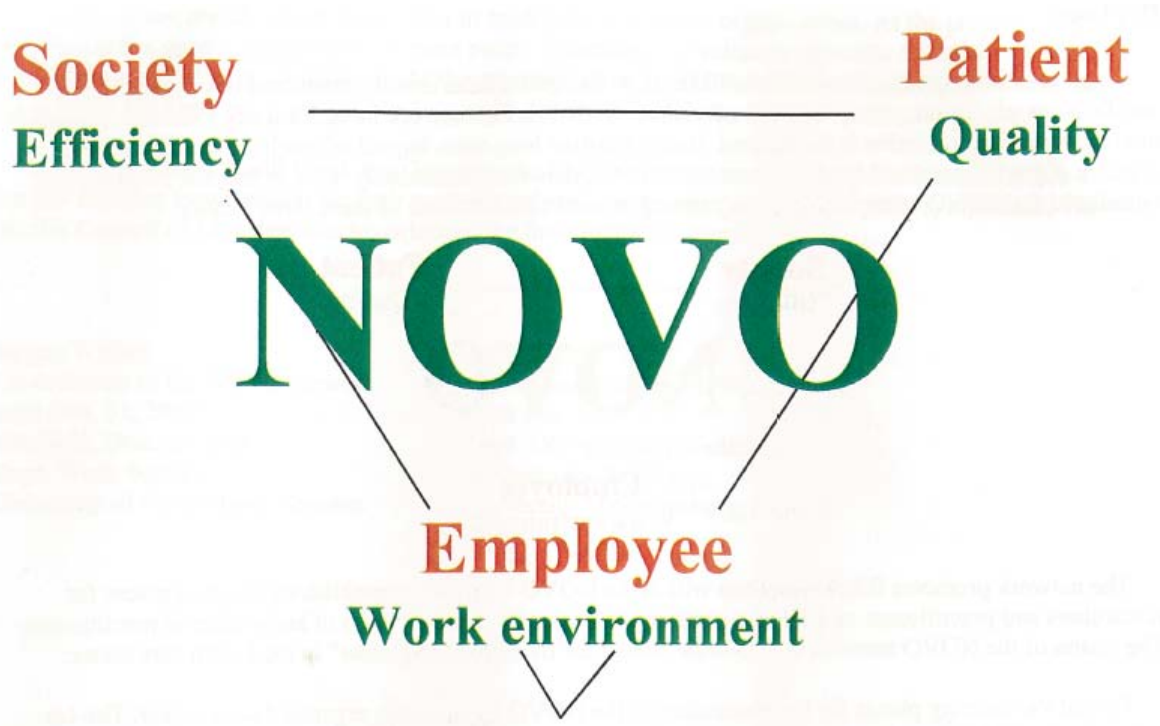

4th NOVO Symposium

Sustainable Nordic health care systems

November 24-25, 2010

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Abstract book

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Preface

Welcome to Stavanger and the 4th NOVO symposium, November 24th and 25th. We hope you will find the programme interesting and enjoy your stay here in Stavanger.

For this symposium Peter Docherty is our keynote speaker. He is a researcher at Centre for Healthcare improvement (http://www.chi-net.se/) in Gothenburg and a professor at Chalmers University of Technology. He will talk about sustainability and what constitutes a sustainable work system. In his presentation he will talk about the development from good work to sustainable work, as well as how to develop and shape sustainable work.

Totally 15 abstracts has been accepted for oral presentations at the symposium. The presentations are, according to their focus, sorted into four themes: organizational sustainability, management issues, lean production and cross-country studies (including the NOVO multicentre studies that are in their initial phase).

The content and participants at the 4th NOVO-symposium, show that this network is still developing with new perspectives and also new participants. However, the NOVO network has some recurrent themes and the abstracts looks promising with regard to deepened aspects and improved methodology.

We hope you find the symposium inspiring for improvements in research and practice as well as for cross-country collaborations.

We would also like to thank Anja Kristin Bakken, Marianne Rygh and Kari Aarsheim at IRIS for taking care of all the practical issues in relation to this symposium.

Kari-Anne Holte — Chair of the Symposium 2010

Lotta Dellve — Chair of the NOVO research network

Programme

Wednesday 24 November

10:30-11:30: Registration

11:30-12:30: Lunch

12:30-13:00: Opening

13:00-13:45: Keynote: Petter Docherty: What constitutes a sustainable work system?

