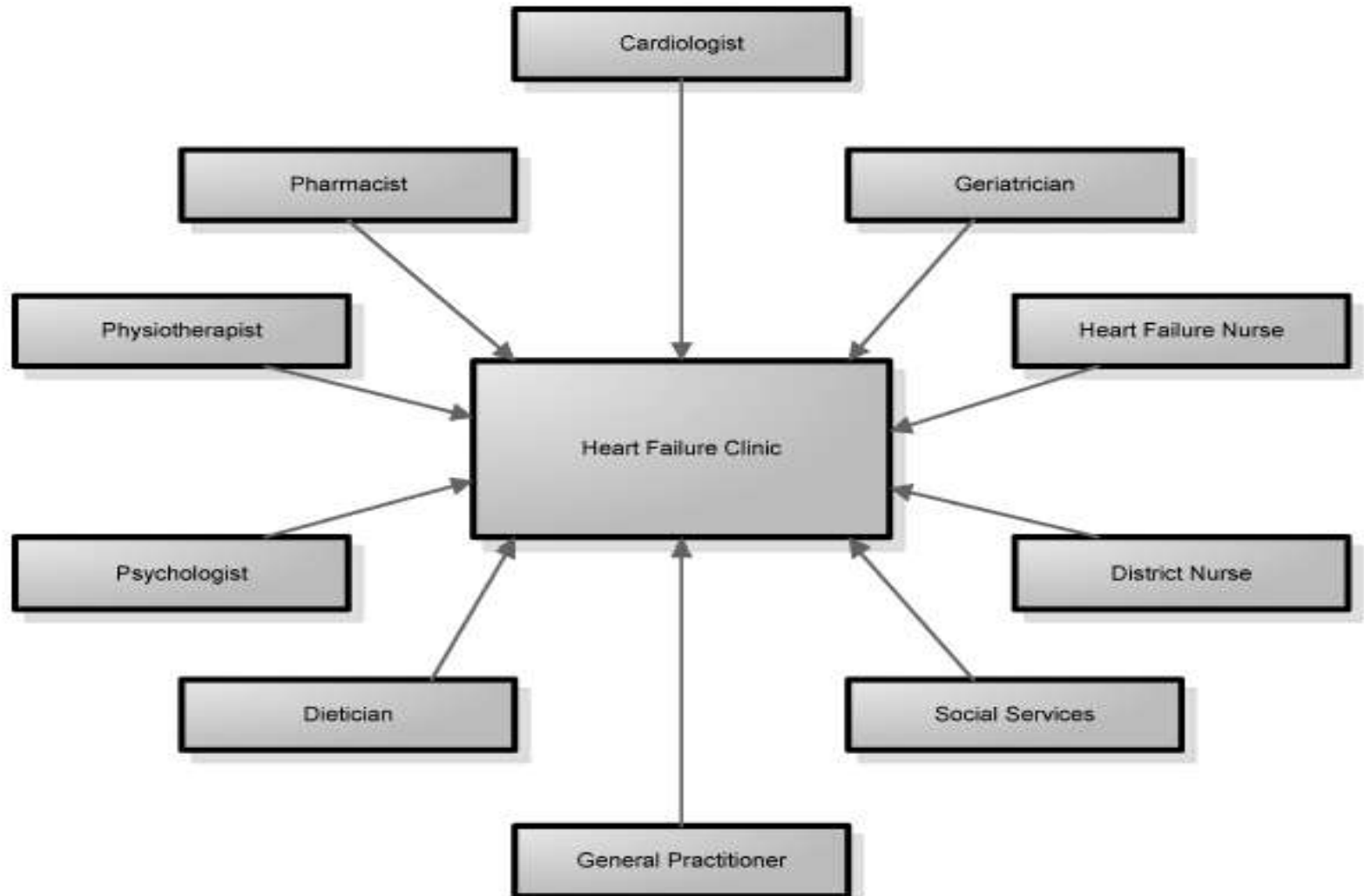


FIGURE 1. *Traditional heart failure clinic according to Erhardt and Cline.*¹¹

'New' HF Management?

