



## Book of Abstracts from the 5th Nordic Conference on Research in Patient Safety and Quality in Healthcare

Falstie-Jensen, Anne Mette; Andersen, Henning Boje; von Plessen, Christian

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# NSQH 2018

5<sup>th</sup> Nordic Conference on Research in Patient Safety and Quality in Healthcare

## Book of Abstracts

30-31 August 2018

Copenhagen, Denmark



Book of Abstracts from the 5th Nordic Conference on Research in Patient Safety and Quality in Healthcare,  
30-31 August 2018, Copenhagen, Denmark

2<sup>nd</sup> version

Editors:

Anne Mette Falstie-Jensen

Henning Boje Andersen

Christian von Plessen

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Technical University of Denmark  
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Healthcare Management Group  
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NSQHQ

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## INTRODUCTION

Dear fellow researchers and colleagues

We wish you a warm welcome to Copenhagen to the fifth Nordic Conference on Research in Safety and Quality in Health Care! This year's conference has four prestigious keynotes by Mary Dixon Woods, Karina Aase, Carl Macrae and Doris Østergaard. Thirty researchers present their work as orals, 45 as posters and we have nine workshops. All-together, 230 colleagues from Iceland, Finland, Sweden, Norway and Denmark as well as Germany, United Kingdom and Japan bring their knowledge, experience and curiosity to this unique scholarly forum. This is impressive and it documents an interest in and need for a scientific platform for quality and safety in the Nordic countries.

The safety and overall quality of health care in our countries are acknowledged internationally and colleagues from all over the world visit our hospitals and care institutions. We are pioneers in systematizing the improvement of patient safety and quality. We educate our health care leaders how to integrate leadership and quality improvement. The Nordic quality registries are world famous. And the efficiency and equity of the Nordic health care systems are impressive achievements. This comes at a price. The sheer number of quality improvement initiatives overwhelms clinical staff and leaders, just as the tempo of their implementation. The pressure in hospitals, GP clinics and municipalities is tangible and contributes to burn-out and recruiting problems. The quality movement is being criticized for going in circles, starting new projects before effects of former ones are even assessed and the learning harvested. The Danish national accreditation program for hospitals, for example, was dismantled after five years before any research results were ready.

One of the reasons for this absence of scientific evaluations of quality improvement and safety is indisputably a lack of commitment to rigorous evaluation in the political system and among research founders. Yet as researchers, we cannot use that as an excuse. Our task is to present approaches and methods, carry through state-of-the-art studies and present our results in an effort to increase the knowledge base for quality improvements. While the number of publications in the Nordic countries has grown considerably, we are still not very confident about the methods and study designs for evaluating effects of change in complex systems, improving safety or co-working with patients, and many studies are small and very contextual - just to mention a few methodological challenges. In addition, our studies are taking so long time that results often arrive too late for decision making, as in the example with the Danish accreditation model. Moreover, it is still difficult to recruit young researchers to the field. And last not least, we do not collaborate nearly enough across the Nordic countries.

These challenges illustrate why this forum is so important. We need to join forces in the Nordic countries to create enough power to address the daunting research challenges in quality and safety. And we can succeed in this only if we meet and create a space for exchanging ideas, for learning from each other and, thus exploring possibilities for and planning Nordic studies.

This is the fifth meeting in the series of Nordic Conferences after the beginning in Stockholm in May 2010. The next meeting was held in Copenhagen in 2012, followed by Stavanger and Kuopio in 2014 and 2016. So it seems that we have succeeded in creating a forum that will endure. For good reasons I may say: We have in the Nordic countries a tradition for cultural and scientific collaboration; and just as important to collaboration: the organization and management of healthcare in our countries are very similar. Therefore, the potential for learning and inspiration is particularly great in our field where outcomes are created by the interaction among biological, technical, organizational and cultural factors.

The founding aims of NSQH were to

- promote and advance safety research concerning the health care sector in the Nordic countries
- facilitate collaboration on research and application of research results among our countries and among research institutions and clinical settings
- work towards attracting research funding for patient safety and quality domain, possibly via the establishment of a Nordic research agenda

These aims are as relevant as ever and I am sure they will guide our collaboration in research in safety and quality in the Nordic health care systems in the future.

This conference would not have been possible without the Nordic Programme Committee and the abstract reviewers. Thank you so much for the enjoyable collaboration. I also want to thank the students from DTU for their tremendous help.

On behalf of the local organizing committee (Henning Boje Andersen, Anne Mette Falstie-Jensen and myself) representing the Danish Research Network for Patient Safety and Quality in Healthcare, I wish you rewarding encounters, new ideas and specific plans for collaboration and I am already looking forward to the next Nordic Conference on Research in Safety and Quality in Health Care in Jönköping, Sweden in 2020.

Christian von Plessen

Chairman of Danish Research Network for Patient Safety and Quality in Healthcare



## PROGRAMME OVERVIEW

### **THURSDAY, August 30**

- 09:00 - 10:00 **Registration**, coffee and breakfast
- 10:00 - 10:15 **Welcome:** Christian von Plessen
- 10:15 - 11:00 **Morning plenary:** keynote speaker Mary Dixon-Woods
- 11:00 - 11:15 **Short break**
- 11:15 - 12:45 **Parallel Sessions** (Oral sessions 1 & 2, Workshops 1 & 2)
- 12:45 - 14:00 **Lunch**
- 13:20 - 13:50 **Rapid poster session**
- 14:00 - 15:30 **Parallel Sessions** (Oral sessions 3 & 4, Workshops 3 & 4)
- 15:30 - 16:30 **Coffee**
- 15:50 - 16:20 **Rapid poster session**
- 16:30 - 17:15 **Afternoon plenary:** keynote speaker Karina Aase
- 19:00 - 19:30 **Welcome drink**
- 19:30 - 22:00 **Conference Dinner**

### **FRIDAY, August 31**

- 07.45 - 08.30 **Welcome, coffee and breakfast**
- 08.30 - 09.15 **Morning plenary:** keynote speaker Carl Macrae
- 09.15 - 09.30 **Short break**
- 09.30 - 11.00 **Parallel Sessions** (Oral sessions 5 & 6, Workshops 5 & 6)
- 11.00 - 11.30 **Coffe**
- 11.30 - 13.00 **Parallel Sessions** (Oral session 7, Workshops 7, 8 & 9)
- 13.00 - 14.00 **Lunch**
- 13.15 - 13.45 **Network meetings**
- 14.00 - 14.45 **Closing plenary:** keynote speaker Doris Østergaard
- 14.45 – 15.00 **Conclusion and NSQH 2020**

## PROGRAMME

### THURSDAY, August 30

09.00 - 10.00	<p>Registration, coffee and breakfast</p> <p><b>Place: Ground floor</b></p>
10.00 - 10.15	<p><b>Welcome: Christian von Plessen</b></p> <p>Chairman of The Danish Research Network for Patient Safety and Quality in Healthcare.</p> <p><b>Place: Auditorium (ground floor)</b></p>
10.15 - 11.00	<p><b>Morning plenary</b></p> <p><b>The Role of Evidence in Improving Quality and Safety in Healthcare</b></p> <p>Keynote speaker: Mary Dixon-Woods</p> <p>Chair: Christian von Plessen</p> <p><b>Place: Auditorium (ground floor)</b></p>
11.00 - 11.15	<p>Short break</p>
11.15 - 12.45	<p><b>Oral session 1</b></p> <p><b>User involvement in adolescents' mental healthcare: A systematic review (84)</b>  <i>Petter Viksveen, Stig E. Bjønness, Siv Hilde Berg, Anita Salamonsen, Nicole Elizabeth Cardenas, Julia Rose Game, Karina Aase and Marianne Storm (Norway)</i></p> <p><b>Guided by the patients - Co-creating a set of patient reported outcome measures within two Danish psychiatric clinical registries (37)</b>  <i>Solvejg Kristensen, Lone Baandrup, Jan Mainz, Maria Bonde, Poul Videbech, Jens Holmskov and Per Bech (Denmark)</i></p> <p><b>The properties and content of patient centeredness scales – a systematic review (53)</b>  <i>Eline Ree, Siri Wiig, Tanja Manser and Marianne Storm (Norway)</i></p> <p><b>Patient Inventory - An Improvement Method (91)</b>  <i>Søren Valgreen Knudsen, Søren Paaske Johnsen and Jan Mainz (Denmark)</i></p> <p>Chair: Kaisa Haatainen</p> <p><b>Place: Vesterbro Torv/Tivoli (second floor)</b></p> <p><b>Oral session 2</b></p> <p><b>Variations in surgical oncology - Improvement through mapping (88)</b>  <i>Kasper Wennervaldt, Linda Aagard Thomsen, Henrik Kehlet and Niels Kroman (Denmark)</i></p> <p><b>Geographical variation in acute readmission among hip fracture patients in Denmark (61)</b>  <i>Pia Kjær Kristensen and Søren Paaske Johnsen (Denmark)</i></p> <p><b>Graphical mapping of the drug name similarity - the structure of sound-alike and look-alike similarity (87)</b>  <i>Thomas Schrader, Laura Tetzlaff, Cornelia Schröder and Eberhard Bech (Germany)</i></p>

	<p><b>Increasing risk of post-surgery infections among hip fracture patients: A nationwide study 2005-2016 (95)</b>  <i>Kaja Eriksrud Kjørholt, Søren Paaske Johnsen, Nickolaj Risbo Kristensen, Daniel Prieto-Alhambra and Alma Becic Pedersen (Denmark)</i></p> <p><b>The DICARES-evaluation of an instrument to monitor quality in discharge (7)</b>  <i>Ranveig Marie Boge, Arvid S. Haugen, Roy M. Nilsen and Stig Harhug (Norway)</i></p> <p>Chair: Boel Anderson Gäre</p> <p><b>Place: Auditorium (ground floor)</b></p>
	<p><b>Workshop 1</b></p> <p><b>Learning from success – Tackling Patient Safety from the Positive side</b></p> <p>Organizers: Peter Dieckmann, Marlene Dyrlov Madsen and Karina Aase (Norway and Denmark)</p> <p><b>Place: Kødbyen/Enghave plads (second floor)</b></p>
	<p><b>Workshop 2</b></p> <p><b>Measuring the implementation process – how should we explore predicting factors for implementation?</b></p> <p>Organizers: Eva Biringer, Einar Hovlid and John Øvretveit (Norway and Sweden)</p> <p><b>Place: Hovedbanegården (second floor)</b></p>
12.45 - 14.00	<p><b>Lunch break</b></p> <p><b>Place: Third floor</b></p>
13.20 - 13.50	<p><b>Rapid poster session</b></p> <p>Presented by:  10, 12, 21, 22, 23, 24, 26, 27, 30, 31, 34, 36, 38, 40, 42, 43, 44, 45, 46, 48, 59, 60, 67, 69</p> <p>Chair: Siri Wiig</p> <p><b>Place: Auditorium (ground floor)</b></p>
14.00 - 15.30	<p><b>Oral session 3</b></p> <p><b>Inpatient Volume and Quality of Mental Health Care Among Patients With Unipolar Depression (85)</b>  <i>Line Ryberg Rasmussen, Jan Mainz, Mette Jørgensen, Poul Videbech and Søren Paaske Johnsen (Denmark)</i></p> <p><b>Adolescent co-researchers for improvement of mental health services: Experiences from a Norwegian research project (47)</b>  <i>Nicole Elizabeth Cardenas, Julia Rose Game and Petter Viksveen (Norway)</i></p> <p><b>Exploring antecedents and outcomes of organisational bullying in a Norwegian healthcare setting (50)</b>  <i>Espen Olsen, Maria Therese Jensen, Gunhild Bjaalid and Aslaug Mikkelsen (Norway)</i></p> <p><b>State of technology-induced errors in Electronic Health Record Systems in Finland (96)</b>  <i>Sari Palojoiki, Lasse Lehtonen and Kaija Saranto (Finland)</i></p> <p>Chair: Øystein Flesland</p>

	<p><b>Place: Vesterbro Torv/Tivoli (second floor)</b></p> <p><b>Oral session 4</b></p> <p><b>Dealing and caring with risks: Healthcare professionals' perceptions of home Healthcare (54)</b>  <i>Kristina Schildmeijer, Marlene Lindblad and Mirjam Ekstedt (Sweden)</i></p> <p><b>Applying realist evaluation to quality improvement projects – reflections on the evaluations of two Danish patient safety programs (98)</b>  <i>Mette Marie Kristensen, Ida Nielsen Sølvhøj, Inge Kristensen, Simon Feldbæk Peitersen and Anna Paldam Folker (Denmark)</i></p> <p><b>Successfully reducing newborn asphyxia in the labour unit in a large academic medical centre: a quality improvement project using statistical process control (11)</b>  <i>Rikke von Benzon hollesen, Rie Laurine Johansen, Christina Rørbye, Louise Munk, Pierre Barker and Anette Kjaerbye-Thygesen (Denmark)</i></p> <p><b>Safer Communication in Healthcare Sector - SBAR is the way Forward (74)</b>  <i>Hulda Rafnsdóttir, Hrafnhildur L. Jónsdóttir and Ingvaldur Tryggvadóttir (Iceland)</i></p> <p><b>Patient participation for safer care (102)</b>  <i>Kristina Schildmeijer, Per Nilsen, Janna Skagerström, Carin Ericsson, Kristofer Årestedt and Anders Broström (Sweden)</i></p> <p>Chair: Risto Roine</p> <p><b>Place: Auditorium (ground floor)</b></p>
	<p><b>Workshop 3</b></p> <p><b>Evaluating national quality improvement programs: How can we learn from one program to the next?</b></p> <p>Organizers: Anne Mette Falstie-Jensen, Søren Bie Bogh, Søren Paaske Johnsen and Christian von Plessen (Denmark)</p> <p><b>Place: Kødbyen/Enghave plads (second floor)</b></p>
	<p><b>Workshop 4</b></p> <p><b>Learning By- and From-Doing: Linking Patient Safety, Quality Improvement Research, Education and Practice</b></p> <p>Organizers: Boel Andersson Gäre, Axel Ros, Ann-Christine Andersson and Elin Roos af Hjelmsäter (Sweden)</p> <p><b>Place: Hovedbanegården (second floor)</b></p>
15.30 - 16.30	<b>Coffee break</b>
15.50 - 16.20	<p><b>Rapid poster session</b></p> <p>Presented by: 35, 49, 52, 57, 63, 64, 68, 70, 72, 75, 76, 78, 79, 80, 81, 82, 83, 86, 93, 97, 100, 103</p> <p>Chair: Siri Wiig</p> <p><b>Place: Auditorium (ground floor)</b></p>

16.30 - 17.15	<p><b>Afternoon plenary</b></p> <p><b>Taking Resilience in Healthcare to the next level</b></p> <p>Keynote: Karina Aase</p> <p>Chair: Henning Boje Andersen</p> <p><b>Place: Auditorium (ground floor)</b></p>
19.00 - 19.30	<p><b>Welcome drink</b></p> <p><b>Place: second floor</b></p>
19.30 - 22.00	<p><b>Conference Dinner</b></p> <p><b>Place: Third floor</b></p>

## FRIDAY, August 31

07.45 - 08.30	<p>Coffee and breakfast</p> <p><b>Place: Ground floor</b></p>
08.30 - 09.15	<p><b>Morning plenary</b></p> <p><b>How (not) to learn from patient safety incidents</b></p> <p>Keynote: Carl Macrae</p> <p>Chair: Christian von Plessen</p> <p><b>Place: Auditorium (ground floor)</b></p>
09.15 - 09.30	<p><b>Short break</b></p>
09.30 - 11.00	<p><b>Oral session 5</b></p> <p><b>The contribution of adverse events to death in hospitalized patients (32)</b> <i>Ellinor Haukland, Kjersti Mevik, Christian von Plessen, Carsten Nieder and Barthold Vonen (Norway)</i></p> <p><b>Measuring adverse events in hospitalised patients using a modified GTT method with automatic trigger identification (65)</b> <i>Kjersti Mevik, Barthold Vonen, Tonje Hansen, Alexander Ringdal and Ellen Deilkås (Norway)</i></p> <p><b>Delayed diagnoses as patient injuries - Data from the Finnish patient insurance centre (73)</b> <i>Maiju Welling and Risto Roine (Finland)</i></p> <p><b>Patient Safety and Abuse in Healthcare (29)</b> <i>Marlene Ockander, Jelmer Brüggermann, Alma Persson, Boel Andersson Gäre and Barbro Wijma (Sweden)</i></p> <p>Chair: Hans Rutberg</p> <p><b>Place: Auditorium (ground floor)</b></p>

## Oral session 6

### **Do regulating inspections lead to patient safety? (25)**

*Ann-Christine Andersson, Boel Andersson Gäre, Johan Thor and Raymond Lenrick (Sweden)*

### **Unannounced accreditation surveys: cheaper and better facilitator for the quality improvement work at hospitals but not a more valid instrument (55)**

*Lars Ehlers and Morten Berg (Denmark)*

### **Improving care and reducing costs: the implementation of a trauma triage clinic (33)**

*Ryan Geleit and Johnathan Craik (UK)*

### **Pain-related unscheduled contact with health care services after outpatient surgery (58)**

*Lone Dragnes Brix, Karen Toftdahl Bjørnholdt, Theis Muncholm Thillemann and Lone Nikolajsen (Denmark)*

Chair: Kristina Schildmeijer

**Place: Vesterbro Torv/Tivoli (second floor)**

## Workshop 5

### **Co-producing a research agenda for quality improvement and patient safety-ideas and priorities and learning from the process**

Organizers: Vibe Hjelholt Baker, Annemette Lundmark Jensen, Linda Aagaard Thomsen, Lene von Bülow, Christian von Plessen (Denmark)

**Place: Købbyen/Enghave Plads (second floor)**

## Workshop 6

### **Building a psychologically safe culture of patient safety**

Organizers: Solvejg Kristensen and Doris Østergaard (Denmark)

**Place: Hovedbanegården (second floor)**

11.00 - 11.30

**Coffee**

11.30 - 13.00

## Oral session 7

### **User Experience Monitoring in Electronic Health Record Systems (28)**

*Janne Pitkänen, Aapo Koivusalo, Sari Palojoki, Antti Vento, Matti Pitkäranta and Antti Haapala (Finland)*

### **Quality of surgical guidelines and written patient information.**

#### **A Danish patient safety study (62)**

*Lotte Linnemann Rønfeldt, Dorthe Hjort Jakobsen, Henrik Kehlet, Henriette Lipczak and Kasper Wennervaldt (Denmark)*

### **Healthcare professionals' observational practice of deteriorating older patients in homecare - a qualitative study (66)**

*Torunn Strømme, Karina Aase and Ingrid Tjøflåt (Norway)*

### **Patient participation in multidisciplinary team conferences – an opportunity for a patient-centered approach to cancer care (89)**

*Kasper Wennervaldt, Anne Hjøllund Christiansen and Linda Aagaard Thomsen (Denmark)*

### **Explanations On Improved Patient Outcomes- And Perioperative Care Processes, Following Implementation Of The World Health Organization's Surgical Safety Checklist (90)**

*Hilde Valen Wæhle, Arvid Steinar Haugen, Stian Kreken Almeland, Stig Harthug, Nick Sevdalis, Geir Egil Eide, Monica Wammen Nortvedt, Ingrid Smith and Eirik Sjøfteland (Norway)*

	<p>Chair: Sari Palojoki</p> <p><b>Place: Auditorium (ground floor)</b></p>
	<p><b>Workshop 7</b></p> <p><b>Quality and Safety in Primary Care</b></p> <p>Organizers: Gunnar Tschudi Bondevik, Malin Knutsen Glette and Siri Wiig (Norway)</p> <p><b>Place: Kødbyen/Enghave Plads (second floor)</b></p>
	<p><b>Workshop 8</b></p> <p><b>Resilience for Improving Health Care</b></p> <p>Organizers: Jeanette Hounsgaard, Mikkel Ussing and Bettina Thude (Denmark)</p> <p><b>Place: Hovedbanegården (second floor)</b></p>
	<p><b>Workshop 9</b></p> <p><b>The Economics of Patient Safety</b></p> <p>Organizers: Ane Auraaen and Hans Rutberg (Sweden)</p> <p><b>Place: Vesterbro Torv/Tivoli (second floor)</b></p>
13.00 - 14.00	<p><b>Lunch</b></p> <p><b>Place: Third floor</b></p>
13.15 - 13.45	<p><b>Network meetings</b></p> <p><b>Place: Second floor</b></p>
14.00 - 14.45	<p><b>Closing plenary</b></p> <p><b>Simulation-based training in healthcare to improve patient safety</b></p> <p>Keynote: Doris Østergaard</p> <p>Chair: Henning Boje Andersen</p> <p><b>Place: Auditorium (ground floor)</b></p>
14.45 – 15.00	<p><b>Conclusion &amp; see you at NSQH 2020</b></p> <p>Chair: Henning Boje Andersen, Axel Ros</p> <p><b>Place: Auditorium (ground floor)</b></p>

### **The Role of Evidence in Improving Quality and Safety in Healthcare**

*Mary Dixon-Woods, RAND Professor of Health Services Research in the Department of Public Health and Primary Care, University of Cambridge.*

Thursday, 30 August 2018 / 10.15-11.00

Problems of quality and safety in healthcare have proven stubbornly difficult to resolve. This lecture will review some of the reasons for this, identifying challenges relating to measurement, level of intervention, type of intervention, and context. Explanations for the mixed fortunes of quality improvement (QI) approaches will be offered, including those relating to fidelity of application, the tendency to pursue QI work through time-limited, small-scale projects, and inadequate grounding of interventions in sound theory. Too much improvement work is undertaken in isolation at a local level, failing to pool resources and develop collective solutions, and introducing new hazards in the process. Ways of improving improvement will be described.

### **Taking Resilience in Healthcare to the next level**

*Karina Aase, Professor in safety and centre director, SHARE, Centre for Resilience in Healthcare, Faculty of Health Sciences, University of Stavanger, Norway.*

Thursday, 30 August 2018 / 16.30-17.15

Resilience in Healthcare (RiH) has gained widespread interest among safety scientists and practitioners over the last decade. So far, the study of health care systems' adaptive capabilities under varying conditions is characterized by case studies in limited empirical settings applying diverse theoretical constructs. Taking RiH to the next level requires large-scale, multi-level, longitudinal, and cross-country programmes co-designed with patients and stakeholders. In this lecture one example of such programme, the RiH project, is presented showcasing methodological, theoretical, and collaborative issues of relevance for future RiH studies.

### **How (not) to learn from patient safety incidents**

*Carl Macrae, PhD, Senior Research Fellow in the Department of Experimental Psychology, University of Oxford, Improvement Science Fellow, Health Foundation, Chartered Psc.*

Friday, 31 August 2018 / 08.30-09.15

A central premise of patient safety is that we can improve the future by learning from the past—and that this is especially urgent after things have gone wrong. Accordingly, reporting and investigating patient safety incidents have become a cornerstone of safety improvement, and most modern healthcare systems spend a great deal of time and effort attempting to analyse and learn from past events. Despite this, learning from incidents remains deeply problematic and confronts a range of challenges and complications in many healthcare settings. This presentation explores how disruptive events can be used to build more resilient, reliable and adaptive healthcare systems. Eight organisational strategies are identified that can improve how healthcare organisations learn from incidents, and can help transform moments of risk into sources of resilience.



## **Simulation-based training in healthcare to improve patient safety**

*Doris Østergaard, DMSc, Professor at the Medical Faculty of University of Copenhagen, Head of Copenhagen Academy for Medical Education and Simulation (CAMES)*

Friday, 31 August 2018 / 14:00-15:45

Simulation-based training has been used in health care for many years. The benefit is that training can be conducted without endangering the patient. Previously, less advanced equipment such as skill trainers were used, but the rapid development of technology has made it possible to train advanced technical procedures and conduct training not only for medical students but also for senior staff. Scenario-based training for teams of health care professionals in Crisis Resource Management has been used for decades – inspired by aviation. The journey most simulation centers have taken is to use simulation for a broader range of learning objectives for a broader group of learners. Focus has moved from simulation being technology driven with an attempt to achieve a high level of realism to focus on the pedagogical concept and the competencies of the facilitators. Initially, emergency teams were the primary learners, but the trend now is to train all members of staff in more frequent situations than cardiac arrest and trauma. Recently, the low dose/high frequency training concept has influenced where the training takes place and training in the departments has increased. Last but not the least, assessment of learning is more frequently done using validated scores. The presentation will cover some of these issues. Simulation can also be used to analyze the patient safety challenges in the clinical environment and to help the organization to overcome barriers and improve patient safety. Examples of the possibilities and of successful interventions will be presented.

## **Workshop 1: Learning from success – Tackling Patient Safety from the Positive side**

*Organizers: Peter Dieckmann, Marlene Dyrlov Madsen and Karina Aase (Norway and Denmark)*

Thursday, 30 August 2018 / 11.15-12.45

Patient Safety research and practice needs improvement. The current, deficit-oriented approach to learn from errors has brought some improvements, but has its limits – especially as the reconstructive analysis of errors has limited prognostic value in the light of the complexity of healthcare. Rooted in experiences from simulation and modern safety theories, we advocate the need to supplement this approach with improved understandings of how health-professionals actually perform their daily work well. Our learning from success approach (1) recognizes the learning potential of analyzing well performed “work as done”; and (2) explicates the many steps that are taken to make sure that “nothing happens”. We recognize the potential that human factors have for generating good performance consistently in a system that is characterized by constant deviations and the need for adaptations, where the golden standard as described in procedures and algorithms virtually never is implemented as planned. Healthcare professionals constantly fix problems in the interplay between their embodied abilities, the material layer of work, and the social and organizational rules that guide this interplay. Explicating this competence, and its facilitators and barriers, from the other layers will help in understanding more systematically, how good performance is established and how we may learn from it. This prospective approach, focusing on potentials allows for a more psychologically safe starting point in the discussion of safety issues with clinically active professionals, who might see challenges in a deficit-oriented approach. Our workshop will make these theoretical assumptions concrete via interactive exercises and reflections.

### **During this workshop you will learn**

- To describe the benefits and limitations of a focus on understanding how good performance is generated in everyday working situations
- To conduct an interactive exercise that sets the focus on learning from success
- To guide reflections that help healthcare workers understand how they actively contribute to establishing safe care, and how they can learn from these successes

## **Workshop 2: Measuring the implementation process – how should we explore predicting factors for implementation?**

*Organizers: Miriam Hartveit, Torleif Ruud, Kristin Heiervang, Hanne Clausen, Karina Egeland, Eva Biringer, Einar Hovlid, John Øvretveit (Norway and Sweden)*

Thursday, 30 August 2018 / 11.15-12.45

Existing literature reveals a large and fragmented set of theories and models for explaining implementation. Similar, we find a large set of instruments developed to measure different factors expected to be important predictors for successful implementation. However, frameworks providing a comprehensive description of the multifaceted construct, such as CFIR<sup>1</sup> and the review by Fixsen<sup>2</sup>, emphasize interactions between factors and different levels in which factors can be active to understand implementation. Existing methods and instruments do not sufficiently capture this complexity.

We invite research colleagues to discuss potential methods and important aspects to understand how implementation is possible. The main aim is to share knowledge and ideas, drawing on our experiences within the Nordic context, to make recommendations for future research. We will open the workshop by sharing our experiences so far with our newly developed instrument, Implementation Process Assessment Tool (IPAT). This 27-item instrument is used in an implementation-study involving 39 Local Mental Health

Centers in a longitudinal manner. We ask central clinicians at each unit to rate statements regarding perceived support, gains from the implementation, self-efficacy and more, every sixth month during the implementation process.

**During this workshop you will learn**

- Pros and cons for existing methods available for the exploration of the implementation process, as experienced by the participants.
- What is seen as the state of the art and future direction for exploring predicting factors for implementation.
- Potential of implementation measures to facilitate the implementation process as a supplement to data on compliance to the new practice.

**Workshop 3: Evaluating national quality improvement programs: How can we learn from one program to the next?**

*Organizers: Søren Bie Bøgh, Anne Mette Falstie-Jensen, Søren Paaske Johnsen and Christian von Plessen (Denmark)*  
Thursday, 30 August 2018 / 14.00-15.30

The Danish health care system has witnessed noticeable changes in the approach to quality improvement during recent years. In this workshop, participants will learn about the differences between the two major Danish national quality initiatives since 2005 and the challenges in providing evidence-based knowledge on their effectiveness. The workshop is for experienced and novice researchers who wish to improve the quality of health care.

The workshop will start with a short presentation of the national accreditation program "Den Danske Kvalitetsmodel (DDKM)", which was active until 2015, followed by the New National Quality Program introduced in 2015. Then we will present a summary of research on and lessons learned from DDKM. Based on the *Institute of Medicine's* (IOM) six perspectives of health care quality, we will propose a research framework for evaluating the effectiveness of quality programs incorporating the challenges identified by studying accreditation. In the interactive part of the workshop, we will ask participants to add their perspectives to the framework and discuss ideas for future studies.

Overall, the workshop will demonstrate the value of a framework for incorporating different designs to investigate whether and how large-scale quality improvement programs contribute to improving the quality and safety of health care services.

**During this workshop you will learn**

- About the two recent national quality improvement programs in Denmark
- To identify areas of learning from the evaluation of one program for the next
- To create a framework for studying large-scale quality programs

## **Workshop 4: Learning By- and From-Doing: Linking Patient Safety, Quality Improvement Research, Education and Practice**

*Organizers: Boel Andersson Gäre, Axel Ros, Ann-Christine Andersson and Elin Roos af Hjelmsäter (Sweden)*  
Thursday, 30 August 2018 / 14.00-15.30

The Jönköping Academy for Improvement of Health and Welfare was created by the Jönköping University, the Region Jönköping County and the municipalities, as an arena for development of research with and learning from initiatives in patient safety and quality improvements in practice. Inspiring speakers will introduce ideas for integration of research, patient safety, quality improvement, implementation of evidence-based practice and education with practice. They will draw on the experience from a master's program in Leadership and Quality Improvement aimed at practicing health and social care professionals and managers in the Swedish Health and Social care systems, as well as building research capacity from Jönköping Academy's PhD program. An overarching theme in those examples is the integration of research and professional knowledge on patient safety and improvement in the services for better health and welfare.

### **During this workshop you will learn**

- How our research can integrate patient safety with quality improvement
- How co-produced education and practice has helped to improve health and welfare over the past 10 years (Jönköping Academy)
- How patients and professionals can co-design, co-produce and co-evaluate care to improve safety and quality

## **Workshop 5: Co-producing a research agenda for quality improvement and patient safety-ideas and priorities and learning from the process**

*Organizers: Vibe Hjelholt Baker, Annetette Lundmark Jensen, Linda Aagaard Thomsen, Lene von Bülow, Christian von Plessen (Denmark)*  
Friday, 31 August 2018 / 09.30-11.00

Quality improvement and patient safety are important research areas for patients and health professionals alike. In the Nordic and other countries, work is underway to increase participation of users of health care in prioritizing, designing and carrying through research. Involvement of patients in research occurs already in many institutions and projects. We want to take patient involvement to the step of co-production and start the research process where it often starts: with ideas and questions. Thus, we will gather a group of patients, family members, health professionals, improvers and researchers in two half-day co-production sessions to brainstorm on, describe and prioritize research ideas and questions for patient safety and quality improvement.

Members of the group will present the results of the co-production sessions at the conference. We will also present and discuss our experiences with and reflections on the process of co-producing a research agenda.

The research ideas and questions as well as the learning from the co-production sessions should be interesting and useful for scientists and users of health care services in the Nordic countries.

### **During this workshop you will learn**

- From an example of co-produced research ideas and questions
- To describe potential and challenges of co-producing a research agenda
- About resources and support for co-producing research agendas for patient safety and quality improvement in the Nordic countries

## **Workshop 6: Building a psychologically safe culture of patient safety**

*Organizers: Solvejg Kristensen and Doris Østergaard (Denmark)*

Friday, 31 August 2018 / 09.30-11.00

Efforts to make patients safer have met with mixed success. Implementation of a safety culture has been suggested as a means of improving patient safety, but what is the task when building a safety culture and which initiatives are most effective? These topics will be presented and discussed during the workshop along with an example of a critical incident. Based upon the example simulated patient role plays will take place, this includes defusing of the team and taking care of the 1st and 2nd victim.

### **During this workshop you will learn**

- Essentials in building a psychological safe culture.
- How to defuse teams following a serious event.
- Taking care of the 1st and 2nd victim.

## **Workshop 7: Quality and Safety in Primary Care**

*Organizers: Gunnar Tschudi Bondevik, Malin Knutsen Glette and Siri Wiig (Norway)*

Friday, 31 August 2018 / 11.30-13.00

The workshop will be kicked off with three short presentations from the presenters focusing on different parts of primary care and the challenges facing the work on quality and safety in this context.

Gunnar Tschudi Bondevik will present findings from research focusing on similarities and differences in patient safety culture in general practice, out of hours primary care and nursing homes. Similarities and differences in patient safety culture in out of hours primary care in some European countries will also be covered.

Malin Knutsen Glette will present research from a comparative case study on exploring differences in hospital readmission rates across municipalities. Focus in the presentation will be on what factors influence general practitioners' decision-making in the hospital readmission process, and how other healthcare professionals contribute to this decision-making.

Siri Wiig will present research from the Improving Quality and Safety in Primary Care—Implementing a Leadership Intervention in Nursing Homes and Homecare' (SAFE-LEAD-study). Focus in the presentation will be on quality and safety challenges that managers experience when working in a variety of contexts (small/large units, rural/urban location).

### **During this workshop you will learn**

- Patient safety culture in primary care context,
- Doctors' decision making about hospital readmissions from the primary care perspective,
- How managers in nursing homes and home care with limited resources and education in quality and safety improvement experience their work in this field.

## **Workshop 8: Resilience for Improving Health Care**

*Organizers: Jeanette Hounsgaard, Mikkel Ussing and Bettina Thude (Denmark)*

Friday, 31 August 2018 / 11.30-13.00

Health care organisations are socio-technical systems where both human and technical factors influence the work, and where humans can adapt to cope with the complexity of the real world (Trist 1981, Hollnagel 2006). Health care organisations are intelligent systems that can adapt according to the actual situation. This means, that the system – or the staff in the system – have the ability to act resiliently. According to Hollnagel (2018), resilience is an expression of how people cope with everyday situations by adjusting their performance to the conditions.

In health care, the conditions for doing the job vary, the system is underspecified and staff must be prepared for the unexpected. Therefore, quality and safety in treatment and care very much depends on the capability of staff to act resiliently when adapting to the actual situation.

When humans adapt they make trade-offs between efficiency and thoroughness (Hollnagel 2009). These adaptations and trade-offs causes variations in health care. Mostly the variations are the reason for things going well but sometimes the variations can lead to risks and reduced quality in patient treatment and care. When the same course or routine can lead to both success as well as failure, it is essential to understand what happens, when things go right – thus when a thing goes well it can not go wrong at the same time. Having that focus safety is not only a situation where as little as possible goes wrong, but safety is the situations where as much as possible goes well (Hollnagel 2018).

#### **During this workshop you will learn**

- Concepts of Resilient Health Care
- What causes trade-offs
- The two perspectives in safety work – Safety I and Safety II

We will be working with the understanding of the approach of Safety–II and how to use that approach in practice. The workshop will consist of group discussions on trade-offs and Safety I and II, and practical tasks focusing on how to use Safety II in practice.

### **Workshop 9: The Economics of Patient Safety**

*Organizers: Ane Aaraaen and Hans Rutberg (Sweden)*

Friday, 31 August 2018 / 11.30-13.00

In 2017, the OECD produced the first report on the Economics of Patient Safety. The report estimated the health, economic and financial cost of patient harm. The financial cost on health systems is considerable. Approximately 15% of total hospital activity and expenditure is a direct consequence of adverse events in OECD countries. This figure is even considered conservative. If the flow-on economic consequences, such as lost productivity and income, are included the costs of harm run into trillions of dollars annually. In 2018, the OECD produced another Economics of Patient Safety report, exploring the impact of patient harm in primary and ambulatory care.

Since many of the adverse events that cause harm can be prevented, these failures represent a considerable waste of healthcare resources, and the cost of failure dwarfs the investment required to implement effective prevention.

A range of interventions aiming to minimising harm exist. The OECD consulted a panel of patient safety experts in order to identify which strategies that can minimise harm effectively and efficiently. System- and organisational-level initiatives were seen as vital to provide a foundation for local interventions targeting specific types of harm. The overarching requirement was a culture conducive to safety.

