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An audit of orthopaedic operation notes: do we need improvement?

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Abstract
Accurate and detailed operation notes are of great importance in all surgical specialties not only for safe patient care but also for providing information for research, audit, and medico legal purposes. Thus, importance of complete and legible operation notes is indisputable. Orthopaedic operation notes at the author's institution were audited against guidelines regarding content and legibility. Although of generally good standard it was found that in some cases important information was being missed and that a high proportion of notes had sections that were deemed illegible. A computerized pro forma for writing notes has been proposed. Also. It has been proposed that all the Resident Doctors of Department should undergo training for writing notes and Aide Memoires be placed throughout the OT Complex.
Keywords: *orthopaedic, operation notes, audit.*

Introduction

Operation notes are the only record of an operation. The operative findings and post operative plans they contain, serve not only as a vital means of communication between health professionals, but are also the only legal record of an operation.[1] Its importance is recognized by the General Medical Council who state that good note keeping is an essential part of good medical practice[2] while the British Orthopedic Association state that "good records are a basic tool of clinical practice".[3] However, The National Confidential Enquiry into Perioperative Deaths[4] in the UK noted that orthopaedic operative records were often inadequate. The literature also shows that a proportion of litigation is against an alleged substandard quality of surgery and that poor operation notes mainly involving incomplete illegible notes and the use of confusing abbreviations are a common source of weakness in the surgeon's defence.[5]

A Pubmed search of the keywords mentioned revealed three papers which werer of significance[1.6.7]. All these papers were considered alongside the process of formulating this one.

The Royal College of Surgeons of England had published the booklet *Good Surgical Practice*[8] which contained a section on record keeping in 2008. They were further updated in 2014. This section contains recommendations regarding details that should be documented to create complete and comprehensive operation notes (Figure 1). Clear, concise, and legible notes are therefore crucial following all surgical procedures. This is difficult to achieve with handwritten notes, especially in the context of legibility. The new 2104 guidelines now suggest that all notes should "preferably" be "typed." Operation notes at the author's institution were audited against these guidelines.

The aim of this paper is to review operation notes (trauma and elective) to determine whether they meet recommendations as set out in *Good Surgical Practice.*[8]

Methods

The Retrospective Clinical Audit was carried out at the author's institution, which is a Super Specialty Tertiary Teaching Hospital with trauma and elective orthopaedic service. A total of 94 operation notes were audited by one single reviewer. The operation notes all were based on the standard template found in Ruby Hall Clinic for all surgical procedures. Ruby Hall Clinic's operation sheet contains headings for Patient Details, Time and Date, Duration (hours), Surgeon, Assistants, Anaesthetists, Nurses, Pre Operative Diagnosis, Post Operative Diagnosis, Operation, Incision, Findings, Procedure, Closure, Drain (yes/no), Blood Loss, Specimen (yes/no), and any Post-op instructions . During the period of March and April 2019, operation notes of all inpatients were reviewed. Operation notes were reviewed by a single observer and matched against criteria as set out in *Good Surgical Practice.*[8] In areas of illegibility the criteria was marked as not filled.

Results

A total of 94 operation notes were reviewed of which 50 (53%) were elective cases and 44 (47%) were trauma cases. Elective cases were predominantly ACL Reconstructions and Knee & Hip Replacements while trauma cases were varied. Trauma cases included mainly surgery for proximal femoral fractures (Proximal Femur Nail and Bipolar Hemiarthroplasty), but also included open reduction and internal fixation of Tibia, Humerus, radius, and ulna, as well as Implant Removal of Radius, Ulna and Tibia. In total the 94 cases noted had been performed by 10 Consultant Orthopaedic surgeons. In all cases, the Post Graduate Residents had written the Operation notes by hand. As such the operation notes audited had been written by a total of 11 Post Graduate Residents of varying experience.

Four cases (4%) had no documentation of date, while only 42 cases (45%) had documented time(anesthetist notes also reviewed). No case documented whether the operation in question had been performed as an elective or emergency case, although this could be discerned from type of operation. All cases (100%) clearly documented consultants name. However, Ten cases (10%), in which atleast one assistant would normally be required, had no documentation of an assistant's name.