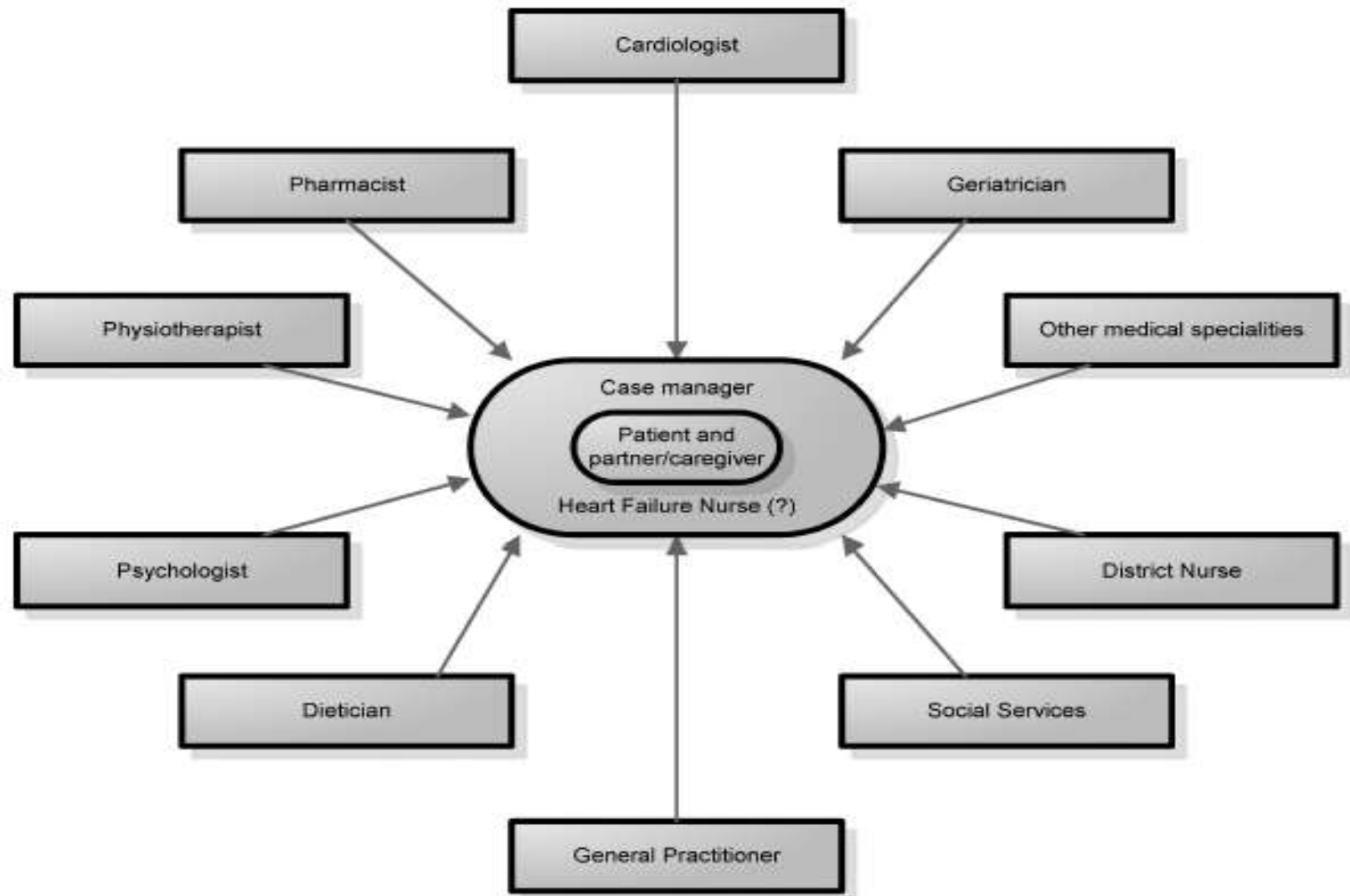


FIGURE 3. *Proposed heart failure management.*

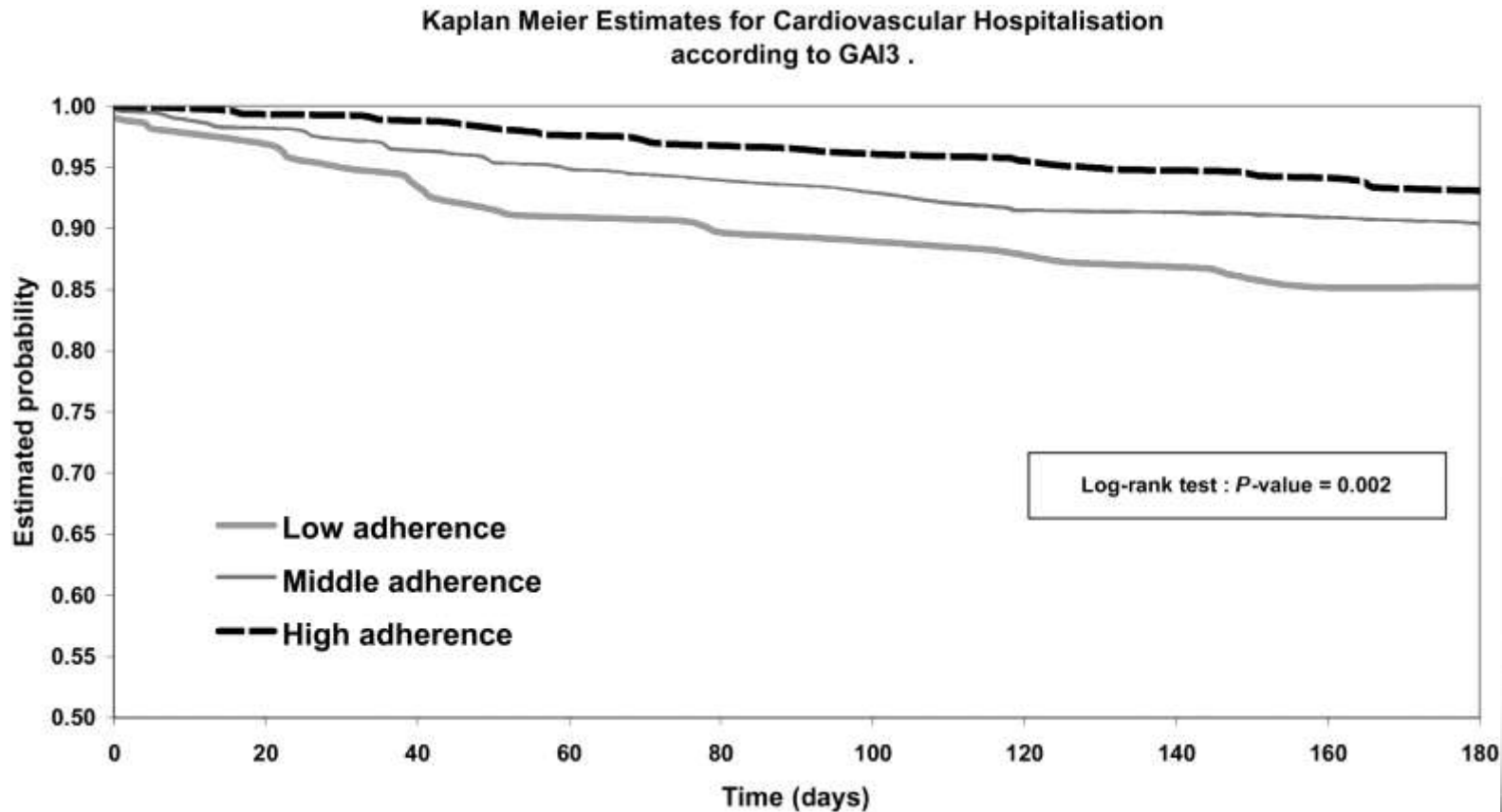
Components

- 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 GAI3 tertiles



Komajda, M. et al. Eur Heart J 2005 26:1653-1659; doi:10.1093/eurheartj/ehi251

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

Research article

Open Access

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

Aleksandra Jovicic¹, Jayna M Holroyd-Leduc^{2,3} and Sharon E Straus^{*2,3,4}

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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

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: telephone 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.