In Sweden a national patient safety initiative took place 2011–2014. As a result almost all acute somatic hospitals undertake monthly reviews of patient records to determine the rate and nature of adverse events. From 2013-17 more than 75.000 medical records have been reviewed and the results confirm the findings in the OECD report.

#### **During this workshop you will learn**

- More about the economic consequences of adverse events,
- More about strategies that can minimise harm effectively and efficiently,
- More about patient safety in primary and ambulatory care.

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### Oral session 1

#### **1A: User involvement in adolescents' mental healthcare: A systematic review (84)**

*Petter Viksveen, Stig E. Bjønness, Siv Hilde Berg, Anita Salamonsen, Nicole Elizabeth Cardenas, Julia Rose Game, Karina Aase and Marianne Storm (Norway)*

Thursday, 30 August 2018 / 11.15-12.45

##### **Introduction**

Adolescents have a right of access to high quality and safe healthcare services according to the United Nations and the European Convention of Human Rights. National legislation in the Nordic countries provides a framework for adolescents' legal right to be involved in decisions that affect their healthcare. User involvement may take place at the individual level to address an adolescent's own treatment, for example as part of a decision-making process; at the organizational level in order to contribute to, for example, the review of the provision of mental health services; and for political decision-making processes. It is commonly thought that person-centred mental healthcare and user involvement contribute to user empowerment. However, it is unclear what research evidence exists to assess user involvement in adolescents' mental healthcare, and how this affects improvement of the quality and safety of healthcare services.

##### **Objectives**

The objectives of this systematic review are to assess the experiences with, the effectiveness of, and the safety issues associated with user involvement for adolescents' mental healthcare at the individual and organizational level.

##### **Method**

A systematic review using predefined approaches for the literature search (including 12 databases and a grey literature search) and assessment of the identified literature.[1] At least two researchers independently assessed each article. Established guidelines were used for data extraction, critical appraisal and reporting of results. Adolescents are included as co-researchers throughout all phases of the review project.

##### **Results**

A total of 2,881 titles were identified through database searches and other sources. Twenty-four articles were included in the review, reporting on adolescents' involvement in mental healthcare, either at the individual or organizational level. The research provides an insight into different perspectives of user involvement in different contexts, ranging from primary care to specialist inpatient mental health services. It addresses different aims of user involvement, from treatment engagement and assessments of the quality of mental health services to the development of patient-centred outcome measures and technology supporting user involvement in mental health services.

##### **Conclusion**

User involvement is reported in the research literature in a range of different contexts and purposes, but existing evidence is limited. There is thus a need for further research to learn more from adolescents' own



experiences with user involvement, to assess the effect it may have on their mental health and how it affects their safety.

## References

1. Viksveen P, Bjonness SE, Berg SH, Cardenas NE, Game JR, Aase K, Storm M. User involvement in adolescents' mental healthcare: protocol for a systematic review. *BMJ Open*. 2017 Dec 21;7(12):e018800. doi: 10.1136/bmjopen-2017-018800.

## **1B: Guided by the patients - Co-creating a set of patient-reported outcome measures within two Danish psychiatric clinical registries (37)**

*Solvejg Kristensen, Lone Baandrup, Jan Mainz, Maria Bonde, Poul Videbech, Jens Holmskov and Per Bech (Denmark)*

Thursday, 30 August 2018 / 11.15-12.45

### Introduction

A central demand to implement Patient Reported Outcome Measures (PROM) in two Danish psychiatric clinical registries has emerged. The primary purpose of PROM is to support clinical dialogue at the individual level, underlining patient-centred care. The secondary purpose is to monitor the quality of mental health care at the aggregated patient level.

### Objectives

To select and conceptualise a set of PROM for use in adult patients diagnosed with depression or schizophrenia.

### Methods

The project PRO-Psychiatry was organised with an interdisciplinary steering group (SG) and a patient peer board (PPB) representing both Areas of illness. The SG and the PPB co-created the output of PRO-Psychiatry in a dynamic manner guided by a project leader and an assistant with user background. The work included a literature search, workshop input from the PPB, SG meetings, and ratings. The PPB discussed: item relevance, mode of data collection, graphical format of the online PROM and display of the results. Finally, requirements for user information within the questionnaire were identified. Based upon input from the PPB, the SG discussed and decided upon the items and the practical set-up for implementation.

### Results

The PPB prioritised 20 of 38 items and suggested alternative wording and answer categories for these 20 items. A pilot test was performed testing the items in their original phrasing as well as the phrasing suggested by the PPB. Adjustments were made post-pilot. In total, 19 items covering wellbeing, lack of wellbeing, lack of ability to accomplish activities, and overall health were selected for clinical testing. The participants emphasised concrete, unambiguous, easily understandable information and procedures for data collection and display of results.

### Conclusions

The adapted co-creation process based upon a high degree of patient involvement resulted in 19 PROM selected or tailored for the purpose, specifications for national implementation, and patient recommendations for data collection, patient information and display of results for self-management. It is possible to work in an evidence-based manner, guided by the patients, and successfully reach a consensus between patients and professionals.

## **1C: The properties and content of patient centeredness scales – a systematic review (53)**

*Eline Ree, Siri Wiig, Tanja Manser and Marianne Storm (Norway)*

Thursday, 30 August 2018 / 11.15-12.45

### **Background**

Patient centeredness is acknowledged as an important component of patient care and of quality improvement work in healthcare. Several scales exist to measure the concept, and previous literature provides a critical appraisal of their measurement properties. However, there is limited knowledge regarding the content of the scales, in terms of what type of patient centeredness they represent and how they can be used for quality improvement.

### **Aim**

To explore the methodological properties of patient centeredness scales, and the content of the scales in terms of what type of patient centeredness they represent and how they can be used for quality improvement.

### **Methods**

A systematic review of patient centeredness scales was conducted. Inclusion criteria limited references to articles written in English published in 2005, with health professionals as respondents. Articles with only patients as respondents were excluded. Articles reporting on scales that were illness specific, physician-patient specific, not fully developed or validated, included respondents other than health personnel, or did not concern quality and patient centeredness, were excluded from the analysis. First, the methodologies in all studies were critically appraised. Second, the scales were categorized according to Tritter's (2009) conceptual framework for patient and public involvement using directed content analysis.

### **Results**

Eleven instruments reported in 22 articles were included. The majority of the scales represented individual, indirect, or reactive involvement. Most scales included items that did not reflect patient centeredness at all, but rather organizational preconditions for patient centered practices. None of the scales included items that explicitly reflect the use of patient experiences for quality and patient safety improvement.

### **Conclusion**

There is a lack of patient centeredness instruments focusing on direct and proactive involvement of patients in quality improvement. Thus, there is a need to develop instruments that make explicit the use of patient experiences and patient involvement in quality improvement.

## **1D: Patient Inventory - An Improvement Method (91)**

*Søren Valgreen Knudsen, Søren Paaske Johnsen and Jan Mainz (Denmark)*

Thursday, 30 August 2018 / 11.15-12.45

### **Introduction**

High levels of bed occupancy constitute a serious challenge to the healthcare system. This may have a negative impact on quality of care, patient safety, working environment and appropriate use of resources. Patient Inventory is a special type of audit that provides a snapshot of the patient population in an entire hospital, a department or another clinical unit. The method answers the question: Is the right patient in the right place at the right time, and is the correct pathway for the patient organized? It maps the bed occupancy situation, as well as coordination and continuity associated with the individual patient pathway in

order to identify wrongly referred patients, unnecessary waiting times and bottlenecks. This includes an assessment on whether the patient is best treated in a hospital, in the general practice or in home and community care.

### **Method**

In 2012, an inventory project was completed at a Danish psychiatric hospital. Twelve units with 192 beds were included. Specific inventory forms were prepared, based on relevant factors in the individual units. The clinical staff at the units performed the inventory by completing the forms corresponding to the individual patients on the unit at that specific day. Subsequently, these forms were discussed at an inventory meeting. The inventory team consisted of a representative from the hospital management, the regional quality manager, two external persons with previous experience with inventory, and a staff member, whose function was to make a draft report. This team met with representatives of the medical and nursing management at the departments and units concerned, assessing the clinical evidence of the pathway and admission in question. Following this, the results were gathered in a report with proposals for specific quality improvement efforts.

### **Results**

The inventory showed average bed occupancy of 91%, with a range from 67% to 113% among the units. Among the 173 patients, 21% (n=37) were not in the right place and could have been elsewhere in the healthcare system more relevant to their needs. The primary reason was that the municipal system for home and community care did not have the capacity to receive the patients treated (n=24). Other reasons were: patients belonging to other psychiatric departments (n=4), patients whose primary cause of hospitalization was somatic (n=2) and patients who awaited position for highly specialized offers at other hospitals (n=2).

### **Conclusion**

On heavily loaded hospital units, it is important that only the right patients are hospitalized. This inventory project revealed that every fifth patient at a Danish psychiatric hospital could benefit from receiving treatment or care elsewhere. The method has potential to reduce workload and heighten patient safety by providing a quantitative overview in a relatively easy-to-use manner and thus qualifying the decision on improvement efforts. However, there is a need for a more detailed analysis of the usability of the method, including effect on clinical outcomes, patient preferences and costs.

## Oral session 2

### 2A: Variations in surgical oncology - Improvement through mapping (88)

*Kasper Wennervaldt, Linda Aagard Thomsen, Henrik Kehlet and Niels Kroman (Denmark)*

Thursday, 30 August 2018 / 11.15-12.45

#### Introduction

Some 40,000 patients are diagnosed with cancer in Denmark each year, and, according to The National Board of Health, 60-80% require surgery as a central part of their treatment. Accordingly, approximately 30,000 surgical procedures indicated by malignancy are carried out each year in Denmark. This brings the surgical modality, and thereby the surgical units, into the core of cancer treatment. There is an increased demand on clinicians, decision makers, and leaders to produce data-driven improvements in all aspects of healthcare, including surgical treatment. The challenge of quality assurance by translating data into improvements and not just changes is real. Critical to this task is the relevance and reliability of the data extracted. This can be ensured by using a method which provides a uniform and transparent approach that can span the majority of surgical specialties. At present, no such generalizable model exists. To continue driving the quality assurance of health services in surgical oncology, we need to build a model that can accomplish a systematic approach, which favors both the organizational and clinical as well as the patient's perspective. Traditionally, indicators on surgical outcome have been based on structural measures such as hospital size, surgical volume, specialization, accreditation, and multidisciplinary team approach or disease-related outcomes such as tumor size, disease stage, resection margins, complications, and short-term survival. At an international level, a shift towards measurements based on a patient's perspective, i.e., admission type, long-term survival, and patient-reported outcome measures, has begun. This shift in perspective has to be acknowledged when designing the model.

#### Objectives

The main objective is to build and test a model for quality assurance and monitoring of outcomes in surgical oncology across different specialties. The aim is to provide clinicians, decision makers, and leaders with a meaningful overview of the surgical service as well as a tool for prospectively monitoring the effect of any changes made, in all aspects of the surgical oncology regardless of the risk profile of the procedure or the surgical volume.

#### Methods

The register-based model is constructed from an algorithm using eight key variables: admission, procedures, readmissions, mortality, diagnosis, age and gender, co-morbidity, and TNM. From this data, information can be extracted on admission time and type, transfers, readmissions, diagnosis, tumor stage (pre- and postoperative), age, co-morbidity, mortality (during hospitalization/30 days/90 days/180 days/ one year), and hospital production volume. Data are extracted from the Danish National Patient Registry (DNPR) and the National Pathology Data Bank (PATOBANK). DNPR is a national database whereby hospitals are required by law to register all diagnostics and treatments of patients, whereas PATOBANK collects national information of the pathological-anatomical diagnosis based on topography and morphology. Data are cross-referenced by combining the two databases using the ICD-10 classification system in the DNPR database and the SNOMED Clinical Terms system in PATOBANK.

#### Results

We present selected examples of the model applied in different surgical areas, i.e., pancreatic cancer surgery (high risk, low volume setting) and kidney cancer surgery (low risk, moderate volume setting), with

illustrations of national variation within each specialty. For pancreatic surgery, we found a skew in production volume with two out of four units, accounting for 80% of the procedures performed. Additionally, variation was found on transfers, disease stage, and mortality. For kidney surgery, we found a difference in selection of modality across the performing units as well as variations in admission length, readmissions, and mortality.

## **Conclusion**

The model provides a framework for extracting and monitoring meaningful and relevant outcomes on cancer surgery from readily accessible data sources (the national registers). This enables clinicians and decisions makers to monitor variations, identify challenges and define quality levels.

## **2B: Geographical variation in acute readmission among hip fracture patients in Denmark (61)**

*Pia Kjær Kristensen and Søren Paaske Johnsen (Denmark)*

Thursday, 30 August 2018 / 11.15-12.45

### **Background**

A hip fracture is the most severe and common fracture in people aged 65 or above. Previous studies have indicated variation in 30-day readmissions among hospitals in Denmark. Following hospital care, typically 9 days, the hip fracture patients are referred to further nursing care and rehabilitation in the municipalities. There are no guidelines for the treatment, nursing care and rehabilitation of hip fracture patients after discharge, and it is therefore interesting to investigate whether the patients' municipality of residence is linked to readmission after hip fracture.

### **Objectives**

To investigate acute readmission rate within 30 days after discharge for hip fracture patients at the municipality level in a population-based cohort based on linkage of the Danish Multidisciplinary Hip Fracture Registry, the Danish National Registry of Patients and Statistics Denmark. Secondly, to examine whether patient characteristics and hospital characteristics are associated with variation at municipality level.

### **Methods**

We identified 23,641 patients  $\geq 65$  years discharged alive after a hip fracture surgery between 2010 and 2013 from Danish hospitals. We computed the cumulative risk of acute readmission within 30 days at the municipality level. To determine whether the observed variation across municipalities was attributable to differences in patient characteristics and hospital characteristics, we used a multilevel logistics regression model. Patient characteristics included sex, age, fracture type, comorbidity, type of surgery and mean family income. Hospital characteristics included hip fracture volume, quality of in-hospital care reflected by seven process performance measures, time to surgery and ortogeriatric specialization.

### **Results**

The 30-day readmission rate for the 98 municipalities varied between 11.9% and 27.2%. The corresponding odds ratios (ORs) for 30-day readmission varied between 1.63 95% confidence interval (CI) (1.10-2.41) and 2.49 95% CI (1.57-3.94) for the 30 municipalities with a higher readmission rate compared to the municipality with lowest readmission rate. After adjustment for patient characteristics, 25 municipalities still had higher readmission rates. The corresponding ORs varied between 1.55 95% CI (1.04-2.30) and 2.49 95% CI (1.55-4.01). Further adjustment for hospital characteristics did not reduce the variation between the municipalities as 25 municipalities still had higher readmission rates, with ORs ranging from 1.64 95% CI (1.04-2.58) to 2.61 95% CI (1.56-4.37), respectively.

## Conclusions

There are substantial geographical variations in acute readmission rates after hip fracture at municipalities in Denmark, even after adjustment for a wide range of patient and hospital characteristics. Further studies should aim to identify characteristics at the municipality level which may explain the variation in acute readmission rates.

## 2C: Graphical mapping of the drug name similarity - the structure of sound-alike and look-alike similarity (87)

*Thomas Schrader, Laura Tetzlaff, Cornelia Schröder and Eberhard Bech (Germany)*

Thursday, 30 August 2018 / 11.15-12.45

### Introduction

Between 18% and 56% of all errors in the treatment processes in a hospital are medication errors. Around 20% of these are related to a confusion of drug names described as look-alike or sound-alike errors (LASA). On an international level, the WHO confirmed the uniqueness of the active therapeutic ingredients. Generally, the pharmaceutical companies decide about the drug name and keep different aspects in mind, especially marketing. On the national level, various offices are responsible for the uniqueness of a drug name. Nevertheless, they do not analyze the different types of similarity. LASA drug names represent the orthographical, phonetical and morphological similarity but do not strictly differentiate between them. To handle the severe problem of confusion of drug names, different lists of LASA drug names exist, e.g., from the Institute for Safe Medication Practices or the Bundesverband Deutscher Krankenhausapotheker (<https://www.adka-dokupik.de/>). These lists contain only LASA drug names reported in, e.g., critical incident reporting systems in cases where drug names have been confused. Moreover, these lists have not been updated for two years.

### Objectives

This study attempted to prospectively analyze the risk of confusion of drug names based on different similarity measurements covering the orthographical and phonetic similarity, e.g. the Levenshtein index. A graph-based network expresses the relation between the drug names. This similarity map helps us to understand the structural aspects of similar drug names.

### Methods

The LASA lists of the Institute for Safe Medication Practices and the Bundesverband Deutscher Krankenhausapotheker (<https://www.adka-dokupik.de/>) were analyzed to find some thresholds for analysis of the database Drugbank (<https://drugbank.ca>) covering active therapeutic ingredients and international product names of drugs. The database contains more than 62,000 unique product and active therapeutic ingredients names. Around 1.9 billion pair comparisons lead to a set of similarity measurements. Together with other properties such as state (e.g., fluid), application pathway (e.g., intravenous) and active ingredients classes, a graph-based map shows the closeness of each drug name to other drug names. Most of these drug names are similar to only one conflicting term, but some have two or more similarity twins (up to 236(!)).

### Results

Around 80% of the name twins in the LASA lists have a Levenshtein index of lower than 6. More than 250,000 pairs of drug names have the same property. This means this editing distance of these drug name twins is very low. Around 30,000 unique international drug names have similarity twins based on an orthographical analysis.

The graph-based analysis shows that the similarity has a structure: One critical issue is the dosage information: the Levenshtein index is low (one or two), and the drug names differ only in numbers or unit information. Very often, the similarity is a result of the marketing strategy adding the company name to the drug name. The Levenshtein index is high, but the Jaccard index expresses a great similarity due to the longest common substring.

## Conclusion

This study shows that the criterion of the uniqueness of a drug or product name is a weak property to prevent confusions. Additional criteria are essential for improvement and to avoid medication errors. Such criteria should be based on orthographical and phonetic similarity measurements.

The classification of confusion in medication errors should be extended to orthographical, phonetical and morphological similarity due to the different analytical methods. The evaluation of the morphological similarity based on image analysis is more obvious in contrast to the other types of similarity

## 2D: Increasing risk of post-surgery infections among hip fracture patients: A nationwide study 2005-2016 (95)

*Kaja Eriksrud Kjørholt, Søren Paaske Johnsen, Nickolaj Risbo Kristensen, Daniel Prieto-Alhambra and Alma Becic Pedersen (Denmark)*

Thursday, 30 August 2018 / 11.15-12.45

### Background

Post-surgery infections are associated with excess mortality among hip fracture patients. Changes in hospital care, including orthogeriatrics, could have had an impact on this, but data on recent trends in the risk of infections are lacking.

### Objectives

We aimed to examine trends in the risk of infections in the month following hip fracture surgery, including hospital-treated infections, as well as community-based ones, in Denmark from 2005 to 2016.

### Methods

We conducted a population-based cohort study based on individual-level record linkage of data from Danish nationwide registries. To evaluate the risk of infections, we identified any first-time hospital diagnosis (admission or outpatient record) of infection, or community infection identified by first-time antibiotic prescription/s, after hip surgery date. In addition, we examined specific infections, such as pneumonia hospitalization. We calculated with 95% confidence interval (95% CI), and, based on pseudo values methods, adjusted risk ratios (RRs) with 95% CI per calendar period, using the period 2005-2006 as a reference. RRs were adjusted by age, sex and comorbidity (Charlson Comorbidity index (CCI)). All analyses were calculated 30 days after surgery.

### Results

A total of 74,771 patients aged 65 years or older, with first-time hip fracture surgery, were included. Risk of post-operative infections increased in the study period: IR of 30-day hospital-treated infections increased from 4.12 (95% CI: 3.91-4.35) in 2005-2006 to 5.57 (95% CI: 5.30- 5.85) in 2015-2016 [adjusted RR 1.32 (95% CI: 1.23-1.41)], irrespective of patient's age, sex and comorbidity. IR of hospital-treated pneumonia increased from 1.34 (95% CI: 1.22-1.47) in 2005-2006 to 2.42 (95% CI: 2.25-2.60) in 2015-2016 [adjusted RR: 1.69 (95% CI: 1.49-1.91)]. Finally, 30-day IRs of community-based infection increased from 6.78 (95% CI: 6.50-7.07) in 2005-2006 to 11.28 (95% CI: 10.89-11.6) in 2015-2016 [adjusted RR 1.56 (95% CI: 1.49-1.64)].

## Conclusions

We found an increased risk of infection following hip fracture surgery during the 12-year study period. Given the high mortality following infections in the elderly, further research is needed to identify patients at increased risk to target preventive treatment and potentially reduce complications and mortality in hip fracture patients.

## Conflict of interest

Kaja E. Kjørholt, Søren P. Johnsen, Nickolaj R. Kristensen and Alma B. Pedersen declare that they have no conflict of interest. Daniel Prieto-Alhambra's department has received unrelated industry funding in the forms of: 1. research grants from Amgen and UCB Biopharma; 2. consultancy fees from UCB; and speaker fees from Amgen.

## 2E: The DICARES-evaluation of an instrument to monitor quality in discharge (7)

*Ranveig Marie Boge, Arvid S. Haugen, Roy M. Nilsen and Stig Harhug (Norway)*

Thursday, 30 August 2018 / 11.15-12.45

## Background

Accurate and vigorous instruments to monitor quality in the hospital discharge process of elderly patients is important due to severe challenges in discharge quality (1,2). Patient experience data can be used to target improvements and research. Such instruments should reflect patient experiences rather than satisfaction (3). A review of the literature reveals a lack of validated instruments that measure patient experiences with the hospital discharge process (1). The aim of this study was to examine the psychometric properties of a recently developed and validated brief three-factor questionnaire, the Discharge Care Experiences Survey (DICARES).

## Materials and methods

A survey consisting of 21 questions, including the DICARES (11 items) and a questionnaire used as a quality measurement in Norwegian hospitals, the Nordic Patient Experience Questionnaire (NORPEQ), were sent to 1,418 inpatients  $\geq 65$  years 30 days after discharge. The patients were recruited from two medical wards at two hospitals in the Western part of Norway. To investigate construct validity, the factor structure of the responses was tested by confirmatory factor analysis (CFA). Cronbach's  $\alpha$  was used to assess internal consistency reliability. To examine concurrent validity Spearman's correlation was applied to the DICARES total scores, the three factors and the patients' scores from the Charlson Comorbidity Index (CCI) and the patients' scores obtained from the NORPEQ. Furthermore, a two-sided t-test was performed in order to compare the DICARES scores and the NORPEQ scores for patients readmitted to those not readmitted. A multivariate regression analysis was conducted to examine associations of the DICARES With readmission.

## Results

A total of 515 (36.3%) patients returned a completed survey. The mean age of participants was 78.6 years and 52.8% were women. The CFA assigned the 11 DICARES items to three underlying factors: Coping, Adherence and Participations. Goodness-of-Fit Indices showed reasonable model fit; CFI 0.955, CMIN/DF 2.738, PCFI 0.593, RMSEA 0.58, PClose 0.14 and Hoelters 261 (0.05). The corresponding Cronbach's  $\alpha$  were 0.82, 0.70 and 0.64 respectively. A moderate Spearman correlation ( $\rho = 0.51$ ,  $p < 0.01$ ) was found between the total mean DICARES score and total mean NORPEQ score. No correlation was found for the DICARES and the CCI. Higher DICARES scores were associated with decreased risk of hospital readmissions (OR 0.55, CI 95: 0.42- 0.72,  $p < 0.001$ ).



## **Conclusions**

The results of the 11-item, three-factor questionnaire signify evidence of reasonable psychometric properties. We suggested that the results indicate the DICARES may be a feasible questionnaire as an additional instrument to monitor quality in the discharge process of elderly patients. Further analyses of the patient experiences related to care through the discharge process, and the impact-significant and critical elements of care have on each of the three factors, will be useful in order to gain a broader picture regarding what area of care is most needed to develop.

## **Ethics**

This study was approved by the Western Norway Regional Committee for Medical and Health Research Ethics (Ref.: 2015/329).

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## Oral session 3

### 3A: Inpatient Volume and Quality of Mental Health Care Among Patients With Unipolar Depression (85)

*Line Ryberg Rasmussen, Jan Mainz, Mette Jørgensen, Poul Videbech and Søren Paaske Johnsen (Denmark)*

Thursday, 30 August 2018 / 14.00-15.30

#### Introduction

There is a growing interest in the association between inpatient volume and the quality of care, and the structure of the organization in the healthcare sector is a topic of discussion worldwide. The goal is to ensure better treatment quality, higher patient satisfaction and greater efficiency. Despite the increasing interest, the association between inpatient volume and the quality of mental health care has not been comprehensively examined. To the best of our knowledge, only six published studies have examined this association. However, the results of these studies are inconsistent, making it difficult to draw conclusions. Furthermore, only one of the existing studies has specifically examined the association for patients with depression and there is a general lack of studies with detailed data regarding the quality of the mental healthcare provided.

#### Objective

This study examined the association between inpatient volume of psychiatric hospital wards and the quality of mental healthcare among patients with depression admitted to Danish hospitals.

#### Methods

The study population included 17,971 patients admitted to psychiatric hospital wards between 2011 and 2016 and was identified in the Danish Depression Database, to which it is mandatory by law to report data on all treated patients with depression. Inpatient volume was categorized into quartiles according to the individual ward's average caseload volume per year during the study period: low volume (quartile 1, <102 inpatients per year), medium volume (quartile 2, 102-172 inpatients per year), high volume (quartile 3, 173-227 inpatients per year) and very high volume (quartile 4, >227 inpatients per year). Quality of mental health care was defined as having fulfilled process performance measures of care reflecting national clinical guideline recommendations. The association between inpatient volume and the quality of mental health care – the overall quality of care as well as the individual process performance measures – was examined using binomial regression while adjusting for gender and age. The association was examined by setting a pragmatic cut-off point of 80%; high overall quality of care was defined as a patient's receipt of 80% or more of all relevant recommended process performance measures. Furthermore, the analysis was repeated with alternative cut-off point varying from 60% to 90%.

#### Results

The proportion of patients receiving  $\geq 80\%$  of the recommended process performance measures varied between 11.8% and 21.0%. Compared with patients admitted to low-volume psychiatric hospital wards, patients admitted to very high-volume wards were more likely to receive a high overall quality of mental health care (defined as fulfilling  $\geq 80\%$  of the process performance measures of care) (relative risk [RR]=1.78, 95% confidence interval [CI]=1.02-3.09). For alternative cut-off point, the associations were likewise confirmed for 90%. The proportion of patients fulfilling the individual process performance measures varied from 18% to 66%, e.g. only about half the patients received a suicide risk assessment at admission and discharge. Patients admitted to very high-volume wards were more likely to be somatically examined compared to those admitted to low-volume wards (RR=1.35, 95% CI=1.03-1.78).

## **Conclusion**

Admission to very high-volume psychiatric hospital wards was associated with a higher chance of receiving high-quality care, as reflected by a higher proportion of fulfilled guideline supported process performance measures among patients admitted with depression.

## **3B: Adolescent co-researchers for improvement of mental health services: Experiences from a Norwegian research project (47)**

*Nicole Elizabeth Cardenas, Julia Rose Game and Petter Viksveen (Norway)*

Thursday, 30 August 2018 / 14.00-15.30

### **Introduction**

Despite being “the happiest country in the world”, mental illness is highly prevalent in Norway, and also amongst teenagers. The latest figures suggest that complaints such as depression have increased amongst adolescents. [1] When someone seeks treatment for any type of illness, they are allowed to choose between different treatment options and they should be involved in decisions affecting their healthcare. User involvement is regulated by law, it is encouraged in clinical practice and it may have the potential to contribute to the quality and safety of mental healthcare. But how can adolescents’ involvement in mental health research contribute to the development of mental health services?

### **Objectives**

Active involvement of adolescents in a research project which aims to assess and strengthen user involvement for adolescents’ mental healthcare.

### **Methods**

A collaborative research project where adolescents work together with healthcare researchers at the University of Stavanger. Adolescents are involved in all phases: development of the project, application for funding, systematic literature review, data collection, analysis and dissemination of results.

### **Results**

Currently, the research project is in its second year. Initially, the lead researcher met with 50 adolescents at St. Olav high school in Stavanger in February 2017: “We were chosen to participate as adolescent representatives. Since then, we agreed to change our status to adolescent co-researchers due to our active participation. We have participated in project meetings and received training in user involvement, research methods and systematic literature reviews. We are co-authors in a systematic review assessing user involvement for adolescents’ mental health. Our protocol article was published in BMJ Open.[2] We initiated and carried out our own questionnaire survey among high school students where we asked about their mental health and use of health services. Some of the issues were: information about and access to mental health services, user involvement, and barriers to use of services. We will present the results to various stakeholder groups, including healthcare practitioners. Our survey also contributes to developing the University’s planned research.” Involvement of adolescent co-researchers in mental health research requires that adolescents are willing to learn additional skills (mental health, research methods); from researchers to prioritize resources (time, training, meetings); and from both parties, mutual respect and trust to reduce power differentials and to develop the collaboration. As we are still at an early stage, we do not yet know how it will contribute to developing mental health services. We do however argue that the active involvement of adolescents in mental health research contributes to reduce the “distance” between researchers and the researched, as it directly brings adolescents’ perspectives into the project.

## Conclusion

The inclusion of adolescent co-researchers in an adolescent mental health research project may strengthen the relevance of the research when they partake in its development. We therefore envisage that the results of the research will be of greater relevance to adolescents who use mental health services.

## References

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## 3C: Exploring antecedents and outcomes of organisational bullying in a Norwegian healthcare setting (50)

*Espen Olsen, Maria Therese Jensen, Gunhild Bjaalid and Aslaug Mikkelsen (Norway)*

Thursday, 30 August 2018 / 14.00-15.30

### Introduction

Understanding the antecedents and outcomes of bullying is crucial in order to establish a sound psychosocial work environment for hospital workers, and ultimately for the safety of patients and the delivery of hospital services. Moreover, for managers to prioritize and develop adequate bullying prevention strategies in their respective organizations, knowledge regarding bullying is essential. The occurrence of bullying may vary in different contexts, and empirical research on the field is necessary.

### Objectives

The aim of the current study was to explore antecedents and outcomes of organizational bullying in a Norwegian healthcare setting. In addition, two theoretical models were developed and tested. The first model incorporates antecedents of bullying, while the second model incorporates outcomes of bullying. The antecedents included in the first model were primarily related to job resources. The objective was also to test whether hospital management had an indirect association with bullying through local leadership.

### Method

Self-completion questionnaire data were collected from hospital workers at four different hospitals. A sample of 9,162 hospital employees from four public Norwegian hospitals were part of the study. Data were analyzed using descriptive statistics, confirmatory factor analyses, correlations and structural equation modelling (SEM). In our first model, the following job resources were included as antecedents of bullying: 1) competence development, 2) autonomy, 3) social support, 4) local leadership and 5) hospital management. In our second model, the following outcomes of bullying were included: 1) turnover intentions, 2) job commitment, 3) job performance, 4) work ability and 5) job satisfaction.

### Results

Confirmatory factor analyses and the use of SEM supported the validity of the measurement and structural models. As expected, significant and negative associations were revealed among all included job resources and bullying in our first model. Contrary to expectations, no direct relation was revealed between hospital management and bullying. However, as expected we did find an indirect relation of hospital management to bullying through local leadership. With regard to our second model, the results indicated that bullying was significantly associated with all organizational outcomes included in our model.

## **Conclusion**

In the current study, we explored associations among several job resources and self-reported bullying, as well as associations among self-reported bullying and organizational outcomes. The research setting was hospital workers employed in a region of Norway. The present study contributes to increased knowledge regarding antecedents of bullying in the hospital context, and further confirms that negative outcomes of bullying relate to higher turnover intentions, and lower job satisfaction, job commitment, work ability and job performance. Conclusively, it is important to increase employees' competence and autonomy in relation to work tasks. Moreover, social support from co-workers should be reinforced. Finally, the current study provides empirical support for the important role both top management and local management play in relation to bullying.

## **3D: State of technology-induced errors in Electronic Health Record Systems in Finland (96)**

*Sari Palojoiki, Lasse Lehtonen and Kaija Saranto (Finland)*

Thursday, 30 August 2018 / 14.00-15.30

### **Introduction**

Concerns regarding electronic health record systems (EHRs) are multidimensional patient safety issues that should be considered from the viewpoint of clinical end users. Due to the increasing implementation of EHRs in complex healthcare processes, the potential for technology-induced errors is a growing challenge that stresses the importance of identifying areas of vulnerability in order to mitigate them. Even if the body of research identifying errors related to EHRs is growing, the lack of data describing risks is an obstacle to building and using safer information systems.

### **Objectives**

The purpose of this study is to provide a comprehensive picture of the characteristics of technology-induced errors in EHRs by analyzing three different types of data. Specific research questions are: 1) What are the characteristics of computer-related patient safety incidents in a voluntary patient safety database? 2) Which of the common EHR error types are associated with perceived high and extreme-risk severity ratings among EHR users? 3) What are the specific error types related to the use of EHRs in the National Supervisory Authority data of 2010–2015 EHR user reports?

### **Methods**

Voluntary patient safety incident reporting data (N=23 023) in a Finnish university hospital district were collected and analyzed by applying methodology of classification's cross-mapping (Data 1). A questionnaire developed for this study was sent to all healthcare professionals (N=17 336) possibly using EHRs in a Finnish university hospital district. Reliability of the summative scales was tested with Cronbach's alpha, Kappa tests and logistic regression (Data 2). Finnish national authority register data of medical software from 2010-2015 were collected. A content-analysis, a testing of a taxonomy and an inter-rater reliability measurement were performed (Data 3).

### **Results**

The main category 'information input problems' accounted for 60% of the incidents and 8.8% of the reports involved information transfer problems (Data 1). Half of the 2,864 eligible respondents reported a high risk level related to extended EHR unavailability (Data 2). A total of 138 users' incident reports were analyzed. The most common error types were (n = 37, respective) EHR unavailability in 26.8% of the reports and System-to-system interface errors in 26.8% of the reports. (Data 3).

**Discussion**

Our study results indicate that an extended EHR unavailability is among the most serious technology-induced errors. Previous research has found this error type as a high priority practice in all areas of EHR safety and, as such, a critical safety issue: Loss of continuous access to patient information creates risks, leading to harm. Downtime failure has increasingly become a cause for concern following the adoption of large-scale EHR systems to handle many operations within the broader healthcare system.

**Conclusion**

EHRs bring many benefits for patient care but at the same time a high EHR implementation rate produces novel vulnerabilities in the use of EHRs. Hospitals must implement EHR contingency plans to enhance better preparedness.

## Oral session 4

### 4A: Dealing and caring with risks: Healthcare professionals' perceptions of home Healthcare (54)

*Kristina Schildmeijer, Marlene Lindblad and Mirjam Ekstedt (Sweden)*

Thursday, 30 August 2018 / 14.00-15.30

#### Introduction

To meet the global burden of an aging and growing population, health care performance has increasingly moved from the hospitals to patient homes. Early discharge from emergency hospital care to home health care is common. This development is intended to increase patients' quality of life and make care more efficient, but may also generate new risks. In view of the large number of older patients now cared for in their homes, it is important to describe health care professionals' experiences of caring for patients in home health care to increase awareness of the risks and to create safer care.

#### Objectives

To explore health care professionals' perception of risks in decision making when care is given in older patients' homes.

#### Methods

The study has a qualitative design using observations, focus groups, and individual interviews to catch both the depth and breadth of perceptions of decision making in home health care. The observations were performed alongside healthcare professionals in three specialized home healthcare units. In total, we shadowed 27 RNs during morning and evening shifts and their ordinary visits to patient homes observing their interactions with patients and other parties in the MMP. Each day consisted of 6-8 hours' observation. In total, observations were conducted during 27 days, 9 days per unit. Eleven focus group interviews and 15 individual interviews with a total of 71 participants were held with different health care professionals working in patients' homes in two municipalities and three specialized home healthcare units in the south part of Sweden. Content analyses of all interviews were performed.

#### Results

We found one overarching theme, "Health Care Professionals' Management of Known and Unpredictable Risks" and four categories: Different Kinds of Communication Challenges, A Fragmented Organization at Several Levels, Risky Medication Management and Balancing Respect for Patient Autonomy and Involvement in Care Against Risk Taking. The health care professionals were well aware of the risks but they seemed to lack the necessary tools to prevent them.

