



# A survey of postoperative pain management in fourteen hospitals in the UK

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**Summary** The effectiveness of acute pain services in 14 hospitals in one English region was audited. We collected data on analgesia used, its efficacy and patient satisfaction for 522 patients after four commonly performed procedures: abdominal hysterectomy, total knee replacement, mastectomy and major abdominal surgery.

Pain scores were measured on a verbal numeric rating scale in the recovery room and both pain scores and patient satisfaction were assessed at 24 h and 7 days post-operatively.

Pain was managed well in recovery rooms but less well on the wards. Epidural analgesia gave significantly better pain scores than other therapies. Better pain relief was obtained if opioids were combined with NSAIDs than when given alone. There were marked differences between hospitals in the delivery of postoperative analgesia. Pain scores in most hospitals left room for improvement, particularly following abdominal hysterectomy, but patient satisfaction was good. The better efficacy of multimodal analgesia was confirmed. Evidence from this data for the effectiveness of multidisciplinary acute pain services was equivocal.

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## 1. Introduction

In 1990, the report of a Joint Working Party of the Royal College of Surgeons and the College of Anaesthetists on pain after surgery recommended that every hospital should have a multidisciplinary acute

pain service to improve postoperative pain relief [1]. This recommendation has subsequently been supported by the Association of Anaesthetists [2] and the Audit Commission [3]. The majority of audit projects on acute pain have concentrated on the experience of enthusiasts in single centres [4–13] or on the availability of resources, e.g. consultant sessions and acute pain nurse provision [14–18]. Although these resources are an essential foundation for improving postoperative pain management,

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there is little data available on the impact these resources have had on the utilisation of newer methods of pain relief or patient outcome. A report on services for patients with pain by the Clinical Standards Advisory Group (CSAG) [19] assessed the effects of the 1990 Joint Working Party report on acute pain management in the UK. This survey of 250 trusts showed that 88% had an acute pain service and 83% had a whole time equivalent acute pain nurse, but the data on patient outcome was limited to interviews with 117 postoperative patients on 10 selected sites.

This paper describes an audit of the provision of pain relief after surgery in hospitals in Yorkshire for four operative procedures looking at patient outcome in terms of adequacy of pain relief and patient satisfaction.

## 2. Methods

Ethical approval for this audit was sought from the Northern and Yorkshire MREC whose chairman advised that the project met all the criteria of audit and did not need to have research ethics committee approval. Once the data had been collected, all information that could identify individual patients was destroyed.

Audit data on the management of postoperative pain was collected on a standard proforma for all patients undergoing four preselected surgical procedures over a 2-week period in all the hospitals West and North Yorkshire and Humberside in the UK. The surgical procedures audited were abdominal hysterectomy, total knee replacement, mastectomy and major abdominal surgery. These procedures were chosen to include operations for which a variety of analgesic techniques could be used.

All hospitals in the region initially agreed to take part but subsequent problems with data collection led to the exclusion of two. The aim was to collect data for a minimum of 40 patients from each hospital over a period of 2 weeks but for some smaller hospitals, it was necessary to extend the data collection time beyond 2 weeks.

The data collection form was constructed so that it could be optically read. In all, patient data was collected on ASA status, surgery performed, grade of most senior anaesthetist, analgesia administered in the operating theatre and the recovery room and prescribed for administration on the ward. The pain score was measured using a verbal numerical rating score (VNRS) with a scale of 0–10 where zero was no pain at all and 10 was described as the worst possible pain the patient could imagine. The pain score indicated by the patient was recorded by the re-

covery room nursing staff on leaving recovery, and by an acute pain nurse or another designated nurse on the ward at approximately 24 h postoperatively at rest and on movement or coughing. At 24 h, the patients were asked to rate their satisfaction with the pain relief over the previous 24 h as very poor, poor, average, good or very good. At approximately 7 days postoperatively, the patients were asked, by telephone in most cases, to score their pain at rest and on movement and to rate their satisfaction with the pain relief in the 7 days following surgery.

Information about the pain services in individual hospitals was also collected relating to protocol use, education, pain team members and use of epidurals. Data was not collected on postoperative nausea and vomiting or what postoperative analgesia was being taken at the 7-day follow-up because it was considered that this would make the data collection form too complicated and could compromise the quality of the data collected on pain scores.

The data was analysed using the Statistical Package for the Social Sciences version 11.0 (SPSS Inc., Chicago, USA). Chi-square was used to analyse differences between pain scores with different treatment modalities for each of the operative procedures. Differences between hospitals for pain scores for the different procedures were analysed using Chi-square or Fisher's exact test as appropriate.  $P < 0.05$  was considered statistically significant.

## 3. Results

Five hundred and fifty-two patients were recruited from the 14 hospitals that completed the audit. Thirty-four percent had undergone major abdominal surgery with incision above the umbilicus, 7% major abdominal surgery with incision below the umbilicus, 16% abdominal hysterectomy with Pfannenstiel incision, 7% abdominal hysterectomy with midline incision, 27% total knee replacement and 10% mastectomy. The nature of the operations chosen for the audit led to a male–female ratio of 1:2. Fifty-three percent of the patients were aged 65 years and over and 47% less than 65 years.

Sixty-nine percent of the participating units had a pain management team with a clinical nurse specialist and consultant anaesthetist carrying out the majority of the work. Ninety-two percent of sites had some consultant sessions for acute pain management, but this ranged from a session every day to one session per week. Some units had pharmacy and physiotherapy support. Two hospitals had pain

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