Improving the quality of operation notes: effect of using audits and education sessions

Abstract

It is imperative to maintain accurate documentation in an operation note. The General Medical Council fully supports the importance of good note-keeping as a fundamental component of good medical practice. The official explanation of the surgical procedure is provided in the operation notes. Ensure that the notes are legible and comprehensive is the responsibility of the operating surgeon. The clinical significance of operation notes is derived from the critical role that effective communication among healthcare professionals plays in the safe management of the surgical patient. Additionally, the accuracy and legibility of operation notes are essential for medico-legal purposes, as documentation may be necessary in court. Furthermore, a comprehensive operation note is indispensable for the purposes of conducting research and auditing. In compliance with the guidelines published by the Royal College of Surgeons of England (RCS Eng) in "Good Surgical Practice," surgeons are obligated to ensure that all medical records are legible, complete, and contemporaneous, and that they contain the patient's accepted identification details. Regular audits, surgeon education, and standardized proformas are essential for the preservation of high standards in operative note documentation, which in turn contribute to improved patient care and safety.

Keywords: operation notes, audits, education sessions.

Introduction

A comprehensive account of the procedure that was performed and any clinically relevant events that occur during the procedure should be included in an operation note. In order to ensure the continuity of care immediately following the patients' exit from the operating room, it should facilitate the seamless transfer of critical information among healthcare professionals. Historically, the provision of high-quality clinical care has been correlated with the precision and comprehensiveness of operative records **(Kelly et al., 2023)**. In light of the European Working Time Directive's implementation of shift work patterns among surgical teams, comprehensive operation notes are of particular importance **(Hossain and Hossain, 2015)**. The clarity of operation notes facilitates the accurate auditing of outcomes and service evaluation, which in turn supports clinical governance in a variety of ways. Additionally, they are instrumental in the facilitation of external review and in medico-legal disputes**(Kumar et al., 2013)**.

In 2008, the Good Surgical Practice guidelines were revised by the Royal College of Surgeons in England to include specific criteria that must be included in operation notes. In 2014, these guidelines were further revised and updated **(Ibzea and Kakroo, 2022)**. The quality of operation notes is frequently insufficient, despite the existence of these guidelines. The National Confidential Enquiry into Peri-Operative Deaths identified an elevated risk of litigation, as well as a significant degree of variability in the quality of operation notes. As a consequence, the inquiry suggested that hospitals implement immediate measures to improve the quality of surgical documentation. As a result, it is reasonable to anticipate that the improvement of

operation notes would result in an improvement in the quality of patient care **(Rogers et al., 2018)**.

Adherence to these guidelines for hemi-arthroplasty of the hip, laparoscopic cholecystectomy, and burns surgery is significantly enhanced by the standardization of the procedure through the use of procedure-specific operation notes **(Rogers et al., 2018)**. Numerous nations are currently in the process of modernizing their medical records to ensure compliance with data protection legislation, facilitate access to clinically relevant information, and enhance data security. This process necessitates an important change to the creation, utilization, and storage of these records **(Smolle et al., 2020)**.

The implementation of an Electronic Patient Record (EPR) is a critical strategy for numerous health services worldwide as they strive to transition to a paperless system. The documentation of specific components of the operation note dataset has been demonstrated to be enhanced by the use of an electronic record, but not all. The introduction of an electronic operation note in orthopedics has been previously shown to enhance the quality and readability of an operation note. Furthermore, the implementation of an EPR may facilitate the reduction of the carbon footprint of surgical specialties **(Kelly et al., 2023)**.

Operative notes

Operative notes are the only comprehensive account of a surgical procedure and contain all pertinent information that may have been encountered during the procedure. The legality and importance of a medical document of this nature are unquestionable in the context of delivering optimal patient care and enhancing patient safety **(2016)**, Nevertheless, the contents of the notes may have a significant impact on the resolution of legal disputes and litigation. Furthermore,

they are essential as a tool for medical coding and billing, quality assurance, and audit and research **(Hossain and Hossain, 2015)**.

