



Context challenges the champion: improving hip fracture care in a Swedish university hospital

Susanne Löfgren, Johan Hansson, John Øvretveit and
Mats Brommels

Medical Management Centre, Karolinska Institutet, Stockholm, Sweden

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Abstract

Purpose – The purpose of this paper is to describe and explain a clinician-led improvement of a hip fracture care process in a university hospital, and to assess the results and factors helping and hindering change implementation.

Design/methodology/approach – The paper has a mixed methods case study design. Data collection was guided by a framework directing attention to the content and process of the change, its context and outcomes.

Findings – Using a multiprofessional project team, beneficial changes in the early parts of the care process were achieved, but inability to change surgical staff work practices meant that the original goal of operating patients within 24 hours was not reached. After three years, top management introduced a hospital-wide process improvement programme, which “took over” the responsibility for improving hip fracture care.

Research implications/limitations – A clear vision why change is needed and what needs to be done, which is well communicated by a respected clinical leader, can motivate personnel, but other influences are also needed to bring about change. Without a plan agreed and supported by top management, changes are likely to be limited to parts of the process and improvements to patient care may be minimal. These and other findings may be applicable to similar situations in other services.

Originality/value – This case study is an illustration of both the strengths and the weaknesses of a “bottom-up, clinician-champion-led improvement initiative” in a complex university hospital.

Keywords Quality improvement, Clinical guidelines, Patient pathway, Medical schools, Universities, Sweden

Paper type Case study

Introduction

A swift operation followed by fast rehabilitation and discharge is recommended for traumatic hip fractures (Manninger *et al.*, 1989). In 2003 the Swedish National Board of Health and Welfare (NBHW) issued a national guideline requiring that hip fracture patients (when in need of surgery) should be operated on within 24 hours of admission (Socialstyrelsen, 2003). Failure to follow the guideline is likely to cause unnecessary suffering to patients and increase costs of care. In 2005 Stockholm County, a regional health service provider introduced a financial incentive to hospitals to meet the requirement. Still results have not been convincing. Several attempts were made at one of the region’s university hospitals, caring for 20 per cent of the county’s hip fracture patients, to improve the care for that patient group (Svensson *et al.*, 1996, Thor *et al.*, 2004). This study reports a patient pathway process improvement initiative in the hospital that was part of larger project, which included empowering patients through



staff training and testing new operation techniques by the use of computer simulation of the osteoporotic bone.

Background

Waits and delays as indicators of poor quality in healthcare have drawn much attention for more than a decade. Many technological advances and the “inherit” developmental force of professional services like healthcare – specialisation – have increased, rather than reduced, the challenge. Technological advances often lead to increased organisational fragmentation with patients having to wait during moves between departments and wards (Walley, 2003; Parnaby and Towill, 2008). To avoid fragmentation and reduce the length of hospital stays, integrated care pathways (ICP) have been introduced to streamline the patient’s journey within hospitals and between healthcare providers (Olsson *et al.*, 2006).

Traditionally, health care has adopted quality management approaches as means to improve patient care. Examples are total quality management (TQM), continuous quality improvement (CQI) and business process re-engineering (BPR) (Pollitt, 1996; Goldman, 1997; Diehl, 1995). All these techniques are systems and process oriented and thus suitable to be applied within a patient pathway framework. Although reports of successful quality improvement are abundant many projects are short-term efforts that lack a focus on the core problem (Walley *et al.*, 2006). An early American interview survey concluded: “None of the quality experts could identify a healthcare organisation that has fundamentally improved its performance through CQI. There simply are no organisation-wide success stories out there” (Blumenthal and Kilo, 1998). Other sources report a failure rate of 70 per cent of all change programmes initiated (Balogun, 2004).

Given this, the importance of opinion leaders supporting the change and trusted change agents leading the process is particularly important in professional organisations. A study of six Norwegian hospitals, which used process improvement reported the difficulties managers and enthusiastic physicians had devoting the time necessary for improvement programme (Ovretveit, 2001). According to Ham “the implication is that quality improvement initiatives have to be applied in a way that recognize the distinctive features of hospitals, particularly the autonomy of physicians” (Ham *et al.*, 2003).

