

# Indicators - do they improve performance?

## Results from the Danish National Indicator Project

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### Purpose

To measure the quality of treatment, care and rehabilitation provided by Danish hospitals to patients with Heart Failure (HF), by evidence based performance indicators, developed by the Danish National Indicator Project (DNIP).

### Methods

A prospectively collected data-registration of treatment, care and rehabilitation for patients with incident HF for the period 21st of June 2004 to 20th of June 2007 (containing and comparing three audit periods) at cardiology units and outpatient clinics in Denmark (ICD codes: I11.0, I13.0, I13.2, I42.0, I42.6, I42.7, I42.8, I42.9, I50.0, I50.1, I50.2, I50.3, I50.8, I50.9). Data are collected using a standardized registration form. Hospital staff is responsible for data-collection. Reporting to DNIP is mandatory for all Danish hospitals.

### Results

During the period 10,210 patients were included in the database, 40 % women and 60 % men. Mean age was 72 years (range 18 to 101). The following 6 out of 10 indicators showed significant differences:

- 1) Percentage of patients getting an echocardiography/MUGA/Ventriculography changed from 76 % (CI 75-78) to 87 % (CI 86-89), 11 percentage points.
- 2) Percentage of patients where nutritional risk was assessed changed from 67 (CI 65-69) to 84 % (CI 82-85), 17 percentage points.
- 3) Percentage of patients undergoing New York Heart Association-classification (NYHA-classification) changed from 44 % (CI 42-46) to 64 % (CI 62-65), 20 percentage points.
- 4) Percentage of patients referred to individual physical training changed from 11 % (CI 10-13) to 16 % (CI 15-18), 5 percentage points.

- 5) Percentage of patients with reduced systolic function (NYHA III-IV) treated with aldosterone antagonists changed from 58 % (CI 47-68) to 75 % (CI 68-81), 17 percentage points.
- 6) Percentage of patients starting a manualised education programme, e.g. training, symptoms, risk factors, understanding of disease), either during hospitalisation or outpatient follow-up, changed from 40 % (CI 38-43) to 61 % (CI 59-63), 21 percentage points.

Indicators with no changes: Percentage of patients getting their: a) electrocardiogramme (ECG) taken b) getting their chest x-ray taken, and c) in treatment with ACE-inhibitors/ATII receptor antagonists and betablockers.

### Conclusions

By implementing indicators for HF, focus has increased for the benefit of patients. Indicator results are moving towards better fulfilment, especially manualised education and physical training. The indicators with no changes can be a result of already good performance. Benchmarking and discussing results by the audit method can raise performance for the benefit of patients.

Results for Heart Failure indicators in the Danish National Indicator project during three periods.

Indicator	Period 3 (June 2006-June 2007) Proportion of patients fulfilling the standard % (95 % CI) n = 2731	Period 2 (June 2005-June 2006) Proportion of patients fulfilling the standard % (95 % CI) n = 2429	Period 1 (June 2004-June 2005) Proportion of patients fulfilling the standard % (95 % CI) n = 2452
<b>Indicator 1:</b> Proportion of patients who undergo echocardiography	87 (86-89)*	85 (83-86)*	76 (75-78)
<b>Indicator 2:</b> Proportion of patients who had their ECG taken	93 (92-94)	91 (90-92)	92 (91-93)
<b>Indicator 3:</b> Proportion of patients who had their chest x-ray taken	73 (71-75)	74 (72-76)	75 (74-77)
<b>Indicator 4:</b> Proportion of patients undergoing assessment for nutritional status	84 (82-85)*	75 (74-77)*	67 (65-69)
<b>Indicator 5:</b> Proportion of patients who undergo NYHA-classification	64 (62-65)*	56 (54-57)*	44 (42-46)
<b>Indicator 6:</b> Proportion of patients referred to individual exercise training at a physiotherapist	16 (15-18)*	12 (10-13)	11 (10-13)
<b>Indicator 7a:</b> Proportion of patients with reduced systolic function who get ACE-inhibitor/ATII-receptor antagonists	92 (91-93)	91 (90-92)	92 (91-94)
<b>Indicator 7b:</b> Proportion of patients with reduced systolic function who get Beta blockers (NYHA-class II-IV)	85 (82-87)	84 (81-86)	80 (77-83)
<b>Indicator 7c:</b> Proportion of patients with reduced systolic function who get spironolactone (NYHA-klassen III-IV)	75 (68-81)*	69 (61-76)	58 (47-68)
<b>Indicator 8:</b> Proportion of patients who started a structured patient education (nutrition, physical training, symptoms from the disease, understanding medical treatment, risk factors..)	61 (59-63)*	52 (50-54)*	40 (38-43)
<b>Indicator 9:</b> Proportion of patients who are readmitted (within four weeks after first discharge or outpatient contact)	14 (13-16)**	18 (16-19)**	22 (20-24)**
<b>Indicator 10:</b> 1-year mortality	18 (17-20)	21 (20-23)	20 (18-21)

\* Results significant from former period

\*\* These results might include readmissions for planned coronary angiography

On behalf of the Danish Heart Association and the Danish National Indicator Group.