Good compliance was found for documentation of procedure (100%), incision (95%), diagnosis in trauma (78%), operative findings and complications in trauma (92%), closure (100%), and postoperative instructions (100%). However poor documentation was found for diagnosis in elective cases (13%), elective operative findings (70%), and identification of prosthesis used (70%). As a routine in the institution, Prosthesis Identification Details are mentioned outside of the given pro forma but within the same page towards the end of the Notes. Of concern, in the handwritten notes, 20% (16 cases) had areas that were not legible. These results are summarized in Figures 2 and 3.

- Date and time
- Elective/emergency
- Names of operating surgeon and assistant
- Operative procedure carried out
- Incision
- Operative diagnosis
- Operative findings
- Any problems/complications
- Extra procedure performed and reason why
- Details of tissue removed, added or altered
- Identification of prosthesis used, including serial numbers of prostheses and other implanted materials
- Details of closure technique
- Postoperative care instructions
- Signature
- Legible operative notes (typed if possible)

Figure 1 Recommendations from *Good Surgical Practice*[8] regarding information to be included in operative notes.

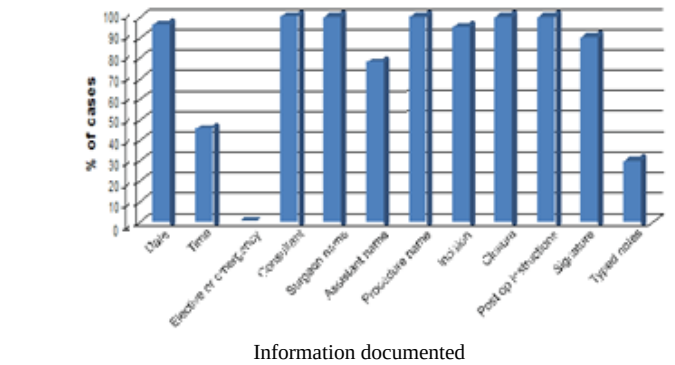

Figure 2 Percentage of cases in which the specified information had been recorded in the operation notes.

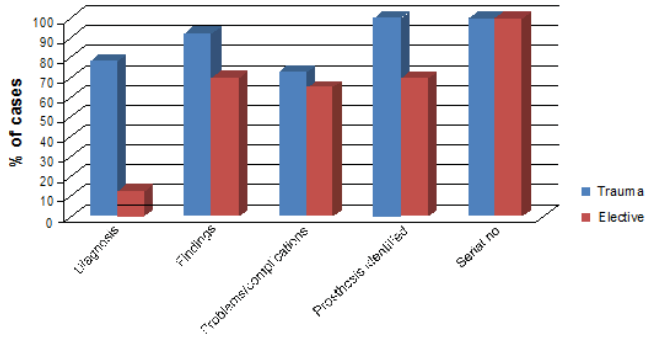

Figure 3 Breakdown of information documented according to type of case (trauma or elective).

Discussion

The operation notes reviewed provided a good spectrum as the types of operation and the experience of the surgeon writing the operation notes was very varied. Although generally of good standard there is room for improvement in operation notes writing as in some cases important information is being missed. Also of concern it is evident that a number of handwritten notes had passages that were deemed illegible. Areas in which standards can be improved include Operative Diagnosis, findings, and mentioning of complications.

Although there is no Perfect Pro forma for producing faultless notes, strategies to improve operation note writing can be devised. For example, aide-memoires[7] Aide Memoires help in reinforcing and is also a very inexpensive way of training the Future Surgeons.

There is only 1 operation sheet template shared among all specialties in Ruby Hall Clinic and therefore it does not allow for the specifics pertaining to different specialties. In orthopaedic surgery, documentation of operation details could be improved with the addition of specific headings for tourniquet application and time, as well as a separate heading for Details of Prosthesis used.

Electronic notes are beneficial in many ways. They can be accessed repeatedly and remotely from any hospital computer system. This eliminates the possibility of an operative note being lost or destroyed and markedly improves the notes in terms of detail and legibility[9]. The headings used in the notes not only can be standardized, but also can be edited to suit individual specialties. Electronic operation notes will become easier to audit and review for research purposes, as they are easier to access. Templates can also be added for common procedures so as to save time in the writing of an operation note and to guide trainees as to how a particular surgeon approaches a case or how they prefer their operation notes to be written and what information each note should contain[10].

Conclusion

Although generally of good standard, an Orthopaedic Specific pro forma/template and computerized operation notes, with aide memoires throughout the OT Complex would improve the quality of operation notes in the department.

Disclosure

The author reports no conflicts of interest in this work.

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