Care networks for patients with multiple chronic diseases: Using Action Research in the Swedish Healthcare Context

Dr S Lifvergren, Development director, Skaraborg Hospital Group and Co-director, Centre for Healthcare Improvement, Chalmers University of Technology
Outline

• Background
  – Swedish healthcare system
  – Centre for Healthcare Improvement at Chalmers
• “Managing” change – what works?
• A case from Sweden:
  – Care networks for patients with multiple chronic diseases
• Lessons learned
• Implications for theory:
  • Value configuration logics
  • Clinical Microsystems
The Patient Pathway in Sweden
Three care givers – three organizations

900 Health Care Centers, 80 General and 6 University Hospitals
Equal care and accessability for all
Financed by income taxes
Max. yearly fee always $ 250
Oldest proportion inhab > 65 years in the world (17.3%)
Lowest infant mortality (0.40%) together with Iceland, Japan, Finland & Norway)
Cost-effectiveness of the Swedish System

Cost-effectiveness matrix

A Sense of Urgency!

• The Pressure on Health Care Systems Increases!
• An aging population!
• With multiple sicknesses!
• Higher expectations!
• 100% increase in cancer prevalence in 2030

• The soaring costs of medical resources!
• A more than 400% increase in cardiovascular diseases 2001-2025
• On the average 240 more treatments 2025
• The growing need for personnel resources!

MacKinsey Quarterly March 2007
Centre for Healthcare Improvement (CHI)

Chalmers and Healthcare in collaboration

For Sustainable Healthcare
Centre for Healthcare Improvement (CHI)

- a research and education center at the Department of Technology and Economics, Chalmers University of Technology

- led by two directors and organizes cooperation between researchers from different disciplines.

- conducts research and education in improvement, innovation and transformation of health care.

- our goal is to work with the Swedish healthcare and in collaboration create, translate and disseminate research-based and action-oriented knowledge.

- to achieve this goal, CHI focuses on two parts - research and education.
Approaches

Organizing and management
- Principles for organizing, organizational learning, how to deliver value, improvement work…

Data-driven operational development
- Applied statistics, ”from data to improvement”, visualization…

Processes and flow
- Value focus, capacity planning, coordination, integration…

A more patient-oriented, efficient and safe healthcare system
Action research – *with* instead of *on* development projects

"The knowledge that is generated shall be both scientifically relevant, and relevant for practitioners. You must be able to use it, and act on it."

Healthcare practice

Management research

Learning about healthcare development
Collaboration through research

- Patient centered and integrated cancer care processes
- In Search of Sustainable High Quality Health Care
- Decision support system for anticoagulants
- Experienced Based Co-Design – to involve patients, relatives and staff in a joint improvement work
- Patient complaints as a basis for improvement work
- Chest-pain – variation in quality, safety and cost
- System dynamics at the Dermatology Department
- The learning micro system in healthcare processes
- The application of Lean Six Sigma in a healthcare context
- When process orientation meets the functional structures
- Analysis and design of medication process
- The prognosis process and tactical planning within surgery
- Reimbursement models and process effectiveness

Action research with interdisciplinary staffing
Collaboration through networks
Collaboration through education

Education as a catalyst for change

Professional education
- Quality driven organizational development (30 credit)
- Quality Management for senior managers (7.5 credit)
- Advanced improvement knowledge (30 credit)
- Lean healthcare (7.5 credit)
- Improvement knowledge for residents (7.5 credit)

PhD education
- Reflexiv action research (7.5 credit)
- Quality Management (7.5 credit)
- + all courses at Technology Management and Economics

Has trained more than 250 managers and improvement leaders within Western Region in Seden
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"Managing" change
The challenges

7 − 2 − 1

What doesn’t succeed?

• N-step models = "standard models"
• Culture change
• Reorganizing
• Campaigns
• Documentation death
What doesn’t succeed?