13:45-14:00: Coffee break

14:00-15:30: Session 1

Session 1: Sustainable organizations

Moderator: Gunnar Ahlborg

1. Management by dialogue – developing sustainable worksystems in healthcare (S. Lifvergren and P. Docherty)

2. Improving workplace welfare by means of equal dialogue (R. Kivimaki)

3. Effects of weekly work hour reduction and physical exercise interventions on work quality and employees' productivity. (H. Hasson and U. Von Thiele Schwartz)

4. Attention shifting of nurses during medication preparation and administration in acute care inpatients units (H. Bragadóttir)

15:30-1600 Coffee break

16:00-17:30: Session 2

Session 2: Management

Moderator: L. Dellve

1. Safety management presumes clear roles, co-operation and flow of information (A. Parantainen)

2. Is servant leadership useful for sustainable Nordic health care? (S. Gunnarsdóttir)

3. An empirically supported and cost-efficient method for leadership development in health care (C. Sandahl)

4. An exploration of possible effects of performance appraisal in groups and in individual conversations (F. Vasset)

17:30-17:45 Coffee break

17:45-18:45: Session 3

Session 3: Multicenterstudies and cross-country studies

Moderator: Kari Anne Holte

1. A work-related community characterized of trust – dentistry in Sweden and Denmark (H. Berthelsen, B. Söderfeld, J. Hyld Pejtersen and K. Hjalmers)

2. Multicenterstudy ”Management - employee interaction in hospital organisations”: report of process and preliminary results regarding observation method of vertical communication and span of control” (L. Dellve)

3. Multicenterstudy 2 (K. Edwards)

19:00 Aperitif
19:30 Dinner at University of Stavanger
(Transportation by bus to the hotel after the dinner)

Thursday 25 November:

09:00-10:30: Session 4

Session 4: Lean production

Moderator: Kasper Edwards

1. Effect of lean on teamwork and stress in a Hospital Environment - a case study (W. Ul Hassan and C. Sandahl)

2. Lean in Swedish municipals and county councils. (M. Brännmark)

3. Emergency wards efficiency and the coordinator (F. Heldal and E. Sjøvold)

4. Efficiency in emergency care – is there any differences in employee ratings og perceived efficiency, quality of work and fatigue between days with short and long lead times? (U. Von Thiele Schwartz, H. Hasson and A.A. Muntlin Athlin)

10:30-10:45 Break

10:45-11:30 Closing

11:30-12:30 Lunch

Abstracts

SESSION 1: Sustainable organizations

Management by Dialogue – Developing Sustainable Worksystems in Healthcare

Svante Lifvergren[1,2], and Peter Docherty[1]

[1]Centre for Healthcare Improvement/Chalmers University of Technology, Sweden
[2]Skaraborg Hospital Group, Sweden

Among the challenges facing healthcare today are a growing elderly population, increasing rates of multiple and complex diseases, and more available treatment possibilities. Moreover, high quality care that is in line with patients' expectations requires new methods for organizing healthcare systems. In order to meet the challenges of the future, these systems must be capable of ongoing improvement, innovation and development –they must be *sustainabl*e. In this context, we define sustainability as the capacity to create, test and maintain adaptive capability, i.e. capabilities that enable organisations to alter their resource base, to acquire, develop and shed resources, and to integrate, re-combine and generate new value-creating strategies.

Several of these elements underscore the importance of a continuous *dialogue* between the stakeholders involved, not least in healthcare, between management, staff and their unions and patients and their relatives and associations. This is related to learning, not simply at the individual level, but even at the collective and organizational level. Collective learning requires dialogue within the group or community in which insights, lessons, ideas and experiences are exchanged, discussed, interpreted and possibly integrated into a common understanding.

In this paper, we describe experiences from a six-year action research project at the Skaraborg Hospital Group in Sweden. Specifically, we show how the hospital has been endeavouring since the late 1990s to mobilize and develop all its staff, at every level and in every area, to full commitment to improving their services by involvement in production, development and management through *management by dialogue* – making sense of the business together in both representative and direct participation.

The Skaraborg Hospital Group (SkaS) is situated in the Western Region of Sweden and is made up of four hospitals in the Skaraborg county. The group serves ca 260,000 people with acute and planned care in most specialities.