Aim and research questions

The aims were to describe and explain a programme of changes to improve hip fracture care and outcomes in a Swedish university hospital. The review of previous research and the interests of the managers with who the researchers cooperated in the study led to the following four questions (Q) being defined:

- Q1. What were the assumptions or “programme theory” underlying the improvement initiative?
- Q2. How did the improvement initiative affect the perception of personnel about hip fracture patients?
- Q3. How did the initiative affect the quality of patient care?
- Q4. Which factors helped and hindered the implementation of the improvements?

Methods

Case study design

A mixed methods case study design (Yin, 2009) was chosen as the most appropriate to collect data about and explain the changes intended and achieved. The study started in 2006 and was completed in 2009. A key feature of the design was a data gathering framework informed by theories about the causes of failure and success of improvement projects. It was based on Pettigrew's and Whipp's strategic change model (Pettigrew and Whipp, 1991), according to which data on the details of the initiative (content), the surrounding organisational context, the process of carrying out the initiative, and intermediate and final outcomes were collected.

In this study, the content of the change was the attempt to redesign the patient pathway. Contextual aspects were regarded to develop an understanding of the internal and external environment influencing the change activities. The purpose was set to identify helping and hindering factors to implementation and to determine whether the goals were met and, above all, to document the change actions taken. Finally, two aspects of outcomes of the change were analysed: intermediate changes to organisation structure and process, policies and procedures, including staff impact such as attitudes and behaviour; and percentage of patients operated within 24 hours.

In the study, data were gathered at different types using semi-structured interviews, archive data, email correspondence and notes from meetings, and were analysed by the lead author (SL). In addition, performance statistics with information about care utilisation and lead times was analysed. One of the study aims was to describe and explain the main changes implemented, and to present the study findings in a useful way to local implementers. Given this aim, preliminary findings were regularly reported to the project leader (PL).

Data gathering procedures

Data were collected in an iterative fashion. Data from different sources were compared and crosschecked, which helped to identify additional data collection needs. During the study period the researchers made three-monthly internal reviews and summaries of the data collected, and emerging themes were noted. The application of each method is described below.

Interviews. From June 2007 until December 2008 semi-structured interviews with 21 individuals were performed to capture the implementation of the improvement initiative. The informants were sampled among physicians, nurses, assistant nurses, occupational therapists and physiotherapists from involved departments. Interviews lasted between 45 and 65 minutes. Informants who could fit the interview into their schedule during the workday were approached. All informants gave permission to the first author (SL) to record the interview session, which enabled subsequent reliability checks. All interviewees were informed about the purpose of the study and that their statements would be handled confidentially. Interviews were transcribed verbatim and sent to interviewees for validation and amended if necessary.

Archive data and performance statistics were gathered during two three-month periods one year prior to the launch of the initiative, and during year one and two of the study. Those data were delivered by the hospital, mediated by the PL. Data were collected as follows:

- Baseline group: all patients treated for hip fracture in April-June and September-November 2006 ($n = 170$).
- Patient group 1: all patients treated for hip fracture in April-June and September-November 2007 ($n = 154$).
- Patient group 2: all patients treated for hip fracture in April-June and September-November 2008 ($n = 177$).

Data analysis

A triangulation approach was used to compare data from different sources and to establish patterns. For instance, interviews were compared to data from project plans, stated intentions of the PL, clinical guidelines and notes from meetings to find out consistency in data (cross-data validation).

All interviews were handled by basic content analysis (Weber, 1990; Silverman, 2005; Silverman, 2006). Data were organised into categories and classified according to the five main themes of the Pettigrew and Whipp framework. Two of the authors (SL and JH) performed the analysis applying the NVivo 8.0 software.

Documents on research plans, ethical approval, email correspondence, meeting notes, written instructions, information to patients and relatives were collected and analysed. Performance statistics covered information on care utilisation and lead times. For this article the percentage of patients operated within 24 hours after discharge was calculated for each of the three patient populations.

Throughout the study all documents, interviews and performance data were archived in a protected database. Audiotape content was deleted after the analysis was performed.