#### Conclusion

The health care professionals perceived home health care for elderly patients with complex needs as a type of care with risks that often had to be dealt with. Both known and unpredictable risks were described, but many of them were caused by systems not being compatible with or connected to each other. Policymakers must consider the risks of delivering home health care. The home is usually regarded as a place of safety and security but is obviously also a place where risks are being taken.

## **4B: Applying realist evaluation to quality improvement projects – reflections on the evaluations of two Danish patient safety programs (98)**

*Mette Marie Kristensen, Ida Nielsen Sølvhøj, Inge Kristensen, Simon Feldbæk Peitersen and Anna Paldam Folker (Denmark)*

Thursday, 30 August 2018 / 14.00-15.30

### **Introduction**

The National Institute of Public Health, SDU (SIF) has carried out two realist evaluations of the projects Safe Psychiatry and In Safe Hands from 2013 to 2018 (Kristensen MM, Sølvhøj Nielsen I & Paldam Folker A 2018; Kring Schjørring M, Tjørnhøj Thomsen T & Hulvej Rod M 2017). Both projects were initiated and facilitated by the Danish Society for Patient Safety (PS!). The projects, respectively, aimed to improve patient safety in municipal and psychiatric care through the introduction and application of the collaborative model, a learning and feedback system, and improvement methods for quality improvement (QI), in the participating municipal and regional units. The models and methods for improvement used in the projects have been developed by the Institute for Healthcare Improvement (Institute for Healthcare Improvement 2003). The overall aim of the two evaluations has been to investigate the actual implementation of the projects through principles of realist evaluation, and to extract learning points and knowledge that can contribute to a strengthening of QI efforts in the Danish health care system. It has been argued that principles of realist evaluation are especially relevant for evaluating interventions within the field of QI because such interventions entail considerable complexity in social and practical terms, and because their outcomes are hard to separate from the contexts in which they are introduced and implemented (Berwick DM 2008).

### **Objectives**

To present learning points based on experiences with applying realist evaluation as a theoretical and methodological point of departure in evaluating QI projects. The learning points have been identified as a result of a joint reflection between SIF, who have carried out the evaluation, and PS!, who have initiated and facilitated the two projects.

### **Methods**

Realist evaluation as a theoretical approach assumes that an intervention can only work to the extent that the right mechanisms are brought into play under the right circumstances. The core question of this approach is 'What works for whom in what circumstances and in what respects, and how?' (Pawson R & Tilley N 1997). In the evaluation, central mechanisms that bring about the wanted change, as well as the circumstances that activate these mechanisms, have therefore been identified.

### **Results and Conclusion**

The presentation will reveal the following learning points from the application of realist evaluation to QI interventions:

- In conducting realist evaluations of QI interventions, it is an advantage to have a thorough understanding of QI methods, and to be familiar with the application of QI methods in the contexts of mental health hospitals and municipalities.
- When evaluating improvement projects realistically, it is important to consider how learning points and mechanisms for change can be understood in the context of real-time data (data for improvement) collected throughout the projects.
- When dealing with major projects with a number of hospitals and/or municipalities, evaluators should determine whether to focus on the project as a whole with overall learning points or on each specific project site in order to gain in-depth knowledge of what worked at the particular site.



- It is important to consider the potential for carrying out a formative evaluation using a realistic evaluation approach for QI interventions, e.g. to transfer learning points from the evaluation to similar settings not included in the intervention as they are taking place.
- In communicating the results of realist evaluations, it is necessary to be very clear about the theory and procedure of realist evaluation and to provide concrete examples of the application of the method. It is also important to provide sufficient transparency of the analytical process to enable judgement of the validity of results.

## **4C: Successfully reducing newborn asphyxia in the labour unit in a large academic medical centre: a quality improvement project using statistical process control (11)**

*Rikke von Benzon hollesen, Rie Laurine Johansen, Christina Rørbye, Louise Munk, Pierre Barker and Anette Kjaerbye-Thygesen (Denmark)*

Thursday, 30 August 2018 / 14.00-15.30

### **Introduction**

A safe delivery is an essential part of a good start in life, and a continuous focus on preventing harm during delivery is crucial, even in settings with a good safety record. In January 2013, the labour unit at Copenhagen University Hospital, Hvidovre, undertook a quality improvement (QI) project to prevent asphyxia.

### **Objectives and Methods**

To reduce the percentage of newborns with asphyxia by 50 % using QI methodology.

The change theory consisted of two primary elements: (1) the clinical content, including three clinical bundles of evidence-based care, a 'delivery bundle', an 'oxytocin bundle' and a 'vacuum extraction bundle'; (2) an implementation theory, including improving skills in interpretation of cardiotocography, use of QI methods and participation in a national learning network. The model for improvement and Deming's system of profound knowledge were used as a methodological framework. Data on compliance with the care bundles and the number of deliveries between newborns with asphyxia (Apgar <7 after 5 min or pH <7) were analysed using statistical process control.

### **Results**

Compliance with all three clinical care bundles improved to 95% or more, and the percentages of newborns with pH <7 and Apgar <7 after 5 min were reduced by 48% and 31%, respectively. In general, the QI approach strengthened multidisciplinary teamwork, systematised workflow and structured communication around the deliveries. Changes included creating a standard memo in the medical record, the use of a bedside whiteboard, bedside handovers, shared decisions with a peer when using an oxytocin infusion and the use of a checklist before vacuum extractions.

### **Conclusion**

This QI project illustrates how aspects of patient safety, such as the prevention of asphyxia, can be improved using QI methods to more reliably implement best practice, even in high-performing systems.

### **References**

Hollesen RVB, Johansen RLR, Rørbye C, et al. Successfully reducing newborn asphyxia in the labour unit in a large academic medical centre: a quality improvement project using statistical process control. *BMJ Qual Saf* First Published Online: 03 February 2018.

## **4D: Safer Communication in Healthcare Sector - SBAR is the way Forward (74)**

*Hulda Rafnsdóttir, Hrafnhildur L. Jónsdóttir and Ingveldur Tryggvadóttir (Iceland)*

Thursday, 30 August 2018 / 14.00-15.30

### **Introduction**

Highly effective communication, collaboration, and group dynamics have been shown to be a fundamental determinant of patient safety. Numerous studies have shown a lack of communication in patient care, and the majority of serious incidents in the healthcare sectors can be linked to communication failure between healthcare workers. The lack of communication stems from communication being disorganized and not standardized; cultural differences in communication techniques, practices, values and organization; and inconsistency in work methods between professions.

The SBAR (Situation-Background-Assessment-Recommendations) communication technique is a reliable and efficient framework that gives healthcare workers a more precise and structured method to improve their communication skills, which, in turn, increases patient safety and makes verbal interactions between staff more systematic and effective by preventing misunderstanding. Recent studies have also shown that SBAR lessens incidents, encourages better communication and enhances the quality of information given and overall satisfaction with information received.

### **Objectives**

The Chief Executive of Emergency Services and Development at the Akureyri Hospital (SAK) initiated a project at the beginning of 2018 to implement the communication technique SBAR for all healthcare workers at the hospital and, as a result, increase effective communication and patient safety. The specific aim of this project is to assess the healthcare workers' perception on: a) whether they believe SBAR is a safe and effective communication technique, and b) whether they believe SBAR has increased the patient safety at SAK.

### **Methods**

A project team, consisting of the quality manager, two medical doctors, three nurses, and an information specialist, use evidence-based knowledge and project management methodology to plan, implement, control and monitor the project's phases. It is important to work diligently on all phases to achieve the desired results. The planning phase has been used to produce various tools to assist healthcare workers in learning and training their skills in the SBAR communication technique, e.g. pocket guides and posters. At the very beginning, a short questionnaire was sent to all healthcare workers and students at SAK to assess their previous knowledge of SBAR. Other questionnaires are scheduled in 2018, with the most recent being in May. Furthermore, regular discussion with representatives at each ward will be conducted in the coming months to gather personal views and experiences with SBAR.

### **Results**

A total of 377 healthcare workers and students worked at SAK at the beginning of 2018, and 27% (n=103) answered the first questionnaire. The findings indicate that just over half of them had heard of this technique (54%), and 21% of those who answered have used this technique in their work. Of these, the majority were nurses (15%). This gives the team valuable information on the importance of implementing the SBAR communication technique within all healthcare professions; nurses, medical doctors and nurse assistants, as well as occupational therapists, psychologists, physical therapists and other clinical staff.

### **Conclusion**

Since SBAR has been proven to be an effective way to improve communication techniques and strengthen inter-professional teamwork to benefit patient safety and quality of care, the project team will continue to

gather information regarding the healthcare workers' view on the effectiveness of SBAR. The team also anticipates that, by implementing a standardized communication inter-professionally at SAK, patients and staff will experience a more controlled, safe and enjoyable place of care.

## **4E: Patient participation for safer care (102)**

*Kristina Schildmeijer, Per Nilsen, Janna Skagerström, Carin Ericsson, Kristofer Årestedt and Anders Broström (Sweden)*  
Thursday, 30 August 2018 / 14.00-15.30

### **Background**

It is assumed that patients' interaction with healthcare professionals can improve patient safety. Involving patients in their own care has been an integral part of numerous international patient safety campaigns. Patients' perceptions of their role and status as subordinate to the healthcare professionals have been identified as an important barrier to patients' involvement in error-reduction efforts. Other factors that influence patients' involvement in their own safety include patients' illness and their perception of risk of error in their treatment.

There is limited research on how patients themselves believe they can contribute to safer care. To the best of our knowledge there is also a lack of research regarding differences between patients who have experienced adverse events and other patients.

### **Aim**

To investigate patients' experiences of their meetings with healthcare professionals and the extent to which they believe they can influence patient safety in these meetings. A comparison was made between patients who have filed a complaint about being harmed in healthcare and regular patients.

### **Method**

The study was a cross-sectional survey using a patient self-report questionnaire. The setting for the study was Swedish healthcare.

Participants: Two patient groups were recruited from the same three county councils in the southeastern part of Sweden:

- "Regular patients" - patients recruited from six healthcare facilities (n=1898 received questionnaire, 1,112 answered).
  - "Complainants" - patients who had filed a complaint that they had been harmed in healthcare (n=614 received questionnaire, 333 answered). The total response rate was 57%.
- Questionnaire: A questionnaire was designed for use in this study.

The questions concerned:

- background
- perceptions of meetings with physicians and nurses
- patients' potential to contribute to safer care
- having suffered harm in healthcare, and
- if the harm was avoidable.

### **Data analysis**

Background data and study variables were presented with descriptive statistics and comparisons between regular patients and complainants were analyzed using independent sample t-test, Mann-Whitney U test, or Person chi-square test. Result: The respondents generally had favorable perceptions of patients' abilities to contribute to safer care. The complainants more often agreed than the regular patients that patients who ask questions can contribute to safer care ( $p < 0.001$ ) and that patients have a responsibility to point out shortcomings in their care ( $p < 0.001$ ). The complainants also more often believed that patients who ask

questions risk receiving worse care than other patients ( $p < 0.001$ ). The patients reported that it is easy to ask healthcare professionals questions regarding their illness or treatment and to point out if something feels odd in their treatment or care. The complainants believed that it was significantly more difficult compared with regular patients ( $p = 0.012$  to  $p < 0.001$ ). All patients believed it is easier for patients to ask questions if they are encouraged to do so by the healthcare staff. There were no differences between the patient groups ( $p > 0.295$ ). Almost one-third (31%) of the respondents reported that they had suffered harm in healthcare. Of those, 69% of the complainants and 46% of the regular patients stated that the harm could have been avoided if healthcare professionals had listened to them ( $p < 0.001$ ).

## **Conclusion**

In conclusion, we found that respondents agreed that patients could contribute to safer care through interactions with healthcare professionals. Regular patients found it easier than complainants to intervene with healthcare professionals. A large proportion of respondents who perceived that they have been harmed in healthcare believed that the harm could have been avoided if healthcare professionals had listened to them. The respondents believed that the healthcare professionals could facilitate patient interaction and increase patient safety by encouraging patients to ask questions and take an active role in their care.

## Oral session 5

### 5A: Patient Safety and Abuse in Healthcare (29)

*Marlene Ockander, Jelmer Brüggermann, Alma Persson, Boel Andersson Gäre and Barbro Wijma (Sweden)*

Friday, 31 August 2018 / 09.30-11.00

#### **Introduction**

Patients report a lifetime prevalence of abuse in healthcare that ranges from 8% in a Swedish male outpatient sample to 20% in a Swedish female gynecology patient sample (using the Norvold Abuse Questionnaire) (Swahnberg et al. 2007a; Swahnberg et al. 2009a). In qualitative studies, both male and female patients emphasized their experiences of abuse in healthcare as a loss of their human value (Swahnberg et al. 2007b; Swahnberg et al. 2009b). The experience of having been abused may hinder the patient's future contacts with healthcare through alienation followed by feelings of shame (Wijma et al. 2016). The prevalence of abuse in healthcare and its consequences make the subject relevant to explore in relation to patient safety.

#### **Objectives**

The aim of this study was to analyze how abuse in healthcare can be understood from a patient safety perspective. Research question: How can abuse in healthcare be described and explained from a patient safety perspective?

#### **Methods**

Analyses were built on a literature study relating to abuse in healthcare and patient safety analyzed in a framework for co-production (Osborne, Radnor et al. 2016). Abuse in healthcare was rarely mentioned in the patient safety literature. When concepts related to abuse in healthcare (e.g. psychological harm) were examined thoroughly, it was clear that they were rarely used in connection to patient safety. The search for studies that dealt with abuse in healthcare and related concepts was also performed with concepts that related to patient safety (e.g. adverse events). However, even then there were few studies that matched the purpose of this study.

#### **Results**

The analysis using the co-production framework showed that the research on patient safety and the research on abuse in healthcare seems to have evolved from different knowledge traditions. Patient safety seems to have its roots in public administration and management theory while abuse in healthcare becomes recognized through the lens of service management theory.

#### **Conclusion**

It appears that patient safety could benefit from broadening its concepts by using a service management theory approach in order to understand and manage abuse in healthcare. According to the model of co-production (Osborne, Radnor et al. 2016) logics can be active in parallel. These logics can be complementary or conflicting. The results of this study suggest that the patient safety framework could contain a variety of approaches with multiple perspectives as a possibility for more sustainable and co-produced patient-centered care.

## **5B: The contribution of adverse events to death in hospitalized patients (32)**

*Ellinor Haukland, Kjersti Mevik, Christian von Plessen, Carsten Nieder and Barthold Vonen (Norway)*

Friday, 31 August 2018 / 09.30-11.00

### **Introduction**

It has been estimated that adverse events (AEs) due to medical error are the third leading cause of death in the USA,[1,2]. These estimates are based on studies of general hospitalized populations extrapolating that 0.6-1.1% of admissions result in death due to AEs,[3,4]. Other studies of inpatient deaths indicate that AEs occur more frequently in patients dying in hospitals,[5,6]. There is, however, no standardized method to investigate death as a patient safety indicator and we therefore need valid and reliable measurements to use AEs contributing to death as a quality measure.

### **Objectives**

To investigate the contribution of severe AEs to death in hospitalized patients and clarify methodological differences using the Global Trigger Tool (GTT) method on all inpatient deaths compared to a sample of general hospitalized patients.

### **Method**

Records of all inpatient deaths in 2013 were retrospectively reviewed using the GTT method and compared to review of a sample of 1,680 general hospitalized patients in the same period.

### **Results**

In 0.3% of hospital admissions AEs contribute to inpatient death. Patients who die in hospital have twice the rate of AEs per 1,000 patient days compared to general patients, 76.7 vs. 36.5 ( $p < 0.001$ ,  $rr$  2.10, 95% CI 1.79-2.47). Patients dying in hospital experience seven times the rate of severe AEs, 38.4 vs. 5.2 percent ( $p < 0.001$ ,  $rr$  2.10, 95% CI 1.79-2.47). For 86 out of 377 inpatient deaths, the AE is so severe that it contributes to death. Moreover, 27.9% of severe AEs contributing to death originate in primary care. Lower respiratory infections ( $p < 0.001$ ,  $rr$  2.81, CI95% 1.76-4.51), medication harm ( $p < 0.001$ ,  $rr$  5.21, CI 95% 3.04-8.94) and pressure ulcers ( $p = 0.04$ ,  $rr$  2.23, CI 95% 1.03-4.85) are significantly more frequent for inpatient deaths than in the general sample of hospital patients.

### **Conclusion**

Patients dying in hospitals differ from general hospitalized patients in several ways and experience seven times the rate of severe AEs. Using the GTT method on a general hospitalized population is appropriate for identifying more common temporary AEs, but the sample size is too small to provide reliable metrics of rarely occurring severe AEs. Reviewing all inpatient deaths by the GTT method provides new valid and reliable data for severe AEs contributing to death which would otherwise be undetected.

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## **5C: Measuring adverse events in hospitalised patients using a modified GTT method with automatic trigger identification (65)**

*Kjersti Mevik, Barthold Vonen, Tonje Hansen, Alexander Ringdal and Ellen Deilkås (Norway)*

Thursday, 30 August 2018 / 14.00-15.30

### **Introduction**

Measuring adverse events is fundamental to improving quality and safety in healthcare. Hospitals, governments and researchers all debate how to best identify, measure, intervene and prevent adverse events. However, the methods (i.e. incident reporting, patient-reported outcome measures, patient safety culture surveys, root cause analysis, mortality and morbidity conferences, patient safety indicators, record reviews and automated data extractions from clinical data) have several limitations that make them unsuitable as measurement methods of adverse events. An absence of a reliable method to identify and measure the rate of adverse events over time has led the Institute for Healthcare Improvement (IHI) to develop the Global Trigger Tool (GTT) as an alternative strategy which allows for a more comprehensive and reliable approach.

Even though the GTT is considered the best method currently available, it has some practical disadvantages. It is resource-intensive due to the time and labour required and the inter-rater reliability between reviewers and between reviewer teams has been described as being moderate to poor. A more efficient method to identify and measure adverse events is thus required and the possibility to utilise electronic health records (EHR) was explored. To address the resource concern we therefore developed a novel automatic trigger identification system that automatically identifies 42 of the 57 GTT triggers. This serves as a replacement of the manual review for triggers in a modified GTT method with a subsequent review of the records with automatic identified triggers to determine if the triggers are associated with any adverse events.

### **Objectives**

We assumed that the modified GTT method is more efficient than the original GTT method. Our study aims were to answer the following questions: 1) Is the rate of adverse events identified with the modified GTT method different from the rate of adverse events identified with the original GTT method? 2) How many of the adverse events identified by the modified GTT method are also identified by the original GTT method?

### **Methods**

We compared a modified GTT method; subsequently reviewing for adverse events in records with triggers identified by an automatic trigger identification system, to the original GTT method in 1,233 closed inpatient records randomly selected from March 1 to December 31 2013 from a medium-sized hospital in North Norway.

### **Results**

Number of records identified with adverse events ( $p=0.81$ ) and number of identified adverse events ( $p=0.90$ ) did not differ significantly between the modified GTT method and the original GTT method while number of records identified with triggers differed significantly ( $p=0.04$ ). Both methods identified 35 adverse events/1000 patient days. Mean review time per record in the modified GTT method was 2 minutes (range 0.2-21.5).

## **Conclusions**

We demonstrated that the modified GTT method was more efficient than the original GTT method regarding time and human resources to identify adverse events. The rate of adverse events identified did not differ between the methods. The automatic trigger identification system represents a considerable potential to review larger samples of records with a modified GTT method and could, with further development, identify patients at risk in real-time through novel technologies.

## **5D: Delayed diagnoses as patient injuries - Data from the Finnish patient insurance centre (73)**

*Maiju Welling and Risto Roine (Finland)*

Friday, 31 August 2018 / 09.30-11.00

### **Introduction**

Delayed diagnoses make up a significant proportion of all medical errors. The number, causes and consequences of diagnostic errors have, however, received only limited attention in research and in healthcare practice. Malpractice claim databases offer an important source of information for researchers. In some countries, diagnostic errors have been recognized as the leading cause of compensated claims. In Finland, the Patient Insurance Centre handles all personal injuries that occur in connection with healthcare activities. The Patient Injury Register is a valuable database which can be used to assess medical errors and patient safety in Finland.

### **Objectives**

To determine the proportion of compensated claims related to delayed diagnoses in the Finnish Patient Insurance Centre's register. In addition, to further evaluate which diagnoses are delayed most often and what kinds of factors cause these diagnostic errors.

### **Methods**

Data on patient claims for injuries that occurred between 2014 and 2015 in public healthcare in Finland were obtained from the Patient Insurance Centre. All claims from five large healthcare districts were evaluated and the number of compensated claims due to a delayed diagnosis was determined. Claims related to dental care were excluded from the study. The number of compensated claims due to a delayed diagnosis was compared to the total number of claims. Later on, the ICD-10 codes of delayed diagnoses will be determined. The causes of delays will also be investigated and categorized.

### **Results**

In total, 5,285 claims for injuries that occurred between 2014 and 2015 were received from the selected healthcare districts, corresponding to 55.3% of all public healthcare claims (n=9,557) in Finland. After claims related to dental care (n=410) were excluded, 4,875 claims were ultimately included in the analyses. The number of compensated claims was 1,421 (29.1%). The preliminary results indicate that a delayed diagnosis was the main cause of injury in 18.2% (n=258) of the compensated claims. Examples of diseases that were commonly diagnosed late were fractures, cancers and operative complications.

### **Conclusion**

Delayed diagnoses are common, causing almost one fifth of all patient injuries in Finland. They cause a significant burden on patients and the healthcare system. Further analyses currently being performed will more comprehensively characterize patient injuries caused by a delayed diagnosis.



## Oral session 6

### 6A: Do regulating inspections lead to patient safety? (25)

*Ann-Christine Andersson, Boel Andersson Gäre, Johan Thor and Raymond Lenrick (Sweden)*

Friday, 31 August 2018 / 09.30-11.00

#### Introduction

Regulating inspections are meant to be an important part of maintaining and improving quality of care and patient safety in health and welfare organizations. The Swedish Health and Social Care Inspectorate (IVO) is responsible for conducting these inspections. The IVO's intention is to help the inspected organizations to improve and develop high qualitative and safe care by performing inspections where learning is paramount. At the same time, as a regulating authority, IVO has the mandate to punish and even close down organizations that do not fulfill the required regulations. In balancing these opposites, IVO has introduced a way of working that they call "Learning Inspections".

#### Objectives

The objective of this study was to evaluate if, and then how, regulating inspections can improve learning and patient safety in the inspected organizations.

#### Methods

This study used a qualitative descriptive approach comprising two different inspections, one in six different primary care organizations and one in a municipality setting; in total, nine participants from the organizations and eight inspectors representing the IVO. Firstly, document analysis was used to explore the field and to form the interview guide. Individual interviews and one group interview with representatives from the inspected organizations and the IVO inspectors were used to grasp the participants' experiences. One observation of a feedback meeting in one of the cases was also included in the material. The interviews were tape-recorded and transcribed, and a thematic analysis was conducted. The field notes from the observation were included in the analysis. Ethical considerations related to the study followed the Swedish law regarding human research (<http://www.codex.uu.se>).

#### Results

The results were captured as five themes following steps in the process; (I) Preparations: (II) Effectuation: (III) Results in the organizations: (IV) Pre-conditions for learning: and (V) Desires for more learning to occur. All themes consisted of both supportive and inhibitory issues for mutual learning, and there was large concurrence in experiences between the participants from the inspected organizations and the IVO inspectors. The preparations were not perceived as supportive for a mutual understanding of the issues at stake and learning. The participants wished for more co-production even before the visit occurred. They also highlighted that if a goal was to increase learning, it should be more visible during the inspection. Neither the inspected organizations nor the IVO inspectors could point to results that clearly emanated in the inspections, although both parties described inspections as important. The respondents requested a larger focus on evaluation and feedback as one way to optimize mutual learning. Other suggestions were to share knowledge and good examples from IVO to other organizations

#### Conclusion

The results of this study illuminate some pre-conditions which could increase mutual learning from IVO inspections in health and welfare organizations, which, in turn, can improve patient safety. When initializing an inspection, more dialog and shared preparation could be useful, in order to ensure in what area and how

the inspection would be most useful for all concerned. More feedback and a longer evaluation time could increase the possibility for the organization to learn. Well-functioning organizations or organizations conducting great improvements can be used as good examples to others. Concluding remarks: The Swedish Health and Social Care Inspectorate is responsible for ensuring that health and welfare in Sweden is safe and of high quality. This study shows that "Learning Inspections" can be useful, but there is still work to do in the design of such efforts in order to reach that goal.

## **6B: Unannounced accreditation surveys: cheaper and better facilitator for the quality improvement work at hospitals but not a more valid instrument (55)**

*Lars Ehlers and Morten Berg (Denmark)*

Friday, 31 August 2018 / 09.30-11.00

### **Introduction**

The Danish Center for Healthcare Improvements (DCHI) designed the Danish unannounced hospital study (UHS) to help the decision-makers at the Danish Institute for Quality and Accreditation in Healthcare (IKAS) to determine whether or not to implement unannounced hospital surveys in the Danish Quality Model (DDKM) version 3. The study was conducted in August-Dec 2014 and consisted of: 1) a questionnaire investigating the attitudes of healthcare professionals and surveyors towards accreditation and the possibility of introducing unannounced hospital surveys, and 2) a randomized controlled trial (RCT) investigating the effect of unannounced compared to announced hospital surveys (AHS) in Danish hospitals.

### **Objectives**

The purpose of this paper is to summarize findings and discuss results across the two sub-studies regarding the validity and effectiveness of UHS.

### **Methods**

We conducted an opinion email survey with 5,055 respondents (approximately 85% response rate) among a representative sample of doctors, nurses, hospital managers, quality staff and surveyors covering all 30 public hospitals in Denmark. Twenty-three (77%) public hospitals agreed to participate in the trial and to receive either an announced or an unannounced survey with an abbreviated set of national standards.

### **Results**

The results from the RCT showed that hospitals receiving UHS did not reveal a higher degree of non-compliance with accreditation standards compared to the hospitals receiving AHS. On the other hand, employees at the hospital in general saw AHS as supportive of the quality development but expected UHS to more effectively facilitate the ongoing work with quality improvement. There was a firm belief that UHS are less costly compared to AHS, which staff saw as consuming resources with only a temporary effect on quality. Additionally, hospital staff foresee only minor practical problems accessing relevant clinicians, the management teams, and staff from the quality department. Finally, there was a rather strong belief among hospital staff that the general quality measured would be lower using UHS compared to AHS.

### **Conclusion**

The use of UHS to increase the measurement validity cannot be justified. However, the hospitals' staff see UHS as better supporting the quality compared to AHS, less costly and with only minor obstacles present.

## **6C: Improving care and reducing costs: the implementation of a trauma triage clinic (33)**

*Ryan Geleit and Johnathan Craik (UK)*

Friday, 31 August 2018 / 09.30-11.00

### **Introduction:**

Fracture clinics are some of the busiest departments in the hospital, with around 1.8 million people being seen in fracture clinics in England each year. There is increasing fracture clinic demand with less serious injuries being referred. A number of previous studies have demonstrated that certain injuries do not require follow-up x-rays or review. Waiting times for patients to be seen are currently in excess of 10 days at Kingston Hospital, while current British Orthopaedic Association Standards for Trauma (BOAST) guidelines state that patients should be seen or reviewed within 72 hours.

### **Aim**

The aim of this study was to calculate the number of excess clinic follow-ups and x-rays for patients who do not require follow up. We analysed the data and estimated savings prior to the introduction of a trauma triage clinic (TTC) and re-audited the pathway following implementation of the TTC. Building on previous work by the Glasgow Royal Infirmary's 'virtual fracture clinic', the following conditions were deemed not to require further follow up: distal radius buckle fractures, paediatric clavicle fractures, 5th metacarpal fractures, radial head/neck fractures, mallet finger, Weber A ankle fractures, 5th metatarsal fractures, and toe phalynx fractures. The study also aimed to evaluate the length of time between presentation with injury and review in clinic.

### **First audit**

All 686 fracture clinic referrals were analysed in May 2017. A total of 516 radiographs were reviewed along with the number of follow-up appointments and x-ray visits. Costs: Fracture clinic new patient - £196, fracture clinic follow-up - £83, two view radiograph - £32.

### **Results**

Injuries not requiring follow-up: 90 patients (13.1% of all referrals), 164 clinic visits not required (90 new, 74 follow ups), 45 x-ray visits not required. Total cost managing these patients: £25,222. Average length of time from presentation to clinic appointment: 12 days.

### **Intervention**

Subsequently, the TTC was implemented. The TTC team consists of a designated consultant and a physiotherapist who review the A&E case notes and the radiographs of patients referred via this pathway. For those patients whose injuries do not require follow up (as listed above) they are either triaged to open access clinic follow up, physiotherapy or hand therapy. These patients are then telephoned and provided with an information leaflet. If the patient's injury was not one of those listed, they were given a face-to-face fracture clinic follow up.

### **Re-audit**

Following implementation of the trauma triage clinic, a re-audit was conducted for all patients seen via this pathway in December 2017. Total triaged to hand therapy, physiotherapy, open access clinic follow up = 98 patients. Cost saving to NHS  $98 \times £196 = £19,208$ . Cost of trauma triage (1 full-time physiotherapist & TTC consultant time/month): £8,000. Total Saving:  $£19,208 - £8,000 = £11,208$ /month. All patients during this period were reviewed in clinic within 72 hours of presentation and face-to-face fracture clinic bookings dropped by 22%.

## **Conclusion**

The implementation of a trauma triage clinic at Kingston Hospital has shown to be BOAST-compliant; experience less patient disruption; greater patient safety; and fewer overbookings. In addition, we have shown a significant cost saving to the trauma and orthopaedic service in a time when all areas of healthcare in the UK are looking to reduce costs whilst maintaining patient care.

## **6D: Pain-related unscheduled contact with health care services after outpatient surgery (58)**

*Lone Dragnes Brix, Karen Toftdahl Bjørnholdt, Theis Muncholm Thillemann and Lone Nikolajsen (Denmark)*

Friday, 31 August 2018 / 09.30-11.00

### **Introduction**

Outpatient surgery has obvious advantages including lower surgical costs, and has been documented as being safe and convenient for patients. Little, however, is known about the incidence of pain-related unscheduled healthcare contacts. We hypothesised that 10% of outpatients would have pain-related unscheduled contact with healthcare services, and that the incidence would differ depending on the type of surgical procedure.

### **Methods**

In this prospective observational study, an electronic questionnaire concerning unscheduled contact with healthcare services was sent 1 and 8 weeks after surgery to 905 patients who had undergone one of five common outpatient surgeries (knee or shoulder arthroscopy, surgical correction of hallux valgus, laparoscopic cholecystectomy, or laparoscopic gynaecological procedures).

### **Results**

Data from 732 patients (81%) were available for analysis. Within the first 8 weeks after surgery, 150 patients (20.5%) reported a total of 247 pain-related unscheduled contacts with healthcare professionals. Risk factors were female gender, unemployment, and laparoscopic cholecystectomy as surgical procedure. Pain-related unscheduled contacts were most frequent in the first postoperative week. The most frequent healthcare contact was with the general practitioner (46.4%), and the most frequent outcome was further information and guidance (41.2%).

### **Conclusion**

Pain-related unscheduled contacts for outpatients are frequent and differ depending on the type of surgical procedure. These findings should be considered when planning postoperative monitoring and support as well as when developing postoperative patient education programs. The number of unscheduled contacts with healthcare services may represent an indicator of outcome quality in outpatient surgery.

## Oral session 7

### 7A: User Experience Monitoring in Electronic Health Record Systems (28)

*Janne Pitkänen, Aapo Koivusalo, Sari Palojoiki, Antti Vento, Matti Pitkäranta and Antti Haapala (Finland)*

Friday, 31 August 2018 / 11.30-13.00

#### Introduction

Complex information systems such as Electronic Health Record (EHR) systems always have defects and deficiencies that hinder productivity. Those not caught in testing but that present themselves in production may cause a loss in working time, decreased staff morale and compromised safety. One of the previous survey studies found that physicians are highly critical of the healthcare information systems and they would be willing to contribute to development activities, but no viable methods for feedback and improvement suggestions have been found. There has been an exploration of a user experience monitoring method and a device for that purpose, but, following recent developments on the issue, we are now looking for more information. Instead of a survey, the focus of this study is on conducting user experience monitoring in real context-of-use.

#### Objectives

The objective of the study is to acquire more knowledge on the impact of the method and how healthcare professionals feel upon using it. In addition to this, the aim is to acquire knowledge on the usability of the existing systems. The goal is to reach an understanding on how easy the tool and the method are for users. The understanding about this topic is considered and surveyed among the participants by asking them to evaluate the prospective benefits of the method and their willingness to participate in such user experience monitoring in the future. The participating organizations receive information about the gathered insights on the target systems and their usage, which can be utilized for development and training purposes.

#### Methods

The study is instrumented via a UXblackbox device which collects information about computer usage in real context-of-use. The device captures everything which is shown on screen, along with mouse clicks and keystrokes. In addition to this, the user can leave a comment via either speech or writing to explain an emergent observation. There is a dedicated feedback console for tagging any good or bad user experiences. These tags are timestamped for more detailed subsequent analysis as the videos can be examined by concentrating only on what takes place just before a tag and immediately after. The analysis includes coding and classifying the events with different criteria, for instance based on severity and cumulative existence of an identified problem.

#### Results

This study resulted in participants from two hospital districts which were designated as participating organizations for the study. In addition to this, one participating organization was acquired as a commercial pilot with a software vendor providing EHR systems. Monitored systems included specialized applications, for example for intensive care, assessment of the need for care, child clinic, scheduling and laboratory results. The results contain suggestions for improvement, software errors to be fixed, positive notes on new system features and considerations for end-user training.

## Conclusion

Further research is suggested and empirical evidence must be sought for the future support of large-scale implementations of EHR systems. The method applied for user experience monitoring has a potential for shortening the time from system deployment to reaching an acceptable productivity level in clinical work. This would mean quicker utilization of advantages of the next-generation EHR systems, and, even more importantly, improved patient safety upon introduction of new systems in healthcare organizations.

## 7B: Quality of surgical guidelines and written patient information.

### A Danish patient safety study (62)

*Lotte Linnemann Rønfeldt, Dorthe Hjort Jakobsen, Henrik Kehlet, Henriette Lipczak and Kasper Wennervaldt (Denmark)*  
Friday, 31 August 2018 / 11.30-13.00

#### Introduction

Evidence-based guidelines for perioperative care support a safe recovery process and decrease morbidity and length of hospital stay (1). In addition, use of appropriate patient information leaflets (PILs) is associated with better overall outcomes and improved patient satisfaction (2). In 2006, 59-88% of investigated surgical units in Denmark had Clinical Practice Guidelines (CPGs) for the perioperative treatment and care, but many lacked key elements for fast-track surgery such as accurate patient information, objective pain assessment and clear discharge criteria (3). To standardize surgical cancer care and reduce inappropriate variability, national procedure-specific CPGs became available in 2009-11 for six cancer subspecialties in Denmark (4). Today, CPGs and PILs are tools to support and enhance patient safety. However, the content of CPGs and the quality of written patient information in Danish cancer surgery have not been researched.

#### Objectives

The aim of this study is to provide an overview of the quality of local CPGs and PILs as a proxy for patient safety in major surgery in Denmark, using lung, kidney, bladder, ovarian, colorectal and pancreatic cancer as cases.

#### Methods

We conducted a cross-sectional descriptive study within 44 surgical units in six cancer subspecialties: lung (n=4), kidney (n=9), bladder (n=5), pancreas (n=4), colorectal (n=18) and ovarian (n=4). We assessed the local CPGs with a focus on key elements for enhanced recovery after surgery, i.e. well-defined discharge criteria and plans for mobilization, pain management, nutrition, fluid, nausea and vomiting, antibiotics, bowel movements, and urinary drainage. The quality of the PILs was evaluated using the DISCERN instrument consisting of 16 questions rated at a 5-point Likert scale (1: for low quality through 5: high quality). Based on DISCERN scores, the quality of PILs was categorized as 'excellent', 'good', 'fair', 'poor' or 'very poor' (5).