In 2004, SkaS chose to use Balanced Scorecard (BSC) to shift the strategic discussion from a largely economic discourse towards an aid to organizational development, strongly coupled to learning and development projects in the workplace. In fact, the process of using the BSC framework has, in effect, been a key integrative tool in engaging the personnel as a whole in the sustainability process. The strategic perspectives in the model in 2004 were (and still are): 1) patients, 2) personnel/learning, 3) processes and 4) (a viable) economy. The BSC has continuously been interpreted at the hospital group level, in the main divisions in SkaS – medicine & psychiatry, surgery, children/women and the hospital in Lidköping – in divisional scorecards. Finally, the underlying clinics in the different divisions have interpreted and developed their own scorecards.

The balanced scorecards are followed-up using *development dialogues*. There are three such dialogue iterations from the bottom up in the hospitals each year – concordant with the different scorecard levels. In the divisional dialogue e.g., top managers, divisional managers, and staff members participate. The dialogue lasts for about two hours and focus future action;

it act as an aid to ensure the realization of the agreed-upon goals and to create an arena for participation, learning and development. This practice has been shown to be very fruitful, both to stimulate learning and to reassess the meaningfulness of the procedure. The BSC dialogue process has proved to be a powerful learning mechanism, contributing to the creation of sustainable worksystems by generating a genuine feeling of participation in the development and in the creation of a common understanding among the personnel involved.

Improving workplace welfare by means of equal dialogue

Riikka Kivimäki

Work Research Centre, 33014 University of Tampere, Finland

Employees in the health care sector are troubled by work-related factors which affect the employees´ well-being, work capacity and ability to cope with work. The aim of the development projects in Tampere Work Research Centre was to search for examples of good practices in order to improve the wellbeing of employees in the health care sector. These development actions were carried out by departments of hospitals, health care centres and private day centres; staffs, superiors as well as representatives of occupational health care and occupational safety and health.

The method of equal dialogue of work conference was used in the development actions. It aims to create a dialogue which crosses the professional and hierarchical borders and by means of factual and feasible ideas strive for improved well-being. Employees´ well-being in individual departments and units was surveyed by means of a questionnaire. The results of this inquiry were presented in the work communities as the basis for the development actions.

Improvements were achieved in regard to the flow on information, general interaction and co-operation, the progress of work and activities, work climate, the hearing of employees and paying attention to their opinions, and the relations between employee groups. Opportunities of influencing the working conditions had become better. The projects were financed from the funds of Ministry of Labour and the Ministry of Social Affairs and Health in Finland.

Effects of weekly work hour reduction and physical exercise interventions on work quality and employees' productivity

Henna Hasson[1,2,3], Ulrica von Thiele Schwarz[3,4]

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[2]Vårdal Institute, Swedish Institute for Health Sciences, Lund, Sweden
[3]Karolinska Institutet, Medical Management Centre, Stockholm, Sweden
[4]Stockholm University, Department of Psychology, Stockholm, Sweden

Background: Several prior intervention studies that have examined effects of worksite health promotion programs have concluded that such programs were effective in improving employee health and in reducing absenteeism. However, few studies have examined how worksite interventions that help employees improving their wellbeing affect work quality and productivity. The aim of this study was to investigate how workplace interventions involving a reduction of weekly work hours with or without physical exercise during those hours, affect work quality and employees' productivity.

Methods: A dental health care organization in Stockholm, Sweden was included in the study. Six work departments within the organization (N=177) were randomized to three intervention conditions - 2.5 hours of weekly reduction of work hours with mandatory physical exercise (PE), 2.5 hours of weekly reduction of work hours without mandatory physical exercise (WHR), and a control where no work hour changes or physical exercise programs were implemented. The intervention started in November 2004 and lasted one year. Employees' self-rated measures (quality and quantity of work, work ability, sickness presenteeism and absence) were collected at baseline and 12 months after the intervention start. Objective organizational measures of work-place level productivity (mean number of patients per therapist and mean revenues per therapist) was collected for the intervention year and the year before.