Findings

Planning phase: 2005-2006

At the end of 2005 the project leader (PL) received a grant for a clinical research project, which consisted of three parts. One aim was to improve the care for the hip fracture patients and to reduce the length of stay by “empowering” patients and individually tailoring rehabilitation according to patient need. The project leader defined empowerment as “patients gaining control over and mastering daily activities on the same level as before the accident, or as closely as possible to that level, as a result of treatment and rehabilitation”. Empowerment thus refers to staff actively involve the patients to take responsibility for their rapid recovery. This paper does not report this “empowerment” change but does note how the process improvement was viewed as related to this original objective. During the planning of the hip fracture project the PL explained how the way the patient pathway was organised also needed to be addressed,

During one period only 25 per cent of the patients were operated within 24 hours – it was the bottom level . . . it was guidelines nobody cared about. The patients ended at the geriatric department and there were no close communication [with orthopaedics] so they were forgotten . . . and they had to wait [longer] for operation compared to other groups (PL).

The PL identified the need to improve the hip fracture patient pathway both as an end in itself and as part of the research project.

The work with the clinical pathway was not a planned change, instead it emerged when we realised that we had to put something into practice. In order to do research on this, according to the intentions in the research plan, we realised the need for a process perspective (PL).

In the same interview, the PL presented his personal motivation for this work:

The [hip fracture] patients are close to my heart and I get upset when I see how badly they are treated. They have paid their taxes all their lives and received the promise that we will take care of them and provide the care they need. And now we treat them this badly. It is an injustice of biblical proportions (PL).

In the early project phase, the PL anticipated difficulties in changing established routines, and to highlight both the situation then and the challenges in making changes the project was labelled the “Jungle Path” project.

One reason for the name is that it is somewhat mean and provocative. It will evoke a picture of how one must chop up ones way through a territory of primeval forest (PL).

Earlier efforts in other projects aimed at improving that patient pathway had failed to sustain the changes and the pathway had “overgrown” and relapsed into old routines. At the end Of 2005 a project team called the “Jungle Path working group” was established and physicians, nurses and occupational therapists who represented all six departments which would need to be involved in the change were invited to join. During 2006 the working group started to organise monthly meetings to plan the change work.

The middle phase 2007-2009

The monthly meetings to discuss and reflect on the progression of the work continued. The group structure was stable with only a few changes of members during the years 2006-2009. At the meetings, the PL showed statistics and the group identified emergent problems and solutions. Complementary to these meetings, the PL was contacting, informing and influencing other personnel in different ways:

I contacted all concerned staff which means the physicians, nurses, assistant nurses at the emergence department and others along the pathway. I have kept all heads of the departments informed and I must say that it is more difficult than anyone would expect; I certainly agree that communication is a major difficulty (PL).

Much of the change was driven by the PL through these contacts, but interviews also show that the changes which were made were brought about by many different actions by the PL, project team members and other actors.

The following changes were made in the Accident and Emergency (A&E) Department during the period: In 2007 the patient group was given high priority in the initial triage and new routines and methods for pain relief and pre-surgery preparations were developed and introduced involving the anaesthesiology department (A). Parallel to this, the nurses were given the authority to write the radiology referral. Interviews later in the project summarise some of the outcomes of the change, and also the staff perceptions of them:

Today, these patients are prioritised and handled much quicker than before. The main reason for this is that a physician and a nurse together have a quick look at the patient, prioritise her/him and then send the patient for X-ray (Assistant nurse A).

At that stage the Radiology Department (RD) had started to give high priority to hip fracture patients, and the x-ray pictures were taken within 30 minutes. An extract from a meeting protocol (January 2008) established that “The RD takes x-ray pictures rapidly and it works well”. Interviews indicate a change in the staffs’ perception of the patients as an important group of old people, not only a “hip fracture”:

This has been a forgotten patient group so we see this work [The Jungle Path] as very important. We had a hip process earlier but no clear goal indicated that the patient should be in the operation theatre within 24 hours. Added to that, we now have a general permission to prescribe drugs, pain relief for these patients, and the possibility for the nurses to write the referral to the radiology department where the staff takes x-ray pictures rapidly, and we deal faster with the follow-up work (Nurse A).