- N-step models = ”standard models”
- Culture change
- Reorganizing
- Campaigns
- Documentation death
The standard model is dead (according to Harvard Business Review)

- 1990 “Why change programs don’t produce change”
- 1992 “Successful change programs begin with results”
- 1993 “Managing change: the art of balancing”
- 1995 “Leading change: why transformation efforts fail”
- 1996 “Why do employees resist change”
- 2001 “Cracking the code of change”
What doesn’t succeed?

- N-step models = ”standard models”
- Culture change
- Reorganizing
- Campaigns
- Documentation death
Bureaucracy, complexity and power issues…..

<table>
<thead>
<tr>
<th>Community</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Care</td>
<td>Cure</td>
</tr>
</tbody>
</table>

Talk about values to change culture

Act in a new way
What doesn’t succeed?

• N-step models = ”standard models”
• Culture change
• Re-organizing
• Campaigns
• Documentation death
Re-organizing versus efficiency

strength

"serious damage"

1 2 3

time

Prof. U Zander, Handelshögskolan, Sthlm
What doesn’t succeed?

• N-step models = ”standard models”
• Culture change
• Re-organizing
• Campaigns
• Documentation death
100k lives Campaign

Some is not a number. Soon is not a time.
Campaign Objectives

• Save 100,000 Lives by June 14, 2006
• Enroll more than 2,000 hospitals in the initiative
• Build a reusable national infrastructure for change
What doesn’t succeed?

- N-step models = ”standard models”
- Culture change
- Re-organizing
- Campaigns
- Documentation death
• "ISO 9000 describes what requirements need to be met, not how they are to be met.

• *Hence, it is possible to become certified without changing anything in the organisation.*
Another perspective on organizational change
Complex adaptive systems

- Homogenous
- Heterogenous
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Skövde

Falköping

Lidköping

Mariestad

SkaS
Staff

Number of employees  4 200

By category:

1 900  RN nurses
1 200  NA nurses (caring staff)
  500  physicians
  243  administrative staff
During a year...

- 41,000 inpatient episodes
- 204,000 outpatient visits to doctors
- 19,300 operations
- 2,300 births
Quality Development towards "Sustainable Development"
Education as a catalyst for change

• SkaS
  — 4500 co workers
  — 2 Master Black Belts (5 in pipeline)
    • In every leading group at the divisional level
  — 55 Black Belts, 35 working fulltime with improvements
  — 300 Green Belts
  — 3500 White Belts
  — 30 Lean coaches
  — 2 logisticians
  — 1 PhD in Quality Management
  — 6 PhD candidates in operations and quality management

— No education without concurrent improvement project
Results at SkaS 2011-2012

- Shortest length of stay at emergency wards in the Western region
- A 75% success rate in medium and large-scale improvement projects in care processes thanks to a well-organized project structure
- Cost efficiency above the national average in a number of care processes
- Above average in 24 of 38 parameters in national quality registers (e.g. 28-day survival rate after myocardial infarction, proportion of stroke patients satisfied with the care delivered)
- Average or slightly under average in the remaining 12 parameters.
- Hospital rate of Healthcare-Associated Infections (HAIs) below national means (7.1% at SkaS, 9.4% mean in Sweden)
- The hospital-wide patient satisfaction survey shows general satisfaction: >95% satisfied/very satisfied patients
- A recent national survey shows that SkaS is ranked as number one in Sweden among assistant physicians, and there is generally a high employee satisfaction.
"The Skaraborg Hospital Group (SkaS) Using an action research approach, this article describes the lessons that were learned from the first 22 Six Sigma projects, completed between 2006 and 2008 and having a success rate of 75%.

Net cost savings per project = 40 000 €

Starting point

• In 2001 the Western Regional office forwarded a national directive concerning ‘Integrated Care’ to the Skaraborg Hospital Group:
  — Improve integrated care
From a geographical standpoint, Skaraborgs Hospital is, strictly speaking, not one hospital - but four.