Results: Employees self-rated quality of work output was unchanged in all three intervention conditions. Self-rated quantity of work output increased significantly in the PE group but no changes were found in the two other groups. No significant interaction effect between the groups over time was found. Self-rated work ability significantly decreased in the control group while there were no changes in the intervention groups. A significant interaction effect was found between the groups over time. Self-rated sickness presenteeism was unchanged in the PE group, while frequency and duration of sickness absence had decreased and was approaching significance. In the WHR group, no corresponding significant changes were found and in the control group, total number of sickness absent days increased significantly while there was a significant decrease in sickness presenteeism. The objective organizational measures showed that the mean number of patients per therapist increased for all intervention conditions during the intervention period. Revenues per therapist decreased for the PE group but increased for the other two intervention conditions

Conclusions: The results indicate that work productivity can be maintained or even increased when employees are attending to a health promotion intervention during work hours. The group receiving physical exercise during work hours showed increased self-rated and objective quantity of work. The group with weekly work hour reduction without mandatory physical exercise showed no changes on self-rated work productivity but showed increased

productivity when measured with objective measures. The results also highlight that employee rated quality of work performance was unchanged for all intervention conditions indicating that increased productivity don't necessarily lead to lower care quality.
Relevance to practice: The results indicated that productivity may be maintained even though work-hours are used for health promotion activities. However, how the productivity would change over a longer period of time is not known from this study.

Attention shifting of nurses during medication preparation and administration in acute care inpatient units

Helga Bragadóttir

University of Iceland Faculty of Nursing, School of Health Sciences, Landspitali University Hospital, Reykjavík, Iceland

Work of registered nurses (RNs) requires their alertness and full attention, not the least during medication preparation and administration. Study results indicate frequent medication errors among RNs in hospitals. Most frequently identified reasons for medication errors are interruptions, increased work load, inexperienced staff, fatigue, lack of skills, not being able to read doctors orders, and medications having similar names.

A study was conducted in one university hospital in Iceland. The purpose of the study was to increase knowledge about the work of nurses and its influential factors in acute care, for identifying potential improvements.

A mixed methods observational study was carried out in four inpatient acute care quality units. All participants were experienced nurses. Structured computerized measures were collected on hand held computers as well as qualitative field notes recorded on digital recorders.

Data were gathered during 8 eight hour shifts that participants identified as manageable or extremely manageable. All participants were experienced RNs. They used 17% of their working time for medication preparation and administration. On average their work during that time was disrupted 11.4 times per shift. The most frequent influential factor the RNs encountered was non-self initiated communication by coworker during medication preparation. Participants also moved frequently from one location to another within the unit during medication preparation and administration adding to their attention shifting during their work.

RNs spend substantial part of their working time on medication preparation and administration, work which requires their full attention. However their attention is frequently shifted between work activities and influential factors in their work and work environment which poses risk to medication errors. Study findings indicate that actions need to be taken to minimize the risks and the financial costs of unnecessary shifting of attention during medication preparation and administration in acute care.

Key words: nurses, work, hospitals

Session 2: Management

Safety management presumes clear roles, co-operation and flow of information

Annika Parantainen

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Employers in Finland have a general duty to carry out risk assessment in order to ensure the safety and health of workers in every aspect related to work. Risk assessment is the process of hazard identification, evaluation of work related risks, and of actions that are taken to manage those risks. Risk assessment has been carried out in most health care organisations in the recent years. However, it seems that in many workplaces the process has failed to evoke concrete actions or improve risk management as a whole. The Finnish Institute of Occupational Health investigated why.

We interviewed occupational safety delegates and labour safety delegates in 14 Finnish hospital districts and posed them the following questions: (1) Which methods and tools are used in risk assessment? (2) Has the risk assessment led to concrete actions in terms of risk management? (3) If not, what has been the problem? Head nurses and staff representatives from six medical wards were later approached with similar questions. All interviews were done in 2008.

Three major problems impeding a successful risk assessment process arose in the interviews. One of them concerned the assessment of the magnitude of risk. Especially the risks caused by psychosocial load were found difficult to define. The other two major problems were of organisational nature: the unclarity of roles and blockages in the flow of information. These were in general greatly due to insufficient co-operation structures both among organisation levels and among different personnel parties. The outsourcing of units and other organisational changes makes it ever more challenging to ensure that all parties are aware of the risks which their activities may cause to the others.

On the basis of these results, we are involved in a development project which aims to create an occupational risk management model in a multimunicipal organisation providing social services. The work started in the beginning of 2010 and finishes by the end of 2011. In discussions with the personnel we discovered that health care professionals often prioritise the clients' wellbeing over occupational safety. Being able to provide quality care enhances the employees' work wellbeing and vice versa. There is also scientific evidence that occupational safety interplays with patient safety.