Interviews revealed little knowledge about the national guidelines for hip fracture care amongst staff in 2006.

No, we have never been introduced to them. But you know it happens that someone says they should be operated within this or that time and so on. But it is not something you read by yourself; you do not have the time (Physician A).

I have read them. I found them on the Internet when the hip process started and before the first group meeting. I wanted to see what the Swedish National Board of Health and Welfare (NBHW) was saying about how to prioritise these patients. I had heard that we gave them low priority contrary to the SNBHW guidelines (Nurse B).

Parallel to the “Jungle Path”, the PL worked with colleagues on agreements on local clinical guidelines for hip fracture patients. Interviews with orthopaedic surgeons showed that they had doubts about the project and their participation:

It is in the walls, it is long distances both physically and mentally. We have very rarely seen any analysis of why the previous projects were unsuccessful. The wheel has been invented over and over. You can see the pattern (Physician B).

The only power I have is when I am responsible for operating on my patient. Then I can prioritise, make the medical decisions. I cannot influence the organisation (Physician C).

The research was able to reconstruct from interviews and meeting minutes more details of the actions taken by the project team and others to bring about the process improvement and realise the plan (Table I). Data gathering also discovered that some planned changes were not carried out.

Other events affecting the project during the mid-phase (2007-2008)

Parallel to the mid-phase summarised above, a number of other changes took place which project team members reported had some influence over their actions to carry out their project plans. At the end of 2007, the new chief executive officer (CEO) of the university hospital introduced a hospital-wide process improvement programme, inspired by lean thinking (Joosten *et al.*, 2009). That programme focused initially on “acute processes” (emergency departments) and was later introduced stepwise throughout the organisation. At the site of the “Jungle Path” initiative the programme was launched in the A&E department and subsequently spread to the operating theatres (OpT), clinical chemistry laboratories and the wards. In the A&E, all

Table I.

Actions taken by different parties to achieve changes in organisation and practices for better patient flow and empowerment

Who took the action and when	Action taken	Intended change in organisation and practices
Project leader	Monthly information meetings with staff in all involved departments to explain the planned changes	Prioritisation (triage) of patients and reduced waiting times at the A&E and OpT dept
Project leader	Discussion with head of RD	Acceptance for referrals written by nurses at the A&E. Reduced waiting times
Project leader	Occasional, unannounced visits to involved departments	Show interest, answer questions and inspire participation
Project team members during the spring 2006 and with follow-up quarterly	Department reports and explanation of the planned changes and project progression	Participation from all departments involved. Prioritisation of the patient group
Project leader during the spring 2006 and with follow-up during the whole project period	An action plan presented to all heads of involved departments and managers	Increased understanding of change motives and staff support
Trainers in empowerment during the whole project time	Training of staff at the GW	Empowerment

orthopaedic patient processes were included, but in the operating theatres, only patients in need of an acute orthopaedic operation.

A second change was the building of new operating theatres (OpT), which was preceded in 2007 by a detailed study of the internal processes. A third change was then started in 2008 by the OpT clinical director to achieve an improved flow of patients through the unit using “Breakthrough model” methods (Berwick, 1996).

Interviews indicate that not all employees were pleased with several parallel process improvement projects ongoing simultaneously:

But after one year in my new job and exposed to the flow project and the process improvement programme I believe it would be better to start to build small hospitals instead of a new big one. The goal has to be to do it as simple as possible. And in a central hospital there is a tendency to move people back and forth which makes people responsible for everything but for nothing specific (Physician D).

The concluding phase – hand over of the “Jungle Path” (2009)

By 2009, the most important changes achieved were an agreement that nurses at the accident and emergency department were authorised to prescribe painkillers and write the referrals to the radiology department. The radiology department staff started to give high priority to the hip fracture patients and delivered the x-ray examination expediently. It was difficult, though, to persuade orthopaedic surgeons to give the patient preference over other cases, and the objective of rapid access was not reached. Interviews with the orthopaedic surgeons indicated a resistance to participate in the pathway improvement project:

It is as it is, people will not accept any changes, and they can see big difficulties that do not exist ... people do not always work in the same direction. Nobody really knows how many processes are going on parallel; everybody is loyal to his process (Physician E).