#### Results

All surgical units within each cancer specialty had local CPGs and PILs. Overall, 43% of the departments incorporated all key elements for fast-track surgery in their local CPGs. However, a third of the CPGs lacked well-defined discharge criteria. In this study half of the PILs provided information of poor or very poor quality to cancer patients (48%), with most of the remaining PILs being of fair (43%) or good quality (10%). None were excellent. The total mean DISCERN score was 42.8 (range 26-67), suggesting that PILs available for patients undergoing cancer surgery are of varying quality. Furthermore, the majority of PILs do not adequately convey the necessary information about the treatment, while none refer to the underlying evidence, i.e. lowest-scoring question referred to sources of content information used to compile the PIL. The highest-scoring question was on the topic of visible date of publication.

## Conclusion

CPGs and PILs are highly available in Danish cancer surgical units undertaking pulmonary lobectomy, nephrectomy, cystectomy, ovarian surgery, colorectal and pancreatic resection. However, this study revealed that the local CPGs often lacked well-defined discharge criteria, and the majority of the PILs were considered of poor quality, suggesting that postoperative management after cancer surgery is of varying quality – potentially inflicting the patient safety.

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## 7C: Healthcare professionals' observational practice of deteriorating older patients in homecare - a qualitative study (66)

*Torunn Strømme, Karina Aase and Ingrid Tjøflåt (Norway)*

Friday, 31 August 2018 / 11.30-13.00

### Introduction

Clinical judgments are vital in order to provide frail elderly patients with appropriate care. Active observation, early recognition and handling of interventions related to the patients' potential or deteriorating conditions is essential (Odell, et al., 2009). Research has, however, documented gaps in competencies among healthcare professionals in their ability to understand clinical judgment and reasoning (Cappelletti, et al., 2014, Bing-Jonsson, et al., 2015).

### Objectives

The aim of this study is to explore healthcare professionals' observational work practices and their experiences with observation of deteriorating frail older patients in a home care setting.

### Methods

This study uses a qualitative mixed methods design (Morse, et al., 2009). Healthcare professionals' observational competencies in two homecare districts in two Norwegian municipalities are mapped by non-participant observation and focus group interviews. Observations were conducted by shadowing homecare professionals in their daily work routines visiting patients in their own homes. Six focus group interviews with homecare professionals with different levels of competence (registered nurses, skilled health workers, staff without health and social education) were conducted. The data material included 62 hours of observation (32 hours in municipality A, 30 hours in municipality B) and 82 pages of transcribed interviews. Data were analysed using qualitative content analysis. The study is approved by the Norwegian Centre for Research Data (NSD).



## Results

Knowledge of the patient is the most important issue for healthcare professionals when observing and recognizing the frail older patient's deterioration. Deterioration is described as a change from the normal cognitive and physical function.

Healthcare professionals always ask about the patient's condition during their home visits. If the patient expresses or indicates a worsened condition, the follow-up communication varies and is often lacking. The professionals often adopt a "wait and see" attitude.

We found that systematic observations are conducted somewhat randomly in a limited number of situations when a patient is critically ill. In assessing deterioration systematic clinical observations are often missing or not complete. The assessment of respiratory rate and pulse is rarely present in the professionals' observations.

On a work organization level, healthcare professionals are task-oriented, following their fixed work plan, from which they only occasionally deviate. When distributing patients among homecare professionals in work plans, it is difficult to observe an association between level of competence and patients' clinical conditions and needs.

## Conclusion

Healthcare professionals' observational competencies and practices in the two Norwegian home care districts are characterised by a lack of structured and systematic approaches. To some extent, patient conditions are observed when planned for in the work plans or when patients have a diagnosed critical condition. In situations where patients are deteriorating, the appropriate measures are not sufficiently utilized in the current home care settings.

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## 7D: Patient participation in multidisciplinary team conferences – an opportunity for a patient-centered approach to cancer care (89)

*Kasper Wennervaldt, Anne Hjøllund Christiansen and Linda Aagaard Thomsen (Denmark)*

Friday, 31 August 2018 / 11.30-13.00

### Introduction

The multi-disciplinary team (MDT) conference is a critical step in the cancer pathway because it defines the end of the diagnostic phase and the beginning of the treatment phase. According to the Danish Multidisciplinary Cancer Group (DMCG), the purpose of the MDT conference is "to treat the patient as a whole person, including the patient's views, preferences, and general living conditions when making decisions about treatment." The clinicians at the MDT conference determine the best possible treatment options for the patient based on the malignant diagnosis, the stage within the TNM classification system,



and the patient's performance status and co-morbidity. However, without the patient being present at the MDT conference, the patient's preferences towards treatment options are not known. Only very few departments invite the patients to participate in the MDT conference.

### **Objectives**

The purpose of this study was to examine: 1) to what extent patients are involved in the decision-making process of cancer treatment when participating in MDT conferences, and 2) the factors influencing this decision making for clinicians as well as patients.

### **Methods**

At Rigshospitalet's Ear-Nose-Throat and Neck Surgery Clinic, patients are routinely invited to participate in the MDT conference along with the relevant clinicians. Clinicians meet briefly to determine the initial treatment options immediately before meeting with the patient. We conducted non-participatory observations of the MDT conferences from May to July 2017. All MDT conferences were assessed using the OPTION12 observation tool. The tool consists of 12 items, each representing key competencies of the clinician's ability to involve the patient in decision making. For each item the clinician is scored on a scale from 0 to 4, with 0 representing no patient involvement and 4 representing a high degree of patient involvement. An overall score between 0 and 100 is reached for each MDT conference. We also conducted semi-structured interviews with the participating surgeons regarding their views on the benefits and possibilities of patient participation in MDT conferences.

### **Results**

We conducted 41 observations on MDT conferences and six semi-structured interviews. The median OPTION12 score was 29 (min 4; max 94), whereof 16 (39%) conferences were conducted with none or poor patient involvement, 12 (29%) were conducted with some degree of patient involvement at a basic level, and 13 (32%) were conducted with an evident degree of patient involvement. In 20 (48%) of the conferences, the initial treatment decision was changed as a direct consequence of the patient being present. Half of these changes were due to a professional reassessment of the patient's performance status, the extent of the disease, or competing diseases. In contrast, the other half were due to the patient's treatment preferences. All of the surgeons interviewed believed that patient participation in the MDT conferences extended the quality of the decision-making process.

### **Conclusion**

This study contributes with important new knowledge of the benefits of involving patients in treatment decision making at MDT conferences. The results reveal the potential for further improvement of patient involvement. The fact that almost 50% of the clinicians' initial treatment decisions are changed due to patient participation supports the advantage of bringing patients into the core of the treatment decision process. It is important to ensure that both healthcare professionals and patients have the competencies for shared decision making, and is supported by the proper organizational framework.

## **7E: Explanations On Improved Patient Outcomes- And Perioperative Care Processes, Following Implementation Of The World Health Organization's Surgical Safety Checklist (90)**

*Hilde Valen Wæhle, Arvid Steinar Haugen, Stian Kreken Almeland, Stig Harthug, Nick Sevdalis, Geir Egil Eide, Monica Wammen Nortvedt, Ingrid Smith and Eirik Sjøfteland (Norway)*

Friday, 31 August 2018 / 11.30-13.00

### **Introduction**

Implementation of the World Health Organization's (WHO) Surgical Safety Checklist (SSC) has been reported to reduce both morbidity and mortality.[1,2] A large-scale study of the SSC effects in Canadian hospitals did not find similar results.[3] Internationally, the reported variations of SSC effects have raised concerns about the quality of implementation strategies. Lack of understanding of what makes implementation of the SSC effective in some settings, but not in others, may hamper the ability to improve SSC implementation. Further investigation of precisely how the SSC can improve care processes and patient outcomes has been warranted in order to understand the causal mechanisms of improvement.

### **Objective**

High-quality implementation of the WHO's SSC was hypothesized to improve care processes and subsequent reduction of peri- and postoperative complications.

### **Methods**

A stepped wedge cluster randomized control design (RCT) was used when implementing the SSC. This design is increasingly used to evaluate patient safety interventions that are inherently expected to do more good than harm.[4] The SSC was sequentially rolled out to the included surgical clusters in a randomized order at different time points, which is particularly useful when the intervention cannot be delivered to all participants at the same time. Time intervals between the steps were 3-4 weeks. Our implementation of the intervention included education and evaluation meetings, feedback and direct guidance. Primary outcomes were in-hospital complications and care process metrics, e.g., patient warming and antibiotics. Secondary outcome was quality of SSC implementation. Analyses include Pearson's exact  $\chi^2$  test and binary logistic regression.

### **Results**

A total of 3,702 procedures (1,398 control vs. 2,304 intervention procedures) were analyzed. High-quality SSC implementation, defined as all three checklist parts used, improved both patient care processes and outcomes of care. Use of forced air warming blankets increased from 35.3% to 42.4% ( $P < 0.001$ ). Prophylactic antibiotic administration postincision decreased from 12.5% to 9.8%, while administration preincision increased from 54.5% to 63.1%, and nonadministration of antibiotics decreased from 33.0% to 27.1%. Surgical infections decreased from 7.4% (104/1398) to 3.6% ( $P < 0.001$ ). Adjusted SSC effect on surgical infections resulted in an odds ratio (OR) of 0.52 (95% confidence interval (CI): 0.38–0.72) for intervention procedures, 0.54 (95% CI: 0.37–0.79) for antibiotics provided before incision, and 0.24 (95% CI: 0.11–0.52) when using forced air warming blankets. Blood transfusion costs were reduced by 40% with the use of the SSC.

### **Conclusions**

The improved operating room care processes, and subsequently better patient outcomes, is attributable to high-quality SSC implementation.

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## POSTER PRESENTATIONS

### **Cross-cultural comparisons of nursing staff perceptions about patient handoff safety and quality between China and Japan (10R)**

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### **Patient activation in transition to home (PATH) - a patient-centered intervention study to decrease re-hospitalization (12R)**

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### **Co-operation between municipalities and pharmacies on local disease prevention and health promotion – what are the opportunities? (26R)**

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*Marie Petersson, Sandra Pettersson, Ulrika Solstad, Annica Hofsten Granbo and Madeleine Andersson (Sweden)*

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*Marlene Ockander, Jelmer Brüggemann, Alma Persson, Boel Andersson Gäre and Barbro Wijma (Sweden)*

### **Involvement of the bereaved in supervisory investigation of severe adverse events: A literature review (31R)**

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### **To Assess Vital Signs in Emergency Care - A quantitative survey of the nursing assessment (35R)**

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### **Involvement of the bereaved in supervisory investigation of unexpected deaths – A development project (43R)**

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**Development of a theoretical construct for system stability in a neonatal intensive care unit – an explorative study (64R)**

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**The use of Quality Improvement Collaboratives in the implementation of The New Danish Healthcare Quality Programme (69R)**

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*Inger Johanne Bergerød, Ingvild Dalen, Geir Sverre Braut, Bjørnar Gilje and Siri Wiig (Norway)*

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*Donna Lykke Wolff, Frans Boch Waldorff, Christian Von Plessen, Christian Backer Mogensen, Thomas Lund Sørensen, Kim Christian Houliind, Søren Bie Bogh and Katrine Hass Rubin (Denmark)*

**Does Quality Improvement Improve Patient's Health? A Systematic Review of Measures of Effect Used in PDSA Projects (76R)**

*Nanna Kastrup Hermansen, Anne Sig Vestergaard and Lars Holger Ehlers (Denmark)*

**The application of future workshops in a healthcare setting (78R)**

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*Leena-Maija Aaltonen (Finland)*

**The CIRS-case microscope - the analysis of 52 unselected cases with the OPT-Model (82R)**

*Cornelia Schröder, Thomas Schrader, Laura Tetzlaff, Eberhard Beck and Katharina Löwe (Germany)*

**Can frail older persons participate in telephone follow up about quality of life and satisfaction after discharge? – a feasibility study (83R)**

*Trine Graabæk, Palle Mark Christensen, Anton Pottegård and Jens-Ulrik Rosholm (Denmark)*

**Gender- and Age-Related Differences in the Quality of Mental Health Care Among Inpatients With Unipolar Depression: A Nationwide Study (86R)**

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**Privacy and the ability to maintain independent living: tradeoffs among priorities (103R)**

*Humira Ehrari, Henning Boje Andersen (Denmark)*

**Gerontechnology: opportunities and ethical dilemmas (104R)**

*Henning Boje Andersen (Denmark)*

# Cross-cultural comparisons of nursing staff perceptions about patient handoff safety and quality between China and Japan

Xiuzhu GU and Kenji ITOH  
 Tokyo Institute of Technology  
 Email: xiuzhu.g.aa@m.titech.ac.jp

## Introduction

Patient handoff is



The transfer of professional responsibility and accountability for some or all aspects of care for a patient or groups of patients to another person or professional group on a temporary or permanent basis (BMA, 2005).

Focus on inter-unit and shift nursing handoff

### Objectives:

- To explore differences between China and Japan
- (1) Handoff underlying conditions, and
- (2) Information sufficiency in various handoff situations

## Methods

Questionnaire survey

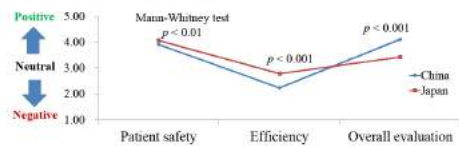
- Section 1 Underlying conditions related to quality and safety
  - Inter-unit handoff (24 items)
  - Shift handoff (6 items)
- Section 2 Frequency of insufficient information (11 cases)

Samples collected

Country	Survey period	Valid responses	Response rate
China	Dec 2016 ~ Mar 2017	211	Online survey
Japan	Oct 2017 ~ Dec 2017	5,117	69%

## Results (1): Overview & Factor Structure

Inter-unit handoff – overview

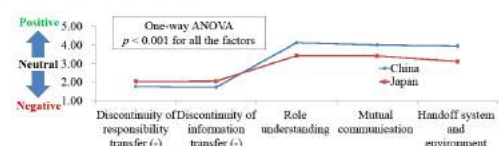


Inter-unit handoff – 5-factor structure

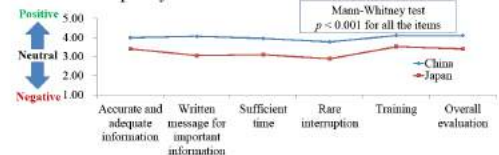
Factor	By using Chinese sample	By using Japanese sample
1. Discontinuity of responsibility transfer	Principal component analysis 44% cumulative variance	Confirmative factor analysis $\chi^2 = 2541.156, p < 0.001$ CFI = 0.845; RMSEA = 0.057
2. Discontinuity of information transfer		
3. Role understanding		
4. Mutual communication		
5. Handoff system & environment		

## Results (2): Cross-cultural Comparisons

Inter-unit handoff factors

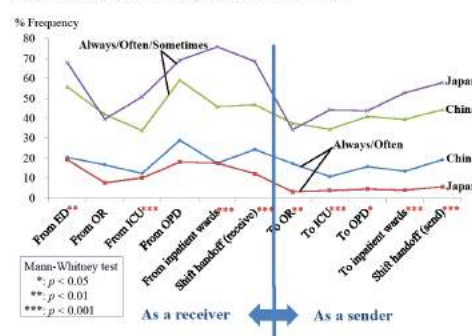


Shift handoff quality



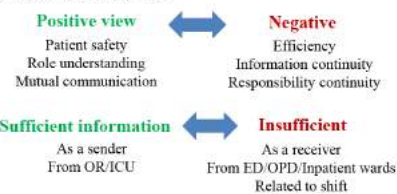
## Results (3): Frequency of Insufficient Transfer

% of transfers with insufficient information



## Conclusions

Similarities of two countries



Differences

- Chinese nurses **more positive than** Japanese
- Other than** Patient safety
- Efficiency
- Insufficient information transfer (often/always)



# A qualitative evaluation of a patient-centered intervention to decrease re-hospitalization

Carina Brandberg<sup>1</sup>, Maria Flink<sup>1</sup>, Mirjam Ekstedt<sup>1,2</sup>

1. Karolinska Institutet, Department of LIME, Stockholm, Sweden. 2. Linnaeus University, Department of Health and Caring Sciences, Kalmar, Sweden



## Conclusion

Our preliminary data demonstrate that elderly patients with multiple chronic illnesses struggle to take active part in self-care at home post discharge. Several barriers and opportunities were identified: lack of trustful and continued relationship with the family doctor; and insufficient information about diagnosis and treatment was seen as barriers for most participants.

Possibilities to take active part in care was enhanced by a supportive social network and patient's (intrinsic) motivation.

## Background and aim

Hospital discharge is a hazardous period of patient care. Unwanted outcomes, such as errors in medication, therapy, and in follow-up of tests and procedures are common, and patient's active participation in self-care is highly important.

This qualitative study aims to evaluate barriers and possibilities for patients with multiple chronic illnesses to take active part in self-care at home post discharge.

## Method

In this study we analyze data from 13 patients with multiple chronic illnesses participating in a post discharge motivational interviewing coaching intervention (Figure 1).

The intervention starts 2-3 days after the patients have been discharged from hospital to home. The patient and the coach meet in five sessions; one face-to-face and four telephone contacts over the course of 4 weeks. The sessions were tape recorded and analyzed using inductive qualitative content analysis.



Figure 1. Timetable of the coaching sessions of the intervention.

## Preliminary result

### Barriers for taking active part in care

Some of the patients experience difficulties being involved in care due to limited information from health care staff and lack of knowledge about their situation.

A 79 year old man expressed after an ultra sound: "I don't know how many heart valve that is leaking, but I think it was more now than last time".

Several healthcare contacts, with no contact between each other, add a large responsibility on patients to coordinate their own health care.

A 71-year old woman with 7 different chronic illnesses expressed this as: "I have a heart doctor and I have a lung doctor and I have a family doctor but these three never meet"

Several patients also had to struggle with Swedish Social Insurance Agency to receive sick pay which reduces both energy and time from self-care.

### Possibilities for taking active part in care

A social network makes it possible for patients to manage health goal and to fulfill changes in lifestyles.

Support from employer also reduces stress.

Motivation to improve health eg. by performing exercise is a possibility to affect health positively.

This study is a part of the sPATH intervention (Supporting Patient Activation in Transition to Home). For more information on the RCT, the study protocol is available open access:

<https://bmjopen.bmj.com/content/7/7/e014178>



## Karolinska Institutet

Carina Brandberg  
PhD student • LIME  
Tomtebodavägen 18 A • 171 65 Solna

E-post: [carina.brandberg@ki.se](mailto:carina.brandberg@ki.se)  
Telefon: +46 70 767 55 75  
webbsida: <https://ki.se/en/lime/systems-safety-in-health-care-ssihc>



**Karolinska  
Institutet**



# PATIENT SAFETY INCIDENTS



## Differences between Serious and Non-Serious Patient Safety Incidents in the Largest Hospital District in Finland\*

### Introduction

The current scientific view on human error emphasizes the system approach, according to which working environments and organizational processes are such that errors are expected. In addition, working procedures at all levels of the organization drift towards procedures that are more likely to cause errors. Therefore, organizations must have processes through which procedures are monitored, incidents are responded to and lessons are learned and, finally, future events are anticipated.

A serious incident is an event that leads to substantial, serious or permanent harm to patient, causes serious danger to the life or safety of the patient, or is a patient safety incident concerning a large group of patients. Serious incidents form a small but significant fraction of safety incidents and it is important to study their nature and prevalence.

### Objectives

To determine if and in what ways serious patient safety incidents differ from non-serious patient safety incidents.

### Methods

All Finnish hospital districts use a common system for reporting patient safety incidents (HaiPro). Data consisted of HaiPro reports generated in the Helsinki and Uusimaa (HUS) district in 2015. HaiPro reports were divided into two groups: non-serious incidents and serious incidents. Groups were created during 2016/3/3. To determine how non-serious

incidents and serious incidents differed in their nature, the number of reports in each category (e.g. type of incident: *Medical equipment or its operation*) was compared between the groups using a Chi-squared test. The results from the main categories were the focus of this study. A cut-off *p* value of 0.05 was used to evaluate statistical significance.

### Results

Of the total amount of reports (15,063) 1 % were serious incidents (175). Serious and non-serious incidents differed significantly from each other. The greatest proportion of the serious incidents took place in patient rooms (non-serious 4,284 [27%], serious 60 [34%], *p* < 0.05) and operating rooms (non-serious 801 [5%], serious 26 [15%], *p* < 0.05). Doctors filed a greater proportion of serious incidents (non-serious 763 [5%], serious 28 [16%], *p* < 0.05). However, in both groups, nurses filed the reports most often.

The most common type of serious incidents was *Laboratory, imaging or other tests* (non-serious 2,754 [18%], serious 41 [23%], *p* < 0.05) followed by *Other treatment or monitoring* (non-serious 1,282 [8%], serious 26 [15%], *p* < 0.05). The most common non-serious incident was *Medication, infusion, blood transfusion, contrast medium* (non-serious 5,900 [38%], serious 25 [14%], *p* < 0.05). The most common consequence for the unit in serious incidents was *Extra work, minor extra treatment* (non-serious 8,084 [52%], serious 118 [67%], *p* < 0.05). In addition a statistical difference was seen in *Harm to unit (image, Longer stay of care, and Extra costs*.

In serious incidents, contributing factors were better

recognized, the most common being *Handling of procedures* (non-serious 2985 [19%], serious 62 [35%], *p* < 0.05). In addition more common in serious incidents were *Training, orientation and skills*, followed by *Medical device and equipment*.

It seems that employees' attitudes towards serious incidents differ from non-serious, and this should be further studied.

### Conclusion

In the future, special attention should be given to the particular aspects of serious patient safety incidents, such as the safe use of medical equipment, training and handling of procedures. In addition, the reasons for the differences between serious and non-serious incidents should be further studied. Root cause analysis is an effective way to handle serious incidents and enables the prevention of their reoccurrence. However, a systematic follow-up of the root cause analysis should be developed.

Authors	Affiliations
Juha Jämsä, BA, MB	University of Helsinki
Sari Palojoiki, MSc, PhD	Hospital District of Helsinki
Lasse Lehtonen, MD, PhD	Hospital District of Helsinki, University of Helsinki
Anna-Maija Tapper, MD, PhD	University of Helsinki, Helsinki University Hospital

\*Jämsä JO et al. Differences between Serious and Non-Serious Patient Safety Incidents in the Largest Hospital District in Finland. *J Healthc Risk Manag.* 2018 Jan 10. doi: 10.1002/jhrm.21310

Type of incident	non-serious, n, %	serious, n, %	<i>p</i> value
Medication, infusion, blood transfusion, contrast medium	5,900 37.6	25 14.3	< 0.001
Information transfer and handling, communication	3,659 23.3	31 17.7	0.081
Laboratory, imaging or other tests	2,754 17.6	41 23.4	0.043
Other treatment or monitoring	1,282 8.2	26 14.9	0.001
Medical equipment or its operation	880 5.6	23 13.1	< 0.001
Accident	696 4.4	15 8.6	0.009
Other	637 4.1	12 6.9	0.063
Violence	311 2.0	11 6.3	< 0.001
Asepsis/hygiene	264 1.7	1 0.6	N/A
Physical surroundings	233 1.5	3 1.7	N/A
Invasive procedure	214 1.4	10 5.7	< 0.001
Surgical operation	174 1.1	6 3.4	N/A
Diagnosis	101 0.6	4 2.3	N/A
Radiotherapy	74 0.5	0 0.0	N/A
Not known	32 0.2	0 0.0	N/A
First aid environment	16 0.1	0 0.0	N/A

Table presents the division of reports among type of incident for non-serious and serious incidents. (n = number of reports, % = percentage of reports compared to total within group)

**Serious and non-serious patient safety incidents differ significantly**

Contributing factors	non-serious, n, %	serious, n, %	<i>p</i> value
Not known	4,001 25.5	15 8.6	< 0.001
Handling of procedures	2,985 19.0	62 35.4	< 0.001
Communication and information transfer	2,772 17.7	28 16.0	0.564
No contributing factors, normal situation	2,181 13.9	23 13.1	0.773
Environment, facilities, resources	1,777 11.3	19 10.9	0.845
Training, orientation and skills	1,212 7.7	27 15.4	< 0.001
Patient and relatives	665 4.2	17 9.7	< 0.001
Medical device and equipment	601 3.8	23 13.1	< 0.001
Teamwork	489 3.1	18 10.3	< 0.001
Organization, management	121 0.8	12 6.9	< 0.001
Medication	81 0.5	3 1.7	N/A

Table presents the division of reports among contributing factors for non-serious and serious incidents. (n = number of reports, % = percentage of reports compared to total within group)

# The A3 approach to improving patient safety problem solving: a pilot study



## In this study, we sought to answer the following questions:

Is A3 an applicable approach to increase corrective actions in voluntary patient safety incident reporting systems?

What are the characteristics of incidents in which A3 is effective evaluated by experienced patient safety experts?

How good is the 6-month user experience?

### Background

Patient safety incident (PSI) reporting system fundamental for analyzing and investigating patient safety-related information for improving safety & patient care. Incident reports should include corrective actions to improve safety.

A3 is a structured problem solving, continuous improvement approach, used by lean practitioners. The A3 process uses systematic, strict and documented methods on the principles of Plan-Do-Check-Act

### The protocol

1. Eliciting possible tools for patient safety improvement purposes from the available literature
2. Selecting a tool for testing purposes
3. Training of experienced patient safety experts to use A3 approach

### The protocol

4. Piloting A3 approach in patient safety incidents during 1.8. 2017 to 31.7 2018
  - serious*
  - strategic*
  - recurring*
5. e-mail questionnaire at 6 months:
  - Have you used the A3?*
  - What kind of incidents it was applicable?*
  - What kind of incidents it was not applicable?*

**Results**

- 17 eligible respondents
- 12 had used the A3 and 3 planning to use it
- A3 was applicable
  - recurrent problems 8
  - strategic problems 3
  - not suitable at all 3
  - not suitable for serious 3

Some found it difficult to use  
Some found it easy to use



**Conclusions**

Apparently the A3 approach is applicable for solving problems arising from patient safety incidents

Especially recurring incidents seem to benefit from A3 approach

Our future research will focus on testing the A3 for a longer user experience and analyze the detailed A3 reports



<p>Sari</p> <p><b>Palojoki</b></p> <p>M.Sc., PhD, chief of patient safety Helsinki and Uusimaa Hospital District, Helsinki University Hospital sari.palojoki@hus.fi</p>	<p>Virve</p> <p><b>Koljonen</b></p> <p>MD, PhD, plastic surgeon Helsinki and Uusimaa Hospital District, Helsinki University Hospital virve.koljonen@hus.fi</p>
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# Nurse-rated quality of care in 2007 and 2017 within a Norwegian Hospital Trust

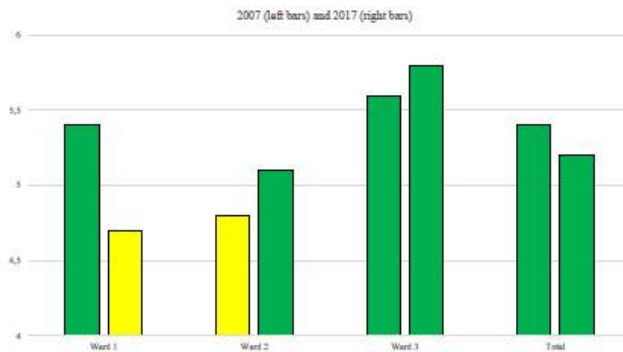


Irene Aasen Andersen, R.N., Associate professor<sup>1</sup>, Marny Alice Solhaug Pettersen, R.N.<sup>2</sup>, John Roger Andersen, R.N., Professor<sup>1,3</sup>

<sup>1</sup> Faculty of Health Studies, Western Norway University of Applied Sciences, Førde, Norway

<sup>2</sup> Department of Medicine, Førde Central Hospital, Norway

<sup>3</sup> Center of Health Research, Førde Central Hospital, Norway



**Table 1.** Nurses' at internal medical wards within same Hospital Trust, rating of quality of care (average total scores) in 2007 and 2017

- Difference between 2007 and 2017 for all three wards;  $P = 0.166$
- Test for ward\*cohort interaction indicated heterogeneous differences between 2007 and 2017;  $P = 0.003$
- "A traffic-light system" was constructed to aid the interpretation of the average group scores: satisfactory (green:  $\geq 5.0$ ), further investigations are recommended (yellow: 4.5-4.99) and further investigations are strongly recommended (red:  $< 4.5$ ). The bars in the figure are coloured according to this system

## Background

Nurses' ratings of quality of care has intrinsic value besides being an important predictor of patient outcomes. Thus, assessing nurses' ratings of quality of care over time is vital in continuous quality surveillance. However, the literature is limited on studies displaying methodology and temporal trends on nurse-rated quality of care within clinical microsystems. The objective of this study was to reveal nurse-rated quality of care over time (2007 and 2017) in internal medical wards at a Norwegian Hospital Trust.

## Methods

Repeated cross-sectional assessments in three internal medical departments at a Norwegian Hospital Trust were conducted. All registered nurses and axial nurses were invited to participate. The study protocol was approved by the Norwegian Data Protection Official (registration number: 56526). The 2007 and 2017 cohort consisted of 86 and 75 nurses, respectively (60% response rate). Nurses' rating of quality of care was assessed by a Virginia Henderson-inspired six-item questionnaire on how well patients' basic needs were typically covered [1]. The answers alternatives are on an ordinal scale and range from 1 (very poor) to 7 (very good). A sum score was calculated based on the average of the sub items. "A traffic-light system" was constructed to aid the interpretation of the average group scores: satisfactory (green:  $\geq 5.0$ ), further investigations are recommended (yellow: 4.5-4.99) and further investigations are strongly recommended (red:  $< 4.5$ ). Analysis of Variance (ANOVA) was used to study differences in quality of care between the 2007 and 2017 cohort.

## Results

The overall quality of care score was 5.37 (SD, 0.74) in 2007 and 5.18 (SD, 0.95) in 2017. This is a small reduction (SD, 0.22),  $P = 0.166$ . When we entered the "wards" into the equation, a significant ward\*cohort interaction was found ( $P = 0.003$ ), suggesting heterogenic changes in quality of care over time between the wards. Two of the wards had quite stable scores over time, with average overall 2017 quality of care scores in the green zone. One of these wards was currently in the green zone on four sub-scores while two sub-scores were in the yellow-zone. The other was currently in the green zone on all sub-scores. The last ward had a large drop in the overall quality of care score (SD, 0.79) and drifted from the green to yellow zone between 2007 and 2017. This ward was currently in the green zone in two sub-scores, in the yellow zone in two sub-scores, while two sub-scores were in the red zone.

## Conclusion

The overall quality of care score was in the green zone in 2007 and remained stable over time. However, more detailed analysis revealed quality of care variation between the wards, and several sub-scores were in the red and yellow zones. There are some potential hazards with such studies, if the nurses are not truly active shareholders in the process. Consequently, we suggest a method for how nurses can validate and use their own quality of care information along with other knowledge sources, in order to prioritize areas for improvements at a medical ward.

Correspondence irene.andersen@hvl.no



# OUT-OF-HOURS HEALTHCARE AND MALPRACTICE COMPLAINTS

## BACKGROUND

In Denmark, general practitioners (GPs) provide out-of-hours care (OOH). Dissatisfied patients may complain to a complaints board (CB) that can impose a disciplinary 'critique'. Previous studies found that age and gender of GPs were associated with more complaints and were associated with complaint case outcomes. Likewise, complaints more often occur during OOH. Meanwhile knowledge about the characteristics of OOH related complaints is limited. The objectives of this study were to describe malpractice complaints about OOH in a Danish national sample and investigate predictors for critique.

## METHODS

CB case decisions about OOH concerning all Danish GPs completed during one year (2007) were reviewed (Birkeland, 2013). Complaint information was extracted from the case files and recorded in a database. Information about the clinical content was divided into surgical (e.g. appendicitis) or non-surgical (e.g. pneumonia). Data on the GPs were achieved from Danish National Board of Health registers. Odds ratios were estimated with logistic regression modelling.

## RESULTS

In 2007, the CB reviewed and concluded on 180 complaints about OOH. Seventy-seven percent (n=139) of complaints concerned male GPs. Most complaints arose from patients treated in their working years and the majority were female (54%). Most complaints were about OOH provided during holidays and weekends (55%). The average age of the involved GPs was 52.8 years. No significant association were found between case outcome and GP gender, GP age, patient gender, or patient category (adult or child/adolescent). However, complaints involving non-surgical problems were significantly associated with higher odds of receiving critique from CB (OR=3.91; p<0.01).

## LITTERATURE

Birkeland, S., Christensen, R., Damsbo, N., & Kragstrup, J. (2013). Patient complaint cases in primary health care: what are the characteristics of general practitioners involved? *Biomed Res Int*, 2013, 807204.



## CONCLUSION

- This study is a first step of investigating complaint cases related to OOH.
- We could not confirm previous findings of an association between complaint case outcomes and patient, and GP gender and age.
- Non-surgical clinical problems may be particularly difficult to manage in this setting.
- Further research should address OOH malpractice complaints.

<sup>1</sup>Department of Regional Health Research, University of Southern Denmark, and <sup>2</sup>Centre for Quality, Region of Southern Denmark, Middelfart, Denmark  
\*Centre for Quality and Department of Regional Health Research, University of Southern Denmark



# Cooperation between municipalities and community pharmacies on local prevention and health promotion – what are the opportunities?

## Pharmakon

- Es-Sour Mir\*
- Andrius L\*\*
- Burghel A\*
- Faber NH\*\*
- Fieise B\*
- Husted GR\*
- Rossing C\*

\* Pharmakon, Danish College of Pharmacy Practice Mimersvej 42, 3400 Hillerød, Denmark

\*\* The Danish Committee for Health Education, Classensgade 71, 5. sal 2100 København Ø, Denmark

"The cooperation has been an eye opener - we can use each other for the benefit of our citizens"

Contact information:  
Gitte Reventlov Husted  
GRH@pharmakon.dk

### Background

There is a current lack of knowledge on how pharmacies can be involved in cooperation with municipalities to participate in health promotion and disease prevention. It seems that there is an unutilized potential for involving pharmacies in disease prevention and health promotion and linking them more closely to the rest of the health system for the benefit of the individual citizen – and to ensure patient safety.

### Aim

To develop and evaluate a collaboration model between the municipality and the pharmacy in order to provide health promotion and disease prevention to vulnerable citizens.

### Methods

A user involvement approach was chosen for the development of the collaboration model.

- Through workshops<sup>1</sup> the parties were guided to:
- define the target group of vulnerable citizens in their local area
  - agree on choice of healthcare service to deliver in collaboration
  - draft a plan on how to effectively cooperate in order to deliver the chosen services
  - decide where and how to recruit citizens
  - create information pamphlets for the target groups.

Quantitative and qualitative methods were chosen for the evaluation of the use of the collaboration model. Demographic data on the participating citizens were collected.

The project is approved by the Data Inspectorate (Jr. No. 2017-41-5260, Doc. No. 446567).



Fig. 1 The six participating community pharmacies and five municipalities

### Study settings

Five municipalities and six pharmacies (figure 1). One pair from each Danish region participated in a 1 ½ day start-up seminar followed by a three months study period (November 2017 till January 2018).

Each collaborating pair worked together to provide an agreed service to 20 citizens (100 in total).

Telephone meetings were held every fortnight with the project manager at Pharmakon.

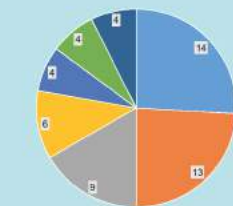
## Results

### Quantitative results

The parties recruited 54 citizens (female=63%), ranging in age from 24-91 years (m=63.6 years).

The three most frequent services were Type 2 diabetes education, Stop smoking sessions and Self-management programs for chronic conditions (figure 2).

The healthcare was primarily delivered in municipality settings (68%) versus pharmacy settings (32%) (figure 3).



- Type 2 diabetes education
- Smoking cessation (group or individual course)
- Self-management programs
- New Medicines service
- Chronic obstructive pulmonary disease rehabilitation course
- Needs assessment
- Preventive home visits

Fig. 2 Overview of the services pharmacies and municipalities have collaborated on. The numbers illustrate the amount of citizens who received each service.



Fig. 3 Overview of where the services were provided.

### Qualitative results

Three main themes were identified (figure 4).

The start-up seminar with the use of semi-structured worksheets resulted in a joint agreement sheet. This was very important for creating individual collaboration models which contributed with ownership as a starting point.

Pharmacies are an entrance gate to help citizens that otherwise are hardly reached in the municipality.

Pharmacies and municipalities become aware of each other's services and how these complement each other for the benefit of the citizens. It is possible for municipalities and pharmacies to cooperate on delivering health care services to vulnerable citizens.