- Falköping
- Lidköping
- Mariestad
- Skövde
The Patient Pathway in Sweden
Three care givers – three organizations

Primary Care
Hospital Care
Local authorities
Patient, today

Public health inquiry office

Surgical Clinic

Primary Care Unit

Surgical OPC

Hospital

Local care unit

Primary Care unit

Endoscopy

Elderly home

Primary Care unit

COPD outpatients’ clinic

Medical Clinic

CHF outpatients’ clinic

Emergency ward

Medical outpatients’ clinic

Orthopedic OPC

IHD OPC

Hematological OPC

Orthopedic clinic
Healthcare
FROM the PATIENTs POINT of VIEW

ONE ORGANISATION
Guiding principles

• Patient focused
• Involve all stakeholders
• Create learning networks between healthcare providers
  — Managers and co-workers but also with patients
• Process oriented methods
Community

Control

Cure

Care

Customer

4 + 1 C
Appreciative Inquiry “4-D” Cycle

Discovery
“What gives life?”
(The best of what is)
Appreciating

Destiny
“How to empower, learn, and adjust/improvise?”
Sustaining

Dream
“What might be?”
(What is the world calling for)
Envisioning Results

Design
“What should be--the ideal?”
Co-constructing

Care for elderly people
Learning platforms

Learning home and away - paths in the co-construction of knowledge
Process methods

- Mapping out the patient pathway and assess strengths and weaknesses
- Analyze and measure
- Make improvements
<table>
<thead>
<tr>
<th>Year/month</th>
<th>Strategic initiatives - activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000-2001</td>
<td>A national directive concerning ‘Integrated Care’ to the Skaraborg Hospital Group: Pilot project in West Skaraborg</td>
</tr>
<tr>
<td>2002</td>
<td><strong>A management group for the development coalition</strong> (DCMG) is created. Senior managers from the primary care centres, the hospital and six local municipalities.</td>
</tr>
<tr>
<td>Sept 2002</td>
<td>The first democratic dialogue (DD). Project groups start.</td>
</tr>
<tr>
<td>April 2003</td>
<td>Cross-organizational, cross–professional and cross-level networks are established. The second DD conference is held.</td>
</tr>
<tr>
<td>October 2004</td>
<td>The third DD conference is held. DCMG decides to make the development coalition a permanent part of the Skaraborg healthcare organization, with its own organization, personnel, budget and balanced scorecard. Shared improvement facilitators.</td>
</tr>
<tr>
<td>October 2005</td>
<td>Diffusion activities take place via a regional conference between West and East Götaland and the Southern Region of Sweden.</td>
</tr>
<tr>
<td>2006 – 2010</td>
<td>The West Skaraborg coalition continues to lead the transformation process at the county and provides guidance to other counties in Sweden</td>
</tr>
</tbody>
</table>
Sammanlagd antal vårddagar för inneliggande vårdtagare på korttidsplats den 1:e i varje månad för Lidköpings kommun

![Graph showing the aggregate number of care days for temporary care providers at each of the 1st days of each month for Lidköping kommun.](graph.png)
Still.....

• Drawing from an analysis in 2007, the DCMG concluded that although integrated care within the area had improved significantly for the last five years.
• It only really manifested itself in general networking terms,
• Integrated practices that involved direct everyday patient contact had not evolved.
The design of a mobile team

• During 2008, the team started to analyse how they wanted to work:
  — What evidence-based models could be found in the literature
  — How were things organized in other healthcare systems?
  — The team members engaged in several field trips to other places in Sweden where integrated care teams had been developed
Elderly people with *multiple chronic diseases* in *unstable* condition and taken care of by the integrated mobile care team

Elderly people with *multiple chronic diseases* but in *stable* condition and taken care of by the ’ordinary’ care system

Elderly people with *one or two stable* chronic diseases and taken care of by the ’ordinary’ care system