The PL provided to the researchers an email between the PL and his manager:

Despite your [PL] early and intensive efforts to improve this flow for the elderly patients, the progress at the departments in relation to the hip fracture flow is miserable and still, after 2.5 years of efforts, it has not resulted in any big pay off (E-mail from head of orthopaedic surgery department 12 December 2009).

On 4 November 2009 the PL decided to dissolve the “Jungle Path” project group and to hand over the responsibility for improving hip fracture care to the CEO initiated process improvement programme, as a part of all acute orthopaedic patients regardless of diagnosis. The PL explained the reasoning behind his decision in the following manner:

For two and a half years we have tried to keep the Jungle Path open for patients with a hip fracture. In this, we have reached some success but we still have a long way to go. During this period the interest in this patient group has grown and other groups have come to work towards the same goal – the latest is the CEO’s process oriented project for acute orthopaedic surgery [. . .] In my opinion, the CEO’s process team constitutes the strongest group that our collective can establish. I now realise the inefficiency of having several groups working towards the same goal. The risk to attack the problem from different perspective is evident and may well counteract the overall ambition. Based on that, I have now formally handed over the Jungle Path to the CEO’s process group. Since the hip fracture patients are a part of all orthopaedic acute patients that patient group will still benefit from the overall process work. By this, the Jungle Path working group meetings are quite unnecessary (PL in email to the Jungle Path group members).

Despite the decision to transfer the “Jungle Path” to the CEO’s process improvement programme, the patient empowerment part of the original research project continued. Its progress and results will be reported separately.

Analysis

The Pettigrew and Whipp framework was applied to describe and explain the actions taken and the intermediate changes and outcomes observed. Following the Pettigrew and Whipp framework, the content describes the details of the initiative and the process how the initiative was carried out. The context describes the organisation in which the project was conducted and the outcomes the intermediate and final results.

Content of the change

Pathway changes. The content of the initiative was an attempt to redesign the clinical pathway in order to reduce the time from admission to operation for hip fracture patients, see Figure 1. In 2006, before the pathway project, care was organised in the way shown in Figure 2. The hospital was organised in “divisions”, consisting of several specialty-based clinical departments, each managing wards and clinics. The responsibility for the care of hip fracture patients was divided between three divisions and six departments, and specifically, the following clinical units: accident and emergency (A&E), radiology (RD), orthopaedic surgery (OS), operation theatre (OpT), anaesthesia department (A) and geriatrics (geriatrics ward, GW).

Patients arrived at the accident and emergency department, were assessed by nurses, orthopaedic surgeons, and, when an operation was planned, by an anaesthetist. That consultation could also take place at the geriatrics ward, where the patient was

placed while waiting for surgery. Postoperative rehabilitation was also organised at the geriatrics ward.

The change programme aimed to accelerate the process before and after operation at the OpT, but had to adapt to the existing organisation.

Process

The processes of change were the actions taken by the PL, the project team members and others to carry out their plan for the pathway redesign and empowerment. Table I summarises the actions taken.

As demonstrated in Table I, a number of activities were launched, mainly by the PL, but also by a dedicated and active project team. Indeed, the high cohesion and continuity of the project team, and the extensive networking by the PL to raise interest generally for the patient group and the aims of the initiative are important features of the process. The project team tried to raise credibility by referring to national guidelines supporting the aim of the initiative. The lack of “method” stands out when analysing the process – a theme to which we will return in the discussion section as well as the anchoring in the management organisation.

Context

Apart from the actions taken to make the changes, a number of factors internal and external to the organisation both helped and hindered the changes. These influences also changed over the period 2006-2009, and how the implementation team did and did not respond to these contribute to explaining the intermediate and patient outcomes, which were observed.