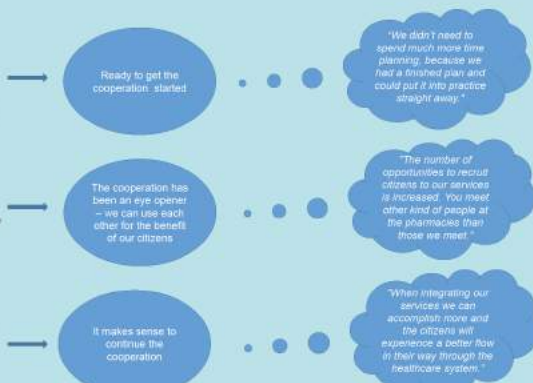


Fig. 4 Three main themes were identified subsequently illustrated by three quotes.

### Conclusions

- Pharmacies and municipalities have started a partnership in delivering health promotion services
- Pharmacies and municipalities regard themselves as an extension of the healthcare system
- Pharmacies are a new entrance gate to reach citizens that are otherwise barely reached by municipalities
- The citizens experience more continuity in health services when pharmacies and municipalities cooperate

### Recommendations for establishing a collaboration model

- Ongoing management support and involvement
- Start-up seminar and scheduled time to start making relations between collaborators
- Joint agreement sheet
- Use of validated worksheets<sup>2</sup> to ensure user involvement
- Ongoing external support to ensure implementation of the agreed collaboration model - for instance telephone meetings
- Ongoing focus on the cooperation process
- Sharing knowledge with the participants who run the cooperation as the rest of the organization

### References

<sup>1</sup> Benning S. I., Faletto E., Wilson, L. Australian Government, Dept of Health and Ageing The Pharmacy Guild of Australia. Building Organisational Flexibility to Promote the Implementation

# Ensam eller allena

## Om ensamhet på Enebergs äldreboende, Tiohundra AB

Teammedlemmar: Madelene Andersson, Annica Hofsten Granbo, Ulrika Nysten, Sandra Petterson, Jesper Storgård, Marie Petersson (coach)

### Bakgrund

#### Vår verksamhet

Ensamhet aktiverar smärtcentrum i hjärnan för att driva den enskilde tillbaka till flocken. Ensamhet kan göra ont, och resultera i följsjukdomar som t ex depression, ångest och stroke. Ensamhet är farligare för hälsan än rökning.

På äldreboendet Eneberg uppmärksammades 2016 en hög grad av upplevd ensamhet i Socialstyrelsens rapport "Vad tycker de äldre om äldreomsorgen" och ett projekt initierades för att komma tillrätta med detta.

#### Slutsatser

- De äldre uppskattar 1-1-kontakt.
- Ensamheten är unik för varje individ.
- Funktionsnedsättning kan orsaka utökad ensamhet.
- Sociala aktiviteter är av stort värde.

Händer det att du känner dig ensam?



### Mål, delmål och aktiviteter

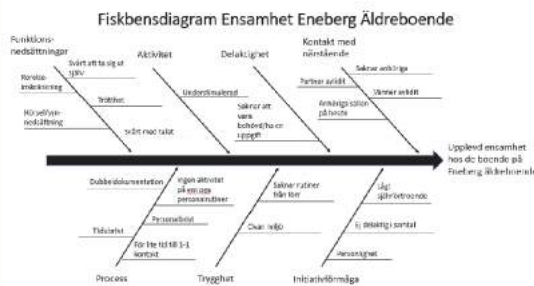
#### Övergripande syfte

Att skapa en meningsfull vardag för de boende, genom trygghet, respekt och delaktighet.

#### Specifika mål

Vi ville minska ensamheten på Eneberg och väcka nyfikenhet hos personalen kring patientsamverkan

#### Arbetsätt och aktiviteter



#### Verktyg för patientsamverkan

- Patient med i teamet
- Kär och galen
- Patientresan
- genombrott.nu

### Resultat och lärdomar

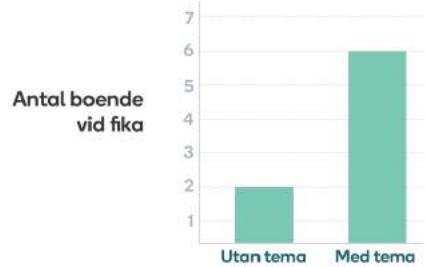
#### Resultat

PDSA 1 – personal med vid måltid. 22.2 min längre tid vid matbordet, faciliterande av samtal, ökad trivsel och gemenskap.

PDSA 2 – fika med tema: ökat engagemang och glädje hos de boende, ökad delaktighet och gemenskap

Leksakslåda: besökande barn glädjer alla äldre på boendet

Förändrat tankesätt i arbetsgruppen kring förbättringsarbete



#### De viktigaste lärdomarna

- Vikten av patient- och närståendesamverkan
- Kommunera era resultat
- Ensam är inte stark
- Fira era framgångar!

QRC Stockholm Kvalitetsregistercentrum Utvecklingsprogram "Förbättringsarbete med stöd av kvalitetsregister"



## **The Co-production of Patient Safety**

*Marlene Ockander, Jelmer Brüggemann, Alma Persson, Boel Andersson Gäre and Barbro Wijma*

The phenomenon of co-production is today a cornerstone of public policy reform. Co-production is defined as “the voluntary or involuntary involvement of users in the design, management, delivery and/or evaluation of services” (Osborne, Radnor & Strokosch, 2016, p.4). A cornerstone in the development of quality in healthcare is patient safety. When working in patient safety, you are encouraged to “view it as the management of risks over time in order to maximize benefit and minimize harm to patients in the health care system.” (Vincent & Amalberti, 2016, p.4)

### **Objectives**

This study takes its point of departure in the various ways in which co-production is theorized in different fields of research. The aim is to develop new ways of understanding patient safety by contextualizing it in relation to the field of co-production and value creation.

### **Research question**

How can the work of patient safety contribute to value creation from a co-production perspective?

### **Method**

Theories built on a literature study on co-production and patient safety.

### **Results**

It seems that work for patient safety is largely derived from a public administration management theory approach to co-production. Our results suggest a more nuanced picture of the patient's role, meaning that there are ways of working for patient safety in a service management-based tradition that have not yet been fully explored. A model is presented that can facilitate the planning of patient partnerships related to the character of safety issues. The model can visualize the untapped resources that exist when involving patients as active subjective partners with their own safety strategies.

### **Conclusions**

There exists a largely untapped potential in taking advantage of involving the patient as an active subjective partner co-producing patient safety with professionals, especially concerning activities that involve social interaction. It appears that both research on co-production and patient safety could benefit from multiple perspectives in order to develop models customized to the gaps in quality, safety and value that are subject to improvement efforts.

### **References**

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2. Vincent, C. & Amalberti, R. (2016). *Safer Healthcare: Strategies for the Real World*. New York: Springer Open.



# Involvement of the bereaved in supervisory investigation of severe adverse events: A literature review

Haraldseid Cecilie, Schibevaag Lene and Wiig Siri

**Background:** There is limited tradition for involving the bereaved in the supervisory investigation in Norway.

**Objectives:** To investigate how the current literature describes involvement of the bereaved in the supervisory investigations of severe adverse events in a healthcare setting.

**Method:** A literature search was carried out consulting 12 different databases among them Academic Search Premier, CINHAI, ERIC, MEDLINE and SocINDEX. The search terms were amongst others: next of kin, family, loved one and bereaved. Adverse event, death, harm, investigation, involvement and healthcare.

**Results:** No articles specifically addressed how to involve bereaved in the supervisory investigation of severe adverse events in a healthcare setting. However, several articles described the importance of involving bereaved in the aftermath and giving them the opportunity to both give and receive information concerning the event. Health personnel should be taught how to detect, handle, and inform about severe events as well as how to involve, support and follow up the bereaved in such processes.

**Conclusion:** The lack of relevant studies highlights the need for research investigating how the bereaved can be involved in processes of supervisory investigation.



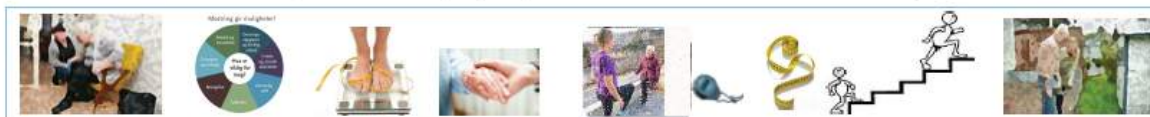
**SHARE** Center for  
Resilience in Healthcare  
University of Stavanger



## DeMoL

## Reablement and the interaction on Depression, Motivation and Life orientation. An ongoing longitudinal study in home dwelling elderly in Norway

Jeanette Kjernsholen Berget MR stud<sup>1</sup> Inger Schou-Bredal PhD<sup>2</sup>, Rolf Kåresen MD PhD<sup>2</sup>, Åse Sagen PhD<sup>3</sup>  
Oslo MET, Norway<sup>1</sup> Departments of Cancer Treatment and Cancer Rehabilitation, Oslo University Hospital, Norway<sup>2</sup> and  
Aurskog-Holand Municipality, Department of Health and Rehabilitation, Norway<sup>3</sup>.



### BACKGROUND

The purpose of reablement intervention is to reactivate and restore coping of ADL functions in the elderly person. This is important to prevent or postpone the need for comprehensive care or hospitalization. Motivation has shown to be vital for successful reablement in home dwelling elderly. However, little is known regarding which factors predicts high or low motivation for reablement.

### OBJECTIVE

The objective of the study was to investigate possible predictors for high or low motivation for reablement.

### METHODS

This is an ongoing longitudinal study including eligible elderly (> 67 years) community-dwelling persons. Inclusion is planned finished autumn 2018. The intervention group was receiving a specialized reablement program of maximum 16 weeks by an interdisciplinary team of physical and occupational therapists and nurses. The control group was receiving standard care, including homecare and/or occupational or physical therapy. Data was collected before intervention (baseline) and at two follow-ups; the end of the intervention (when the participants have reached their goals) and at 6- months. The control group follow-up was set to 8 weeks. Both patient rated and observational measurements are used; Motivation, measured by Numeric Rating Scale (NRS)(0 - 10), Well-being/depression is measured by the WHO-5-WBQ, a dispositional optimistic or pessimistic life orientation was measured by the Life Orientation Test- Revised (LOT-R), quality of life was measured by the European Quality of life questionnaire (EQ5D5L), the participants rating of their goals for the rehabilitation was measured by the Patient Specific Functional Scale (PSFS) and physical functioning was measured by the Short Physical Performance Battery (SPPB).

The Regional Committee for Medical Health Research, Region South-East (REK South-East) has approved (2017/1616) the study.

### PRELIMINARY RESULTS

To date 37 elderly people have been recruited, 20 (aged 81 ±8 years) in the intervention group and 17 (aged 82 ±7 years) in the control group. Of these 37 participants, where 21 also have completed the first follow up, there are 8 (40%) men in the intervention group and 6 (35 %) men in the control group, and 12 (60 %) and 11 (65 %) women, respectively. Body Mass Index (BMI) was mean 27 ±4 in the intervention group and mean 26 ±5 in the control group

Physical function measured by SPPB was mean 6 ±3 in the intervention group and mean 5 ±3 in the control group, motivation was mean 8 ±2 and mean 6 ±3, as for the WHO -5-WB raw score the results were 14 ±4 and 16 ±4, respectively. Furthermore, two participants have dropped out of the study because of hospitalization and one has passed away.

Table 1

Preliminary baseline characteristics DeMoL (ongoing recruiting)

	Intervention (n=20)	Control (n=17)
Age (yrs) mean, sd	81 ±8	82 ±7
Sex		
Males no (%)	8 (40)	6 (35)
Females no (%)	12 (60)	11 (65)
BMI mean, sd	27 ±4	26 ±5
Physical function (SPPB)* (0-12) mean, sd	6 ±3	5 ±3
Motivation (NRS) (0-10) mean, sd	8 ±2	6 ±3
Depression (WHO-5WB)** (0-25) mean, sd	14 ±4	16 ±4

\*Short Physical Performance Battery (SPPB) difference >1 points = clinically relevant \*\*WHO-5WB Raw-score < 13 = symptoms of depression

### CONCLUSION

Thirty-seven elderly home dwelling participants have been recruited. More women than men participated consistent with the fact that there are more elderly women alive than men. There seems to be no clinical important differences between the intervention and control group so far. However, the preliminary result for WHO-5-WB at baseline suggests low raw-score for well being both for the intervention- and control group. If these results are representative when the data set is completed, we have found that depression possibly is more common among home dwelling elderly than the Norwegian literature previously have suggested. Depression might be a predictive factor for low or high motivation in reablement. Final results and publication of results are planned autumn 2019.

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# TO ASSESS VITAL SIGNS IN EMERGENCY

## - A quantitative survey of the nursing assessment

P. M. K. Hammarqvist  
Quality and Development Unit, Tiohundra AB, Sweden

### Background: Introduction

Fundamental to giving patients high quality care is to monitor, supervise, vital signs and report clinical changes to counter increased morbidity and mortality. Evidence exists that serious adverse events [SAEs] affects patients hospitalized and the majority of them could be avoided. Several studies show that SAEs are relatively common. The most serious events are preceded by warning signs that could identify those patients who need early intervention. In caring for the patient, the nurse's duty is to detect, identify changing or deteriorating vital signs, assess and report to the responsible physician, as early detection leads to reduced morbidity and mortality.



### Result

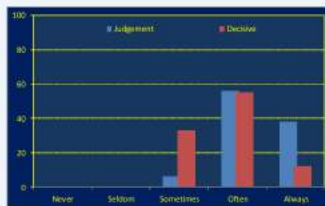


Figure 1. How often does the nurse use intuition / clinical gaze in case of deterioration of the patient's vital signs and how often has it been crucial.

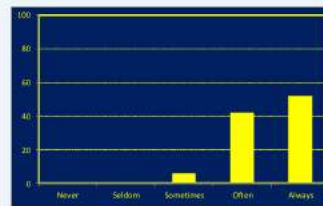


Figure 2. Assessment using medical technical equipment in case of deterioration of the patient's vital signs.

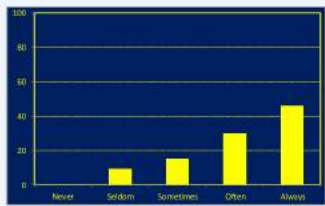


Figure 3. Nursing's use of manual methods for the assessment of deterioration of the patient's vital signs.

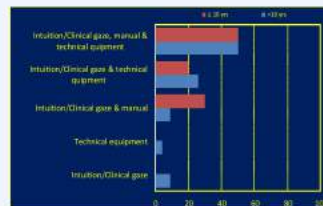


Figure 4. Nurse's basis for initial assessment in case of deterioration of the patient's vital signs.

### More Results

#### Parameters

Nurses were asked to describe what they considered to be vital parameters. The answers were largely in confirmed with the literature. However, no nurse raised age as a vital parameter to consider, although this is found to have a significant impact on mortality during hospitalization.

#### Ranking

The ranking of vital signs differs somewhat between what the literature describes as the most important and those which the majority of nurses considered to be the most important. Consciousness, early sign of deterioration, ranks highest by 24 % of nurses but 30 % of the nurses placed consciousness in the eighth place in the ranking.

There was no clear ordering of the parameter breathing frequency in the ranking, between 12-18 % in place one to five. Although research has clearly shown that abnormal breathing is a predictor of potentially serious event.

Saturation was ranked relatively high, between 15-30 % in place one to four. It is therefore attributed to high reliability, which is not confirmed in the literature.

#### Medical devices

On the question of the extent to which the nurses based their assessment on the deterioration of the patient's vital signs on medical devices, a total of 94 % responded constantly or often. However, the use of medical equipment was surrounded by some uncertainty.

### Support in assessing vital parameters

On the question of what could be helpful in assessing the patient's vital signs, 69.7 percent of nurses answered more theoretical knowledge among the options that were available (Figure 5). The alternative often answered by nine out of 33 nurses, one of whom indicated that more experience would be helpful in assessing the deterioration of the patient's vital signs.

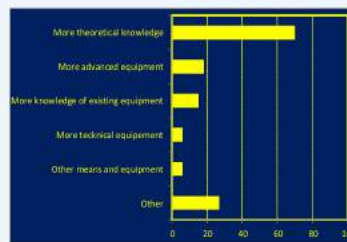


Figure 5. Distribution of what could be helpful for the assessment of deterioration of vital signs, for nurses. Respondents could answer several options.

### Objectives

The purpose was to describe the nurse's assessment at the deterioration of the patient's vital signs at an emergency hospital.

### Methods

The used method was based on quantitative survey with the collection of descriptive statistics and analysis of responses related to professional experience. The questionnaire consisted of 26 structured questions, five semi-structured questions and one open-ended question.

### Conclusion

Nurses at the acute care hospital uses a combination of intuition/clinical gaze, manual methods and monitoring with medical devices when the deterioration of the patient's vital signs occurs. A large part of the respondents estimated the use of intuition/clinical gaze high and equally so the use of medical devices. The result shows the need for more theoretical knowledge of new evidence regarding the importance of impaired vital parameter. There is a need to strengthen the nurse in identifying, evaluating, analyzing the patient's condition and appropriate response.



## Study on in-hospital deaths may reveal patient safety threats

### BACKGROUND

Finland's National Institute for Health and Welfare (THL) has estimated based on studies made in other countries that approximately 700-1700 die in Finland due to harm incidents in care. Professionals are used to report voluntary harm incident reports on medication and communication errors. Incidents that may have contributed to patients' death are not reported in the same manner due to lack of knowledge or poor safety culture. No prior study has evaluated the harm incidents role in patient deaths in Finland. In this study we report some preliminary results from the prospective ongoing study at Vaasa Central Hospital, Finland.

### AIM

The aim of the study is to obtain information about hospital deaths in Finland:

- Find out the significance of adverse events as a causative or contributory factor to hospital deaths and their possible preventability.
- Produce a new patient safety method to analyze the harms that contribute to hospital deaths.
- Estimate the loss of expected life years in care-related hospital deaths.
- This poster presents results that indicate that hospital deaths may reveal possible patient safety threats. To promote patient safety even further new steps must be taken.

### METHODS

Information was gathered extensively using divergent methods. All the patients who died in Vaasa central hospital in year 2017 were included in the study. The professionals that treated the patient before the decease gave an assessment of the fatality by answering a questionnaire. Mortality analysis was conducted by research physicians in cases where patient's reason for admission was not palliative or terminal care.

Global Trigger Tool (GTT) was also used to collect data about fatalities. All patients who died in January-March 2017 were included in fatality GTT. Patient safety coordinators did a retrospective review of patient records using known triggers to identify possible adverse events. Three physicians confirmed the findings.

### RESULTS

#### Assessments of the fatalities

According to the professionals assessments death was expected in more than one third of the admissions. In 40% of the admissions the death was not expected and in almost 20% the cases could not the professionals answer whether patient's death was anticipated or not.

The answers suggested that death was not avoidable in over 70% of the cases. On the other hand a few evaluated that some actions could have been taken to prevent death. The professionals could not take a stand to whether the death was preventable in 25% of the cases.

The possible contributing factors to deaths according to respondents were infections, fall occurring mainly outside the hospital before treatment and aspiration. Post-operative hemorrhage may have contributed to deaths as well as delays in the start of the treatment. The professionals mentioned in free text that patients are sent to hospital treatment at the end of their life, either due to a defective or total lack of explicit care line.

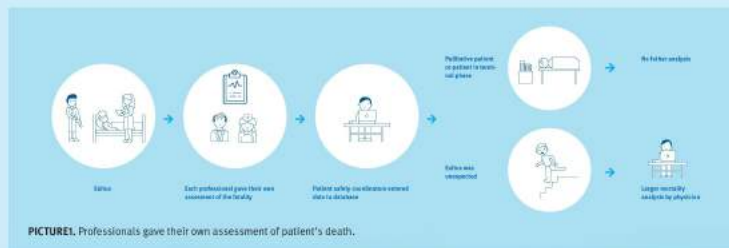
#### FatalityGTT

The findings from Fatality-GTT indicate that adverse events occurred in 50% of all admissions with lethal outcome, which were altogether 113 during the three months period. For comparison in normal GTT analysis done in 2012 the amount of adverse events was found in 15% of all the admissions with a sample size of 120. Approximately 20 % of all found triggers in Fatality-GTT were confirmed as adverse events. Of the found adverse events about 90 % were estimated to be preventable. One third of the confirmed adverse events were not compatible with known triggers. For example care limitations were not always documented in a correct way in patient records. One fifth of all the adverse events were pressure ulcers. As comparison no pressure ulcers were found in the normal GTT done in 2012. The confirmed adverse events in the fatality-GTT were found to be more severe than in normal GTT. For example in fatality-GTT six confirmed adverse events were found to be level I which means the death of the patient. In normal GTT no adverse events were classified so high.

### CONCLUSION

Most of the respondents assessed that no factors within care contributed to death during care. The retrospective review of the hospital deaths nevertheless gave rise to concern at the organizational level, as inconsistencies in settings, processes and documentation were found. Unjustified transfer of patient in terminal stage to the hospital and unnecessary examinations cause additional harm to the patient and may increase the patient's suffering. GTT as a tool is too sensitive and is not suitable for assessing adverse events for the care of dying patients as such.

**Hei Ylihärälä**, anesthesiologist, Vaasa Central Hospital  
**Mari Piukka**, Quality manager, Vaasa Central Hospital  
**Linda Styräs**, Patient Safety Coordinator, Vaasa Central Hospital  
**Merja Jutila**, Patient Safety Coordinator, Vaasa Central Hospital



## Evaluating a new method for user involvement in supervisory investigation of the most severe adverse events in healthcare

Schibevaag, Lene.<sup>1</sup>, Haraldseid, Cecilie.<sup>1</sup>, Hannisdal, Einar.<sup>2</sup> and Wiig, Siri.<sup>1</sup>

<sup>1</sup> University of Stavanger

<sup>2</sup> Country Governor of Oslo and Akershus

### Background

- Analysis of severe adverse events in Norway has called for a need to develop new methods for user involvement in supervisory investigation
- A new involvement method was developed where next of kin participated in a two-hour face-to-face meeting with the inspectors to shed light on the most severe adverse events from the next of kin's perspective

### Objective

To evaluate a new method for user involvement from the perspectives of the next of kin and the inspectors

### Method

- Focus group interviews (3) with supervisory inspectors
- Observation of meetings (8) between next of kin and inspectors (15 hours)
- Interviews (18) with the next of kin who had participated in the meeting with the supervisory inspectors

### Preliminary Results

- Next of kin provided the supervisory inspectors with useful and new information on the adverse event
- The meetings in some cases resulted in the need for additional information gathering from involved service providers
- The meetings contributed to increased information richness and quality of the supervisory investigation process by new understanding of the severe adverse event

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# Avoidable admissions — a cross-sectorial research project following the patient trail



Marianne Johansson Jørgensen, PhD, Director of Research<sup>1)</sup>, Mette Trelund Rask, PhD, Health Researcher<sup>2)</sup>, Hanne Sveistrup Demant, Chief Nursing Officer, CEO<sup>3)</sup>, Gitte Friis Kjeldsen, Project Manager<sup>4)</sup>

<sup>1)</sup>Department of Research, Horsens Regional Hospital, <sup>2)</sup>Aarhus University Hospital, <sup>3)</sup>Hospital Management, Horsens Regional Hospital, <sup>4)</sup>MedTech Innovation Consortium

## Introduction

The reduction of unplanned admissions and readmissions has attracted much attention in recent years as a means to improve health, enhance the experience and outcomes of the patients and reduce the cost of care.

A variety of tools have been developed across Europe to predict unplanned admissions and readmissions but so far they have not been applied neither at the national nor regional level in Denmark.

Due to differences in the organization of healthcare systems, differences in data structure and quality, and differences in national statutory provisions, risk prediction models cannot be directly transferred from one country to another, thus a Danish model is needed.



Figure 1. Despite many different preventive initiatives, no decrease has been found in the proportion of readmissions in the Horsens catchment area.

## Objectives

The overall aim of this cross-sectorial research project is to reduce unplanned admissions and readmission through identification of citizens or patients at risk of such health care needs.

## Methods

The research project consist of three phases: 1) a quantitative descriptive study, 2) a development of a clinical support system (CDSS), and 3) an effect evaluation. The first two phases are conducted based on data from the cohort "CROSS-TRACKS", which contains health related data from approx 185,000 citizens, 18+ years in the Horsens catchment area (inclusion period: 2012-2022).

Figure 2. The three phases of the research program

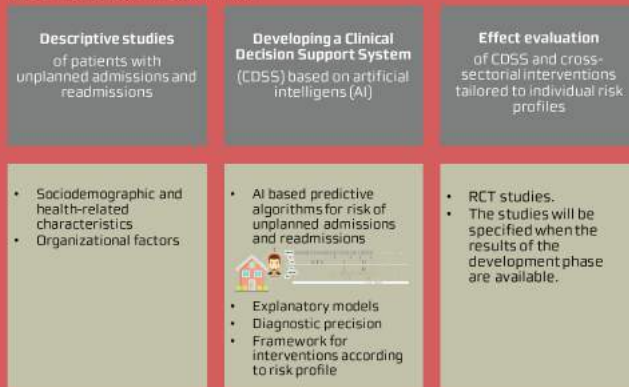
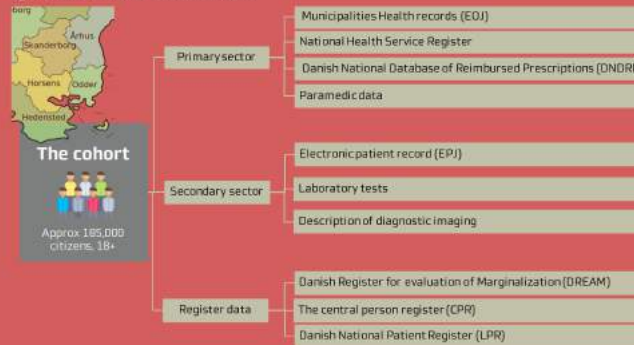


Figure 3. The content of the cross-sectorial cohort



## Expected results

The findings will among other things include a description of risk factors across primary and secondary care for unplanned admissions and readmissions, estimates for the diagnostic precision of the developed algorithms and, ultimately, the effect of implementing the CDSS in clinical practice including the municipalities, the general practices and the hospital.

## Perspectives

The research project is expected to contribute to high-quality cross-sectorial care directed towards the need of the individual citizen and patient. Thereby, the project may have a positive impact on the patients' experience of care including quality and satisfaction, a reduction of unplanned admissions and readmissions and contribute to improved use of scarce healthcare resources.





# MEDICATION ADMINISTRATION TO WRONG PATIENTS: analysis using incident reports



PhD, Marja Härkänen (1) // PhD, Maijaterstu Tiainen (2) //  
PhD, Kaisa Haatainen (1,3)

1) Department of Nursing Science, University of Eastern Finland, Finland // 2) East Savo Hospital District, Finland  
3) Kuopio University Hospital, Finland

## Introduction:

Although patient identification has been given high priority in improving patient safety, patient misidentifications and wrong-patient incidents occur.

## Objectives:

The aim of this study was to describe the factors related to wrong-patient medication administrations and to describe how patient identification is documented in wrong-patient incident reports.

## Methods:

Incident reports related to medication administration (n = 1,012) were collected retrospectively from two hospitals in Finland between 1 January 2013 and 31 December 2014. Of these, only incidents involving wrong-patient medication administration (n = 103) were included in this descriptive content analysis. Research permissions were obtained from the study hospitals in Spring 2015, and the ethics board of the University of Eastern Finland provided an ethical appraisal (6/2015) of this research.

## Results:

Many reasons for wrong-patient incidents could be identified, including nurse-related factors (for example tiredness, a lack of skills or negligence), as well as system-related factors (for example rushing or heavy workloads). In 77% (n = 79) of wrong-patient incident reports, the process of identifying the patient was not described at all. (Figure 1)

### Types of wrong-patient incidents

- Drugs were administered to neighboring patients or other patients in the same room (n=12)
- Drugs were delivered to the wrong patient's table or tray (n=5)
- Nurse took the wrong patient's drugs from the medication tray or basket (n=9)
- Patient's bed was changed (n=5)
- Drug label was misspelled (n=4)
- Medication information was misread (n=5)
- Flow of information among health professionals failed (n=4)
- Patients were similar or were mistaken for one other (n=17)
- Patient took another patient's drugs (n=4)

### Identification

- Immediately during or just after medication administration (n=11)
- During documentation, verification of the drugs or the reporting of patient information (n=5)
- Other health care professional noticed the incident (n=8)
- Noticed afterwards (n=4)
- Patient or relative noticed (n=12)

### Contributing factors

- **UNSAFE ACTS AND OMISSIONS:**
  - Nurse was tired (n=9)
  - Nurse was negligent or made mistake (n=6)
  - Lack of skills (n=3)
- **ERROR PROVOKING CONDITIONS:**
  - Rushing or heavy workload (n=25)
  - Patients' high care intensity (n=9)
  - Division of the work (n=7)
  - Night shift (n=11)
  - Patients' characteristics or symptoms (n=9)
  - Changes to the patient's place or bed (n=4)
  - Medications were difficult to identify (n=2)
  - Inadequate marking of drug information (n=9)
  - Inadequate verification or identification (n=5)
  - Communication failed (n=5)

Figure 1. Factors related to wrong-patient incidents

## Conclusion:

There is a need to be cognizant of and increase training in correct identification processes to prevent wrong-patient incidents. Active patient identification procedures, double-checking and verification at each stage of the medication process should be implemented. Greater attention should also be paid to organizational factors, such as division of work, rushing and workload, in addition to effective communication. The active participation of nurses in handling incidents could increase risk awareness and facilitate useful protection actions.

**MASI**

More information:

[marja.harkanen@uef.fi](mailto:marja.harkanen@uef.fi)

[www.uef.fi/masi](http://www.uef.fi/masi)

[www.facebook.com/masiprojektii/](https://www.facebook.com/masiprojektii/)

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## Involvement of the bereaved in the supervisory investigation of unexpected deaths – A development project

Einar Hannisdal<sup>1</sup>, Jan Petter Odden<sup>1</sup> and Siri Wiig<sup>2</sup>

<sup>1</sup> County Governor of Oslo and Akershus,

<sup>2</sup> University of Stavanger

Over the last few years, the supervisory investigations of severe adverse events in Norway such as unexpected deaths have been criticized by the bereaved. Several deaths have been high-profile cases in the national media. The County Governor of Oslo and Akershus oversees healthcare services in two Norwegian counties with around 1.2 million inhabitants. Annually, up to 120 unexpected deaths in healthcare are referred to this office for further investigations. As a response to the demands for stronger user involvements in the supervisory follow up of such deaths, the Norwegian Board of Health Supervision funded a development project over two years (2017-2018) at the office of the County Governor of Oslo and Akershus. We designed a new user involvement method whereby bereaved relatives who had experienced the loss of a close family member in an adverse event were given an opportunity to participate in a two-hour face-to-face meeting with the inspectors. The meeting takes place as part of the supervisory investigation, in order to shed light on the adverse event from the bereaved's perspective.

### Objectives:

The development project explores the following:

1. Can a single meeting with the bereaved illuminate the events more broadly and provide additional information to the present written investigations?
2. Does such new information from the bereaved change the further handling of the investigations?
3. What positive and negative effects may such meetings result in for the bereaved?
4. What positive and negative effects may such meetings result in for the inspectors?
5. Which changes in the workflow must be implemented for these meetings?
6. Do such meetings change the total workload and time spent for the inspectors in these cases?
7. What types of unexpected deaths are most relevant and suitable for such involvements of the bereaved?
8. Has the death resulted in crises and subsequent needs for healthcare services for the bereaved?

### Methods:

This ongoing project aims to include 50 deaths and began in spring 2017. The core project staff at the County Governor's office was one project manager (medical doctor) and five inspectors (lawyers). A project protocol with criteria for inclusion and exclusion was set up and communicated in the County Governor's office. The main inclusion criterion was that the bereaved had observations during the last days or hours prior to the death. Deaths with an obvious cause were excluded. All new cases of death were consecutively reported to the project manager who replied with a recommendation of inclusions or not. Immediately after the meetings with the bereaved, the inspectors filled out an evaluation scheme related to the meeting including new information obtained. The bereaved received two questionnaires: one evaluating the meeting and one evaluating the appeal process when the case was closed and concluded. External researchers were engaged to evaluate how the next of kin and the supervisory inspectors experienced the meeting and how the new involvement method contributed to new information to the supervisory investigation.

### Results:

As of March 2018, 40 deaths in total have been included in the project and 22 meetings have been conducted. In most cases, the meetings give new information which changed the future handling of the investigations. The bereaved have primarily positive experiences of the meetings and no major negative effects have been observed so far. Several adjustments of the workflow are, however, needed.

### Conclusion:

A two-hour meeting with the bereaved gives new and valuable information. Many of the families are in a deep state of crisis after the death, but the meetings seem to alleviate some of their worries and self-incrimination



# Drug changes create potential failure modes in the drug dispensing process

Clemmensen M.H.<sup>1</sup>, Hansen E. K.<sup>1</sup>, Christrup L.L.<sup>2</sup>, Dieckmann P.<sup>3</sup>

<sup>1</sup>The Capital Region of Denmark, Hospital Pharmacy, Medicines Information Centre, Copenhagen, Denmark  
<sup>2</sup>University of Copenhagen, Department of Drug Design and Pharmacology, Copenhagen, Denmark  
<sup>3</sup>CAMES - Copenhagen Academy for Medical Education and Simulation, Copenhagen, Denmark

marianne.hald.clemmensen@regionh.dk

REGION

## CONCLUSION

- 56 potential failure modes (errors) were identified in the dispensing process of which 15 could be related to drug changes
- Risk evaluation revealed "Stress" and "Calculation error" as the causes assessed with highest hazard scores

The present results emphasize that drug changes do challenge the patient safety of the medication process. Further studies are therefore needed to elucidate how to overcome these challenges.

## INTRODUCTION

Drug changes is a common challenge at Danish hospitals. A drug change may result in e.g., change of names, colors, shapes, devices, strengths of the drug or drug formulation. Drug changes may potentially lead to errors (failure modes) that can have serious patient safety consequences such as delayed or omitted drug treatment, wrong dose or wrong drug administered/dispensed. A more detailed understanding of the challenges associated with drug changes is a crucial step in improving safety of the medication process.

## AN EXAMPLE – ISOPRENALINE 5 MG/ML (5 ML) IS CHANGED TO ISOPRENALINE 0,2 MG/ML (1 ML)

Potential failure modes: risk of calculation error, wrong drug concentration, wrong solvent.



## AIM

The aim of the current study was to describe the dispensing process in detail and identify potential failure modes related to drug changes using Health Care Failure Mode and Effect Analysis (HFMEA).

## METHOD

A detailed description of the medication process was obtained through structured observation of the dispensing process at two wards. Observations were followed by a semi-structured interview of the persons observed in order to validate the observations.

The methodology from HFMEA was used to identify potential failure modes and potential failure causes in the drug dispensing process. The failure modes were identified by nurses, medical doctors (MD) and pharmacy personnel through a focus group workshop or face-to-face interviews. Failure modes and causes that could be related to drug changes were identified. Subsequently, HFMEA participants performed a risk evaluation of the failure mode causes related to drug changes. Risks (hazard score) were scored on a 16 point scale.

## RESULTS

- 23 healthcare professionals were observed performing drug dispensing. In total, drugs dispensed for 197 patients were observed.
- One nurse, one MD and one pharmacy technician (PT) participated in a HFMEA workshop. Two nurses, one MD and one PT participated in interviews.
- 56 potential failure modes (errors) were identified in the dispensing process of which 15 could be related to drug changes.
- "Stress" and "calculation error" were identified as causes with the highest hazard score (Score 11,0-12,3 on a 16-point scale).

