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Challenge of improving postoperative pain management: case studies of three acute pain services in the UK National Health Service

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Background. Previous national survey research has shown significant deficits in routine postoperative pain management in the UK. This study used an organizational change perspective to explore in detail the organizational challenges faced by three acute pain services in improving postoperative pain management.

Methods. Case studies were conducted comprising documentary review and semi-structured interviews (71) with anaesthetists, surgeons, nurses, other health professionals, and managers working in and around three broadly typical acute pain services.

Results. Although the precise details differed to some degree, the three acute pain services all faced the same broad range of inter-related challenges identified in the organizational change literature (i.e. structural, political, cultural, educational, emotional, and physical/technological challenges). The services were largely isolated from wider organizational objectives and activities and struggled to engage other health professionals in improving postoperative pain management against a background of limited resources, turbulent organizational change, and inter- and intra-professional politics. Despite considerable efforts they struggled to address these challenges effectively.

Conclusions. The literature on organizational change and quality improvement in health care suggests that it is only by addressing the multiple challenges in a comprehensive way across all levels of the organization and health-care system that sustained improvements in patient care can be secured. This helps to explain why the hard work and commitment of acute pain services over the years have not always resulted in significant improvements in routine postoperative pain management for all surgical patients. Using this literature and adopting a whole-organization quality improvement approach tailored to local circumstances may produce a step-change in the quality of routine postoperative pain management.

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> '... every aspect of care is accomplished through organization – or more accurately, processes of organizing –... organizational and human processes can be expected to play a huge part in determining the level and quality of care patients receive.'[1]

Many studies have noted the slow progress made in improving postoperative pain management in the UK and worldwide.[2–5] In the first phase of a two-part study on progress in implementing acute pain services (APSs) in the National Health Service (NHS),[6] we surveyed 270 acute pain services and found that there were significant deficits in routine postoperative pain management in many UK hospitals. The majority of acute pain services were only available from Monday to Friday during the day; pain scoring was patchy; only about half of respondent hospitals had a protocol or established practice for managing postoperative nausea and vomiting and provision for analgesia post-discharge was limited.[6 7] Although a lack of sufficient ongoing resources was a factor, the acute pain service

clinicians in the survey believed that the major barriers to improving care were organizational and that these were exacerbated because other health professionals, managers, and policy-makers were unaware or unconvinced of the importance of good postoperative pain management.[6]

There is a growing body of research on organizational change in health care and other organizations that studies organizational barriers to improving health care, the ways that these factors influence each other, and how they can be addressed.[8–10] A recent major international study[1] provides a helpful summary of current thinking in this field. The research team selected nine hospitals and medical centres in Europe and the USA that are renowned for high performance and for sustained improvement in quality of health care and conducted fieldwork over an 18-month period using a range of research methods including interviews, documentary review, and direct observation. They found that the organizations shared two common factors: they had adapted generic quality improvement strategies to fit the context and circumstances of their own organization and they had addressed simultaneously a range of challenges inherent in quality improvement.

The researchers defined these as six inter-related core challenges:

- the *structural* challenge: structuring, planning, and coordinating quality and service improvement efforts, and embedding them within the organizational fabric;
- the *political* challenge: negotiating the politics of change associated with starting and sustaining the improvement process; securing agreement to common goals; dealing with conflict and opposition; building new relationships to enable improvements to spread rapidly and effectively through the organization.
- the *cultural* challenge: building shared understanding and commitment around the improvement process; developing a culture that makes quality the over-riding concern and that values innovation, learning, and collaboration.
- the *educational* challenge: encouraging a continuous learning process in relation to quality and service improvement; developing formal and informal learning and mentorship; enabling staff to acquire relevant knowledge, skills, and expertise to underpin service improvement.
- the *emotional* challenge: inspiring and motivating staff to join and sustain the improvement effort; developing individual and collective enthusiasm and momentum around service improvement; using clinical champions and informal networks of professional and social affiliations.
- the *physical and technological* challenge: developing a physical and technological infrastructure that enables service improvement and improves patients' experience; using information to enable service improvement.