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

	No depression (n=231)	Mild depression (n=54)	Major depression (n=46)
Readmission At 3 months	37%	43%	52%
At 12 months	52%	56%	80%

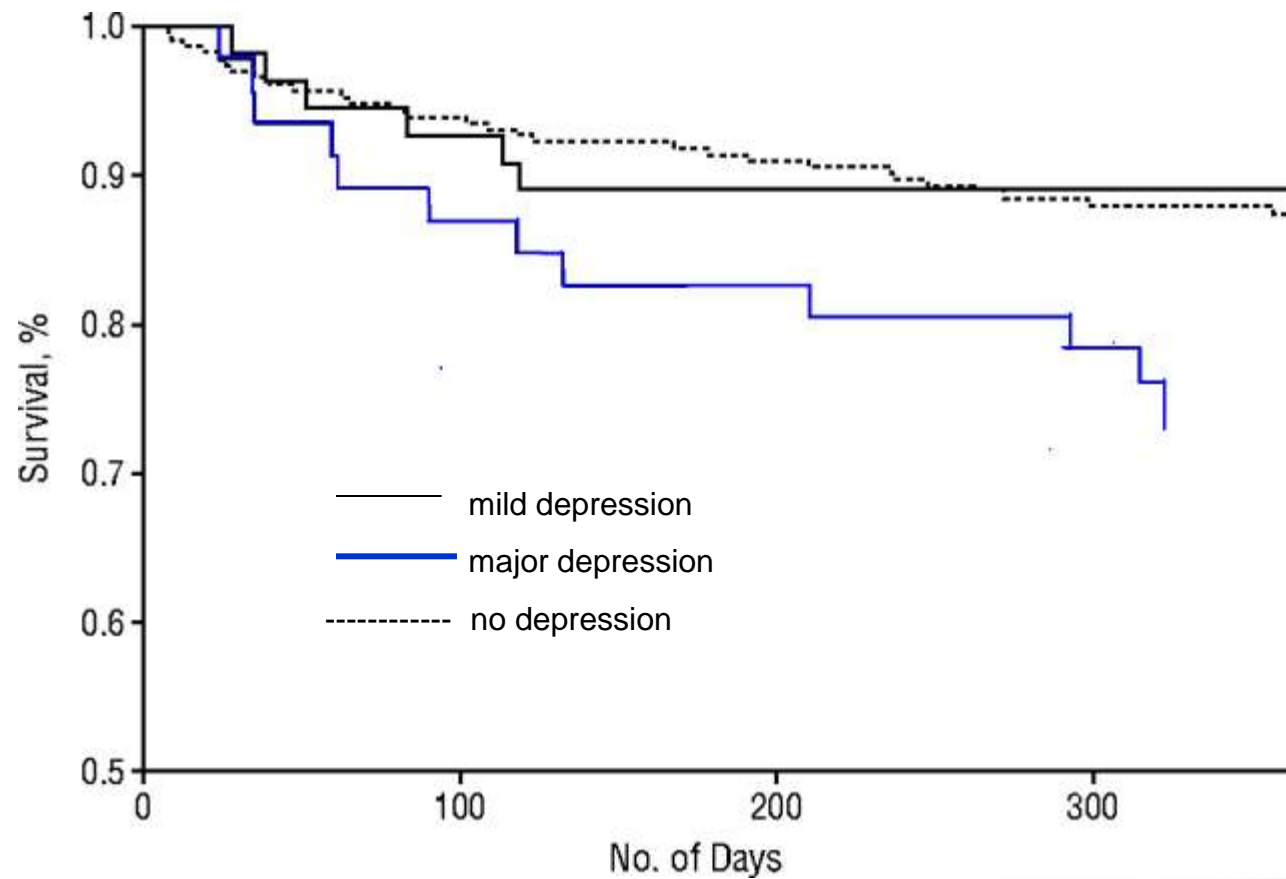
Depression assessed by BDI and diagnostic inventory schedule (DIS)