### DISPENSING PROCESS AND POTENTIAL FAILURE MODES RELATED TO DRUG CHANGES



### POTENTIAL FAILURE MODE CAUSES WITH A HAZARD SCORE HIGHER THAN 8

<b>3A</b> <ul style="list-style-type: none"> <li>• Stress</li> <li>• Look-a-like</li> <li>• Sound-a-like</li> <li>• Lack of attention</li> <li>• Habit</li> <li>• Lack of drug control</li> </ul>	<b>3B</b> <ul style="list-style-type: none"> <li>• Misunderstand prescription</li> <li>• Drug formulation not clear in prescription</li> <li>• Lack of drug control</li> </ul>	<b>3C</b> <ul style="list-style-type: none"> <li>• Drug has been changed to new strength</li> </ul>	<b>3D</b> <ul style="list-style-type: none"> <li>• Patient own drug is not in medication-room</li> </ul>	<b>4A</b> <ul style="list-style-type: none"> <li>• System does not accept generic substitution</li> <li>• System does not accept change in drug formulation</li> <li>• System does not accept change in drug strength</li> </ul>	<b>4B</b> <ul style="list-style-type: none"> <li>• No barcode on primary packaging</li> <li>• System does not recognize barcode</li> </ul>	<b>5A</b> <ul style="list-style-type: none"> <li>• Difficulties doing right calculation</li> <li>• MD prescribes not knowing that it needs further calculation</li> </ul>	<b>5B</b> <ul style="list-style-type: none"> <li>• Lack of knowledge about new drug</li> <li>• Stress</li> <li>• Lack of focus</li> <li>• Not checking how to handle new drug</li> </ul>	<b>5C</b> <ul style="list-style-type: none"> <li>• Stress</li> <li>• Habit of not putting drug correctly back</li> </ul>
<b>6A</b> <ul style="list-style-type: none"> <li>• Calculation error</li> <li>• Unfamiliar with new drug</li> </ul>	<b>6B</b> <ul style="list-style-type: none"> <li>• Look-a-like</li> <li>• Lack of information about solvent for new drug</li> </ul>	<b>6C</b> <ul style="list-style-type: none"> <li>• NA</li> </ul>	<b>6D</b> <ul style="list-style-type: none"> <li>• New drug needs to be dissolved before dilution</li> </ul>	<b>6E</b> <ul style="list-style-type: none"> <li>• Unfamiliar with new drug</li> </ul>	<b>6F</b> <ul style="list-style-type: none"> <li>• NA</li> </ul>			





Katrine Prisak Jakobsen, Lene von Bülow, Jeanette Hounsgaard, Lars Morsø

# HOW TO ENLIGHTEN BLIND SPOTS OF DAILY WORKFLOW

## ...IN ORDER TO IMPROVE CROSS-SECTORIAL REFERRAL TO COPD REHABILITATION

### INTRODUCTION

Recent studies identify several barriers for rehabilitation of patients with chronic obstructive pulmonary disease (COPD). These include barriers for referral of patients across healthcare settings. However, literature do not describe how to identify which factors exactly to address to create successful solutions.

### OBJECTIVE

We used a qualitative approach to identify which barriers to address for the improvement of cross-sectorial referral to COPD rehabilitation.

### METHODS

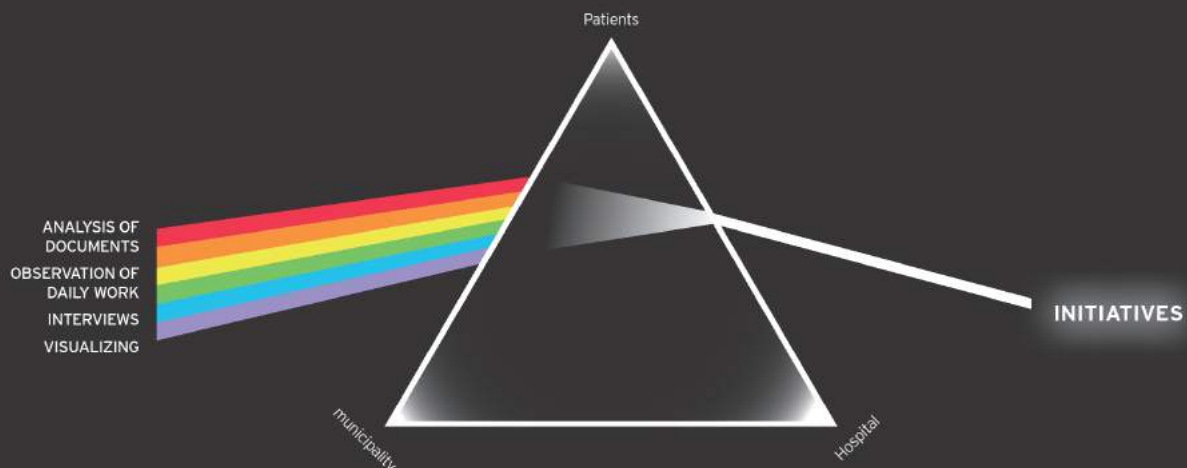
**ANALYSIS OF DOCUMENTS:** Cooperation agreement between Region of Southern Denmark and municipalities. Guidelines for rehabilitation.

**OBSERVATION OF DAILY WORK:** During daytime at the medical acute care unit, unit for pulmonary diseases and outpatient clinic.

**INTERVIEWS:** 15 semi-structured interviews and one focus group interview with relevant healthcare professionals from hospital and municipality. Three patients, one patient from the acute care unit and two patients from the specialized unit.

**VISUALIZING:** The Functional Resonance Analysis Method (FRAM) and the FRAM Visualizer was used to describe how work actually is done, and visualizes interdependencies and interactions graphically.

All data from the three data sources was thematized during the patient's pathway to qualify work functions and their interdependencies



### RESULTS

The perception of rehabilitation differed across hospital and municipality. The two settings use different terminology when referring to rehabilitation. In the municipality, rehabilitation was interpreted much broader, and terms of physical functioning and diagnosis differed. Referrals to municipal rehabilitation were mostly useless due to standard phrases used by the hospital that did not provide the municipality with sufficient information.

Results showed a lack of knowledge towards daily tasks of the opposite part, e.g. minimal secondary care knowledge on municipal visitation and rehabilitation programs and primary care lacking knowledge on hospital organization. Only few patients referred from hospital to rehabilitation actually was enrolled in a program through the intended referral pathway.

### INITIATIVES

**WORKSHOP:** Results from the analysis made the steering group of the project chose to conduct a one-day workshop addressing topics from the qualitative mapping process. This in order to plan concrete interventions to overcome the identified barriers of relevance. For the one-day workshop, the topics of focus were; mutual languish, knowledge/relations, transparency of referral pathways and patient motivation. Centre for Quality facilitated the one-day workshop. Staff members from the municipality, the hospital and patient-representative participated in the one-day workshop.

**FUTURE FOCUS AREAS:** The workshop resulted in development and implementation of cross-sectorial and local networks to focus on sharing knowledge and develop relations.

### DISCUSSION

A FRAM visualization is based on collected qualitative data. In this study, three independent investigators interviewed and observed the clinicians regarding their daily work. Though using predefined interview- and observation guides data collection might have differed. The FRAM visualization thematize data in certain functions to reflect how work is done. This approach seems useful to describe workflow and can be applied more broadly, but challenges remain on how to use the model uniform and reliable. In this study, other qualitative analysis approaches might have been equally appropriate to reach results used to facilitate involvement and ownerships from all relevant stakeholders.

# The InvolveMENT research project

## Facilitators & barriers to adolescents' use of mental health services in Norway

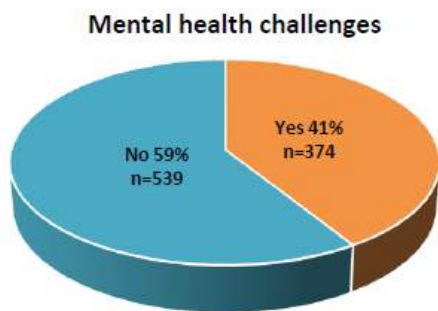
Model based on a questionnaire survey with 913 adolescents in 5 municipalities

- FACILITATORS**
- SHARED DECISION-MAKING
  - SATISFIED WITH OWN PARTICIPATION
  - AGREED TREATMENT PLAN
  - SATISFIED WITH TREATMENT PLAN
  - USEFUL TREATMENT PLAN
  - THERAPIST AVAILABLE
  - THERAPIST UNDERSTANDABLE
  - SUFFICIENT TIME/INFORMATION
  - SATISFACTION WITH HEALTHCARE
  - NUMBER/DURATION OF COMPLAINTS
  - SOCIAL SUPPORT



Facilitators & barriers associated with whether used health service, experienced receiving help & continued services or not (most at  $p \leq 0.001$ )

Outcome measures developed with the help of adolescent co-researchers and based on:  
 GS-PEQ: The Generic Short Patient Experiences Questionnaire  
 EQUIP: Evaluating and Quantifying User and Carer Involvement in Mental Health Care Planning  
 HSQ: Health Services Questionnaire, Norwegian Institute of Public Health



Response rate 78% (n=913 of 1168) Girls 50% Boys 50%	
<b>Out of 374 with mental health challenges:</b>	Age (years):
6 of 10 had a higher number (5-15) of challenges	16: 6%
Used healthcare practitioner: 47% (n=177)	17: 81%
Discontinued treatment: 38% (n=67)	18: 8%
	19-26: 4%

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# Liaison somatic

- from project to operational stage



Hanne Hartmann, RN, Assistant Head of Clinic for Internal Medicine, Aalborg University, Denmark.  
Diploma in Leadership, Master in Learning Processes Specializing in Leadership and Organizational Psychology.

## Background

It has been demonstrated that people with a mental disorder have an increased somatic mortality. In average psychiatric patients die 15 – 20 years earlier than the general population - an excess mortality rate, which is largely due to somatic disorders, especially chronic diseases such as diabetes, chronic obstructive pulmonary disease, cardio vascular diseases and other lifestyle related diseases.

## Method

The idea came from a "New Aalborg University Hospital" fellow project with medical anchorage in psychiatry and support from The Danish Patient Safety Authority. Previous psychiatric patients were involved via Peerboard and asked to submit their proposals regarding content and form of a possible future interaction between the psychiatric and the somatic areas.

At an information meeting with exchange of ideas and dialogue between the department chairmen and the units senior nurses, the somatic area was subsequently involved in order to establish a meaningful collaboration.

The framework of leadership was creating shared direction, alignment and commitment (DAC). With

## Aim

The aim of the project has been to establish a strong health cooperation between two sectors – the psychiatric sector and the somatic sector, so that somatic symptoms in psychiatric hospitalized patients also could have enhanced attention, be examined, diagnosed and - to a certain extent - treated in collaboration with the patient.

clinicians and directors as major drivers from the psychiatric and somatic areas, a Steering Committee was established to prepare an overall plan, a timeframe and a "playbook" for the collaboration. The "PDSA circle: Plan – Do – Study - Act" formed the basis for the mode of operation.

Several cooperation meetings were arranged before start-up, multiple tests were conducted from March to April 2017, and subsequently evaluation and adjustment meetings were held.

The financial and cooperation agreements were successfully completed in August 2017.

## Results

The project became operational by September 2017 and four medical specialities / teams from the somatic area were represented – each team consisting of a physician and a nurse. Departments of Endocrinology, Infectious Diseases, Nephrology and Pulmonary Diseases worked alternately in close collaboration with the psychiatric teams every Tuesday throughout the year.

About 330 psychiatric patients referred from psychiatry are now attended to, examined and somatically treated with very good results.

The collaboration is currently being developed – professionally and culturally, and the psychiatric patients have welcomed the somatic involvement within psychiatry.

# MEDICATION EVENTS IN IMMUNOCOMPROMISED PEDIATRIC PATIENTS



Laine Niina, 1,2, Laine Riikka\* 1, Santamäki Anna, 1, Taskinen Mervi 1, Stenvall Merja 1, Jahnukainen Timo 1 and Kivivuori Sanna-Maria

1. Department of Children and Adolescents, HUS Helsinki University Hospital and University of Helsinki, Stenbäckinkatu 11, Helsinki, POB 281, 00029 HUS, Finland  
 2. Department of Pharmacology and Pharmacotherapy, Faculty of Pharmacy, University of Helsinki, Viikinkaari 9, 00014 Helsinki, Finland

**Background**  
 The aim of the study was to evaluate the medication events concerning chemotherapy and immunosuppressive medication reported from the Pediatric Oncology and Hematopoietic Stem Cell Transplantation (HEM-ONC) and Solid Organ Transplantation (PEDTX) units in tertiary children's hospital.

**Materials and methods**  
 This study was conducted at Department of Children and Adolescents, HUS Helsinki University Hospital, which is a 130 bed tertiary hospital in Finland serving a population of 1.6 million. All pediatric solid organ transplantations and pediatric allogeneic hematopoietic stem cell transplantations in Finland are performed at our institution. Voluntary web-based events reporting system HaiPro has been in use since 2009. Since then, more than 2000 medication events have been reported by health care professionals of the Department of Children and Adolescents.

**Results**  
 Between June 2009 and December 2014, 409 medication events were identified: 278 in HEM-ONC and 131 in PEDTX. Inpatient days of these were 4751 and 1612 days in 2017 respectively. In HEM-ONC 69% (193/278) and PEDTX 66% (113/131) of the reported medication events reached the patient. No fatal events were reported.

Table 1. Drugs most often involved with errors

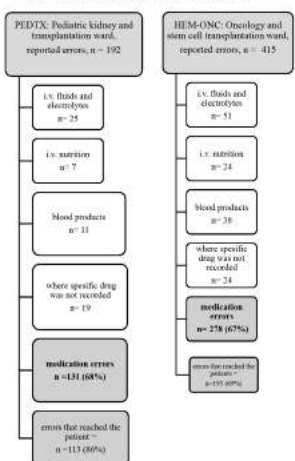
Drug / No. of errors in PEDTX (N=131)	Drug / No. of errors in HEM-ONC (N=278)
Cytosarabine, n (%)	18 (14)
Fluorouracil (with albumin A), n (%)	9 (7)
Azathioprine, n (%)	6 (5)
Methylprednisolone (5) + Prednisolone (1), n (%)	4 (3)
Stavelmas (1) + Tacrolimus (4), n (%)	5 (4)
Methotrexate, n (%)	15 (5)
Calcium heparinolate, n (%)	14 (5)
Mercaptopurine, n (%)	13 (5)
Hydrocortisone, n (%)	12 (5)
Morphine, n (%)	11 (4)

We analysed the types of medication errors (Fig 1). There were many different drugs related to the errors. Data was very scattered. Drugs most often involved with errors are shown in Table 1.

**Conclusions**  
 The main finding of our study was, that the clinically significant medication events were rare, only one event caused significant risk for the patient. The HEM-ONC and PEDTX wards have constantly developed and improved their medication safety culture based on the reported events. Both wards have an active attitude and have had emphasis on improvements of patient safety culture, which is currently at a good level. However, there are still efforts to be made to further promote the safe use of drugs, and medication safety culture at our hospital. (e.g. to increase the proportion of reported near-misses out of all reported events).



Figure 1 Medication errors included to the study, N=409





SAFE-LEAD

## Quality and Safety in Primary Care

Managers in nursing homes and home care services lack effective tools for quality and safety improvement work.

SAFE-LEAD will address this need!

### Objectives

- ❖ Develop and evaluate a research-based leadership guide for managers in primary care
- ❖ Increase leadership competence in quality and safety
- ❖ Explore the implications of the leadership guide on managers' and staffs' knowledge, attitudes, and practices
- ❖ Develop theory to guide implementation of future leadership interventions



### Methods

- ❖ Four nursing homes and four home care services from 4-8 municipalities are included
- ❖ Survey, interviews, and observations are used to evaluate the leadership guide
- ❖ Comparative study of Norway and the Netherlands



SAFE-LEAD will increase primary care managers' quality and safety competence

**SHARE** Center for Resilience in Healthcare  
University of Stavanger



University of Stavanger



Centre for Development of Institutional and Home Care Services



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Norwegian Directorate of Health



CITY OF STAVANGER



SONGDALEN  
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The Research Council of Norway



Førde kommune



# Stretching the boundaries of safe medication administration in nursing homes: A qualitative study of the nurse role

Authors: K. Odberg, B.S Hansen, S. Wangensteen

## Introduction

Safe medication administration is a top priority in efforts to enhance patient safety across settings. Medication administration is a complex process dependent on local settings and inherent variations in the work system. The nurse has a central role in improving and maintaining medication safety. A resilience engineering perspective is prospective and focuses on what goes right, rather than what goes wrong.

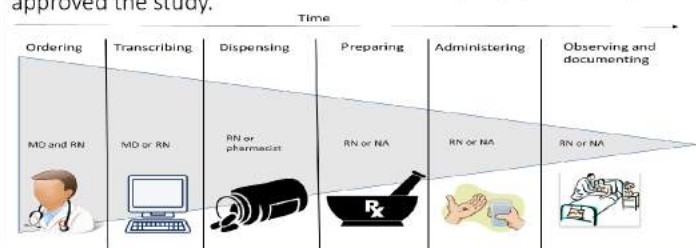
## Objective

To expand the knowledge of the nurse role during medication administration in nursing homes.

## Methods

A qualitative mixed study design was applied. 140 hours of partly participant observations in two nursing homes in 2016, supplemented with semi-structured interviews with nurses, nurse assistants and doctors. Data collection centred on the six stages of the medication administration process; prescribing, transcribing, dispensing, preparing, administering, and documenting. A qualitative inductive content analysis was performed.

The Norwegian Social Science Data Service (NSD) (No. 45389) approved the study.

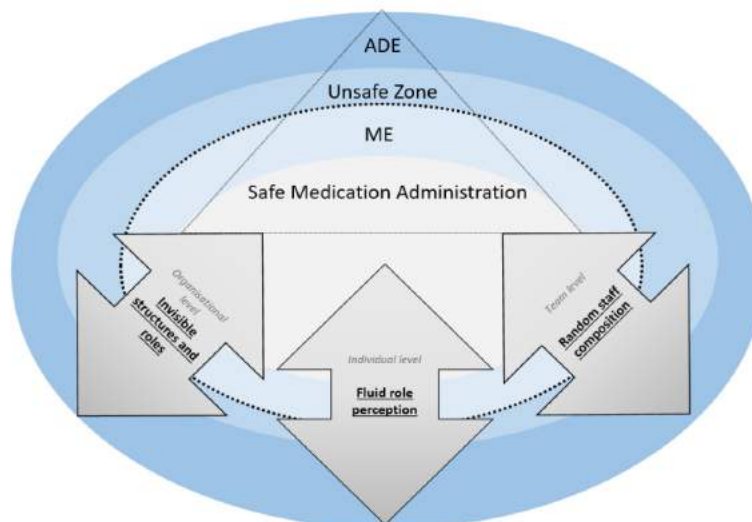


**Results** indicate that three central themes describe the nurse role during medication administration:

Invisible structures and rules are guiding how and where the staff performs medication-related tasks.

Fluid role perception and random task delegation. Competencies in the surrounding colleagues determine what role the nurses undertake.

Random staff composition There are hidden barriers to performance variability that inhibits the staff's ability to meet the demands of the inherent system complexity.



## Conclusion

The nurse role is flexible and adapts according to circumstances. Lack of leadership and fluid role perception may manifest as random staff composition and competence on the different shifts. This may lead to vulnerable conditions and situations with a potential risk for medication administration errors and adverse drug events. The staff seem to lack a definition of whether they operate within the boundaries of safe medication administration.

NTNU (Norwegian University of Science and Technology) --- U (University of Stavanger)

Contact K. Odberg: Kristian.odberg2@ntnu.no

## Professionals and organizational innovation in elderly care: Implementation of municipal care pathways

(Submission #59)

Kathrine Carstensen<sup>1</sup>, Hanne Marlene Dahl<sup>2</sup>, Elin Kallestrup<sup>3</sup>, Mette Svendsen<sup>3</sup>, Marianne Kirkegaard Birkmose<sup>1</sup> and Viola Burau<sup>1</sup>

<sup>1</sup>DEFACTUM – Public health and health services research, Central Denmark Region, Denmark

<sup>2</sup>Roskilde University, Department of Society and Globalization, Denmark

<sup>3</sup>The Department for Health and Care, Aarhus Municipality, Denmark

Correspondence to [katcar@rm.dk](mailto:katcar@rm.dk)

### Introduction

Internationally, there is growing agreement on the need for greater inter-professional coordination in elderly care. Inter-professional coordination is thus central to policy reforms concerned with improving the quality of care based on the needs of the elderly.

In response, the municipality of Aarhus in Denmark is currently implementing a care pathway for the inter-professional coordination of elderly care. The main aim is to meet the individual needs of the elderly based on individually planned and highly coordinated care.

There is a substantial body of research on the implementation and experiences of inter-professional coordination in elderly care. However, research is lacking on what professionals and managers actually do when practicing it. Existing research also primarily emphasizes professions as barriers to inter-professional coordination. Little is known about the positive role that professions can play in supporting the implementation and sustainment of inter-professional coordination.

### Objectives

To investigate how professions in the municipality of Aarhus contribute to implementing and sustaining the new care pathway for inter-professional coordination in elderly care.

### Methods

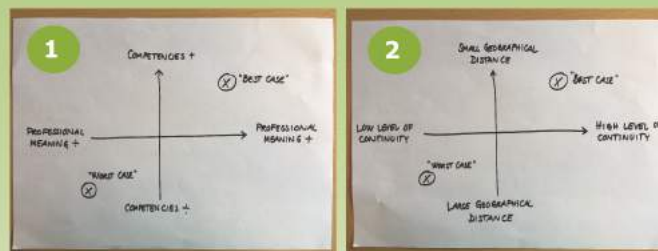
Qualitative case study, drawing on qualitative interviews and observations collected across different organizational units in the Municipality of Aarhus.

- Qualitative interviews include six focus group interviews with professional groups (nurses, physiotherapists, occupational therapists, social and health care assistants and social and health care workers); and eight individual interviews with managers at different levels and from different organizational units.
- Observations comprise following the ordinary working day of different professional groups (eight full days) and participating in eight formalized care coordination meetings.

### Results

Data were collected in March to May 2018 and is currently analyzed using a thematic approach. Preliminary results show:

1. Professions' contribution to inter-professional coordination depends on the professions experiencing to have the adequate competencies and experiencing the care pathway and coordination tasks professionally meaningful. There seem to be variation between different professions in the degree to which this is the case. Having adequate competencies depends on e.g. the possibility for professional feedback and management support. Professional meaningfulness depends on how the new tasks embedded in the new care pathway is experienced, e.g. documentation, coordination tasks and new areas of responsibility.
2. Inter-professional coordination depends on the relations between involved professions. The organizational context of the professions provides different conditions for establishing such relations. Small geographical distance and high level of continuity among the appointed professionals in a care pathway seem facilitating for establishment of relations while the opposite seem to be a barrier.



### Conclusion

From a research perspective, the results of the study will contribute with important knowledge on the concrete practice of inter-professional coordination and insights on the positive capacity of professions and managers to contribute to implementing organizational change concerned with inter-professional collaboration.

From a practice perspective, the results of the study will contribute with important knowledge on the successful implementation and sustainment of similar municipal care pathways for inter-professional coordination.



# Trends, disparities and geographical variation in outpatient antibiotic consumption – A population-based study

Pia Kjær Kristensen<sup>1,2</sup>, Søren Paaske Johansen<sup>1,3</sup>,  
Reimar Wernich Thomsen<sup>1</sup>

<sup>1</sup> Department of Clinical Epidemiology, Aarhus University Hospital, Denmark  
<sup>2</sup> Department of Orthopaedic Surgery, Horsens Regional Hospital, Denmark  
<sup>3</sup> Danish Center for Clinical Health Services Research, Department of Clinical Medicine, Aalborg University, Denmark

## Background

- Antimicrobial overuse and misuse of broad-spectrum antibiotics increases the risk of antimicrobial resistance.
- Investigating unwarranted variation in antibiotic prescription has therefore gained global priority.

## Methods

- Complete individual-level data on all redeemed out-of-hospital prescriptions for antibiotics in the entire adult population of Central Denmark (1.3 million inhabitants) during 2006–2015.
- Narrow spectrum antibiotics were defined as beta-lactamase sensitive penicillins (ATC-group J01CE), beta-lactamase resistant penicillins (J01CF), first-generation cephalosporins (J01DB) and macrolides (J01FA01).
- Broad-spectrum antibiotics included combinations of penicillins including beta-lactamase inhibitors (J01CR), penicillins with extended spectrum (J01CA), second-generation cephalosporins (J01DC), third-generation cephalosporins (J01DD), macrolides, lincosamides and streptogramins (J01F).
- Annual prescription rate of antibiotics was calculated as the number of inhabitants who filled at least one antibiotic prescription divided by the total cumulated person time in the observation year.

## Aim

- To examine trends in overall antibiotic use in the Central Denmark Region between 2006–2015.
- To examine time trends in the utilization of narrow- and broad-spectrum antibiotics as well as the variation in antibiotic use by sex, age, and municipality of residence.

## Results

- Following an initial increase of 2% between 2006 and 2011, the overall rate of redeemed prescriptions for antibiotics per 1,000 person years declined by 17% between 2011 and 2015, with a clear decrease among both sexes (FIGURE 1).
- The decrease since 2011 was mainly due to a decrease in narrow-spectrum antibiotic use (FIGURE 2). In 2015, broad-spectrum antibiotics in Denmark, mainly related to increased use of combination penicillins with beta-lactamase inhibitors.
- A continuous increasing trend in broad-spectrum antibiotic use was observed among females aged  $\geq 65$  years and males aged  $\geq 85$  years (FIGURE 3). Overall antibiotic use increased with age and was clearly higher in women than men.
- A clear decline over time in overall antibiotic use was found in all municipalities with decreasing geographical variation (FIGURE 4). However, striking differences with two- to four-fold variation in the use of tetracycline, macrolides, and fluoroquinolones remained in 2015.

FIGURE 1. Prescribing rates of antibiotics per 1,000 person-years 2006 to 2015, overall (green) and stratified by sex (red = female; blue = male)

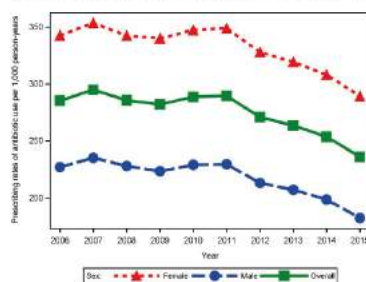


FIGURE 2. Prescribing rates of broad- and narrow-spectrum antibiotics per 1,000 person-years 2006 to 2015

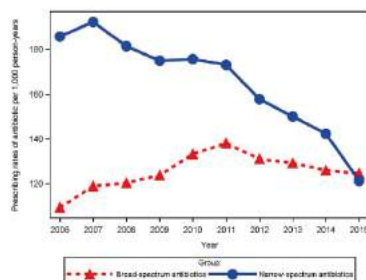


FIGURE 3. Prescribing rates of broad- and narrow-spectrum antibiotics per 1,000 person-years by sex and age group

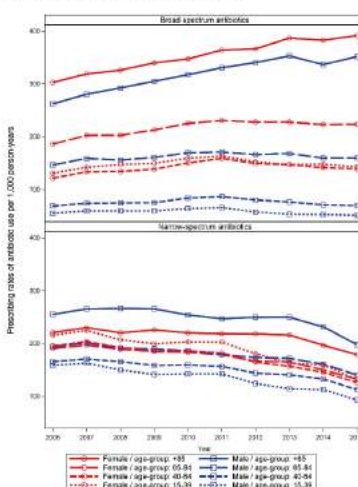
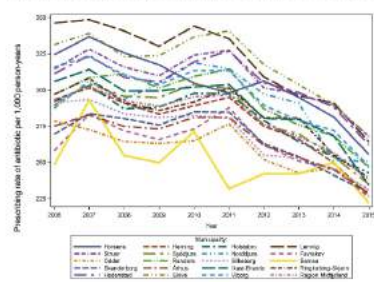


FIGURE 4. Age and sex standardized prescribing rate of antibiotics per 1,000 person-years by municipalities in Central Denmark Region



## CONCLUSION

Antibiotic use has decreased by 17% in Central Denmark after 2011. However, substantial geographical variation in antibiotic prescription remains and the use of broad-spectrum antibiotics has increased in adults of older age. There seems to be a continuous need for a more consistent and appropriate clinical practice and sustained attention in relation to the use of broad spectrum antibiotics, especially in adults of older age.

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# Assessment of inter-rater consistency in classification of adverse events

The national reporting and learning system for serious adverse events in specialized health care

Ylva Helland PhD, Eli Saastad PhD, Øystein Flesland MD/PhD. The National reporting and learning Unit, The Norwegian Directorate of Health

## INTRODUCTION

In Norway, all serious adverse events in specialized care health institutions are to be reported to the national reporting and learning system (RLS). All patient safety reports are manually screened and classified. Classification facilitates analysis on an aggregated level with the overall goal of learning. Consistent use of the classification system across case handlers is therefore essential in order to enhance data quality. There have been indications of low inter-rater consistency, but this has not previously been assessed.

## OBJECTIVE

The aim was to assess the degree of consistency in classification across case handlers.

## METHODS

19 case handlers independently classified 41 adverse events case reports. The case reports were taken from a previous study, representing a range of incident types (1). The classification system is a modified version of the WHO's International Classification for Patient Safety. The category *incident type* has three levels: main categories (level 1) and subcategories on two levels (level 2 and 3). However, three out of the nine main categories only have levels 1 and 2. It is mandatory to classify on the lowest subcategory level available. Inter-rater consistency was analyzed by distributions of categories and subcategories by case handlers. Classification were assessed on each category level with a stepwise aggregation of results on the higher levels.

## RESULTS

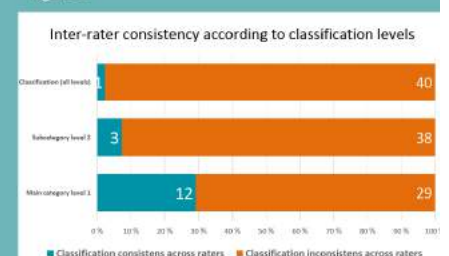
Classification of *incident type* showed low degree of consistency across case handlers on the subcategory levels. However, inter-rater consistency in classification increased on the higher category levels (Table 1). On subcategory level 2 classification was consistent across raters in three out of 41 case reports. On the main category level (level 1) inter-rater consistency increased to 12 out of 41 case reports. Only one case report had total agreement among all case handlers independent of category level (Figure 1).

There was no clear pattern between case reports with low and high inter-rater consistency in terms of number of words in case descriptions, and category characteristics (general, specific, broad).

Table 1

Consistency across case handlers	Classification (all levels)	Subcategory level 2	Main category level 1
Minimum categories pr case report (n)	1	1	1
Maximum categories pr case report (n)	10	7	4
Median categories pr case report (n)	5	4	2
Number of case handlers n=19 Number of adverse events n=41			

Figure 1



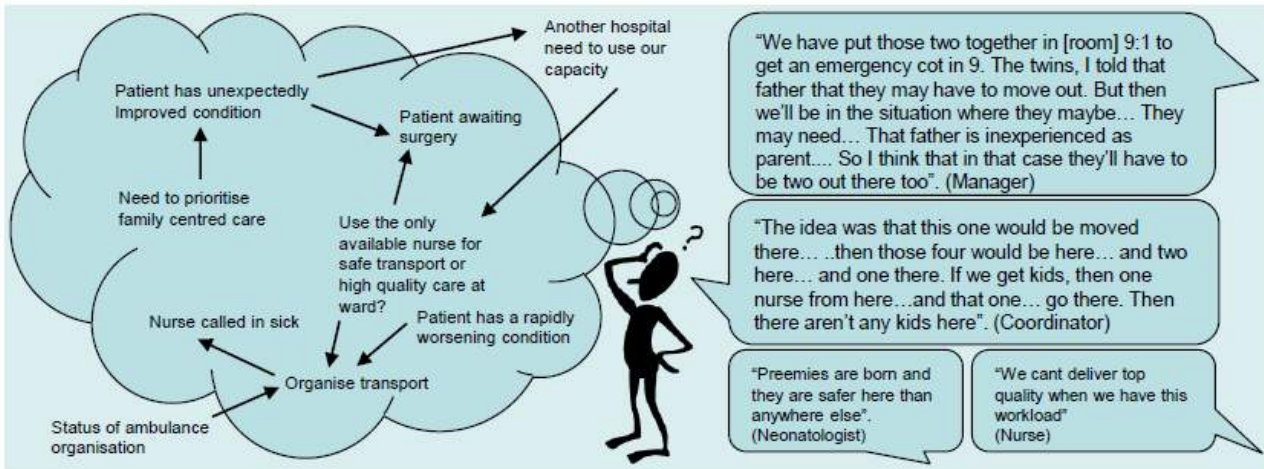
## CONCLUSIONS

Accuracy in classification and consistency across case handlers was low. However, inter-rater consistency increased for each increasing level of the classification categories. Investigations of the reasons for the limited accuracy in classification across case handlers is warranted.

Reference: Mårtensson K, Thorensson L, Andersson AB. Validation of Swedish adverse of the World Health Organization's International Classification for Patient Safety classification of patient safety incident types. *BMC Qual Health Care* 2012;20:110-140

# How safe care practices are managed in a neonatal intensive care unit – an explorative observational study of clinical coordinators at work

Karl Hybinette, Karin Pukk Härenstam, Erik Hollnagel, Mirjam Ekstedt



## Introduction

The Neonatal Intensive Care Unit represent a highly complex and risky work environment where critically ill babies constantly challenge safe care practises. In a complex adaptive system (CAS) such as this it is impossible to overview the consequences of every decision. Control is distributed over the whole system through a number of people representing varying functions. How this social structure inside the CAS translates in to managing work is not clearly mapped. A mapping that is important for future policy making.

## Aim

To explore and describe how a clinical coordinator successfully balances the rapidly shifting demands of everyday clinical work within the organisational frames of a NICU to facilitate safe care practices.

## Result and Conclusions

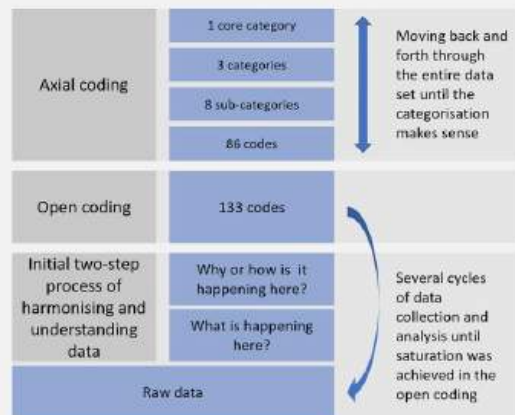
Keeping it all together, influencing problem-solving processes, and managing limitations of the physical environment are key elements in the joint cognitive system involved in coordination of patient care.

Sustained control of the highly complex work system requires the coordinator to move beyond rules and tailored responses; to find novel solutions. Ample preparation and support is needed. The nature of support is difficult to specify and therefore supply.



## Method

Explorative study of a NICU in a Swedish tertiary care hospital using observational methodology. Clinical coordinators were shadowed through full work shifts for a total of 50 hours. A constructivist grounded theory approach was applied for the analysis.



Schematic overview of the analysis process with the raw data at the base and different phases and steps of coding going upwards. Keeping it all together, influencing problem-solving processes, and managing limitations of the physical environment are the three categories presented in the main results.

Karolinska Institutet  
Karl Hybinette  
RN MsC PhD Student • MMC/LIME  
Tomtebodavägen 18 A • 171 77 STOCKHOLM





# MONITORING AND ASSESSING THE QUALITY OF CARDIAC REHABILITATION

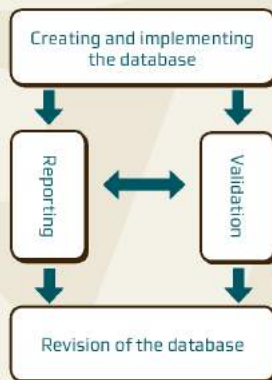
A cooperation between the municipalities in Central Denmark Region and DEFACTUM

## Objectives

How can phase 2 non-pharmacological cardiac rehabilitation be monitored in Danish municipalities?

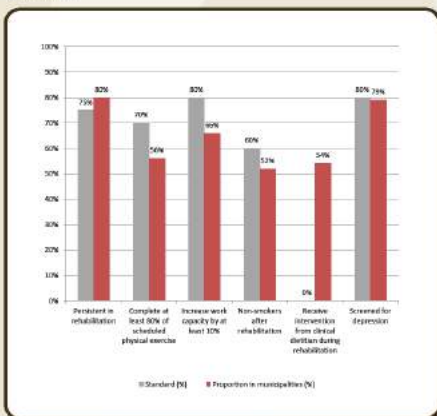
And how can the quality of the rehabilitation and validity of the data be assessed and improved?

## The development process



## Results

Figure 1: Overall results from the six indicators with matching standards for all participating municipalities for 2017. Results are shown in percentage (N=1,710 patients).



## Conclusion

HjerteKomMidt is a newly started database created to monitor municipal cardiac rehabilitation. The 18 municipalities are committed to register clinical data in the database.

The municipalities act on the results of the six indicators in order to meet the standards.