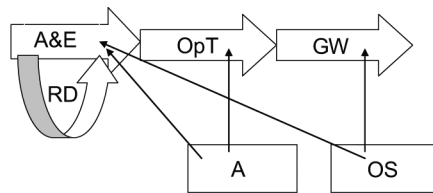


Figure 1.
The intended path

Notes: Upper arrows show a hip fracture patient’s path through different units. The thin arrows represent physician input from other units

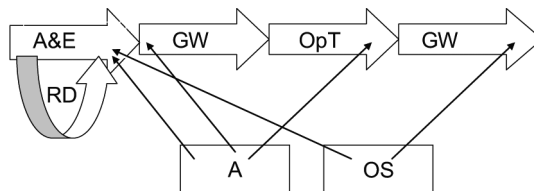


Figure 2.
The organisation before the project started

Notes: Upper arrows show a hip fracture patient’s path through different units. The thin arrows represent physician input from other units

Parts of the context, which interviews suggest were important in helping the actions and changes were past experiences of development work and a wish to do something good for this neglected patient group.

The inner context was a large university hospital, including both staff engaged by the change agent who realised the importance of the initiative, and sceptics who were suspicious of the clinical guidelines and had a cynical attitude to repeated attempts to introduce change. At the departments involved several “competing” improvement initiatives had been launched, most notably a hospital-wide patient process improvement programme, launched by the CEO of the hospital. The original change project (the “Jungle Path”) was increasingly seen not to fit with the hospital-wide programme.

Outcomes

The outcomes which can be attributed, at least in part, to the actions taken were intermediate changes to different departments’ organisation processes, and policies and procedures, as well as impact on personnel attitudes and behaviour. The outcomes on patient clinical outcomes will be presented as percentage of patients operated within 24 hours.

Impact on staff. The interviews indicate a change in the staff’s perception of the importance of hip fracture patients as a group:

Much has been changed I can say. Now I am so conscious about this important group, it is an important group, it is old people. Before I saw them only as ‘a hip fracture’ and a hip is not vital, it can wait 24 or 48 hours, while we do other things. Before this they also were given low priority in a non-humane and unfair way. The focus on this patient group has made me prioritise them in another way (Physician D).

The objective to get the patient to surgery as soon as possible is a new way of thinking, which gives [the patient] another priority (Physician A).

Several interviews emphasise the importance of communication between the care providers:

Today I have a closer cooperation with the geriatric ward, anaesthesiology, surgery, and the emergency ward. There is a more extended dialogue for example with radiology, which I think we did not have before. And the consciousness has increased about the importance of rapid surgery, I believe (Physician F).

Table II shows a compilation of attitudes towards the project among those interviewed.

Staff	A&E	RD	Department			OS	GW
			OpT	A			
Physician (9)		+		+, +		-, -, -, -, +	+
Nurse (8)	+, +, +		+, +	+			+, +
Assistant nurse (2)	+, +						
Occupational therapist (1)							+
Physiotherapist (1)							+

Table II. Positive (+) and negative (-) attitude among staff to being involved in the improvement project

Abbreviations

- A&E accident and emergency department.
- RD radiology department.
- OpT operations theatres.
- A anaesthesia.
- OS orthopaedic surgery.
- GW geriatric ward.

In Table II the abbreviations above will be used.

Impact on process quality. Outcomes as impact on process quality were measured as a proportion of patients operated on within 24 hours. During the course of the project only marginal changes could be observed in the proportion of patients receiving their operation within 24 hours (see Figure 3).

Discussion and conclusions

Based on the analysis in the previous section a number of interesting findings will be discussed and reflected on relevant theory. The original motive for the project was to enable patients to take a more active role in their rehabilitation and to start mobilisation early. The project leader describes how this led to a second aim of improving patient flow, especially to ensure operations within 24 hours on hip fracture patients. The data show the PL, project team and others carrying out a number of actions to improve flow and develop patient “empowerment”, and some success in some departments but not with orthopaedic surgeons. It also shows how the project was overshadowed by wider events and the limits to what an enthusiastic and respected clinical leader and project team could achieve.