The organizations had been able to improve the quality of the health care they provided in a comprehensive whole-organization way by simultaneously addressing each of these challenges in a concerted way using a range of approaches at multiple organizational levels. Fundamental to this success was that in each organization these approaches had been tailored to their particular local circumstances: to the health professionals and managers who worked there, to their local patient populations, to their buildings and physical resources, to their organization's history, and to the internal and external political contexts in which they worked.

Using an organizational change perspective, we followed up our earlier survey of acute pain services by carrying out detailed case study research[11] in three broadly typical acute pain services to explore in more detail the organizational challenges they faced in improving postoperative pain management and the extent to which they had been able to address them. We have addressed the generic challenge of implementing national policy documents in local health-care organizations in a separate paper;[12] here, we focus on the detail of the challenges encountered by acute pain services in trying to improve postoperative pain management in their trusts, and the extent to which they were able to address these challenges.

Methods

Before the main study began, a pilot case study was carried out in a local trust.[11 13] Fifteen semi-structured interviews were conducted with staff from different professional groups from across the trust: junior doctor and consultant surgeons and anaesthetists, ward and specialist nursing staff, pharmacists, physiotherapists, and managers. After the pilot study, several logistical changes were made, notably to reduce the number of case study sites from five to three and to increase the time allocated per interview from 30 to 40 min. Ethical approval for the study was obtained from a multi-centre research ethics committee.

The study was concerned not with the individual sites *per se* but with their illustration of wider processes;[14] the case study trusts therefore needed to be broadly typical in size and type of the majority of NHS hospitals providing surgery. Thus, the initial broad criteria for selecting case study sites were that they should be typical in size and type of hospital, that is medium-sized district general hospital (DGH) (carrying out 5000–15 000 operations p.a.) and that they should have an acute pain service that was seen as structurally and functionally separate from the chronic pain service (and palliative care service). An initial shortlist was drawn up from the data of the earlier postal survey[6] and from published studies on acute pain services in the NHS.

The study used an interpretivist approach[15] and therefore placed emphasis on the perceptions of participants and on the impact of those perceptions on organizational

life. Secondary criteria were therefore applied to the shortlist so that the chosen case study sites would reflect the broad distribution of all hospitals in the postal survey self-assessment categories: two trusts that had self-assessed as 'struggling' (as had around 50% of survey respondents with an APS) and one trust that had described its acute pain service as 'thriving' (as around one-third of trusts had done).[6] Of the 12 trusts initially approached, three indicated that they had or were developing integrated pain services. The remaining nine trusts indicated that they were willing to participate. Three of these nine trusts were therefore selected on the basis of feasibility for completion within the study timetable (e.g. accessibility, availability of local contacts). Key characteristics of the three trusts are given in Box 1.

Box 1 Key characteristics of the three case study trusts

Case A

- Three acute hospitals (the largest two c.30 min travelling time apart)
- c.25 000 operations p.a. (whole trust)
- External performance assessment of trust: low
- Approximate age of APS: 7 yr
- Self-assessment by APS: 'struggling'
- One full-time APS nurse and one consultant session

Case B

- Two acute hospitals (c.30 min travelling time apart)
- c.25 000 operations p.a. (whole trust)
- External performance assessment of trust: high
- Approximate age of APS: 10 yr
- Self-assessment by APS: 'struggling'
- Two full-time APS nurses and two consultant sessions

Case C

- One acute hospital
- c.20 000 operations p.a.
- External performance assessment of trust: high
- Approximate age of APS: 12 yr
- Self-assessment by APS: 'thriving'
- Two full-time APS nurses plus support from nurse consultant; one consultant session

Data collection involved 71 semi-structured taped and transcribed interviews by one researcher (AP) with anaesthetists (19), surgeons (5), nurses (33), managers (9), and other health professionals (5) conducted using a topic guide derived from the policy and research literature on acute pain services and amended as appropriate to fit the interviewee's health professional group and role. The key themes covered are given in Box 2. The researcher emphasized at the outset of each interview that the interview was not a formal external assessment or evaluation of the acute pain service or the care provided; rather, the focus was on what helped and what hindered good postoperative pain management locally, and on what lessons might be shared with other organizations. Interview data were complemented by local documents (e.g. guidelines, patient information leaflets, APS newsletters). The interview data were analysed using the 'framework' approach,[16] which combines inductive and deductive analysis.

