Audit

Documentation in orthopaedic surgery – do integrated care pathways work?

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Integrated care pathways (ICPs) are being widely adopted in orthopaedic surgery. This study compares the quality of medical notation in an ICP with traditional record keeping. During a 3-month period, 53 total hip replacements (ICP notation) and 30 total knee replacements (traditional notation) were performed. The records of each patient were scrutinised using a standardised scoring system, based on The Royal College of Surgeons of England guidelines on medical record keeping. Each set of records (83) was scored for: admission clerking, subsequent entries, consent form, operation note, and discharge letters. The time taken to retrieve this information was recorded. The overall score for traditional records (mean, 70%) was significantly higher ($P = 0.001$) than for the ICP records (mean, 62%). The mean scores for initial clerking, subsequent entries and consent form were higher in the traditional record group. It took 35% longer to retrieve information from the ICP group ($P < 0.001$). In this study, the quality of record keeping was higher when using the traditional notation than an established ICP. In both groups, the frequency of omissions was high.

Key words: Documentation – Orthopaedic surgery – Integrated care pathways – ICP

A high standard of medical record keeping is important for safe patient care and provides information for research, audit and medicolegal purposes. Integrated care pathways (ICPs) are being adopted widely.

ICPs are multidisciplinary care plans that outline essential steps in the care of patients with a specific clinical problem and describe the expected progress of the patient. They replace part, or all, of the medical record for the current admission episode and make frequent use of tick-boxes and areas for free text.

A study of elderly hip fracture patients, by Ogilvie-Harris *et al.*¹ concluded that their use of an ICP resulted in reduced complications, reduced length of hospital stay and lead to better outcome.

The aim of this study was to assess the overall standard of our medical record keeping and to compare the quality of records in ICPs with traditional medical notation.

Patients and Methods

The study was conducted over a 3-month period from 1 May 1999 to 31 July 1999. At that time, an ICP for total hip replacement had been in use for 1 year but an ICP for total knee replacement had not yet been introduced. There were no changes in medical staff during this period.

All patients admitted for primary, total hip or total knee replacement during the study period were included in the study. An ICP was used for patients undergoing

Table 1 Scoring system for operation note (total 10 points). One point is deducted for omission of each of the details listed

1	Surgeon/anaesthetist
2	Consultant in charge of patient
3	Diagnosis
4	Procedure in full
5	Operative findings
6	Patient name and hospital number
7	Sutures used
8	Prosthesis labels attached
9	Postoperative instructions
10	Signature and date

total hip replacement. Patients undergoing total knee replacement had records with traditional notation.

The records of all patients in the study were reviewed. Notation relating to the current admission episode for joint replacement was scrutinised by a single auditor. Assessment was performed using the CRABEL scoring system,² based on The Royal College of Surgeons of England guidelines for medical records.³ The records were scored for the initial clerking (10 points), subsequent entries (30 points), consent form (5 points), and discharge letter (5 points).

All patients in the study underwent an operation and the scoring system was modified to include the operation note (10 points). Details are given in Table 1. Each set of notes was scored out of a total of 60 points.

Although ICPs include documentation from all healthcare professionals involved with the care of each patient, only the medical documentation was assessed. The time taken to retrieve the necessary information from each record was noted. Statistical analysis was performed with SISS for Windows version 10, using the Mann-Whitney U-test.

Results

A total of 85 patients underwent hip or knee replacement at The Ipswich Hospital during the 3-month study period. There were two exclusions, one patient on an ICP converted to traditional notation and one set of traditional records could not be obtained. Of the 83 patients included in the study, 53 patients were in the total hip replacement group (ICP notation) and 30 patients in the total knee replacement group (traditional notation).

The total score obtained for each set of notes varied from 33% to 82%, both the highest and the lowest scores being in the ICP group, mean score 62% (see Table 2). The traditional notation group contained a narrower range of total scores (62–75%; mean, 70%). This was significantly higher than the ICP group ($P = 0.001$).

The mean scores for initial clerking, subsequent entries and consent form were higher in the traditional notation group than the ICP group (see Table 3). No significant difference in mean scores was found for operation note or discharge letter between the 2 groups.