To answer the four research questions defined at the outset, the study drew on the different data gathered in the case study and below reports the evidence providing some answers to the questions:

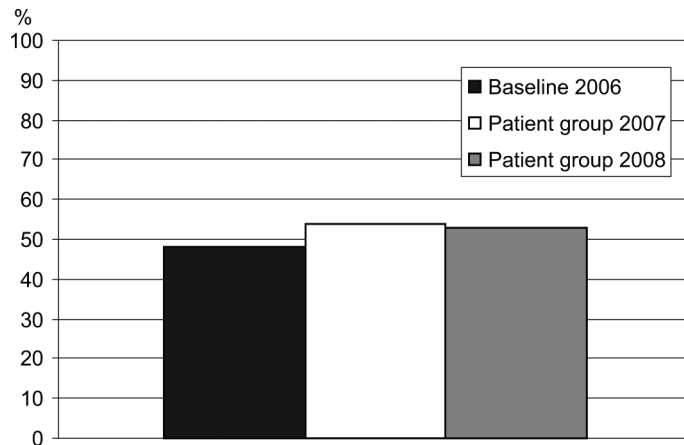


Figure 3.
Percentage of patients
operated within 24 hours
2006, 2007 and 2008

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- *Q1: What were the assumptions or “programme theory” underlying the improvement initiative?* The project leader’s statements suggest that he was motivated to improve care for hip fracture patients both by a feeling that these patients had not been given sufficient priority and by ideas for change, which he felt, could be carried out. As a clinician scientist he originally planned a research study combined with a plan for increasing patient involvement in care in order to help them regain control. It appears that he and the project group acted out of a “programme theory” based on assumptions that showing data on the poor prognosis and the low priority given to the patient group would stimulate others to action, and that the national guidelines would be unquestioned. Also, that forming a multi-professional improvement team of staff from the different clinical units involved in the care path, and widely communicating about the efforts to all staff involved, would lead to an acceptance and implementation of a redesigned care pathway. Part of the strategy was to raise interest by giving the initiative a provocative name – the “Jungle Path”. Olsson *et al.* (Olsson *et al.*, 2006) has showed that implementation of integrated care pathways (ICP) could significantly reduce the length of stay and improve the quality of care for hip fracture patients. The underlying assumptions of the clinician-project leader were intuitive, but consistent with what is known to be an effective strategy.
 - *Q2: How did the improvement initiative affect the perception of personnel about hip fracture patients?* There is evidence that nursing staff recognised the patients were a “forgotten group”, and that little attention was paid to the requirement to treat the patients within 24 hours. The “Jungle Path” and the discussions it initiated led to an increased focus on the patient group. Some scepticism and resistance to the national guidelines was expressed in interviews with orthopaedic surgeons. The requirement to operate on hip fractures within 24 hours was seen by them as arbitrary and with questionable support in the literature.
 - *Q3: How did the initiative affect the quality of patient care?* The original goal was to reduce waiting for the operation in order to meet the guidelines requirement of treatment within 24 hours. The proportion of patients receiving their operation within that time limit increased only marginally. However, there is evidence that staff paid more attention to this patient group which might have led to an increased level of care. It is likely to assume that a better anchoring in the hospital management could have helped to strengthen the project and reduced waiting time to operation. The importance of establishing the project idea at the strategic management level cannot be underestimated.
 - *Q4: Which factors helped and hindered the implementation of the improvements?* The single most important promoting factor mentioned by interviewees was the dedication and strong commitment of the project leader as well as his seniority and the respect with which many held him. Additional facilitators were the national guidelines with the time limit requirement, authorisation of emergency department nurses to order painkillers and x-ray referrals, and the use of a multi-professional improvement team with largely stable membership over the

three-year project. Obstacles were that all did not know national guidelines, and there was some criticisms concerning its evidence base. Some physicians felt that applying guidelines for only one patient group was difficult in their clinical situation, with other urgent patient needs competing for attention. The fact that many development activities took place in parallel was a distracting factor for staff. Originally, the launch of the CEO's "flow" improvement programme highlighted the importance of working with patient pathways and added legitimacy to the "Jungle Path". Later, the focus of the "Jungle Path" on only one patient group was seen as deviating from the "flow" improvement programme approach and was felt inappropriate by its leaders.