No depression: BDI score <10

Mild depression: BDI score ≥ 10 with negative DIS

Major depression: BDI score ≥ 10 with positive DIS

Impact of severity of depression on mortality in HF



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

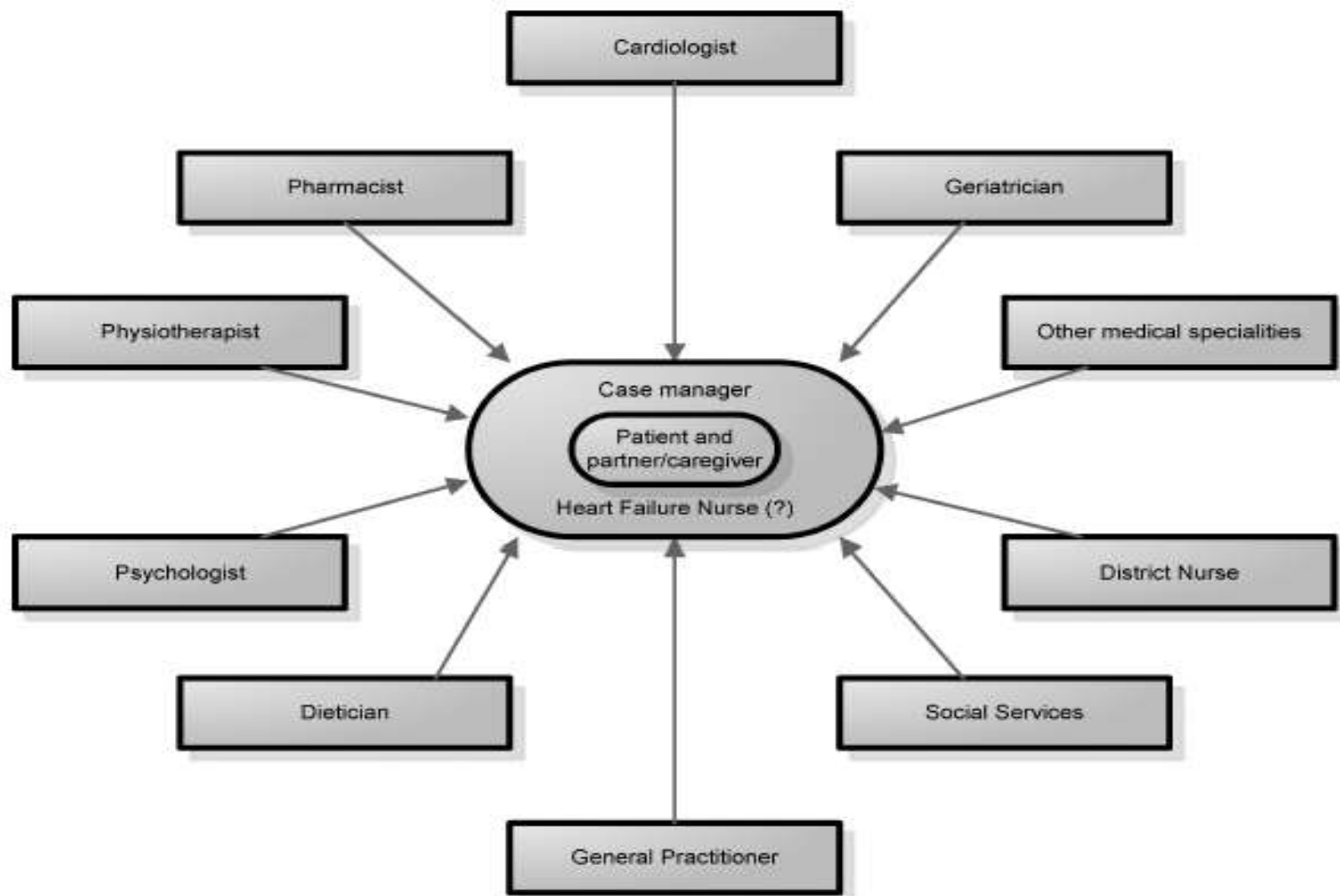


FIGURE 3. *Proposed heart failure management.*