Operative notes must be legible and contain clear and concise instructions for the nursing staff regarding postoperative care. To prevent confusion, it is recommended that standardized medical abbreviations be employed. It is vital to meticulously document pertinent information regarding complications, additional procedures, and surgery in order to mitigate financial losses and establish a strong defense in the event of a lawsuit.

Prevalent guidance

The General Medical Council has consistently emphasized the significance of precise note-taking and regards it as a critical component of ethical medical practice **(Park et al., 2010)**. In order to provide guidance and support for the safekeeping and maintenance of medical records, including operative notes, the Royal College of Surgeons has established guidelines. The guidelines were initially published in 1990 and were subsequently revised in 1994. 5 It is advised that practitioners document the specifics of the operation as soon as possible after the procedure. The following should be included in this documentation: a. Consultant(s) and surgeon(s) names. b. The surgical procedure and diagnosis that were implemented. c. Operational findings description. d. Specifics regarding the tissue that has been removed, modified, or incorporated. e. Details concerning the serial numbers of the prosthetics that were utilized. f. Details concerning the sutures that were implemented. g. A detailed account of any obstacles or complications that were encountered, as well as the strategies that were implemented to resolve them. h. Instructions for the postoperative period. i. The surgeon's signature.

The Royal College of Surgeons' publication, "Good Surgical Practice," is designed to establish the benchmarks for providing high-quality surgical care **(Younis, 2021)**. The surgical associations of Britain have supported and contributed to the development of this document, which prioritizes effective teamwork and patient safety. The operative notes should be legible and, whenever possible, typed for each procedure. Furthermore, they are required to accompany the patient to the recovery room and ward. In order to facilitate the continuation of care by an additional clinician, they should include an adequate amount of information. The updated guidelines also incorporate new variables that were deemed necessary to address the current issues surrounding audit, medicolegal, and financing affairs. The guidelines should include the following variables: a. Date and time. b. Emergency/Elective procedure. c. The names of the operating surgeon and their assistants. D. The name of the theatre anesthetist. e. The operational procedure was implemented. f. Incision. g. Operative diagnosis. h. Operational discoveries. i. Any complications or issues that may have occurred. j. The justification for any supplementary procedures that were implemented. k. Changes, additions, or deletions to tissue information. l. The serial numbers of implants and prostheses must be identified. m. Specifics of the closure method. n. Blood loss that is anticipated. o. Antibiotic prophylaxis (if applicable). p. Prophylaxis for deep vein thrombosis (if applicable). q. In-depth instructions for the postoperative period. r. Signature.

Current standard of practice

In recent years, the feasibility of operational note recording has increased as healthcare systems worldwide have become more coordinated and equipped to manage a greater number of surgical cases, regardless of whether they are elective or emergency care. Nevertheless, these notes have

been demonstrated to be of substandard quality in a multitude of research papers, despite their significance, indicating that there is a necessity for improvement **(Ma et al., 2013)**. Historically, operative notes were composed by hand, and audits of these notes frequently reveal the absence of critical information. As an example, Dukic et al. discovered that 22% of the notes lacked the patient's name as an identifier, 17% lacked the operation name, and 24% were just illegible **(Dukic et al., 2010)** Improvements in records have been demonstrated through the implementation of straightforward measures, such as the use of an aide-memoire that systematically functions as text reminders. The utilization of word processors has been suggested in order to guarantee legibility and superior quality in light of these reports.

A prospective observational analysis was conducted at the Pakistan Institute of Medical Sciences Teaching Hospital to assess operative notes in accordance with the guidelines outlined in Good Surgical Practice by the Royal College of Surgeons. None of the 167 notes contained the patient registration number, the duration of the surgery, or a description of whether the case was elective or emergency, according to the review results. The anesthetist was referenced in 95% of the records, while the operating assistant was only mentioned in 50%. The operating surgeon's name was present in all records (100%.). The operative diagnosis was referenced in 89.2% of notes, the procedure was executed in 95% of notes, the operative findings were referenced in 66.7% of cases, and the closure technique was described in 56.7% of cases. Analgesia and antibiotics were prominently mentioned in 97% of the postoperative instructions, which were written in a proper manner. The trai pinpointed the primary areas that necessitated optimization and enhancement: the type of surgery, the operation time, the operative diagnosis and findings, complications, and postoperative instructions **(Mehtab et al., 2017)**.