The initiative was launched at one of the divisions of a large university hospital. Other research suggests that the size of the hospital might be a further complicating factor. Shortell *et al.* report that larger-size hospitals are less likely to have group-oriented cultures that emphasise teamwork, empowerment and related attributes, which in turn are known to promote staff involvement in change processes and contribute to their success (Shortell *et al.*, 1995). It is also possible that not using a more systematic project management method and continuous improvement methods contributed to underachieving the aims of the project, although doing so would probably not have overcome the resistance of the orthopaedic surgeons to changing their working practices.

Additional observations

One lesson for further change development, based on this case, is to emphasise a shared understanding of a projects intention among the hospital managers. A consistent vision throughout the organisation, and not only within the involved departments, can strengthen similar projects.

The "Jungle Path" project can be contrasted with the CEO initiated process programme. The latter was driven by and given the full attention of the top management at the hospital. It applied a structured change model based on lean principles (Joosten *et al.*, 2009), had a corporate support unit, developed a line of command with regular reporting to top management and involved local improvement teams with young medical specialists as leaders. The "Jungle Path" was part of a clinical research project, initiated by a senior orthopaedic surgeon, who succeeded in engaging and forming a highly dedicated team of clinical staff, but did not use such systematic methods, had little outside support, and did not have formal authority to require other departments to make changes.

The "Jungle Path" project could be characterised as being led by a – "physician champion" and as representing a "bottom-up" change approach. The importance of change agents for the success of improvement attempts in professional organisations has been described by Damschroder *et al.* (Damschroder *et al.*, 2009) and others. Damschroder *et al.* emphasise that "champions" typically create conditions for change through four critical actions: protection of those involved from organisational rules and systems that may be barriers, building support for new practices, facilitation of the use of organisational resources and promotion of coalitions of stakeholders, and it is of note that all these actions were intuitively taken by the project leader. However the project leader took a wider role than a change champion and was more actively involved in the

details of the change. A nurse on one of the units involved, who expressed the views of several of the project group members, attested to his personal influence:

It is so fascinating with a champion, he burns for this and he wants this project to be good both for the patients and for the status of the hospital (Nurse B).

The project leader did not originally include a clinical pathway sub-project in his research proposal. During the first year of planning he realised the need to reorganise care in order to reach the overall aims of his programme. The “birth” and “growth” of the “Jungle Path” was thus an emergent rather than planned approach to organisational change (Bamford and Forrester, 2003). In comparison, the CEO initiated and still on going “flow” programme was top-down, carefully planned and executed using a strict methodology and managerial control in its implementation.

When the larger hospital “flow” programme was introduced it radically changed the context for the “Jungle Path”. It could have been the end of the “bottom-up”, “champion led” changes. The good standing of the champion among his colleagues, the network he had created and successful communication with the leaders of the “flow” programme avoided a confrontation. The champion adapted his strategy to the change in the context. By “handing over” his project he involved the hip fracture patients as part of the bigger “flow” of acute orthopaedic patients but preserved them as a distinct group with a higher priority than previously.

Conclusions

This study has gone some way towards identifying factors helping and hindering practical implementation of change work. A framework for collecting data allowed the case study to discover a number of patterns, which could explain the changes which were and were not made. This framework helped understand how the context of a process improvement change affects what can and cannot be achieved, and the extent of and limits to the role of clinical leader in achieving changes. It showed that an energetic and respected clinician could achieve some changes, but how the context both supported and limited what could be achieved. The study revealed that the clinician was able to forcefully communicate a clear vision and was able to engage many clinical staff and create the conditions for changes in patient pathways. But without an overarching plan, well founded with and actively supported by top management and other clinicians, the changes were limited to parts of the pathway. Clinical guidelines were not sufficient to convince key clinicians to support the change. A “strategic” approach by the clinician champion, adapting to and utilising changes in context, led to his losing direct control, but increased the chances of improving conditions for the patients who were the subject of the original project. One lesson for further policy improvement is to include the aspect of effective anchoring in the involved departments as well as the management organisation.

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Corresponding author

Susanne Löfgren can be contacted at: susanne.lofgren@ki.se