Ideally, the data gathered during risk assessment is integrated to other aspects of safety (patients, environment, information etc.) and used for quality management in a proactive way. Another project, started in 2010, aims to discover connections between patient and work safety in a Finnish hospital district. Another goal is to create a model in which they are simultaneously taken into account in quality management.

Is servant leadership useful for sustainable Nordic health care?

Sigrún Gunnarsdóttir

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The philosophy of servant leadership receives a growing interest in academia and among clinical health care leaders and in human resource management. In particular, servant leadership proofs to be of much relevance and importance in health care services. Key elements of servant leadership are related to key elements of social capital, an important element of Nordic society and Nordic organisational structure. Currently, few European studies are available about the importance of this philosophy for patient and staff outcomes. Prior nursing studies in the US show that servant leadership is related to job satisfaction and better performance. For the purpose of investigating attitudes among Nordic health care workers towards the idea and to investigate potential links to staff outcomes a questionnaire survey was conducted among health care staff in nursing care in four hospital in Iceland (n=300). The study was planned in collaboration with academics in Holland and a new Dutch instrument (SLI) was used in an Icelandic version. The instrument builds on Greenleaf´s characteristics of a servant leader and consists of 30 questions relating to the will to serve, to use persuation as the most important power, to trust and to empower people. Reliability and validity of the Icelandic version was evaluated. The findings of the study indicate that the Icelandic version of the SLI is both valid and reliable. Perceived servant leadership measured highest among nurses. Majority of the respondents are satisfied with their jobs and significant correlation was found between job satisfaction and alls factors of servant leadership, strongest between job satisfaction and empowerment. The study shows that servant leadership is practiced in departments of nursing in the four Icelandic hospitals. The findings support prior findings and indicate that servant leadership among hospital managers is important for staff satisfaction. Organisational trust is foundational to servant leadership and is as well among current challenges of sustainable Nordic health care services. There are reasons to continue to investigate the importance of this leadership style in Nordic health care settings and, in particular, to investigate potential links to performance and better patient outcomes.

An empirically supported and cost-efficient method for leadership development in health care

Christer Sandahl

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Managers in health care often find themselves engaged in solving problems involving many contradictory factors such as interests, conditions, positions and ideals. Synthesizing these forces into action and at the same time retaining authority is an intricate and demanding task. It is not uncommon that managers feel insecure and silently question their own competence. Helping managers improve their ability to act with conviction and sensibility requires a special sort of pedagogy. In our research team we have developed an enquiry based learning model and evaluated it in different contexts, including health care. More than five hundred managers have been followed up after having participated in a so called ”backstage groups” who met for one year on a monthly basis with the aim of focusing on solving real everyday problems. Apart from being extremely satisfied to have had the opportunity to take time to reflect on and find solutions to problems (both their own and those of other group members) it was shown that the managers coping capacity and self confidence increased. A key factor in the model was the fact that the groups were convened by managers from the group members own organisation, trained in the manualised method and with continual supervision. This helped to keep costs low and contributed to organisational learning in that all new information concerning problems and organisational challenges stayed within the organisation and could be put to good use.

An Exploration of Possible Effects of Performance Appraisal in Groups and in Individual Conversations

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Purpose: This paper focuses on performance appraisals in groups and in individual conversations, and explores whether employees in municipal health services in Norway learn more from a group performance appraisal than from an individual performance appraisal.

Background: Previous research indicates that not all performance appraisals are successful, and there have been arguments in support of for the effectiveness of performance appraisal in small groups.

Method: A field experiment was used, where a municipality conducted performance appraisal in groups and with individual performance appraisal (pre-test, post-test 1 and post-test 2). Questionnaires were distributed to a representative sample of 60 X 3 employees, most nurses and auxiliary nurses. The study has a response rate of 85 %. Factor analysis and regression analysis were run in SPSS 17.

Findings The employees showed more high professional learning in a group performance appraisal. Performance appraisal in a group results in greater work effort in for individual performance appraisal, better contributing participation than in an individual performance appraisal, better conditions for learning from performance appraisal than individual conversations. Employees who have performance appraisal in groups and as individual conversations have very similar values in the leader-member exchanges questions, but employees who have performance appraisal as individual conversations are more satisfied with the assessment.