Healthy elderly people

0.2%

7% of elderly population

Figure 2. Conceptual figure developed by the team together with the researchers that illustrates the different proportions of elderly people with different care needs in the actual area
Characteristics for the 0.2% population

1. At least 3 hospital admissions in the last 12 months
2. At least 3 chronic diseases
3. More than 6 standing medications
4. Required healthcare at home
5. >75 years of age
6. Was dependent on others for managing activities of daily life (ADL)
The "process"

Patient with complex needs

Start

Assess patient

Not accepted — do not fulfill criteria

Accept patient: First visit

Care plan

Analyze results

Action according to plan

Collaborate with hospital

Collaborate with municipality

Collaborate with primary care

Continuous feedback

Prepare patient/relatives for take-over

Take-over

Evaluate

Develop shared care plan

Collaborate with hospital

Collaborate with municipality

Collaborate with primary care

Finish

Stabilized patient, symptoms relieved
The first visit

- Two hours on this first visit - no stress
- Always two persons from the team, one physician and one nurse
- A nurse from the municipality is also present during the visit.
- Patient’s **symptoms** and **quality of life**
  - Nine different symptoms are assessed using VAS
- Regular **medical check-up** including pulse, saturation, blood pressure and routine lab
- **Risk evaluation**: falls, pressure ulcers and malnutrition, the medication list
The first visit....

• Physician spends an hour with the relatives while nurses take care of the patient.
• The dialogue is centred on the patient, his or her worst symptoms and what can be done to make the patient feel better and more secure at home
• A care plan is designed that aims at relieving the most troublesome symptoms but also at making the patient feel secure and safe
The first visit

• The care plan is communicated to all existing care resources around the patient

• Christina:
  — “We put a lot of effort to integrate and coordinate the already existent care resources around each patient. We try to involve them in the care, but we also let them know of each other. The point is that we want the original care system to function better so that we can eventually refer the patient back”
Patients – flow/characteristics

• At any given time, there are about 20 patients in the “top” and the team usually manage to take care of these patients simultaneously.

• In December 2011 the team had handled 166 patients all in all.

• Out of these, 55 had died during the time the team had been responsible for the care.

• Heart failure was the most frequently represented diagnosis, affecting one-fourth of the patients.
  — Other common diagnoses were diabetes, ischemic heart disease and chronic obstructive pulmonary disease.

• The most serious symptoms are fatigue, dyspnoea and unsteadiness.
Results

- Quantitative analysis of patient database
- Interviews with co-workers in the surrounding meso- and macrosystem
- Reflections from the team
- Interviews with patients and their relatives
Table 1. Wilcoxon's signed ranks test has been used to compare the patient symptoms before (at admission) and after/at discharge (n=23). The symptoms have been measured subjectively by patients on a scale 1-10, where 10 is the worst condition and 1 is the best condition. An exception is sleeplessness, satisfaction and quality of life, where the scale has been reversed. Significant differences bolded.