Efficient record-keeping and communication among medical personnel necessitate the use of comprehensible language. The proposal to replace handwritten or narrated notes with computerized notes using word processors has been made as a finding of their susceptibility to errors in interpretation and postoperative care and follow-up. Research has shown that they are superior in every way and easily comprehensible, with the additional advantage of being accessible for analysis and audits.

Fareed et al. conducted a trail that concluded that template operative notes are superior to traditional ones **(Shaikh et al., 2019)** in addition the utilization of synoptic reports may further ensure completeness by incorporating a dedicated computer into the operating suite. The standardized recording of a series of predefined surgical options that have been agreed upon by a group of surgeons is facilitated by synoptic reports, which provide operation templates. At present, these notes are being successfully implemented in a diverse array of surgical fields. Gur et al. successfully implemented it in their cohort of breast cancer patients, achieving a 94.7% completion rate in comparison to traditional dictated notes, which were only 66% complete **(Gur et al., 2012)**. A higher completeness checklist score was reported by Park and his colleagues in their publication of the results of their pancreatic cancer patient series.

The quality of documentation was significantly improved as a finding of the implementation of an electronic operation note system, as demonstrated by a trail conducted by Yaser et al **(Ghani et al., 2014)** Following the implementation of an electronic proforma, they conducted an audit of 50 consecutive operation notes for emergency orthopaedic trauma procedures and re-evaluated them. Similarly, Ivo Dukic et al. demonstrated significant improvements subsequent to the implementation of a commercially available "Operative Management Information System (ORMIS)." These studies demonstrate that electronic records are becoming more advantageous in terms of their capacity to store a vast amount of information and their efficacy as an educational tool. They can also be used as evidence for national registries, clinical governance, research, and audits **(Dukic et al., 2010)**

Effect of using audits and education sessions

The objective of this trail was to assess the quality and comprehensiveness of surgical operation notes at a single district general hospital in accordance with the Good Surgical Practice guidelines of the Royal College of Surgeons (2014). Additionally, the project aimed to improve clinical practice by promoting adherence to these guidelines. They found that the documentation in operation notes was generally of low quality **(Parwaiz et al., 2017)**. This result was consistent with another trail by **Bozbiyik et al. (Bozbiyik et al., 2020)**. Consequently, an aide-memoire which included guideline parameters was positioned in the operating rooms, in addition to an educational session, as per **Bozbiyik et al**. After their initial audit revealed that four parameters of RCS guidelines and an additional three parameters were insufficient, they discovered that seven parameters of RCS had undergone a moderate improvement during the second audit. After a reasonable period of adaptation, this enhancement was accomplished. The quality of the reports was significantly improved in the third cycle audit of this trail as a result of the implementation of an operative note. It also demonstrated that the accuracy of operating room documents can be improved by educating surgeons and utilizing proformas during audits.**(Bozbiyik et al., 2020)**.

The purpose of this trail was to compare the documentation of operation notes with the guidelines published in Good Surgical Practice by the Royal College of Surgeons of England (RCS Eng), 2008, and to improve adherence to these guidelines by educating surgeons and implementing theatre aide-memoires. They identified and audited a total of 18 RCS Eng guidelines. The documentation of the following was found to be deficient during the initial audit cycle: 'emergency/elective procedure' (36%), 'time of operation' (36%), 'date of operation' (87%), 'assistant' (87%), and 'post-operative management' (88%). Subsequently, the results were reevaluated with an equivalent number of patients following the implementation of aide-memoires in theatres and the education of surgeons. The re-audit revealed major improvements in four of the five deficient areas, with compliance nearly reaching 100%. **(Singh et al., 2012)**.