Key word: Performance appraisal, performance appraisal in groups, learning in performance appraisal

Session 3: Multicenterstudies and cross-country studies

A work-related community characterized of trust - dentistry in Sweden and Denmark

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Background. Earlier research emphasizes the importance of positive work relations for dentists' perception of opportunities for quality in handicraft and patient relations. A scale for positive work relations, *Community with Trust*, has been developed and its psychometrical properties evaluated.

Objectives. The aim of the study was a) to compare mean scores on *Community with Trust* across subgroups based on organizational affiliation; b) to analyse associations between work factors (size of practice, common breaks, formalized managerial education of the daily leader, influence on work, profession-oriented and productivity-oriented practice climate) and *Community with Trust*; and c) to assess the correlation between the scales for *Community with Trust* and *Overall Job Satisfaction.*

Methods. A questionnaire was sent to 1835 general dental practitioners, randomly selected from dental associations in Sweden and Denmark. The response rate was 68%. Kruskal Wallis test and Pearson's correlation were applied and a hierarchical linear multiple regression model with the outcome variable *Community with Trust* was built.

Results. Significant differences in mean score of *Community with Trust* were found for dentists working in different organizational forms. The final regression analyse explained 49 % of the variation and showed that factors such as *common breaks*, *influence on work*, and a *practice climate with values corresponding with those of the profession* contributed to explanation of the differences in average among dentists with different organizational affiliation. *Community with Trust* and *Overall Job Satisfaction* were moderately to strongly correlated (0.52).

Conclusion. The study pointed to the relevance of addressing the professional ethos when organizing and managing dentistry for a sustainable work environment supporting quality in handicraft and in relations with patients.

Multicenterstudy ”Management - employee interaction in hospital organisations”: report of process and preliminary results regarding observation method of vertical communication and span of control”

Lotta Dellve[1], Katrin Skagert[2], Caroline Bergman[2], Gunnar Ahlborg[2] and the multicenter study group

[1] Occupational and Environmental Medicine, University of Gothenburg
[2] Institute of Stressmedicine, Gothenburg

Background: Managers in public sector have to meet major challenges today, why it is essential to focus on the organizational prerequisites for management in order to enable sustainability. From our studies, we have noticed a large variation in some managerial conditions that may have an importance for managerial – employee interaction and communication: the number of subordinates (span of control) and the prerequisites for communication of goals up-wards and down-wards in the organisation. We do not know how variations in these managerial conditions contribute to functional communication patterns and flow, or organisational sustainability.

Span of control is defined as the numbers of subordinates assigned to the manager. Studies of span of control in HCO’s have concluded that the following conditions are of importance: frequency and intensity in interaction, complexity of work, and the capability of the manager and the employee. There is limited research that considers the integrated effect of span of control on aspects of performance, quality of care and work environment. One study demonstrated the importance for safety behaviour, other the importance for group problem-solving and moderating organisational performances, and only a few studies consider psychosocial work environment (poor satisfaction and stress) related to broader spans as well as lost effect of beneficial leadership styles on employee well-being and organisational performances.

Progress: During 2010, the research groups from Sweden, Finland and Norway have sent their applications for funding and are waiting for response. In Sweden, we have worked with the development of an observation method (conceptually and practically), tested the method, piloted a questionnaire, and started with preliminary analyses of control span.

Aim: The NOVO multicenter study focuses on communication within health care organizations, leadership – employee interaction and structural organizational conditions that creates a sustainable work environment, quality of care and effectiveness. The presentation report from the development of observation method and preliminary findings from the Swedish pilot-study regarding managerial working conditions and patterns of vertical communication.

Method: *Managerial and organizational conditions:* Data are collected from hospital records and a questionnaire to all managers. 15 randomly selected 1st line managers have been more deeply observed using a structured observation schedule.
Communication patterns and flow: Data are collected from observation of formal meetings regarding content, characteristics of communication and time-distribution of each subject. A structured computerized observation scheme and the focused aspects of communication have

been used together with qualitative field notes. A questionnaire to all managers regarding managerial working conditions, communication and performance, management-employee interaction and outcomes of quality, performance and productivity.

Results: The observation method will be presented together with preliminary findings of patterns of communication and flow: What issues, goals, practical challenges that are/are not communicated; How the communication can be characterized and the time-distribution of each issue; Similarities and differences between 1st and 2nd line meetings. We will also present some findings of the analysis of span of control

The results can be used as guidance for improvements of structural organizational interventions with goals to increase sustainability in terms of working conditions and performance.

