



**Karolinska  
Institutet**

**Department of Learning, Informatics, Management and Ethics,  
Medical Management Centre**

**On the fifth day:  
Improving hip fracture care.**

**A study of processes, costs and outcomes**

**AKADEMISK AVHANDLING**  
som för avläggande av medicine doktorsexamen vid  
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av

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## ABSTRACT

This thesis analyses a research and development project on hip fracture care that was conducted between 2006 and 2010 at the Karolinska University Hospital, Stockholm, Sweden. The thesis is a case study of this change project that was intended to decrease the time to operation for hip fracture patients, to discharge these patients within 5 days of admission and to empower these patients in their post-operative care. Two sites of the hospital were used: at Huddinge, the patients formed the study group; at Solna, the patients formed the control group. The general aim of the thesis is to advance our knowledge of the facilitators and hindrances in organisational change by studying the hip fracture project. The thesis presents four studies that arose from the project.

*Study I* is a patient register study that describes the demographic characteristics of hip fracture patients and characteristics of their hospital care in Stockholm County in the years 1998-2007.

Pettigrew and Whipp's framework for managing change, describing context, process and content, was used as the basis of the analysis in Study II and Study III.

*Study II* is a case study that analyses the change project aimed at improving hip fracture care in terms of the factors that facilitated or hindered its outcomes. This study examines the dimensions of process and context.

*Study III* evaluates the outcome of a novel intervention approach that used a new post-operative rehabilitation programme aimed at patient empowerment. This study examines the dimension of content in strategic change.

*Study IV* compares the costs and outcomes of the study group with those of the control group resulting from the two ways of organizing hip fracture care. This study compares lengths of hospital stay and, using three costing measures, compares direct medical costs of such care.

*The thesis reaches the following conclusions:*

Between 1998 and 2007, in Stockholm County, the number of hip fracture patients and the length of their post-operative hospital stays was constant even as the numbers of elderly persons increased considerably. Overall, the ratio of hip fracture patients to the general population decreased by 16% in these years.

The attempt to redesign the care process at admission decreased the time to diagnosis and the waiting time because the nurses wrote the referrals to radiological examination. However, there was no increase in the rate of patients operated on within 24 hours of admission.

A coordinated care model based on an individually designed, post-operative rehabilitation programme that included patient empowerment reduced the length of hospital stay, led to earlier returns to pre-accident housing, and was less costly than fragmented care.

**On the fifth day** for discharge was an overly optimistic goal. Hip fracture patients cannot easily be compared to hip replacement patients even though the surgical methods in many cases are similar. The findings may have implications for initiatives that are intended to optimise the organisation of care. It requires evaluation of improvement initiatives, including the extent of top management commitment and the use of champions or change agents. The participation of all involved in such initiatives is essential.