A trail was conducted to assess the quality of operative note keeping and to compare the results with the Royal College of Surgeons (RCS) of England guidelines 'Good Surgical Practice', which are regarded as the gold standard. The findings resulted in significant changes to key areas of practice. The initial cycle's findings demonstrated that patient identification (94%), the surgeon's name (98%), and postoperative instructions that were clearly written (94%) were documented. The surgeons' performance in the areas of operative diagnosis (46%), incision type (87%), wound closure type (83%), and assistant name (82%) was regrettably suboptimal. The introduction of the aide-memoire resulted in an evident change in practice in the second cycle, as the majority of the evaluated parameters were documented at 100% **(Shayah et al., 2007)**.

The quality of operation notes in a trail is compared using the National Standards established by the Royal College of Surgeons of England and the British Orthopaedic Association (BOA) for the enhancement of patient safety. The data from 1092 operation notes was analyzed. The operation title (99.1%), the name of the operating surgeon (99.3%), and legibility (98.4%) were all nearly met. However, a number of standards were not met, including those with potential patient safety implications, such as availability on the ward (88.8%), documentation of the type of anesthetic used (78.6%), diagnosis (73.4%), and findings (80.1%). Additionally, the postoperative instructions only described the necessity and type of postoperative antibiotics or venous thromboembolism prophylaxis in 49.7% and 48.8% of cases, respectively **(2016)**.

A new structured format was developed in accordance with the official guidelines of the Royal College of Surgeons and the department's requirements, following an analysis of the deficiencies in the existing formats. The purpose of the training sessions was to provide the trainees and faculty with information regarding the importance, application, and approach to enhanced documentation.The initial audit entailed the review and examination of 45 operative notes that were entered in October 2020 to verify their completeness. These were compared to 52 operative notes that were completed in December 2020 as a

finding of the implementation of a new structured format and training. The results of both audits were compared to assess the impact on documentation.

In nearly all deficient fields, documentation was improved. Prior to implementation, less than 50% of notes contained critical demographic information; however, this figure rose to more than 75% after implementation. Previously, diagnosis was mentioned in 51% of notes; however, this percentage increased to 84% after the implementation. Operative findings were documented in 57.6% of the notes prior to implementation, and this figure increased to 94.2% after implementation. The name of the physician who compiled the notes was only mentioned in 8.9% of the notes; however, it was mentioned in 67.3% of the notes after the introduction of the new structured format. The introduction of a new structured format, sensitization, and training sessions resulted in an improvement in documentation in all operative note fields. **(Chhabra et al., 2022)**.

In an investigation intended to evaluate the adherence to international standards for the documentation of operation notes in the surgical department. The trail also assessed the efficacy of educational initiatives for surgeons and the implementation of a new proforma that was specifically developed to aid surgeons in documentation. The results of the initial audit indicated that there were discrepancies in documentation, including missing information on deep vein thrombosis (DVT) prophylaxis, elective/emergency settings, anticipated blood loss, closure technique specifics, and prosthesis/mesh details.

The legibility of 88% of the notes was satisfactory. The implementation of the proforma and awareness session resulted in substantial improvements in all parameters, with documentation rates surpassing 91%. The overall level of documentation completion increased from 65.2% to 95.2%. The paired-sample t-test results indicated a significant difference among the pre- and post-introduction of the new proforma (Mean (M) = 65.2, standard deviation (SD) = 34.3 versus M = 95.2, SD = 4.3) with a p-value of 0.0005 **(Hassan et al., 2023)**.