Session 4: Lean production

Effects of Lean on Teamwork and Stress in a Hospital Environment – A case study

Waqar Ul Hassan and Christer Sandahl,

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Health care systems are currently facing great challenges related to safety, quality and efficiency; the associated costs are rising rapidly. Hoping to manage these challenges, healthcare organizations are applying different business practices. The principles of 'lean management' have permeated many sectors of the business world and the medical field is no exception to this. The 'Lean strategy' promises to improve patient care process by focusing on enhancing 'Value' i.e. anything for which patient is willing to pay and eliminating 'Waste' i.e. anything except 'Value' in the patient care process. Lean efforts are going on in a Cardiology Department at a hospital in Stockholm ranging from different wards to the Emergency Room.

The idea behind this case study was the fact that, despite a lot of research going on about Lean Implementation and its effect on patient care process, a little is known about its impact on healthcare professionals' working conditions e.g. team functioning and occupational stress. So the aim of this case study was to investigate how the healthcare professionals may perceive differently in terms of team functioning and occupational stress when working in a lean introduction environment.

An operations research and case study approach was used. The conceptual framework of change that was drawn upon in this study was Pettigrew and Whipp's model of three dimensions of change (context, content & process). This framework offers a model for the understanding of every dimension's own complexity that contributes to or hinder transformations aimed for. Since, the perceptions of working professionals about the lean work environment were at focus, the data collection methods used were questionnaire survey and participant observation. Two validated questionnaires, one each for team functioning and occupational stress, were used. The study design was to perform the questionnaire survey twice approximately one year apart during the lean implementation process and direct observations during the same year. The presentation will include the results of first round of questionnaire survey and some outcome data based on participant observation.

Lean in Swedish Municipals and County Councils

Mikael Brännmark[1,2]

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Linköping, Sweden

Lean Production (Womack et al., 1991) is today a dominating concept for production development in the Swedish manufacturing industry (Eklund & Berglund, 2007; Börnfelt, 2006). The concept is also spreading fast to other contexts; one example is the Swedish program *Verksamhetslyftet*, focused on supporting municipals and county councils in their work with Lean.

Due to the fast spread of Lean, it is important to study the impact on working conditions. Most of the studies investigating this question, however, are focused on the manufacturing industry. The results of these studies are mixed; some report mostly negative employee effects (Landsbergis et al., 1999), others show both positive and negative employee effects (Scouteten & Benders, 2004; Eklund & Berglund, 2006) and some studies show that Lean plants do not lead to worse work conditions than traditional manufacturing plants (Womack et al., 2009). However, there are few studies focused on studying the impact on working conditions from Lean in other contexts, such as the public sector.

To study these questions, AFA Försäkringar has funded a three year project, which was given to a research team at HELIX, Linköping University. This team has previously studied the national program Produktionslyftet, which has the aim of supporting medium sized manufacturing companies in their implementations of Lean. The research project is a joint venture between Linköping University, the Royal Institute of Technology and APeL, in cooperation with the program Verksamhetslyftet. It was started in June 2010, with focus on two research questions: 1) how Lean can be used to conduct *sustainable development work* (Svensson et al., 2007), focusing on such aspects as *employee participation* and *learning processes*; 2) how does Lean affect the *working conditions of the employees*?

The research project will be performed using an interactive approach (Svensson & Aagaard Nielsen, 2006). This means that the research will be performed *together with* the participating organizations and stakeholders, not *on* them or *for* them. Another important aspect of the interactive approach is that the research is focused on benefiting the stakeholders of the project, although this does not mean taking on an active role as a change agent; instead, the aim is to support the critical reflecting and learning of the stakeholders, by providing them with theoretical and methodological support, and also, by feeding back the collected empirical data (from the research), analyzing it in cooperation with the project stakeholders. This last aspect, i.e. to provide feedback to the stakeholders, has proven important in previous research projects in HELIX; it improves the validity of the results, and it does allow for an access which would otherwise be difficult to acquire. However, the interactive methodology can also mean some difficulties, such as dealing with issues related to organizational politics, and it is time consuming approach.

To fulfill the goals of the research project, and to address the two research questions, a mixed quantitative and qualitative study design will be used. First, 15 case studies will be performed mostly based on qualitative methods, focusing on evaluating the Lean implementation

processes of the organizations. Second, a larger questionnaire study will be conducted focusing on both sustainability factors, such as learning and participation, and also on the consequences of Lean on the employees' working conditions, based on previously validated quantitative methods. The goal of the project is to have a mixture between municipalities and county councils, spread regionally over Sweden.