Box 2 Key themes covered in the interviews

- The APS: the interviewee's involvement with it; its history and development; its role and activities; its nature (e.g. a 'team' or nominated individuals); the perceived influence of the APS; specific initiatives around postoperative pain management; the relationship of the APS to other services and other departments; future prospects; postoperative pain management without the APS
- The organizational context: recent organizational changes in the trust; future developments; communication channels within the trust; perceptions about the relative importance of pain in the trust; the impact of wider developments (e.g. new contractual arrangements)
- Challenges and successes in providing aspects of postoperative pain management (e.g. management of pain at night and at weekends; pain scoring); any changes over time
- Opportunities for education and training
- Working relationships with colleagues from other grades, other disciplines, and other departments involved in postoperative pain management
- The APS in relation to: overall objectives; staffing; availability; pain scoring/pain assessment; and staff education and training
- Perceptions of the 'organizational culture' within the clinical area and/or the APS
- Other issues relating to postoperative pain management or specific concerns raised by the interviewee

Using the six core challenges in quality improvement referred to above as a framework, we present key findings from the three case studies to illustrate how the acute pain services had addressed (or not addressed) these challenges and the types of problems they faced. The data are presented across all three cases: although the experience of each organization was different, there were strong commonalities between them in the organizational challenges they faced as they tried to improve postoperative pain management. Because of the need to preserve anonymity, case identifiers (Case A, B, and C) are not used and broad professional group labels (e.g. anaesthetist) are used in place of specific job titles.

Results

The structural challenge: structuring quality improvement efforts and embedding them within the organizational fabric

Efforts by the three acute pain services to improve postoperative pain management were generally isolated from the strategic plans of their organizations and were not coordinated with related service improvements. Discussing the impact of the development of a critical care outreach service on the APS, an anaesthetist commented: 'It's arisen from people with special interests in different things. So the question is do you develop two separate services that can overlap from time to time, or do you develop an overlap service that can split from time to time?... I'm not really aware of any joint working between those two sets of people.' Directorate structures in the trusts and a tradition of working in 'silos' hindered acute pain clinicians' efforts to standardize pain management across their trust. Planning and coordinating improvements in postoperative pain management were dogged by the absence of a clear understanding or national consensus about the remit and role of the acute pain service and 'reinventing the wheel' was common. Acute pain service activity was rarely underpinned by systematic data collection and ongoing monitoring because acute pain services lacked the resources to do so. Shortages of staff (e.g. only one acute pain nurse in one split-site trust) prevented coordinated and sustained initiatives and led to gaps in improvement efforts when key individuals were absent on leave or struggling with routine service workload: 'It was almost like, "There's nobody there, so we'll get away with what we want".' (APS nurse); 'This is a hospital with a bed occupancy over a hundred percent, it's a major trauma centre, we struggle to keep our heads clinically above water' (anaesthetist).

In these cases therefore, it proved difficult to address the structural challenge effectively: the three acute pain services struggled to structure, plan, and coordinate their own efforts to improve postoperative pain management and make high-quality pain management routine across the whole organization. Indeed, the acute pain services were largely working in isolation from their organization's strategic objectives and from other service improvements.

The political challenge: negotiating the politics of change and securing agreement to common goals

Efforts to improve postoperative pain management posed their own challenges around the politics of change and in addition suffered from broader political struggles not directly related to pain management. In terms of the politics of change within the organizations, there were 'turf' struggles between health professionals (e.g. surgeons and anaesthetists, ward nurses, and specialist pain nurses) for control over aspects of patient care. As one anaesthetist said about the local problem of surgeons ordering the removal of epidurals without consulting the anaesthetist, 'Sometimes you think, you know, the surgeon said take it out, ask the surgeon what to do for the pain.' Another anaesthetist commented that the different health professions did not always work well together: 'It's not really a team... I think the doctors and nurses probably are working in parallel.'