Compliance with the 2008 guidelines of the Royal College of Surgeons (RCS) was the primary focus of an investigation. However, instances of inadequate documentation practices have been documented worldwide, despite the guidelines. The objective of this audit is to resolve this issue and enhance the quality of the documentation. The results showed that numerous documentation aspects were improved in comparison to the initial and re-audit cycles (n = 390 and n = 108, respectively). The classification of elective/emergency cases, the names of key personnel, and the date of surgery all showed substantial improvements. In addition, significant improvements were observed in the documentation of postoperative care instructions, complications, extra procedures, and operative details. In an effort to ascertain compliance rates, an educational survey was implemented within our department. This survey underscored the importance of adhering to RCS guidelines, identified the factors that influence adherence, and proposed strategies for improvement **(Zahid et al., 2023)**.

Synoptic operative reports

A systematic review was recently published by Özgür Eryigit et al. to compare the comprehensiveness of a synoptic operative report with that of a narrative report**(Eryigit et al., 2019)**. It was able to consistently demonstrate that the overall completion rate was higher and the time required for completion was significantly shorter. Additional meta-analyses conducted by Stogryn et al. yielded comparable conclusions following their examination **(Ghani et al., 2014)** studies **(Stogryn et al., 2019)** Enhanced consistent quality ,efficiency, increased reliability, and a reduced rate of error in reporting were among the additional benefits delineated in this analysis. Subsequently, these components greatly improve the quality of surgical care provided. Nevertheless, narrative reports do provide a detailed account of the specific steps of a procedure and are readable. This can be documented by including an additional comments or free text section in the synoptic report to elaborate on the more complex stages of the operation. In an additional trail, Stogryn employed Roux en Y Gastric Bypass as an index procedure and

compared both types of reports exclusively to verify the superiority of synoptic reports in terms of accuracy and comprehensiveness **(Stogryn et al., 2018)**.

In a recent trail conducted by Claire et al., the surgical details that oncologists require to ensure completion were more frequently reported in synoptic formats. The trail examined the reports of 3662 patients who underwent breast cancer surgery **(Liu et al., 2020)**. Furthermore, they found that the quality indicators of the American Society of Breast Surgeons (ASBrS) were unquestionably higher when an associated synoptic report was employed in comparison to a narrative report. The rectal cancer synoptic operative report was recognized as a valid method for the efficient documentation of critical items in a separate recent mixed-methods implementation trail that involved 37 surgeons from 14 institutions **(Bidwell et al., 2020)**. As a result, significant evidence has been disclosed to support the need to transition from traditional note-taking to a more structured electronic format.

Safe practices

Careful and meticulous record-keeping is necessary in the healthcare sector to ensure the safety of patients, and this is particularly important in the context of surgical procedures. The significance of this aspect of healthcare delivery has been underscored by the World Health Organization (WHO) and Joint Commission International (JCI), which are committed to maintaining global healthcare quality standards. Therefore, they have integrated it into their Safe Surgery Checklist Protocol and International Patient Safety Goals, respectively. The National Patient Safety Agency (NPSA) implemented the WHO checklist and tailored it to meet the needs of all patients in the United Kingdom and Wales. The document has been expanded and is now a How-To guide for Five Steps to Safer Surgery, which includes techniques for briefing, sign-in, time-out, sign-out, and debriefing **(Vickers, 2011)**.

Financial remuneration

In numerous regions of the world, particularly in the private sector, medical insurance has assumed responsibility for financial transactions related to hospital billing. In order to accurately code the services provided, it is necessary to meticulously document the condition and progress of a patient. It is imperative to underscore the importance of comprehensive and precise operation notes in the field of surgery.

Flynn et al. conducted an audit with the help of certified professional coders to identify the most common compensation deficiencies at the hospital, using operative notes as a billing document.Fifteen Three of the most common deficiencies were identified: an incomplete account of all surgical procedures performed (56%), an inadequate description of the procedure's indications (49%), and a failure to be dictated within 24 hours of the procedure (45%). They were able to determine that the operative note was the most significant document in terms of justifying reimbursement for surgical services. The surgical team should be aware of the significance of providing the requisite information to expedite the payment processing process. Novitsky et al. acknowledged that the reports dictated by residents had a 28% error rate, which led to the incorrect coding of 14 cases and a significant decrease in reimbursement for the surgical procedures undertaken **(Novitsky et al., 2005)**. The hospitals are confronted with a significant challenge in recouping capital in the event of payment rejection. To achieve a balance of payments, they may need to exhaust additional resources on numerous fronts.