The mean time to retrieve the required information from the ICPs was 9 min 6 s, 35% longer than the mean for traditional notation, 6 min 43 s. This difference was statistically significant ($P < 0.001$).

Discussion

ICPs are now used for patients admitted for primary, total hip and total knee replacement in our orthopaedic department. Studies have shown them to have many benefits in clinical practice.^{4,5} ICPs also encourage the sharing of information between disciplines and can facilitate early discharge planning.

The development of new ICPs can be time consuming. It has been said that they can discourage appropriate clinical

Table 2 Data characteristics for ICP and traditional records (percentages)

	ICP	Traditional	<i>P</i> value
Number patients	53	30	
Minimum total score	20 (33%)	37 (62%)	
Maximum total score	49 (82%)	45 (75%)	
Mean total score	37.2 (62%)	41.7 (70%)	0.001
Minimum data retrieval time (s)	290	240	
Maximum data retrieval time (s)	930	615	
Mean data retrieval time (s)	546	403	< 0.001

Table 3 Distribution of scores by category (percentages)

	ICP	Traditional	<i>P</i> value
Initial clerking	5.70 (57%)	5.73 (57%)	0.037
Subsequent entries	17.25 (57%)	21.33 (71%)	0.001
Consent form	2.94 (59%)	3.67 (73%)	0.028
Operation note	7.42 (74%)	7.47 (75%)	0.586
Discharge letter	3.91 (78%)	3.47 (69%)	0.058

judgement and their use may stifle innovation and progress.⁴ The use of care pathways may also cause constraints on clinical freedom,⁶ and deviation from a pathway may lead to an increased risk of litigation. Whilst several studies have addressed the quality of documentation within traditional medical records,^{7,8} we have found no studies assessing documentation within ICPs.

In this study, we found the quality of medical notation to be of at a higher standard in the traditional records compared to the ICP records ($P < 0.001$). However, this documentation in both groups was deficient, particularly in areas such as the dating and timing of entries, the appropriate entry of investigation results, and the clear identification of individual clinicians' entries. The ICPs used in the study contain an identification sheet for each clinician to record their signature, name and status, and bleep number. This is to allow the identification of subsequent entries. If the clinician fails to complete the identification sheet, it may be impossible to determine the origin of his or her entries.

The patient's name and hospital number must be completed on every sheet within the medical record, so that separated or photocopied pages can be identified. Our hip replacement ICP is 35 pages long; consequently, the deduction of a maximum of 5 points for this omission occurred frequently. The omission of patient details from consent forms also contributed to the difference in scores between the two groups.

It took significantly longer to extract the information for scoring the ICP records than traditional records ($P < 0.001$). Information from several disciplines is recorded within the ICPs; there is little separation, making it harder to identify medical entries for scoring. The volume of ICPs, 35 pages per admission compared to 6–8 pages in traditional records, certainly contributed to the difference in assessment times.

The comparison of contemporaneous 'traditional' knee replacements and 'ICP' hip replacements has the advantage that the same staff (both nursing and medical) were involved in the study. Although two different procedures are being compared, the differences between total hip replacement and total knee replacement are small and are probably insignificant for the purposes of this study. The main objective was that staff were doing what they were used to and were not aware of any scrutiny.

This study has addressed only the documentation within ICPs and has not considered patient management, outcome or clinical effectiveness. Our results would

suggest that doctors are not as good at ticking boxes or filling text spaces as they are at writing traditional medical records. Accuracy in documentation needs to be encouraged during undergraduate training to develop good habits in medical notation. Familiarity with ICPs could be improved by the introduction of a generic structure. Medical records should be regularly audited and this could even be made competitive, possibly between consultant teams, to add a further incentive.

The standard of clinical documentation in this study was disappointing and must be improved if the potential clinical advantages of ICPs are to be realised. With increasing numbers of junior staff now working on a 'shift system', good documentation is even more essential.

Conclusions

Integrated care pathways have previously been shown to improve patient outcome, but this study found that the quality of documentation within them was often poorer than with traditional medical records. Better education of junior staff and regular auditing of medical records could improve this.

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