The database has great potential for quality improvement and for research.

Ongoing close cooperation among the main players, improve the validity of the data.

## Introduction

Treating patients across health care sectors is a high-risk area. At the same time, the incidence of cardiovascular disease is increasing. In order to ensure focus on these crucial parts of the health care system, disease management programs have been developed.

In the Central Denmark Region, the disease management program for cardiovascular disease was revised in 2015. The revision included moving the phase 2 non-pharmacological cardiac rehabilitation from a hospital setting to a municipal setting.

Consequently it was decided to monitor the quality of the cardiac rehabilitation in the municipalities. In order to meet the requirements of monitoring The Cardiac Rehabilitation Database (HjerteKomMidt) was created.

The municipalities started registering in the database on January 1, 2017.



## Methods

The quality of the cardiac rehabilitation is assessed by six indicators (figure 1).

The results are based on data from HjerteKomMidt for 18 municipalities in the Central Denmark Region.

The database registers patients with cardiovascular disease above the age of 18, who are referred to phase 2 non-pharmacological cardiac rehabilitation in a municipal setting in the Central Denmark Region.

Data was extracted on January 2, 2018, and includes 1,710 patients referred from hospitals to the municipalities from January 1, 2017, until December 31, 2017.

Hanne Søndergaard, Klaus Nordentoft Lemvig, Tina Vejle Andersen, Central Denmark Region, DEFACTUM

DEFACTUM is a part of Central Denmark Region. We do consultancy and research within the health sector, social services and labour market. Our goal is to create new knowledge and find new ways in order to create better lives.

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# The Influence of Nursing Home Resources on Hospital Readmissions

## Qualitative case study of nurses' and nursing home leaders' perspectives

Malin Knutsen Glette<sup>1,3</sup>, Olav Røise<sup>2,3,4</sup>, Tone Kringeland<sup>1</sup>, Jeffrey Braithwaite<sup>5</sup>, Kate Churruca<sup>5</sup>, Siri Wiig<sup>3</sup>

<sup>1</sup>Faculty of Health, Western Norway University of Applied Sciences, Haugesund, Norway, <sup>2</sup>Division of Orthopedic Surgery, Oslo University Hospital, Norway  
<sup>3</sup>Faculty of Health Sciences, SHARE – Centre for Resilience in Healthcare, University of Stavanger, Norway, <sup>4</sup>Institute of Clinical Medicine, University of Oslo, Norway  
<sup>5</sup>Centre for Healthcare Resilience and Implementation Science, Australian Institute of Health Innovation, Macquarie University, Australia

### Background

Hospital readmissions are challenging for healthcare services, signalling an increased prevalence of adverse events and reduced quality of care (Fernandes-Taylor et al., 2018).

### Research question and aim

The study aimed to examine to what extent resource situations, staffing levels and clinician competence in municipal healthcare services influence hospital readmissions, as perceived by nursing home nurses and leaders.

### Methods

The study was conducted as a comparative case study of two Norwegian municipalities. One short-term nursing home and one long-term nursing home in each municipality was included in the study. Data collection consisted of focus group interviews with nurses (n=4) and individual interviews with nursing home leaders (n=7)

### Results

The patients were described as becoming increasingly complex with a subsequent need for increased nurse competence. There was variation in competence and staffing between nursing homes but capacity building was an overall focus. Economic limitations and attempts at saving through cost-cutting were present, but not perceived as affecting patient care and the availability of medical equipment. Several factors such as nurse competence and staffing, physician coverage, and adequate communication were recognized as factors affecting hospital readmissions.



### Conclusion

Long-term nursing homes were perceived as shifting towards acute care or short-term care and short-term nursing homes were perceived as functioning as small hospitals. However, staffing, competence and physician coverage did not seem to have adjusted to the new patient group in all the included nursing homes. The municipalities were similar in their answers regarding the importance of the different factors affecting hospital readmissions

#### References:

Fernandes-Taylor S, Berg S, Gunter R, Bennett K, Smith MA, Rathouz PJ, Greenberg CC, Kent KC: **Thirty-day readmission and mortality among Medicare beneficiaries discharged to skilled nursing facilities after vascular surgery.** *The Journal of surgical research* 2018, **221**:196-203.  
 Picture: <https://www.healthcatalyst.com/healthcare-data-warehouse-hospital-readmissions-reduction>



## The use of Quality Improvement Collaboratives in the implementation of the New Danish Healthcare Quality Programme

(Submission #69)

Kathrine Carstensen<sup>1</sup>, Project manager, MSc  
Camilla Palmhøj Nielsen<sup>1</sup>, Research Director, MSc, PhD

<sup>1</sup>DEFACTUM – Public health and health services research, Central Denmark Region, Denmark

Correspondence to [katcar@rm.dk](mailto:katcar@rm.dk)

### Introduction

Internationally, quality improvement in healthcare has evolved into a major topic in both research and practice. An extensive increase in management-initiated and planned initiatives to quality improvement has been seen and different approaches to improving quality have been deployed. Quality improvement collaboratives (QICs) represent one important approach that has become widely applied over the past 15-20 years.

In 2015, the Danish government introduced a new Danish Healthcare Quality Programme (DHQP) to improve the quality of the Danish healthcare system. In accordance with the current global trend, the DHQP use QICs as an implementation approach.

Despite their widespread use, the actual effects of using QICs as implementation approach are under-studied and the results are mixed. Furthermore, little is known about the mechanisms and components behind such effects. To help answer such questions research is needed that to look into the 'black box' of the implementation process of QICs and the actual improvement work performed by healthcare professionals.

### Objectives

This PhD project will investigate how QICs function as an implementation approach to quality improvement driven by healthcare professionals, within the scope of DHQP. It will explore three related research questions:

1. What drive decision makers to choose QICs over other implementation approaches?
2. Under which circumstances do QICs function well in facilitating quality improvement?
3. How are health care professionals engaged as drivers of improvement when using QICs?

### Methods

The PhD project employs a research design that incorporates different levels of analysis, namely the policy level, the organisational level and the professional level. The project contains three sub-studies which will be conducted through a combination of programme theory analysis and a comparative case study of two strategically selected QICs.

Methodologically, the PhD project employs a combination of qualitative interviews, observations, document studies and a questionnaire survey. Theoretically, the PhD project builds on a framework that combines neo-institutional organization and implementation theory and the newer sociology of professions.

### Results

The PhD project is planned to start in autumn 2018.

### Conclusion

The PhD project will contribute to the international organization and implementation research field with new and important empirical knowledge on the circumstances under which QICs are successful as an implementation approach. Such results are essential in order to maximize the practical relevance of QICs as an implementation approach in quality improvement.

Furthermore, the PhD project will contribute to the sociological theoretical literature on professionals with new perspectives and knowledge on the positive capacity of health care professionals to promote quality improvement in health care.



Conflicts of interest: No conflicts of interest

[www.defactum.net](http://www.defactum.net)



Angelos Balatsas-Lekkas  
VTT Technical Research Centre of Finland Ltd  
Ext-Angelos.Balatsas-Lekkas@vtt.fi

Yutaka Yoshinaka  
DTU Management Engineering, Technical University of Denmark  
yosh@dtu.dk

## Background

Health care practices unfold in concrete settings, which, themselves, are influenced by ongoing organizational agendas, diverse in origin and timeframe. To address how safety practices relate to the overall sense-making and articulation of work that take place in the

institution, the study approaches productive work that can be discerned in the situated practices of patient safety and quality health care. This includes such work pertaining also to patient safety, albeit, beyond the specific locality of action.

## Objective

With the healthcare practitioners in focus, the study points to the significance of their clinical work, also into matters of learning and interplay

between professionals, work and, more broadly, projects of the organization.

## Theoretical framework

For examining the refiguring effects of patient safety practices (Zuiderent-Jerak, et al. 2009; Pedersen 2017) the paper draws on the notion of "artful contamination" (Zuiderent-Jerak and Jensen 2009), to provide an analysis of how patient safety becomes *enmeshed* in the organizing of the institutional framework of a health care setting. From the relatively delimited contexts of the original engagement of safety practices, "artful contamination" allows also scrutiny to "less visible", perhaps "deleted", organizational configurations in which patient safety practices *continue to perform*.

The transformational, productive process of reciprocal influences in the contexts of the organization – both intended and otherwise – are hereby broached. "Artful contamination", invoking as a notion that of "artful integration" (Suchman 2002) related to design, lends in the analysis sensitivity to the accomplished yet always indeterminate, provisional character of professional work and tasks, including plans and projects in their undertaking. Thus, the analysis points to the practical significance of such translations in and for clinical practices.

## Case Analysis 1: Neonatal milk kitchen

The handling of mothers' breast milk is a process that is undertaken up to 300 times a day at the case facility – a Mother-Child Care setting. Premature babies hospitalized there require feeding up to 12 times a day each, with both nurses as well as parents undertaking tasks entailed – the collection, storage, retrieval and other aspects of handling such breast milk. A completed analysis carried out by the Hospital, looking into the aggregate root-causes for reported adverse events in connection with the handling, had pointed to the possibility of making improvements through work of re-designing the interiors of refrigeration (and freezer) units in the

milk kitchens. It was deemed they were prone to inadvertent, switching of breast milk prior to use. (Simonsen and Beck, 2012) This problem-framing served as a backdrop for a collaborative project between the case facility and a team of design engineering university students and their supervisor, spanning five months. Generative design research methods were engaged, to help understand issues and possibilities *in situ*. First-hand ethnographic field work in the facility allowed gaining deep knowledge and taking stock of insight to the breast milk handling practices, and to leveraging toward co-designing activities with health care

professionals (see images below). The original scope and framing to re-design refrigeration units *per se*, were opened up through the collaboration to scrutinizing, but also leveraging, breast milk handling practices across the entirety of "the journey" of the breast milk – the 'hands', the props, and situations, all which bear upon its handling. It broached more than what may reduce to patient safety in a clear-cut manner – and reframed the issue more conductively as manifold practices in many different situations of potential pertinence to quality in breast milk handling. Design materials issuing from this process allowed for actively

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professionals (see images below). The original scope and framing to re-design refrigeration units *per se*, were opened up through the collaboration to scrutinizing, but also leveraging, breast milk handling practices across the entirety of "the journey" of the breast milk – the 'hands', the props, and situations, all which bear upon its handling. It broached more than what may reduce to patient safety in a clear-cut manner – and reframed the issue more conductively as manifold practices in many different situations of potential pertinence to quality in breast milk handling. Design materials issuing from this process allowed for actively



Above: A parent to an inpatient premature baby in the process of transferring the mother's breastmilk into an individualized ecocase for storage, and marking it for future identification before storing in the milk kitchen refrigerator.

Below: Image taken from one of the co-design sessions between hospital personnel and university project team with design engineering students – in generative design research and qualifying solutions.



engaging participants in hands-on co-design processes. Ethnographic research findings, reframing problem focus as well as opportunities toward improvement, were followed by ideation, and concept detailing, resulting in three distinct holistic proposals. While the proposed solutions were

conceptualised as distinct project-undertakings, the case setting opted to subsequently reconfigure selected elements from all three proposals into partial solutions further borne through the organization with initiatives already carrying currency. Rather than a patient safety project *per se*

to reorganize handling of breast milk, elements from the collaboration were enmeshed in concurrent initiatives, with other organizational players, making them realizable. Patient safety thus affected, but also was influenced through, organizational initiatives in realizing the solutions.

## Results

Our study points to the unfolding of 'patient safety' practices and their partial connections in making their relevance in manifold ways. Such an inductive vantage point in addressing and working with patient safety allows for openness and flexibility to be leveraged, and in drawing on

distribution of safety work in other practices (Balatsas-Lekkas 2016). Intervening capacities of safety practices in their further enmeshment points to "artful contamination" (Zuiderent-Jerak and Jensen 2009) through which safety becomes a sustained, albeit less-pronounced aspect of

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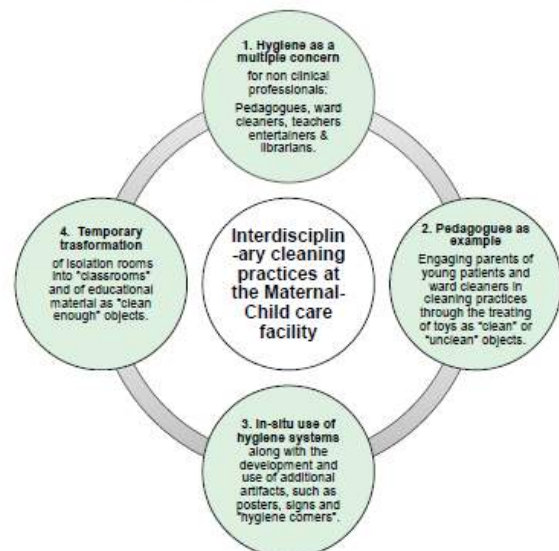
## Methods

The paper takes a retrospective approach, ex post case analyses of projects conducted in collaboration with a Maternal-Child Care facility of a Danish hospital. The projects concern the prevention of adverse events:

- 1) in a neonatal milk kitchen; and
- 2) in indoor hospital playrooms, respectively.

Sensitizing concepts informed by *Science and Technology Studies (STS)* and *generative design research* are leveraged, towards exploring and making sense of relationships between the *in situ*, accomplished character of patient safety practices, vis-à-vis practices across the immediate sites of such action.

## Case Analysis 2: Hygiene and play



1. Hygiene is a concern for various professionals involved in play and educational activities of young patients. While working within play areas and patient rooms, pedagogues, teachers, ward cleaners, librarians and entertainers are also concerned

with the hygienic status of objects that relate to their professional practices, such as toys for the pedagogues and educational material for teachers. Moreover, non-clinical professionals develop tasks and processes for cleaning that allows them to accomplish

the objectives of their professional role (e.g. play at playrooms requires the use of clean toys and the cleaning of used toys after play) while also use systems and participating to cleaning practices developed and implemented by the hospital's hygiene department.

2. Pedagogues ensure that within playrooms each toy is treated as a "clean" or "unclean" object. After used in individual or collective play activities, toys must be either "cleaned" or marked as "unclean" and stored as such, away from children's reach. For ensuring that

the "clean"/"unclean" treatment of toys continues even in hours that playrooms function without the actual presence of pedagogues, the latter engage parents of young patients and ward cleaners in the identification, cleaning, storing and separation of "clean" and "unclean"

toys. Pedagogues' continuous spotting and informing of parents of recently admitted young patients and of new ward cleaners about the treatment of hygiene concerns in playrooms allows them to "artfully integrate" new actors in hygiene maintenance.

3. Developed by the hygiene department of the hospital, a system of a green and a red plastic box for storing "clean" and "unclean" toys, respectively. It is installed within each of the facility's playrooms. Aiming at the sustained use of the system by various playroom users (e.g. parents and cleaners), pedagogues have

developed for and installed in each playroom additional artifacts. For example: A) signs that inform playroom's users (e.g. parents and relatives) that used toys entail hygiene-related risks, B) instructions for cleaning used toys with available materials, C) designated areas for toy cleaning, referred as "hygiene

corners". The above suggest that the development and use of additional artifacts clarifies the purpose of the box system for each actor while also generates a shared cleaning practice that is enmeshed into the work of various professionals rather than to just safety experts.

4. With support from the hygiene department, the teachers of young isolated patients have developed a process for transforming isolation rooms into "temporary classrooms". Prior to entering into an isolation room, teachers take standard isolation precautions, as

requested from the hygiene department (e.g. wearing gowns, gloves and huts) while they also use a variety of hygiene-related artifacts (e.g. disinfection gel) and others (e.g. photocopied excerpts of educational books) for producing "clean enough"

educational material for single use at the isolation rooms. Teaching and hygiene maintenance become enmeshed-but also achieved-through the mutual shaping of teaching and hygiene practices and, therefore the formation of an interdisciplinary safety practice.

## Conclusion

The study shows the relevance of patient safety practices as sustained beyond the scope and framing of the immediacy of clinical practice. Through empirical synthesis, it shows how patient safety practices can be discerned as pertinent to diverse agendas of the organization.

## Acknowledgement

We would like to acknowledge the kind contributions of staff at Juliane Marie Centre, Rigshospitalet – Copenhagen University Hospital, for making possible the empirical undertakings (conducted 2012, 2015), on which this post hoc analysis is based.



## MEASURING NEXT-OF-KIN SATISFACTION WITH HOSPITAL CANCER CARE – AS A FOUNDATION FOR IMPROVING QUALITY AND PATIENT SAFETY

Inger J. Bergerød<sup>1,2,3</sup>, Ingvild Dalen<sup>2</sup>, Bjørnar Gilje<sup>2</sup>, Geir Sverre Braut<sup>1,3</sup> and Siri Wiig<sup>3</sup>

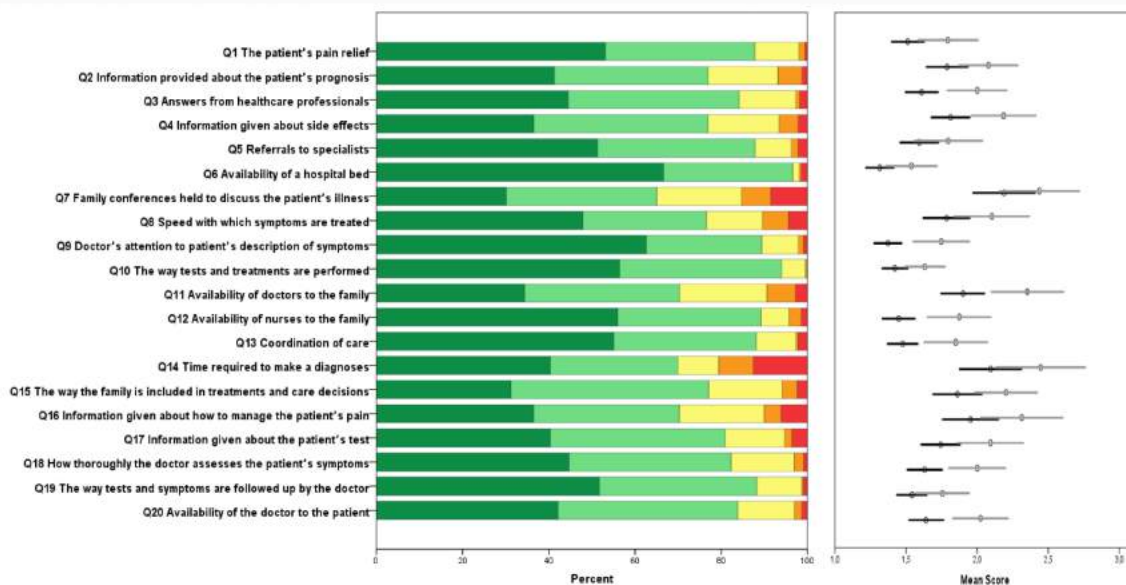
<sup>1</sup>Stavanger University Hospital, N-4068 Stavanger, Norway <sup>2</sup>Department of Hematology and Oncology, Stavanger University Hospital, N-4068 Stavanger, Norway <sup>3</sup>Share – Center for Resilience in Healthcare, Faculty of health Science, University of Stavanger, N-4036 Stavanger.

**Background:** Input from next-of kin experiences has the potential to improve work performance in hospital cancer care.

**Objective:** To explore similarities and differences in next-of kin satisfaction with cancer care in two Norwegian university hospitals.

**Method:** Questionnaire to next-of-kin including the 20-item FAMCARE scale, for which respondents are requested to score their experiences on a five-point scale (1=Very satisfied, 2=Satisfied, 3=Undecided, 4=Dissatisfied, 5=Very dissatisfied).

**Data:** 238 next-of-kin from two university hospitals and from five different units.



**Result:** Overall, the highest satisfaction with care was found in items Q6, Q9 and Q10. The respondents were most dissatisfied with items Q7, Q11, Q14 and Q16. There were several differences between the hospitals. After adjustment for sociodemographic information of the next-of-kin (age, gender, relation to patient, education), the patient (gender, age, clinical diagnosis) and location (inpatient/outpatient ward), statistically significant differences between the two hospitals were found in items Q2, Q3, Q4, Q6, Q9, Q1, Q18, Q19 (all  $p < 0.05$ ). The largest differences after adjustment were found in Q3, Q4 and Q9, which all had adjusted differences larger than 0.35.

**Conclusion:** Despite being subject to the same policy documents, there were substantial differences between the two hospitals, also after adjustment for sociodemographic and clinical variables. Further analysis and interpretation will be performed in addition to a qualitative content analysis of the text variables from the survey, as a foundation for suggestions of quality and safety improvement measures in the two hospitals.





# WHO DO NOT SHOW UP FOR AN APPOINTMENT?

Rate and predictors for non-attendance among patients in hospital outpatient treatment for chronic diseases: A register-based cohort study.

## BACKGROUND

Failure to keep medical appointments results in inefficiencies and potentially poor outcome for the patient. The aim of this study is to describe non-attendance rate and to investigate predictors for non-attendances among patients in hospital outpatient treatment for chronic diseases.

## METHODS

We conducted a historic, register-based cohort study based on data from Hospital Lillebaelt, Denmark and included patients aged 18 years or above who were registered as having an ongoing outpatient treatment course for chronic diseases (7 selected diseases) on July 1, 2013.

A total of 5,895 patients were included and information on their appointments was extracted in the period July 1, 2013 to June 30, 2015. The outcome measure was non-attendances. The association between non-attendances and covariates (age, gender, marital status, education level, occupational status, duration of outpatient treatment course, specific chronic disease and number of outpatient treatment courses) was investigated using multivariate logistic regression models including mixed effect.



## RESULTS (PRELIMINARY)

5% of all appointments ended with non-attendance (4,393 of 82,989 appointments). The strongest risk factors for non-attendance were younger age (OR 4.3 for 18≤29 years compared with 80+ years), male gender (OR 1.3), unmarried status (OR 1.3), low educational level (OR 1.2 compared with higher education), unemployment (OR 1.5 compared with retirement), a short duration of outpatient treatment (OR 1.3 compared with minimum 1-year duration), few annual appointments (OR 1.4 for 1-4 appointments compared with over 20 appointments), appointments on Tuesdays (OR 1.3 compared with Friday appointments) and having chronic obstructive pulmonary diseases (OR 1.7 compared with osteoporosis).

## CONCLUSIONS

Patients in hospital outpatient treatment for chronic diseases had a no-show rate of 5%. We found several other predictors for non-attendances.

To reduce non-attendance, initiatives could target these risk groups for non-attending.

<sup>1</sup>Centre for Quality, Region of Southern Denmark, Middelfart, Denmark. <sup>2</sup>Institute of Regional Health Research, University of Southern Denmark, Odense, Denmark. <sup>3</sup>Research Unit and General Practice, Odense, Denmark. <sup>4</sup>Hospital of Southern Denmark, Aabenraa, Denmark. <sup>5</sup>The Danish Patient Safety Authority, Kolding, Denmark. <sup>6</sup>Department of Vascular Surgery, Kolding hospital, Part of Hospital Lillebaelt, Kolding, Denmark. <sup>7</sup>OPEN - Odense Patient data Explorative Network, Department of Clinical Research, University of Southern Denmark and Odense University Hospital, Odense, Denmark



## Does quality improvement improve patients' health? A systematic review of measures of effect used in PDSA projects

Nanna Kastrup Hermansen<sup>1</sup>, Anne Sig Vestergaard<sup>1</sup>, Ph.D, Lars Holger Ehlers<sup>1</sup>, Ph.D.  
<sup>1</sup>Danish Center for Healthcare Improvements, Faculty of Social Science, Aalborg University, Aalborg, Denmark

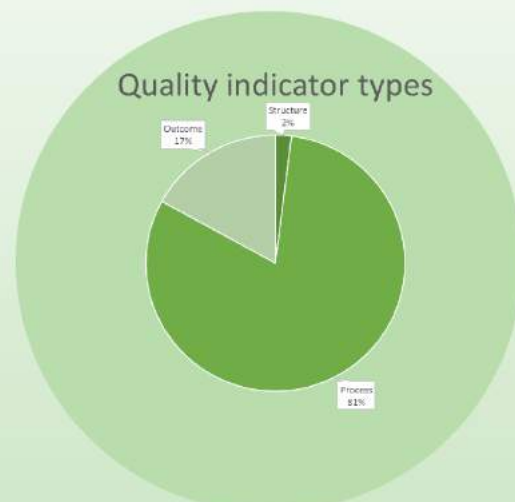
Corresponding author: [nkh@business.aau.dk](mailto:nkh@business.aau.dk)

**INTRODUCTION:** Quality improvement is an inherent part of modern healthcare systems worldwide, used for the continuous advancement in effectiveness and safety. Amongst other approaches, the plan-do-study-act (PDSA) method, a four-step iterative method, is widely used for testing and implementation of quality-improving interventions in health care despite a poor evidence of its effectiveness. Accepting the premise that the underlying purpose of improvements in health care is to improve patients' health as suggested by, amongst others, the American National Academy of Medicine, the data measurements used to assess the impact of quality improvement projects, consequently, ought to reflect how they eventually impact patients' health.

**OBJECTIVES:** The purpose of the present study is to review recently published PDSA projects to investigate how the effect of quality improvements are being measured, and if the authors provide scientific evidence that their choice of effect measure, i.e. the quality indicator, is associated with patients' health.

**METHODS:** The basis of the present study was a systematic review of studies on PDSA quality improvement projects published in 2015 - 2017. For all identified papers, the primary quality indicators were categorized in accordance with Donabedian's three definitions of dimensions of quality, i.e., structure, process, and outcome indicators. Secondly, it was assessed if the authors of the studies reported the applied quality indicator as being evidence-based, i.e. whether they were associated with patient-relevant outcomes. In addition, adherence to the SQUIRE guidelines as reported in the studies was assessed.

**RESULTS:** In all, 54 studies were included for assessment. One study was excluded, as reporting of any quality indicators was absent. The results from the assessment of whether authors identified the applied quality indicator as being an evidence-based indicator showed that only in four studies, the authors reported them as such. Reporting in adherence to SQUIRE guidelines was identified in two studies.



**CONCLUSIONS:** Process indicators, rather than health-related outcome measures, appear to be used most often in quality improvement projects applying the PDSA method. Evidence-based indicators were only applied in four studies. In general, the quality indicators were very heterogeneous causing incomparability of results. Overall, this challenges the ability to show if, and how, interventions actually affect patients' health. Enhancement of the validity of the present results calls for an increase in the consistent and systematic reporting of quality improvement interventions.



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# The application of future workshops for the development of patient-reported outcomes within osteoarthritis

Natasha Lee Sørensen<sup>1</sup>, Simon Kristoffer Johansen<sup>2</sup>, Louise Hansen<sup>1</sup>, Janus Laust Thomsen<sup>2</sup>, Lars Holger Ehlers<sup>1</sup>

<sup>1</sup> Danish Center for Healthcare Improvements, Faculty of Social Science, Aalborg University, Aalborg, Denmark

<sup>2</sup> Research Unit for General Practice in Aalborg, Department of Clinical Medicine, Aalborg University, Aalborg, Denmark

Corresponding author: ns@business.aau.dk

**INTRODUCTION:** The future workshop (FW) is a method designed in the 1970s by the Austrian Robert Jungk, and developed to create visions in a problem-solving process. FW builds upon group work, which has its roots in social constructivism. The FW consists of three main phases;

- the critique phase; deals with the appointed theme with a critical approach.
- the fantasy phase; the participants are instructed to describe a utopia to solve the problem.
- the implementation phase; evaluates ideas attained in the fantasy phase concerning potential implementation in everyday practice.

In the preparation phase, a theme for the FW is defined. A mandatory oral introduction to the theme is prepared. Additionally, facilitation is necessary to promote the working process, and creativity tools are applied to promote a creative thinking process.

No in-depth descriptions of the use of the FW in a Danish healthcare setting have been found.

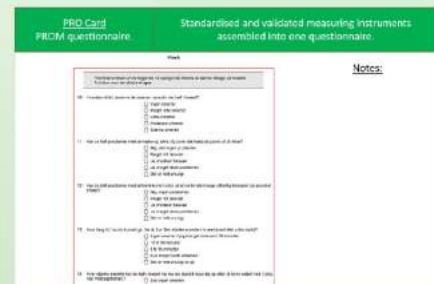
**OBJECTIVE:** Investigation of the applicability and value of using FWs to create visions in a problem-solving process on an empirical case; the use of patient-reported outcomes (PRO) within knee/hip osteoarthritis (OA).

**CONCLUSION:** It can be concluded that the application of FWs within an OA setting has produced great contextual and application-oriented data that can lead to further investigation of the use of PRO within OA. The application of FW demands deliberate consideration concerning desired knowledge, and whether this knowledge can benefit the study. The completion of FWs suggests that FWs may be used for elicitation of knowledge in a healthcare setting in the future.

**METHODS:** The theme of the FWs was defined to concern the use of PRO within treatment of knee and hip OA. An oral presentation was composed based on the theme. A facilitator was appointed to facilitate all FWs. The design of the FWs were constructed on the basis of the three predefined phases of FWs;

- The critique phase had the aim of identifying problems in the contact with the OA patient.
- The fantasy phase had the aim of describing the ultimate scenario for the patient's course of treatment.
- The implementation phase had the aim of embedding solutions from the fantasy phase into a realistic scenario.

A card game was envisioned to act as the creativity tool. The card game consisted of three types of cards; domain cards, representing locations defined in the course of treatment of hip/knee OA (picture on the left); problem cards, representing problematic situations in the contact with the OA patient; and newly developed PRO cards (picture on the right), representing the possible solution in the contact with the OA patient. Each type of card had three blank cards attached, with room for additional self-made cards. A pilot test was conducted with the aim of testing the validity of design and the developed card game.



**RESULTS:** Three FWs were conducted in the spring of 2018: one for general practice (March 6th), one for orthopaedic surgery (March 13th), and one for the municipality of Aalborg (May 25th). All FWs achieved the desired aim of creating visions in a problem-solving process and audio was recorded with the purpose of future investigation through qualitative analysis. Participants demonstrated engaged discussions during all FWs. The workshops were evaluated regarding method and design through semi-structured interviews with three participants after each FW. General satisfaction with the participation, design and facilitation of the FW was expressed. It was found that the introductory presentation was of great importance for the remainder of the workshop including the participant's following group work. It was also discovered that the participant's former knowledge of the theme and the communal relationship among the participants had an impact on the result of the FW.





## Danish cancer patients' perspectives on quality of care from first symptom to end of primary care

L Vindslev Nielsen, G Stentebjerg Petersen and L Aagaard Thomsen

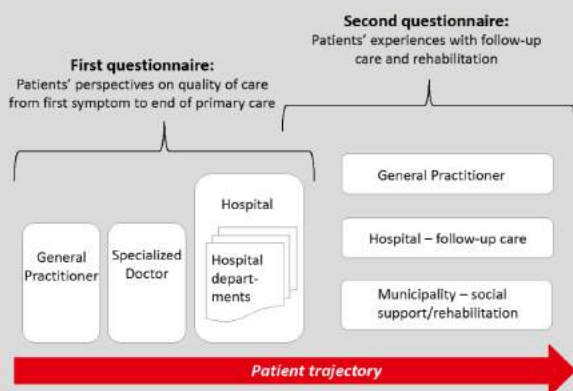
Danish Cancer Society, Documentation & Quality, Strandboulevarden 49, DK 2100 Copenhagen, Denmark

### Introduction

The Danish healthcare system is undergoing a shift from a one-sided focus on the patient's disease and its pathology to a more patient-centered approach to quality improvement. Knowledge about the patient's life situation and experiences are now being integrated as important elements in efforts to secure the highest quality standard in treatment and care.

### Objectives

To examine Danish cancer patients' experiences with cancer care and treatment and to identify their needs and preferences from first symptom to end of primary care.



### Methods

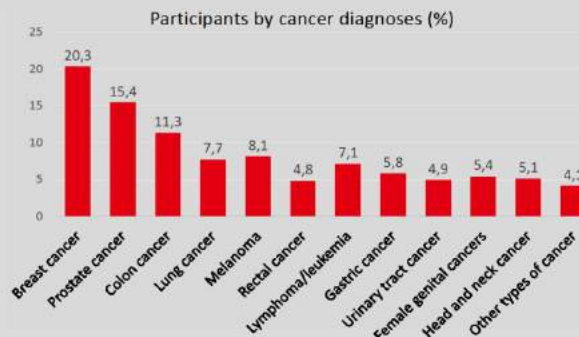
A total of 10.445 Danish citizens between the ages of 30 and 99 registered with a first time cancer diagnosis in the National Patient Registry between July and December 2016 received a questionnaire 4-7 months after they received their diagnosis. Of these 5.389 (52%) responded.

The questionnaire included a total of 182 items (64 from international standardized questionnaires) and addressed themes such as diagnostics, involvement, continuity of care, information and help and support.

Patients included in the survey will receive a follow-up questionnaire in 2019 focusing on their experiences regarding follow-up care and rehabilitation.

### Study population

n=5.389  
(52%)



### Results

The majority of patients are satisfied with the quality of healthcare and experience fast and well-planned patient trajectories. However, there are major challenges when it comes to patient information, continuity and responsibility, different aspects of end of primary treatment and help and support. The study also reveals large variations in patient experiences and needs depending on geography and cancer diagnosis.

**Information:** Up to 34% of patients report receiving insufficient information prior to undergoing cancer treatment about possible side effects, late effects and complications of the disease and treatment. Moreover, 60 % have not talked to a health professional about how the GP can help them during treatment and 1/3 patients need help avoiding weight change or malnutrition – 59% of these don't get the help they need.

**Continuity and responsibility:** A number of questions show a lack of doctor responsibility regarding patient trajectory. For example, 30% of patients consider the number of doctors they see during treatment to be too many and 41% have at some point been in doubt about which doctor was responsible for their treatment.

**End of primary treatment:** 35% of patients do not feel safe being discharged from hospital and a significant proportion are unsure of what symptoms they should be aware of after discharge (41%) and whom to contact in case they need help (22%).

**Help and support (rehabilitation):** 61% report the need for various types of help and support during their trajectory. Up to 79% of these patients report having unmet needs with regard to physical and psychosocial support, assistance in the home and advice on work or economic issues.

### Conclusion

The results show potential for improvement in relation to different aspects of patient-centered care. Our findings indicate a need to focus on the individual needs, wishes, preferences and resources of the patient in order to obtain uniform high quality for all regardless of diagnosis and geography, which calls for a continued and sharpened focus on patient-centered care.

The study is funded by Knæk Cancer.

Corresponding author: Louise Vindslev Nielsen, e-mail: lvn@cancer.dk







# Calculating the value for money of quality improvements when health-related outcome measures are unavailable; using quality indicators in decision-analytic modelling

## BACKGROUND

Quality indicators are often used to quantify the effect of quality improvements and may be related to different dimensions of quality, including system characteristics, continuity of care, and patient experiences. Thus, they are often not measures that reflect impact on patients' health per se. In contrast, in health economic evaluation the measures of effectiveness should reflect impact on health, for instance through patient-relevant outcomes, to enable the establishment of the value for money of interventions.

As a result, the application of non-health-related quality indicators in quality improvement projects may preclude health economic evaluation of quality-improving initiatives by the use of conventional health economic methods. Ultimately, it may hamper informed decision-making and potentially cause benefits foregone, if cost-effective quality improvements cannot be identified.

## METHODS

Bayesian decision theory and value of information analysis were used to construct a framework for the inclusion of quality indicators in decision-analytic models. This method provides a systematic approach to decision-making under uncertainty that enables incorporation and explicit investigation of uncertain and certain parameters in the model. Decision-analytic modelling enables the inclusion of quality indicators as intermediate links in the relationship chain between quality-improving interventions and final impact on health, i.e., patient-relevant outcomes (See Figure 1 for exemplification).

When quality indicators are introduced into the relationship chain, the association between interventions and patient-relevant outcomes are partitioned into two separate, uncertain parameters; namely the association between the intervention and the quality indicator, and the quality indicator and patient-relevant outcomes. This increases the total decision uncertainty and carries a potential cost of uncertainty, which may be estimated as the expected value of perfect parameter information.