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Emergency wards efficiency and the coordinator

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In this paper we discuss the role of the coordinator in an emergency ward undergoing severe organizational changes. The changes includes physical reorganization, new work-processes and introduction of electronic support systems. The purpose of these changes, which were to obtain increased efficiency, were not met.

Our study shows that the lack of success stems mainly from different expectations on how systems and procedures should be applied, and unclear distribution of responsibility. Further we found that lack of written procedures and routines were the main explanation for these conditions, even though such detailed documents already exists, and seemed to be easily available.

These findings suggests that emphasizing increased quality of communication and interdisciplinary teamwork will be much more effective than creating more written procedures and routines. One of the more obvious changes at the ward, is that the physical distance between professional functions has increased. The earlier daily and informal communication were thereby considerable reduced. Small incidences that earlier were immediately solved, now tend to grow into major problems.

To compensate for decreased informal contact both interdisciplinary teamwork within the ward, and systematized cooperation between upstream and downstream departments needs to be emphasized. The major purpose of such effort is to obtain clear and agreed upon, distribution of responsibilities across professional and departmental borders. A key to achieve success in such approach is the ward coordinator.

To solve his task it is crucial that the coordinator have an updated overview of the flow of patient, but in addition he need an extended personal contact with involved professionals. These two needs are difficult to fulfill since information on patient-flow requires constant monitoring of the computer screen and personal contact is only achieved by being in the "field". In addition perception of routines, systems and responsibilities seem to depend strongly on professional belonging. The coordinator is typical a nurse and his professional perspective, status and position may complicate communication and efficient task-solving.

In our presentation we illustrate our findings by findings from both qualitative and quantitative methods, and conclude by suggesting how some of the challenges described may be met.

Efficiency in emergency care – is there any differences in employee ratings of perceived efficiency, quality of work and fatigue between days with short and long lead times?

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Background: An aging population together with medical-technical improvements has resulted in increased patient flows in emergency departments in many western countries. Along with this, there has been a change in work tasks, from admission of patients to the hospital to a department involved in diagnostics and treatment. This has resulted in overcrowding and longer waits to see a physician as well as total lead times, e.g. transit times from admission to discharge. This, in turn, has negative effects both on patient safety and employee work environment. The need to increase the efficiency in the emergency department, and reduce the waits, is often expressed as a "four-hour-goal" (in total lead times). However, little is known of how differences in department level efficiency (e.g. lead times) relates to employee perception of efficiency, quality of work performance and work-related fatigue.

Aim: In this study, the aim was to investigate how employee ratings of quality of work performance, efficiency, work-related effort and fatigue differed between days with short lead times (below 240 minutes) and long lead times (over 240 minutes).

Method: The study was set in the medical section of a Swedish emergency department with approximately 55 000 yearly visitors. Data was collected daily during two weeks in June 2010. Employees (mainly Nurses) provided self-ratings in short questionnaires that were filled out after each work shift during the two weeks. The questionnaire included questions concerning perceived quality and quantity of work, efficiency, work-related effort and fatigue. Lead times were collected from patient records and for each day, the mean lead time was calculated. Two groups were formed: days with lead times below 240 minutes and days above 240 minutes. Differences in employee ratings between these groups of days were compared using ANOVA. The data collection was done as part of a larger project aiming at investigating the effects of implementation of team work on efficiency, patient satisfaction, patient safety and psychosocial work environment.

Results: On days with longer lead times, the employee rated the quantity of work significantly higher than on work days with shorter lead teams. There were no differences in perceived quality of work or work efficiency. However, the employee ratings for tiredness and work-related efforts were significantly higher on days with lead times over 240 minutes.

Conclusion: Shorter lead times may be considered as a measure of emergency care efficiency. However, the employee perceptions of their own efficiency did not differ between days with long and short lead times. Neither did the perceived quality of work performance. However, there was an increased perceived quantity of work, work-related efforts and fatigue associated with days with longer lead times. This implies that longer lead times may be related to perceived work load, rather than short lead times being associated with efficiency

Relevance to practice: Quality of work performance may be sustained during days with high lead times. Organizational level data on efficiency, such as lead times, does not necessarily correspond to employee perceptions of efficiency of work.