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Z</th>
<th>Asymp. Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dizziness</td>
<td>-2.862a</td>
<td>.004*</td>
</tr>
<tr>
<td>Unsteadiness</td>
<td>-.601a</td>
<td>.548</td>
</tr>
<tr>
<td>Pain</td>
<td>-1.857a</td>
<td>.063</td>
</tr>
<tr>
<td>Nausea</td>
<td>-.368a</td>
<td>.713</td>
</tr>
<tr>
<td>Poor appetite</td>
<td>-1.442a</td>
<td>.149</td>
</tr>
<tr>
<td>Difficulty of swallowing</td>
<td>-1.000a</td>
<td>.317</td>
</tr>
<tr>
<td>Thirst</td>
<td>-1.342b</td>
<td>.180</td>
</tr>
<tr>
<td>Obstipation</td>
<td>-1.069a</td>
<td>.285</td>
</tr>
<tr>
<td>Leakage of urine</td>
<td>-.071a</td>
<td>.577</td>
</tr>
<tr>
<td>Peripheral oedema</td>
<td>-2.542a</td>
<td>.943</td>
</tr>
<tr>
<td>Dyspnoea</td>
<td>-2.060a</td>
<td>.039*</td>
</tr>
<tr>
<td>Chest pain</td>
<td>-2.673b</td>
<td>.008*</td>
</tr>
<tr>
<td>Sleeplessness</td>
<td>-2.269a</td>
<td>.023*</td>
</tr>
<tr>
<td>Fatigue</td>
<td>-1.874a</td>
<td>.061</td>
</tr>
<tr>
<td>Loneliness</td>
<td>-.422a</td>
<td>.673</td>
</tr>
<tr>
<td>Depression</td>
<td>-2.056a</td>
<td>.040*</td>
</tr>
<tr>
<td>Meaninglessness</td>
<td>-1.912a</td>
<td>.056</td>
</tr>
<tr>
<td>Uneasiness</td>
<td>-2.670a</td>
<td>.008*</td>
</tr>
<tr>
<td>Anxiety</td>
<td>-2.032a</td>
<td>.042*</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>-1.335b</td>
<td>.182</td>
</tr>
<tr>
<td>Quality of Life</td>
<td>-1.608b</td>
<td>.108</td>
</tr>
<tr>
<td>Walking range</td>
<td>-1.362b</td>
<td>.173</td>
</tr>
</tbody>
</table>
Results – care consumption

- Reduction of emergency visits: 80%
- Reduction of office visits: 89%
- Reduction of hospital days: 92%
- Cost neutral
Voices from co-workers

• Anna, municipality nurse:
  — “I feel really secure when they take over the patient, you know yourself what do to and whom to contact when problems emerge. It’s so much less work. Somehow you also get to know the system around the patient, the team knows which care personnel are already involved around each patient and how to contact them”.

Some voices from relatives

“I remember the first visit; they asked me if I thought he was afraid of dying. I don’t know what it was – they were so sweet. I could tell that they had real sympathy for us……

We felt taken care of, really…If you had any worries you could just call them….. //……Lars really liked them (the mobile care team) tremendously……

They just made such a good contact immediately. Doesn’t it always feel good when you’re not just a number? When someone really cares for you”
Some voices from relatives......

“All these ambulance travels.... When he was in pain the district nurse gave him morphine......

If he was still in pain, we had to go the hospital. This happened in February, and again in March and in April, it was really exhausting.....

During the last fourteen days, however, we were taken care of by the mobile team. It was just wonderful, we got help at home and we could stay at home. Gunnar didn’t seem to suffer and he gently fell asleep. We should have gotten this help earlier.”
Next steps

- Another clinical microsystem in the area with the mission to take care of uni-diseased cancer patients in palliative or terminal states has been started (mobile, cross-professional)
- Yet another microsystem with the mission to take care of and integrate care for the 7% porportion
- The teams share the same integration center
- The model will be implemented throughout the Skaraborg county (North, West, east, South)
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Lessons learned

• Use multiple aspects when trying to understand what is going on – there is no ultimate “truth”
• Avoid pushing change from the top
• Encourage involvement and local change initiatives
  — Try to solve problems in the daily operations
• Co-ordinate tasks instead of trying to “change culture”
• Create new roles and responsibilities
• Not to fast….not to slow

Some more lessons....

• The **patient** as the guiding principle + some other simple principles that we might agree on
  — Integration along the healthcare value chain: Primary care – Hospital – After care
  — Dialogues and meetings cross-level and cross-unit to understand and to learn from each other
  — Network learning: Home-and-away
  — Democratic dialogues to engage all stakeholders

• Build internal improvement skills
  — Knowledge development tightly connected with everyday work

Some more lessons....

• The patient as the guiding principle:
  — What the patient needs determine value configuration logics – how we organize ourselves
  — It might also determine the composition of different cross-professional care teams