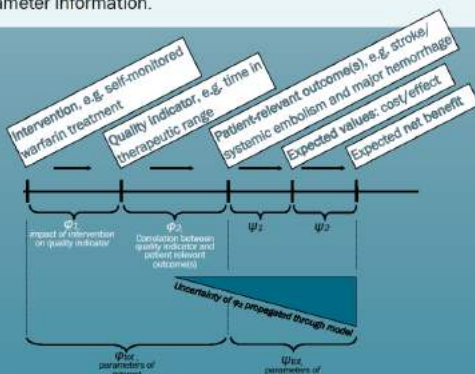


Figure 1. Exemplification of the use of time in therapeutic range as a quality indicator in the case of warfarin treatment. Establishment of a correlation between the quality indicator and patient-relevant outcomes, here stroke/systemic embolism and major hemorrhage, could potentially enable estimation of the cost-effectiveness of interventions, such as self-monitored warfarin treatment, when the effectiveness is evaluated by time in therapeutic range. The uncertainty of the correlation between achieved time in therapeutic range and occurrence of patient-relevant outcomes is propagated through the model and affects the entire decision uncertainty.

Anne Sig Sørensen (Vestergaard), Lars Holger Ehlers  
 Danish Center for Healthcare Improvements, Dept. of Business and Management,  
 Aalborg University, Denmark  
 Presenting author: Anne Sig Sørensen (Vestergaard), asv@business.aau.dk

## OBJECTIVES

To advance a framework for identifying the value for money of quality improvements, for which the effect has been established by the use of quality indicators, and investigate the requirements for quality indicators to be usable in health economic evaluation.

## RESULTS

A Bayesian decision theoretical and value of information-analytical framework may enable health economic evaluation of quality improvements, for which direct impact on health cannot be established, by the introduction of quality indicators as intermediate links in the relationship chain between interventions and patient-relevant outcomes.

For this to be feasible, the applied quality indicators should be outcome-validated, and a quantifiable relationship between the quality indicator and patient-relevant outcomes should be established. If the applied quality indicator does not reflect all impact on patient-relevant outcomes, more, mutually exclusive quality indicators could be included. All impact of the quality improvement under investigation should be conveyed through the applied quality indicator(s). If the relationships are misspecified, the validity of analyses may be compromised.

The uncertainty of using quality indicators as intermediate links should be evaluated by value of information analysis, and the potential cost of that uncertainty should be compared to the expected resources of eliminating said uncertainty.

## CONCLUSIONS

Bayesian decision theory and value of information analysis might provide a viable framework for health economic evaluation of quality improvements by enabling the introduction of quality indicators as intermediate links in decision-analytic models. Despite the lack of evidence on impact on health-related outcomes, analyses may, thus, yet be performed and be informative as long as the potential cost of uncertainty is sufficiently highlighted.



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# Overstay and readmission in day surgery – comparison of ear, nose and throat and orthopedic patients



Morag Tolvi, Lasse Lehtonen, Hanna Tuominen, Mika Paavola, Kimmo Mattila, Leena-Maija Aaltonen  
Helsinki University Hospital and University of Helsinki

## OBJECTIVES

We examined the overstay and readmission rates in day surgery with a special focus on the effect of local versus general anesthesia. Unscheduled contacts not leading to readmission are also reported.

## METHODS

We conducted a retrospective study on all ENT and OHS day surgery patients within a 3-month period, using the hospital's surgery database and patient charts to collect data pertaining to anesthesia, overstay, readmissions and contacts within 30 days of day surgery.

## RESULTS

With general anesthesia, 3.2% (n=23) of ENT day surgery patients had an overstay or readmission compared to 1.4% (n=4) after local anesthesia. Using a multivariable logistic regression model including American Society of Anesthesiologists (ASA) class, age, gender and form of anesthesia, females and young adults (16-44 years old) had more outcomes of overstay, readmission or contact than males and other age groups.

With general anesthesia, 10% (n=5) of OHS day surgery patients had an overstay or readmission compared to 0.6% (n=3) after local/regional anesthesia. Using the same multivariate logistic regression model as with ENT patients, the form of anesthesia and gender were significant for overstay, readmission or contact.

## CONCLUSION

Our overstay, contact and readmission rates are on the same level, or even lower, than in international studies. Our findings suggest that more day surgery patients than currently could be treated safely using local or regional anesthesia.

Patient demographics in 1,011 ENT day surgery procedures

	Ear surgery	Nasal surgery	Tonsil & adenoid surgery	Miscellaneous ENT procedures
Patients (n)	236	256	400	119
Male %	51.7	53.5	53.8	55.5
Age, median (range)	4.3 (0.5 - 76.2)	40.7 (3.4 - 81.4)	9.2 (0.6 - 70.7)	50.5 (2.6 - 87.0)
ASA class, %				
1	16.3	14.4	30	5
2	5.1	8.6	8.8	4.8
3	0.9	1.4	0.7	1.2
4	0.1	0	0.1	0.1
no information	0.9	0.9	0	0.6
Anesthesia				
Local anesthesia (%)	16.9	73.7		47.1
Regional anesthesia (%)				
General anesthesia (%)	83.1	26.3	100	52.9

Patient demographics in 542 OHS day surgery procedures

	Hand surgery	Shoulder & elbow surgery	Lower limb surgery
Patients (n)	471	55	16
Male %	37.4	58.2	56.3
Age, median (range)	53.8 (16.2 - 92.5)	54.3 (23.2 - 72.2)	42.2 (21.1 - 63.3)
ASA class, median (range)	2 (1 - 4)	2 (1 - 4)	1 (1 - 3)
Anesthesia			
Local anesthesia (%)	42.7	10.9	
Regional anesthesia (%)	49.7	65.5	93.7
General anesthesia (%)	7.6	23.6	6.3

Table of the 10 most common day surgery procedures of both specialties in the study

Procedure	No. of day surgery patients	Overall day surgery percentage in unit
Tonsillectomy	168	92
Grommet insertion	152	100
Maxillary antrostomy	129	88
Adenoidectomy	128	100
Tonsillotomy	78	98
Septoplasty	36	88
Closed reduction of nasal fracture	35	100
Excision of lesion of larynx	33	83
Stapedotomy	31	94
Myringoplasty	30	100
Other ENT procedures*	191	85
Decompression of median nerve	167	97
Dissection of sheath of tendon of wrist or hand	46	98
Decompression of ulnar nerve	43	98
Palmar fasciotomy of hand	42	100
Incomplete excision of soft tissue tumour of wrist or hand	36	92
Arthroplasty of first CMC joint	34	90
Excision of synovial ganglion of wrist or hand	25	100
Fusion of DIP joint	23	96
Open operation for osteochondritis of joint of wrist	22	96
Arthroscopic exploration of joint of wrist or hand	18	82
Other OHS procedures**	86	92

\* includes eg. adenotonsillectomy, hoopy of larynx, polypectomy

\*\* includes eg. arthroscopic partial excision of meniscus of knee, partial fusion of wrist, removal of internal fixation device from wrist or hand

## CONTACT

Contact: morag.tolvi@hus.fi

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this research. The authors have no conflicts of interest.



# The CIRS-case microscope - the analysis of 52 unselected cases with the OPT-Model

Cornelia Schröder<sup>1</sup>; Laura Tetzlaff<sup>1</sup>; Eberhard Beck<sup>1</sup>; Katharina Löwe<sup>1</sup>; Thomas Schrader<sup>1</sup>  
<sup>1</sup>Brandenburg University of Applied Sciences, Department of Informatics and Media, Germany  
 Contact:{schroeco, tetzloff, beck, loewe, Schrader}@th-Brandenburg.de

**Introduction**

Critical Incident Reporting Systems (CIRS) are event reporting and learning systems of critical incidents to improve patient safety in hospitals. The main idea is to learn from errors: anonymized case reports help to understand the various kinds of mistakes. CIRS are usually operated in house but some are also publicly accessible.

In Germany, different institutions operate such systems. The CIRSmedical ([http://http://www.cirsmedical.de/](http://www.cirsmedical.de/)) is an open nationwide system of the Center of Quality in Medicine (Ärztliches Zentrum für Qualität in der Medizin, Berlin). The case structure and data items allow a review of individual case reports. Our report covers 52 unsorted, not entity specific, up-to-date-cases analyzed by the Open-Process-Task Model (OPT-Model)[1].

**Methods**

The 52 cases were chosen randomly from case reports published by CIRSmedical before November 2017. The OPT-Model analyses the structure of complexity in medical tasks by determining the various properties related to the input and output of the task (information, patient, specimens/drugs) and the properties of the task itself (e.g., contamination, number of involved persons, communication properties, invasive/non invasive procedures). The analysis follows a systematic pathway through each task in each case report using lists of properties comparable with checklists. Besides this structured analysis of the tasks, the correctness of information, diagnosis, therapy plan, technical equipment and other items (called status item) is evaluated too.

**Results**

A case report may include problems related to one or more medical or organizational tasks. The reports of the 52 examined cases describe errors related to a total of 60 tasks. Many cases show a lower or medium complexity: in 25 of 60 tasks, only one staff member is involved, in 22 cases 2 or 3 staff members were involved (for the remaining tasks, no information was available or not relevant). If the diagnostic or therapeutic task involves two or more medical domains (e.g., surgery and cardiac disease), the complexity increases. The majority of cases cover only one medical domain. The analysis shows that 37 of 60 tasks could be classified as everyday actions or as routine medical processes. Concerning the priority of the patients' medical conditions we found that the priority was low in 23 reports, middle in 13 and high in seven cases.

**Conclusions**

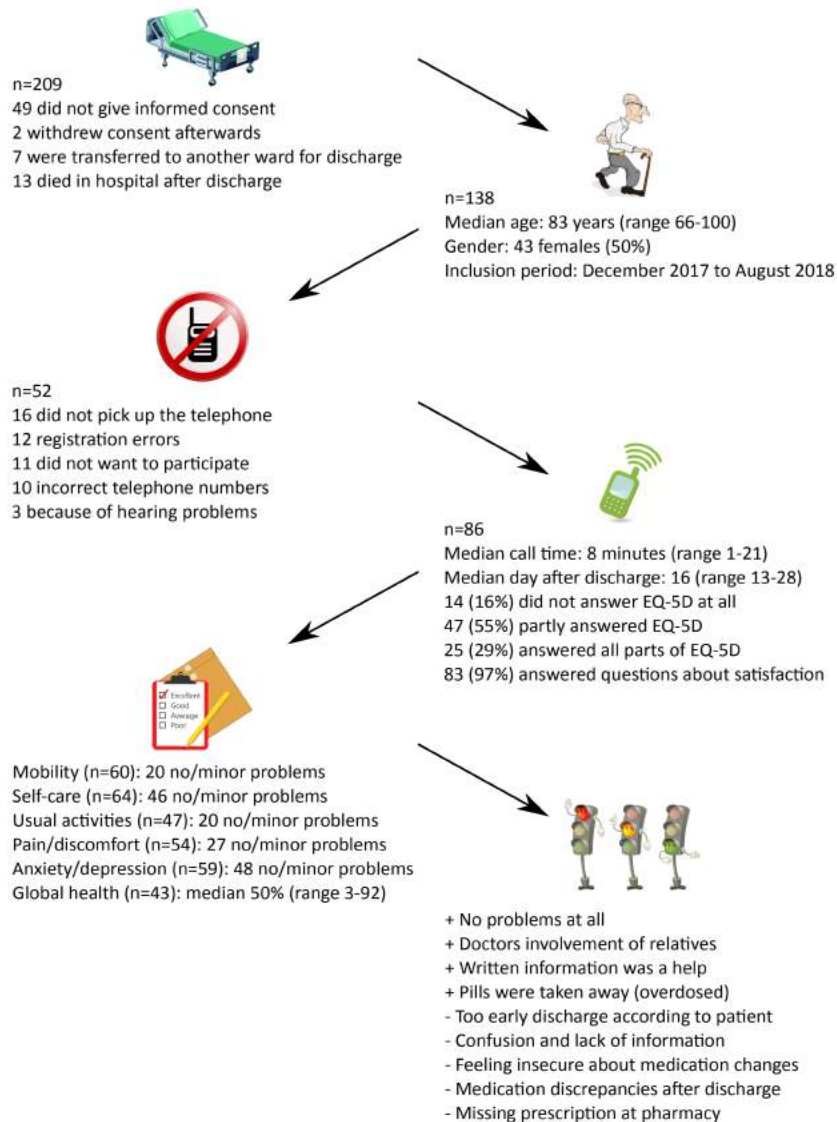
This systematic analysis using the OPT-Model uncovers essential structural aspects of case reports in CIRS. In contrast to other methods such as London Protocol, the OPT-analysis does not detect medical errors directly. The structured evaluation unifies the view on the cases and allows the application of statistics independently from the medical domain and helps to detect typical patterns. Not only the properties or events related directly to the mistakes are collected but also all structural aspects of medical and organizational tasks. A particular focus lies on the probability and possibility to detect and correct wrong status items such as wrong diagnosis or wrong therapy plan. This expresses the stability of a medical task against the illegal status from previous tasks.



Abb.1: patient result in input

[1] OPT-Model Schrader et al, Prospective, knowledge based clinical risk analysis: The OPT-model. In: 2015 IEEE Seventh International Conference on Intelligent Computing and Information Systems (ICICIS). 2015.

## Can frail older persons participate in telephone follow up about quality of life and satisfaction after discharge? – a feasibility study



**YES; more than half completed the follow up**  
**However, more older persons could participate in**  
**qualitative interviews than in quantitative questionnaires**

Legend: All images: www.colourbox.dk





# Gender- and Age-Related Differences in the Quality of Mental Health Care Among Inpatients With Unipolar Depression: A Nationwide Study

Line Ryberg Rasmussen<sup>1</sup>, Jan Mainz<sup>2</sup>, Poul Videbech<sup>3</sup>, Søren Paaske Johnsen<sup>3</sup>

<sup>1</sup>Center for Clinical Health Services Research, Department of Clinical Medicine, Aalborg University, Denmark, <sup>2</sup>Aalborg University Hospital, Psychiatry, Center for Clinical Health Services Research and Department for Community Mental Health, University of Haifa, Israel, <sup>3</sup>Center for Neuropsychiatric Depression Research, Mental Health Centre Glostrup, Denmark, <sup>4</sup>Center for Clinical Health Services Research, Department of Clinical Medicine, Aalborg University and Aalborg University Hospital, Aalborg, Denmark

## Introduction

Within several somatic areas, observational studies have examined gender and age related differences in the quality of care. The evidence from these studies indicates that gender and age can affect the extent to which patients are offered evidence-based treatment. To the best of our knowledge, only six published studies have examined the association between either gender or age and the quality of mental health care. However, the design and results of these studies are inconsistent, which makes it difficult to draw conclusions.

This study examined the association between gender, age and the quality of mental health care as reflected by the fulfilment of process performance measures of care reflecting clinical guideline recommendations among Danish patients admitted with depression

**TABLE 1.** Definitions of nine process performance measures for inpatients with depression

Care process	Definition
Examination by psychiatrist	Indication of whether the patient's psychopathological assessment was performed by a specialist in psychiatry within 7 days after admittance to the hospital ward.
Somatic examination	Neurological examination, relevant laboratory tests and other examinations within 2 days.
Assessment by a social worker	Assessment of need for acute or longer-term support, such as help with changing housing, financial help to purchase medicine, educational guidance, rehabilitation, and application for disability benefits.
HAM-D17 <sup>a</sup> assessment (I)	Initial assessment using HAM-D17 within 7 days.
HAM-D17 <sup>a</sup> assessment (II)	Assessment using HAM-D17 at discharge from hospital.
Suicide risk assessment (I)	Using structured interview at admittance.
Suicide risk assessment (II)	Clinician's assessment of the patient's risk of suicide when discharge from hospital is planned.
Contacts with relatives	Staff contact with the patient's relatives during hospitalization.
Psychiatric aftercare	Concrete agreement involving professional support for inpatients after discharge.

<sup>a</sup>Hamilton Depression Scale (HAM-D17)

## Materials and methods

The study population included 17,971 patients admitted to psychiatric hospital wards between 2011 and 2016 and was identified in the Danish Depression Database, to which it is mandatory by law to report data on all treated patients with depression. Patients were divided into four age groups (18-39, 40-59, 60-79 and ≥80). Quality of mental health care was defined as having fulfilled process performance measures of care reflecting national clinical guidelines recommendations. The association was examined by setting a pragmatic cut point of 80%; high overall quality of care was defined as a patient's receipt of 80% or more of all relevant recommended process performance measures. Furthermore, the association was examined with alternative cut points varying from 60% to 90%. The association between gender, age and the quality of mental health care – the individual process performance measure and the overall quality – was examined by using binomial regression while adjusting for inpatient volume. The analysis was stratified by age and gender where men in the youngest age group (18-39) served as the reference.

**Table 2.** The association between gender, age and the quality of mental health care among patients with depression.

Gender and age group	Total inpatients	Received high-quality care (%) <sup>a</sup>	RR <sup>b</sup>	95% CI
Men 18-39	2,274	14.2	1.00	
Women 18-39	4,005	15.5	1.09	.97-1.23
Men 40-59	3,422	16.2	1.14	.97-1.34
Women 40-59	3,986	15.6	1.10	.95-1.27
Men 60-79	2,253	19.2	1.35	1.12-1.63
Women 60-79	3,442	20.1	1.42	1.17-1.72
Men ≥80	453	23.4	1.65	1.18-2.29
Women ≥80	1,285	19.8	1.39	1.02-1.89

<sup>a</sup> Received 80%-100% of relevant recommended process performance measures

<sup>b</sup> Adjusted for patient volume

## Results

The proportion of patients receiving ≥80% of the recommended process performance measures varied between 14.2% and 23.4%. Compared with men in the age group 18-39, men and women in the age category 60-79, respectively, had an inpatient volume adjusted relative risk [RR] of 1.34 (95% confidence interval [CI]=1.12; 1.60) and 1.40 (95% CI=1.16; 1.69) for receiving high overall quality of care (≥80% of the relevant recommended process performance measures). Likewise, in the age category ≥80 the RR for men was 1.64 (95% CI=1.18; 2.29) and the RR for women was 1.37 (95% CI=1.00; 1.88).

Patients in the age category 18-39 were in general less likely to have received care fulfilling the individual process performance measures, however not all associations reached statistical significance. The process performance measure for assessment by a social worker were statistical significant for all categories, getting assessed with HAM-D17 at discharge were statistical significant for age categories 40-59 and 60-79 and being seen by a psychiatrist within 7 days, contact with relatives and getting psychiatric aftercare were statistical significant in the age categories 60-79 and ≥80 compared to men in age category 18-39.

## Conclusions

Older patients had a higher chance of receiving high quality care as reflected by a higher proportion of fulfilled guidelines supported process measures among patients admitted with depression. In contrast, we found no gender-related differences.



PSYCHIATRIC HOSPITAL



AALBORG UNIVERSITY HOSPITAL



AALBORG UNIVERSITY  
DENMARK

# Patient-reported incidents in hospital: do scores for surgical and non-surgical patients differ? Results from a national survey

HOLMBOE O<sup>1</sup>, BJERTNÆS ØA<sup>1</sup>, LINDAHL AK<sup>2,3</sup>

<sup>1</sup> NORWEGIAN INSTITUTE OF PUBLIC HEALTH, DIVISION OF HEALTH SERVICES,  
<sup>2</sup> AKEBOLK UNIVERSITY HOSPITAL, DIVISION OF SURGERY,  
<sup>3</sup> UNIVERSITY OF OSLO, FACULTY OF MEDICINE, INSTITUTE OF HEALTH AND SOCIETY

## Introduction

In the Norwegian national system for measuring patient experiences, the experiences of somatic inpatient are divided into 10 indicators. One of these, patient reported patient safety, consists of 12 items. Available literature indicate that surgical patients experience more adverse events than other patients (1, 2). We wanted to find out if there were differences in surgical and non-surgical patients' experiences of patient safety. Surgical patients were defined as patients who had undergone any procedure in the chapters A-H, J, K, N, P or Q in the Nomesco classification of surgical procedures (NCSP). This applied to 4,531 patients with a score on the patient safety indicator.

## Material and Methods

A national postal survey was conducted in 2015 including 23,460 patients, response rate on 59%.

The patient safety indicator was constructed by categorizing the original items into positive or negative evaluations (table 1), and given as the percentage of positive evaluations to the items. A total of 12,586 patients obtained a score on the indicator with an average score on 88.

Table 1: Items and categories and scores to the patient safety indicator. Scores are percent positive responses

Item	Positive categories	Negative categories	n	Non-surgical	Surgical
Did you experience that important information about you had reached the right people?	To a great extent To a very great extent	Not at all To a small extent To some extent To a great extent To a very great extent	12264	73	80
Do you believe you were incorrectly treated by the hospital in any way (as far as you yourself are able to judge)?	Not at all To a small extent	To a great extent To a very great extent	12380	89	92
Did you experience any administrative mistakes during your hospital stay?	No	Yes, once Yes, more than once	12565	88	90
Did you experience that the staff forgot to check your identity?	No	Yes, once Yes, more than once	12571	96	98
Did you experience that the staff forgot to give you important information?	No	Yes, once Yes, more than once	12561	91	93
Did you get a wrong or delayed diagnosis in connection with your hospital stay?	Not at all To a small extent	To some extent To a great extent To a very great extent	10243	91	95
Did you suffer any unnecessary injury or unnecessary problem as a result of a surgical procedure or examination?	Not at all To a small extent	To some extent To a great extent To a very great extent	9893	91	90
Did you receive the wrong medication, or were you incorrectly medicated in any other way?	Not at all To a small extent	To some extent To a great extent To a very great extent	11302	94	96
Did you experience insufficient hand hygiene (hand washing) among the staff?	Not at all To a small extent	To some extent To a great extent To a very great extent	11189	96	97
Did you get an infection in connection with your hospital stay?	No	Yes	11840	92	92
If you experienced mistakes or unnecessary problems in connection with your hospital stay, did the staff handle the mistake or problem in a satisfactory way?	To a great extent To a very great extent	Not at all To a small extent To some extent	3964	48	52
Was an updated list of your medications reviewed with you when you were discharged from hospital?	Yes	No	8290	68	67
Total score on the Patient safety Indicator			12586	87	90

Scores were calculated for surgical and non-surgical patients. The differences in scores were assessed by t-test. A multivariate linear regression was conducted to assess the influence of surgical procedures when adjusted for relevant background variables.

## Results

Surgical patients gave significantly more positive evaluations on the patient safety indicator and most of its underlying items than non-surgical patients (table 1). Unadjusted mean score 90 vs 87 (p<0,001).

When adjusted for relevant background variables (table 2), we found no difference between surgical and other patients on the patient safety indicator (p=0,653). The variables with strongest effect on the indicator score were self-rated health (better health, more positive evaluation), age (higher age, more positive evaluation) and number of admissions last two years (more admissions more negative evaluation).

Table 2: Influence of background variables on the patient safety indicator

	B	Std. Error	Beta	t	sig
(Constant)	74,049	1,370		54,038	,000
University hospital	-.621	,572	-.011	-1,086	,277
Length of stay	-.153	,030	-.048	-5,082	,000
Charlson score	,208	,114	,017	1,818	,069
Volume of surgical procedures at hospital	-1,567	,248	-.066	-6,320	,000
Emergency admission	-1,334	,360	-.041	-3,811	,000
Age	,148	,009	,155	15,961	,000
Self rated health	2,767	,156	,187	17,697	,000
Patients' number of hospital admissions last 2 years	-2,356	,180	-.148	-14,772	,000
Who filled in the questionnaire	1,365	,437	,030	3,127	,002
Type of hospital	1,151	,175	,071	6,580	,000
Surgical patients	-.151	,335	-.005	-.450	,653

## Conclusion

The difference reported in better scores on experienced patient safety among patients undergoing surgical procedures is mainly explained by patient characteristics, and not regarding whether they have undergone a surgical procedure or not. This result is surprising when compared to the published scientific literature, which point to increased reporting of incidents of breach of patient safety among patients undergoing surgical procedures.



Department of Otorhinolaryngology, Head and Neck Surgery,  
Centre of Head and Orthopedics, Rigshospitalet

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DET SKUHUVISITENSKABELIGE  
FAKULTET



## Demonstration of the WHO's Surgical Safety Checklist in 360° Virtual Reality

Tobias Todsen<sup>a,b</sup>, Kasper Wennervaldt<sup>a</sup> and Jacob Melchior<sup>a,b</sup>

<sup>a</sup> Department of Otorhinolaryngology, Head and Neck Surgery & Audiology, Rigshospitalet, Denmark

<sup>b</sup> Copenhagen Academy for Medical Education and Simulation, University of Copenhagen and the Capital Region of Denmark

### INTRODUCTION

The World Health Organization (WHO) has developed the Surgical Safety Checklist to decrease errors and adverse events in surgery and improve patient safety. When the list is used correctly, a significant decrease in morbidity and mortality has been demonstrated. The main challenge is to ensure a strong implementation and a commitment to use the list routinely. To achieve this, all surgical team members need sufficient education. 360° virtual reality (VR) video is a novel technology with great potential for medical education as it enables learners to immerse themselves fully in the situation. This video format is now supported on social media such as YouTube, Vimeo, and Facebook. For this reason, 360° VR videos may be a cost-effective alternative to train health professional learners in the use of the Surgical Safety Checklist.

### METHODS

We performed an "in situ" simulation in the operation room demonstrating the three essential steps of an operation. The team performance was recorded with a Vuze 3D 360 Spherical VR Camera, and, for post-editing, Final Cut Pro and Dashwoods 360VR Toolbox Workflow Plugins were used. Finally, the video was distributed through YouTube.com where it can be watched with a smartphone used as a Head-Mounted Display (HMD) to engage trainees with the stereoscopic 360° environment. Alternatively, the video can be viewed as a monoscopic version on desktop computers.

### RESULTS

We developed a 360° VR video demonstrating how to use the WHO's Surgical Safety Checklist in the Operating Room that could be accessed by health professional learners on Youtube.



### OBJECTIVES

The aim of this project was to develop a low-cost 360° VR video by a team of health care providers demonstrating how to implement the WHO's Surgical Safety Checklist successfully in the Operating Room.



### CONCLUSION

It was possible to produce a 360° VR education video about the Surgical Safety Checklist with use of low-cost consumer recording equipment and video editing software. The video is freely distributed through social media and can be watched in a stereoscopic version on a smartphone used as HMD or as a monoscopic version on desktop computers using the following link:

<https://www.youtube.com/watch?v=4hoP4gmqRPU>



360 VR

Marianne Møller <sup>1,2</sup>

Ph.D. student, M.sc. Pharm., Master in Professional Communication  
Email: marianne.moller3@rsyd.dk

Patients manage long-term medication processes with information

Stig Ejdrup Andersen, Chief Physician, Ph.D.<sup>3</sup>  
Jørn Helder, Ph.D., MA, External Lecturer<sup>4</sup>  
Christian von Plessen, MD Ph.d., Director/research lead <sup>1,2</sup>

# Patients manage medication processes with information



## Introduction

Chronic medicine users have long and often problematic treatment courses, involving unintended events and sub-optimal treatment quality. One of the main reasons for such challenges is attributed to inadequate patient information and communication. Traditionally, the field has often been described and evaluated from a health professional point of view, leaving out patients' own roles in maintaining quality and safety. At the same time, safety aspects have generally been defined by the absence of accidents and incidents, thus focusing on harm and errors (Safety-I) instead of on successes (Safety-II).

## Objective

With a specific focus on information, to explore how patients navigate successfully through long-term treatment processes with medicines. This will allow us to learn from the successes and failures of how patients manage medication processes in order to obtain good overall treatment quality.

## Methods

Semi-structured qualitative in-depth interviews with chronic users of medicine (pain relievers, anticoagulants and steroids/biological medicines). We employed a Safety-II approach to obtain knowledge of what worked for patients regarding the use of information in their treatment course, at the same time as acknowledging hindrances. Safety-II changes safety management from a protective safety and a focus on how things can go wrong, to productive safety and a focus on how things can go well. Humans are seen as a resource providing flexibility and stability through acting resiliently. Interview data were analysed using thematic qualitative analysis.



## Results

Patients reported a variety of ways to use information for managing their long-term medication processes. Common strategies were to actively seek and use supplementary written and oral information from several sources, in case information from the health system was missing, not understood or side effects appeared. Some strategies had the potential to be handled in a negative way, thus becoming barriers for managing safe processes.

The Safety-II approach seems to have facilitated insights into the ways patients manage their often complicated medication schedules with information.

## Conclusion

Chronic patients develop their own, often very efficient, strategies to deal with medications and find out what works and what does not. A tool for this managing is information, allowing patients to react, adjust and thus balance the overall quality of medication processes. Understanding patients' strategies for creating personal safety and tacit knowledge of success in long-term medication processes can contribute to establishing resilient medication processes.

1: Centre for Quality, Middelfart, Region of Southern Denmark  
2: Institute of Regional Health Research, University of Southern Denmark  
3: Dept. of Clin. Pharmacology, Roskilde, Region of Sealand  
4: University of CPH



### Introduction

Sensors as healthcare device → Paradigm shift → User related issues

Trade-offs

Privacy and safety

- Sensors are anticipated to become an essential factor in development of healthcare technologies
- This development is causing a major shift in society that, in turn, presents people with new challenges and possibilities.
- By bringing this technology into our homes there are tradeoffs between convince, control, security and privacy, as these applications deals with personal information, which can easily document and quantify habits, routines, and personal associations.

### Objectives

The focus of this study is on the balance between opportunities and challenges within monitoring technology and information privacy, with more weight given to concerns and the trade-off between privacy and safety

- Explore the nature of users' concerns about privacy when being monitored
- Investigate relationships between participants' perceived benefit & their trust/mistrust in privacy being under their control

### Research methodology and technicalities

Recruitment (Total n≈26)

Screened 4-5 days N=26

Balanced randomization (N=26/22)

4 opted out

N= 22 monitored 9 week (Oct-dec 2016) using Fitbit Charge HR

4 weeks steps feedback	4 weeks sleep feedback
4 weeks sleep feedback	4 weeks steps feedback

1 passed away after 9 week session

Post-trial semi-structured interview January 2017

#### The characteristics of the remaining 21 participants

Sample size:	n=21
Age range:	71-94
Mean age	85 yrs
Gender	18 females, 3 males

### Older Adult responses

- Most participants did not have concerns about their privacy "someone is looking after me, someone cares about me"
- Mixed reactions about the device
  - Some like the functionality of the device & others didn't care about it
- Importance of privacy and protecting depends on individual's health condition and current needs.
- Being monitored, could impact their comfort, but also makes them feel safe. The fear of injury (in case of fall) seems to be greater than the discomfort of feeling watched.

**What would you say if your municipal nurse offers to monitor your daily activity?**

Accept it	81%
Dont know	19%

Participant indicated, they are unconcerned about being monitored by technologies managed as health care device, but they need to be convinced that the technology brings advantages for them and their health.

**Would you feel surveilled if the data were shared with your care giver / nurse or doctor?**

Would not feel surveilled BUT spontaneously safe	~55%
Feel surveilled & safe	~15%
Feel neither surveilled nor safe	~10%
participant does not know	~20%

**Is there a limit on what type of data can be obtained?**

Interview data n=21	Percent %	Count
No limit	71%	15
Yes, there is a limit	29%	6
Total	100%	21

### Factors influencing the intention to accept monitoring

**Information**

- Cognitive and behavioral capabilities of effectively performing actions to gain benefits
- Autonomy → Sense of control (Transparency, Data awareness)
- Competence
- Relatedness → Perceived threats (Physical decline)

**Intervention**

- Perceived usefulness → Perceived benefits (Effectiveness)
- Perceived ease of use → Integration of the device (Required effort)
- Perceived trust → Ensure that consumer really feel safe & secure

**Trade-off privacy & safety**

Physical/cognitive impairments → High level of security concern corresponds positively with acceptance levels

Perceived need → Safety/ privacy?

Use related features

People related features

Results indicate participants are willing to provide personal information, but only under certain conditions. They will disclose their personal information if the benefits outweigh the risks that threatens their health & independent. Concerns caused by monitoring, such as a loss of privacy, can be justified by a 'need' for the technology derived from safety concerns related to health. The benefit of safety is worth the cost of privacy



## Working Group for establishing a Nordic Chapter for Gerontechnology



**The International Society for Gerontechnology (ISG)** defines gerontechnology as "designing technology and environment for independent living and social participation of older persons in good health, comfort and safety".

A **Nordic Chapter for Gerontechnology** is in the process of being established, and interested researchers and practitioners are invited to join the working group.

### **ISG Mission.**

ISG encourages and promotes technological innovations in products and services that address older peoples' ambitions and needs on the basis of scientific knowledge about ageing processes including cultural and individual differences

### **ISG Vision**

ISG works toward the realization of a society fully served by technology that is as accessible to ageing people as it is to people in younger generations

### **Safety and quality**

Development, implementation and use of technologies for older people raise a number of challenges to safety, quality as well as ethical issues. While most of such challenges and issues are the same across national borders, some of these vary very much from country to country. The Nordic healthcare systems, their infrastructure, payment base and not least the culture and values behind

are quite similar, relative to other countries. We therefore have a shared understanding of care quality, equality and protection of dignity and privacy common ground on which to discuss and develop technologies for independent living.



### **Contact:**

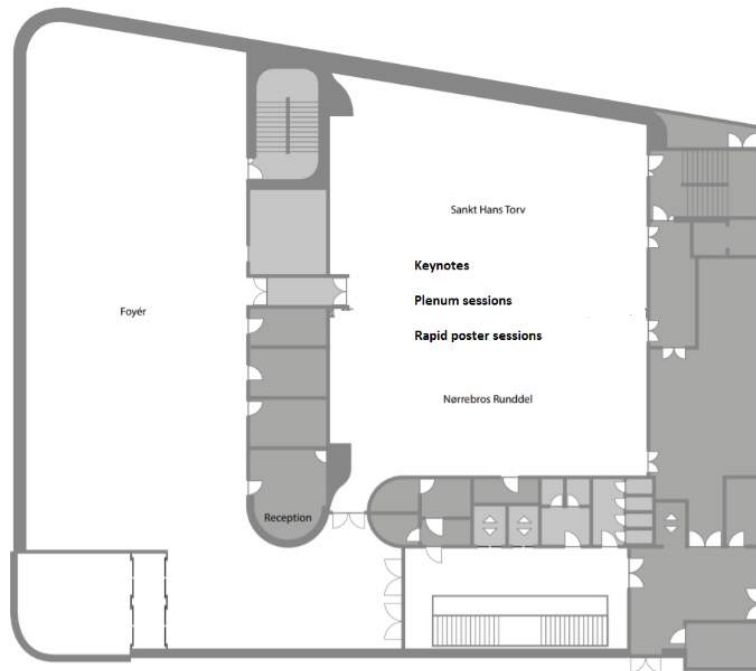
**Working Group for Establishing a Nordic Chapter on Gerontechnology**  
 Henning Boje Andersen [hebg@dtu.dk](mailto:hebg@dtu.dk)  
 Technical University of Denmark  
 Management Engineering Institute  
 Human Factors Group

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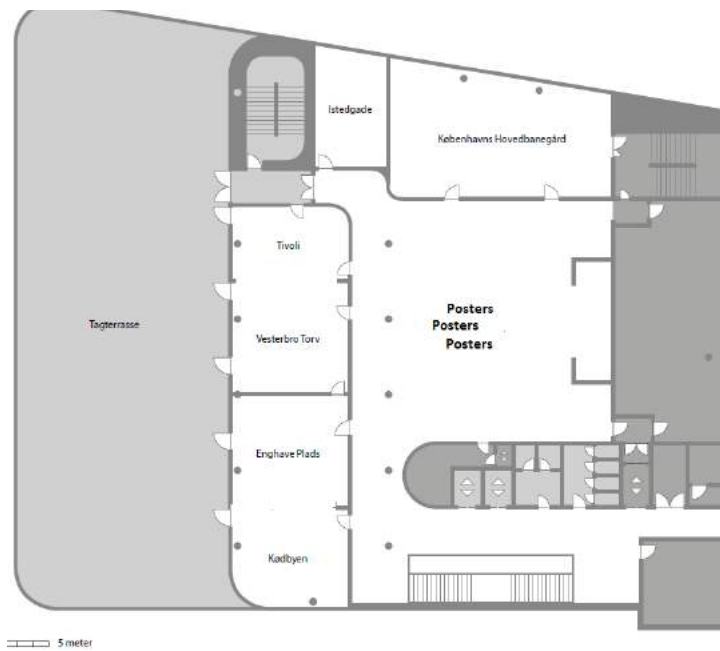
**ISG World Conference of Gerontechnology 2020**  
 18-20 May, 2020, Trondheim, Norway  
<https://www.sintef.no/ISG2020>

# MAP OF THE CONFERENCE CENTER

## Ground floor



## Second floor



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Technical University of Denmark  
Department of Management Engineering  
Healthcare Management Group  
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Denmark

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