Acute pain services in two of the case studies had secured a degree of support from senior managers and board members, although this had not translated into significant organizational support and the organizations were focusing on other concerns (applying for foundation trust status in one case and meeting service demands and targets in another). None of the acute pain services had secured support from external stakeholders (e.g. Primary Care Trusts, local politicians). These struggles took place against the background in two of the case studies of wider political struggles relating to mergers and service reorganization in the previous 5 years: some health professionals strongly resisted working as one trust and continued to maintain the identities and working practices of separate hospitals: 'There is still very much a divide and that's at all levels. There are some people who would I think rather see the whole trust fold than go through to the other end of the trust' (anaesthetist).

The acute pain services were thus largely unable to tackle the political challenge and negotiate the politics of change around postoperative pain management: the inter- and intra-professional politics (and in two case studies, the inter-organizational politics) around responsibilities and 'ownership' of pain continued to hinder the development of common goals. In the wider local political environment, the three acute pain services did not generally enlist the support of external stakeholders.

The cultural challenge: building shared understanding and commitment to quality improvement

Not all health professionals and managers in the case study trusts were convinced either that postoperative pain management was important or that improvements were needed in the service currently provided. The acute pain service members themselves were strongly committed to improving postoperative pain management but struggled to engage colleagues in their trusts: 'It's one of those things which is obvious to some people and some people just can't see why it's important and I'm not sure you can teach these people' (anaesthetist). There was little consensus about a shared responsibility for postoperative pain management across all staff working in perioperative care and a tendency to 'dump' the responsibility on the acute pain service: 'When you do offer a service you kind of get dumped on you know? So it's like, Oh this patient's got pain, we don't need to think about it, we'll get the acute pain team to come and sort it out' (anaesthetist).

The acute pain service was identified as belonging to the anaesthetic directorate and this meant that related directorates (e.g. surgery) were unwilling to provide budgetary support. Efforts to develop team-working and shared responsibility foundered because of inter- and intra-professional barriers: in one trust, many nurses saw a key function of the acute pain service as acting as a 'go-between' between nursing and medical staff. Fears about the potential risks of analgesics and about 'doing the wrong thing' appeared to be preventing many ward nursing staff from becoming more involved in postoperative pain management: 'The epidurals remain a difficult area of troubleshooting because it impinges on physiology that none of the medical staff feel comfortable with, because they're not good at physiology, and that nursing staff worry about. The staff are more comfortable with a PCA' (anaesthetist).

The three acute pain services in the study were largely unable to address the challenge of cultural change. APS members were well aware of the need to change the attitudes, beliefs, and practices of their colleagues and to foster shared understanding and commitment to providing patients with better pain management, but to many participants the challenge of cultural change seemed insurmountable.

The educational challenge: developing formal and informal learning

Although all three acute pain services placed a high priority on education and training in postoperative pain management for health professionals beyond the acute pain service, initiatives were hampered by a range of factors including high workloads for APS members and medical and nursing staff, staff turnover (in particular that of junior doctors), disputes about responsibility for pain (e.g. between surgical and anaesthetic teams), and resistance by some ward nurses to receiving training from acute pain specialist nurses:

> 'I don't see why the surgical SHOs shouldn't be as competent. I mean obviously they don't have the option of the blocks or epidural but it doesn't mean that everyone shouldn't be good at basic management of acute pain' (anaesthetics SHO).
>
> 'People are very keen to develop here, and I can see both sides because I want to develop my staff, but I've also got a service to run' (manager).

None of the acute pain services appeared to provide training for APS members (or for other health professionals, e.g. charge nurses) in quality improvement tools and methods, for example in how to change routine pain scoring practice on a ward. Another educational gap in the case studies was that there were limited opportunities to learn from practice outcomes as resource constraints precluded robust monitoring of patient feedback and regular audit.