The challenge

There will be a greater requirement for evidence to be provided for ongoing clinical care and documentation, as the introduction of new technology has rapidly transformed many areas of surgical practice, and the current norms will be challenged. In terms of their implications for

medicolegal and insurance purposes, these developments may require increased vigilance from practicing physicians. The majority of global centers have adopted electronic and typed notes as the standard method of recording detailed information with minimal ambiguity and ensuring that the purpose is clearly defined. Furthermore, a number of centers are utilizing software that includes synoptic operation notes, which are templates for standard steps in accordance with good surgical practice. This has been agreed upon by the surgeons who operate at the center **(Dukic et al., 2010)** However, it is essential to provide formal education and training to surgeons and trainees in note writing, despite the fact that such endeavors may not be standardized universally and may have institutional nuances.

Need for teaching programmes

It is striking that there is a scarcity of published literature on the instruction of operative note writing, despite the emphasis placed on its importance. During residency and postgraduate training, communication skills are typically included as a core competency by the majority of accreditation bodies worldwide. Operative note writing is the most fundamental form of written communication for surgeons, as it provides a concise account of the patient's condition and the specifics of the procedure.

The teaching and quality of Operative dictation in surgical residency programs were assessed in a literature review conducted by Dumitra et al. Only a small proportion of residencies offered formal education for it, according to the review. **(Dumitra et al., 2015)**. In order to ascertain the current perceptions of operative note dictation education and the interventions that could be implemented to improve this critical skill among residents, the authors incorporated thirteen studies. The unavailability of a formal program, perceived quality issues in resident notes, and time constraints were the barriers they identified to training. In addition, they argued that our

current training model fails to adequately prepare surgical residents for the requisite documentation to guarantee favorable communication and medicolegal security upon their entry into formal surgical practice.

A trail was conducted by the Department of Surgery at King Abdul Aziz University Hospital in Jeddah, Saudi Arabia, to assess the efficacy of instructing surgical residents in the art of operative note writing **(Johari et al., 2013)**. They concluded that the improvement of notes was significantly influenced by this type of instruction and proposed that such courses be incorporated into the curriculum of surgical residency training programs.

In the same vein, Hyde et al. conducted a trail that revealed a substantial enhancement in the recording of resident operative notes following the implementation of a formal dictation education plan **(Hyde et al., 2018)**. These investigations illustrate that the implementation of formal programs in a manner that is suitable can equip future surgeons with these critical skills at an early stage of their careers. Furthermore, additional strategies have been proposed that may be advantageous in the formulation of an education plan. These include consistent academic instruction, bootcamp lectures, courses, orientation during internships, and consistent one-on-one feedback sessions with the surgeons in attendance **(Dumitra et al., 2015)**.

Conclusion

The GMC's Good Medical Practice is predicated on the preservation of medical records. Records that are legible, comprehensive, and accurate are mandatory for surgeons to maintain. A medicolegal record of a patient's care is provided by an operation note, which is crucial for ensuring the continuity of care among the operating team and other colleagues. The necessity of maintaining precise record-keeping is underscored by the fact that as many as 80% of sentinel events have been attributed to handover errors.

The significance of adhering to the RCS guidelines for operation note documentation was also confirmed by the audit. In the context of patient care, research, and ethical standards, the trail underscored the importance of precise records, as evidenced by the improvements in documentation practices. The results confirm the RCS guidelines as a tool for identifying documentation defects and, as such, as a guide that emphasizes the areas in which improvements are necessary. By addressing the challenges identified in this audit, the department has the potential to become a model for RCS guideline adherence and to demonstrate high-quality surgical documentation and patient-centered care.

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