Tackling the educational challenge was a high priority for all three acute pain services: members saw the provision of education and training as one of the key objectives of the service. However, their efforts were hindered by organizational cultural factors and by competing organizational demands on health professionals. In addition, education and training initiatives were largely directed at improving clinical competence: training was not provided in the generic skills (e.g. leadership, managing change, team-building) needed by APS members and others (e.g. charge nurses) to improve practice. In summary, considerable efforts were directed towards education and training, but the focus was primarily on clinical skills, and education and training competed with service needs.

The emotional challenge: inspiring and motivating staff to join and sustain the improvement effort

One of the three acute pain services had been particularly successful in addressing the emotional challenge: in inspiring and motivating staff to improve postoperative pain management. This had been achieved through a combination of the personalities and interpersonal skills of individual members, sustained effort over several years by a long-standing close-knit team and the use of a range of approaches (e.g. secondment opportunities, awaydays, regular newsletters, and informal positive feedback): '... we feed back [to the doctors] on how good they are as well because they're absolutely superb, a lot of the anaesthetists, brilliant, epidurals working perfectly, so we feed back, not formally, just in passing. So the positive is fed back as well' (APS nurse).

In this trust, several interviewees spoke in glowing terms of the commitment and inspiration provided by these APS members and of how this had encouraged their own interest in and commitment to postoperative pain management: 'They [the APS nurses] have a very good rapport with the nurses on the ward. They know everybody by first name. It's not an imposed order. It's 'We'll all work together to make something better'. It makes you feel special and want to take on these new changes' (nurse).

In the other two trusts, the APSs struggled to inspire and motivate other staff because of a range of interconnected factors, including hostility to staff from a rival hospital in the now-merged trust, resentment of the 'privileged' position of specialist nurses, doubts about whether patients could be trusted to self-report their pain, 'change fatigue' and uncertainty about whether attitudinal change was possible: 'I think unless someone's actually experienced it [pain], it's very hard to change their attitude, because they'll see something else as far more important' (manager).

Tackling the emotional challenge—inspiring and motivating staff to want to improve postoperative pain management on an ongoing basis—had been addressed with

considerable success by one of the three case study acute pain services through a range of creative and innovative approaches over several years. This acute pain service was the oldest of the three, it had the most APS members relative to the size and layout of the trust and the trust as a whole benefited from relatively stable local politics, although the bed occupancy and workload were high. Lacking similar advantages and working against a background of turbulent local politics, the other two acute pain services found it harder to motivate other staff in a sustained way.

The physical and technological challenge: developing a physical and technological infrastructure that enables service improvement

Acute pain services in the case studies struggled with a lack of physical and technological resources to enable improvements in postoperative pain management. Shortages of high dependency unit beds meant that in one trust in particular, pain patients were sometimes discharged prematurely back to general wards to free up beds for other patients. Lack of resources for the acute pain service itself meant that APSs lacked shared office space to enable ready communication between members, lacked secretarial and IT support, and found that members' time was spent chasing up scarce equipment (e.g. PCA pumps, TENS machines) for immediate re-use or bidding for funds for relatively small items of expenditure (e.g. laminated ready-reference cards to encourage effective prescribing by junior doctors). Ward bed shortages meant that some postoperative pain patients were inappropriately housed as 'outliers' on wards where staff were less able to manage their pain and rehabilitation effectively. Trust layouts were not conducive to efficient working, with split sites several miles apart and, in one case study, incompatible IT systems between the sites.

These shortfalls in the physical and technological infrastructure were compounded by shortages of health professionals. Shortages of anaesthetists meant that trusts tended to prioritize deploying them in theatre rather than on pain management-related activities (e.g. pain ward rounds, teaching junior medical staff advanced pain management techniques). Shortages of ward nursing staff meant that it was difficult for them to leave the ward to attend training sessions and that there was little enthusiasm for adopting new practices or documents (e.g. pain scoring or auditing pain management) into an already-full ward routine. Lack of secured funding to employ specialist pain nurses year on year diverted clinical leads' time into efforts to secure further funds and hindered continuity and succession planning. In summary, APSs were continually jostling with other services for scarce resources (health professionals, high-dependency unit beds) and APS members' time that could have been spent on improving postoperative pain management was diverted into activities required to keep the core acute pain service going.

With limited resources, the three acute pain services were caught in a 'vicious spiral' in which they were constrained by their current physical environment and by the limitations of the technology available to them to the extent that they were unable to address the challenge of developing the physical and technological infrastructure that would enable them to improve services to patients.

Discussion

The data from our study show that in their efforts to improve postoperative pain management, the three acute pain services in this study faced the broad range of interrelated challenges identified in the organizational change literature and that they struggled to address these in the comprehensive multi-level way required to achieve sustained improvements.[1 17 18] Energetic and committed efforts by acute pain service members to address deficits in postoperative pain management practice through providing education and training, support and feedback were hampered by the scale of the challenge of responding to the biopsychosocial needs of patients with postoperative pain within the multiple and interacting organizational constraints of competing managerial and clinical agendas, staff shortages, local politics, poorly designed buildings, professional hierarchies, and high workloads.

The issue of generalizability in qualitative research is an important and widely debated topic.[19–22] In common with the accepted tenets of robust qualitative research,[14 23] the three acute pain services in the study were purposively selected[14] to be broadly typical in size and scale of acute pain services in the NHS as a whole.[6] It is therefore likely that, although the details will be unique to each organization, other acute pain services will face broadly similar experiences:[9 23]

> 'These local findings [from an individual qualitative research study] are often particular manifestations of very widely encountered social phenomena'[23:171]

This was, as far as we know, the first case study of NHS acute pain services to be conducted from an organizational studies perspective, but its findings reflect other studies of acute pain services that have documented the long-standing challenges of changing postoperative pain management practice.[2 4 5 24] This study of acute pain services also emerges from and maps well onto the growing body of research on organizational change and quality improvement in health care. Using insights from this body of research may help to suggest ways that acute pain services can break out of what one anaesthetist in the study described as the Sisyphean challenge of improving postoperative pain management and make progress.

International research in a range of health-care settings suggests that there is a core of 'necessary, but not sufficient' conditions that need to be in place for successful implementation of quality improvement initiatives, whether around specific conditions such as postoperative pain or in relation to whole organizations.[25] These core conditions include: the active participation of middle and senior managers; the support of board members; the alignment of quality improvement activities with the strategic goals of the organization; the active engagement of all health professionals and in particular doctors; significant investment in staff training and development; robust IT systems providing timely local data; and the embedding of quality improvement activities as an integral part of the everyday work of all staff in the organization. Underpinning all of these core conditions is the principle that it is only through multifaceted interventions and sustained action at different levels of the health-care system that significant and sustainable improvement in the quality of health care can be achieved.[17 26]

Redefining poor postoperative pain management as a quality improvement issue that requires a whole-organization focus has several benefits. First, it helps to explain why 20 yr of hard work by APS members since *Pain after Surgery*[27] has not resulted in substantial improvements in postoperative pain management for the average patient.[4–6 24 28 29] This reflects the wider generic problem of policy implementation faced by a range of policy-making bodies in the NHS (e.g. Royal Colleges, NICE, Department of Health) and in health-care systems worldwide: the challenge of translating well-founded national policy documents into improvements in routine patient care when those improvements depend on the actions and decisions (and inactions and indecisions)[30] of hundreds of individuals and groups at local level.[12] Secondly, defining postoperative pain management as a quality improvement issue requiring a whole-organization focus moves improving postoperative pain management out from the cul de sacs of 'postoperative pain is the job of anaesthetists' or 'acute pain—the APS problem' and into the larger arenas of quality improvement, clinical governance, and clinical and corporate responsibility. Thirdly, in practical terms it opens up new ways to define and address pain practice problems through a range of quality improvement approaches that can be successfully applied in health-care organizations.[31]

Securing comprehensive improvements in postoperative pain management is increasingly recognized as an urgent public health challenge: it is one of the few prescriptions we currently have to address the debilitating condition of chronic pain after surgery.[24] Redefining poor postoperative pain management as a quality improvement issue that requires a whole-organization approach with multiple strategies tailored to the local context may provide a way forward.

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