

## Review Article

# Guidance on writing general surgical operation notes: a review of the literature

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## ABSTRACT

Proficient, legible operation notes are vital for post-operative care, remuneration and defence in litigation. The first typed operation note can be traced back to over 100 years ago, however increased volumes of work shifted the document to hand-written and then potentially illegible scripts. The pitfalls have been recognised by clinicians worldwide and schemes to type operation notes, using templates, mnemonics and adhere to accepted standards have followed.

**Keywords:** Operation notes, Operative documentation

## INTRODUCTION

Operation notes are a crucial aspect of patient documentation for surgical procedures. A proficient operation note describes the patient's personal details and indications for operation, details of steps of a procedure performed along with instructions for post-operative care. They are particularly vital when a complication occurs and needed for management. The content of the note can have legal implications in the event of litigation as well as for remunerating surgeons for the services rendered.<sup>1</sup>

Poor quality of the operation notes is a cause of concern in the health care system, due to the implications for patient safety in the event of a complication and for quality of patient care. The illegible note can cause difficulty for medical and nursing staff in understanding specific post-operative instructions, cautions concerns, Medical abbreviations used that may not be standardized or uniform can cause ambiguity.<sup>2</sup>

Surgeons and their departments lose out on remuneration for poorly documented or absence of documentation of extra procedures and adverse events due to poor documentation can cause the National Health Service (NHS) in UK has to bear avoidable expenses due to litigation owing to the poor recording of operation details.<sup>2</sup>

## TRENDS IN GUIDANCE IN WRITING OPERATION NOTES

Statutory bodies such as The Royal College of Surgeons (RCS) always emphasized on operation note documentation qualities health care providers must maintain for patient-care, follow up and audit. In this regard the RCS has developed guidelines for maintaining and storing medical records including operation notes for surgeons. The first of such guidelines were published in 1990 and later reviewed and modified in 1994.<sup>3</sup>

The document contains a section with guidelines for “Patients Undergoing Surgery”

Immediately after surgery, a record of the operation should be made including

- i. The name of the operation surgeon(s) and the name of the consultant responsible
- ii. The diagnosis made and the procedure performed
- iii. Description of the findings
- iv. Details of tissue removed, altered or added
- v. Details of serial numbers of prosthetics used
- vi. Details of sutures used
- vii. An accurate description of any difficulties or complications encountered and how these were overcome
- viii. Immediate post-operative instructions
- ix. The surgeon’s signature

The record should also contain information relating to anaesthesia. Most recently Good Surgical Practice developed by The Royal College of Surgeons of England in 2008 and reviewed and modified in 2010, and 2014 sets current standards for surgeons in the UK.<sup>4</sup> The document is endorsed by the surgical associations in Britain and the standards are developed with the aim that they are “reasonable, assessable and achievable by all competent surgeons”.

Good surgical practice emphasizes on legible operative notes for every operative procedure that are preferably typed. The notes should accompany the patient into recovery and subsequently the ward. They should be in sufficient detail to enable continuity of care by another doctor. For audit, medico-legal and remuneration issues, in contrast to the 1994 guidelines there are new variables such as whether the procedure was emergency or elective, the incision, operative diagnosis, any extra procedures performed and the reason why they were performed; details of closure technique. It also requires that follow-up notes are sufficiently detailed to allow another doctor assess the care of the patient at any time.

The recent guidance on what operation notes should include as per Good Surgical Practice 2014 are:

- Date and time
- Names of the operating surgeon and assistant

- Name of the theatre anaesthetist
- The operative procedure carried out
- Incision
- Operation diagnosis
- The operative findings
- Any problems/complications
- Extra procedures
- Details of tissue removed, added or altered
- Identification of any prosthesis used, including the serial numbers of prostheses and other implanted materials
- Closure technique
- Anticipated blood loss
- Antibiotic prophylaxis
- DVT prophylaxis
- Postoperative care instructions
- Signature

## IN PRACTICE

There is evidence that operation notes have been typed for over 100 years ago. Latimer and colleagues (2012) reviewed The Johns Hopkins Hospital surgical records from 1896 through 1912.<sup>5</sup> They selected a case from 1905, in which Harvey Cushing attempted a surgical cure for a patient diagnosed as having glaucoma. As evident from the notes included from the paper, Cushing in 1905 included date, name of the procedure, the anaesthesia used (Ether) and the details of the procedure in the operation notes. Interestingly, the name of the patient is not mentioned and it’s been referred to as Glaucoma case.

In 20th century practice within organized healthcare systems which successfully managed high volumes of emergency surgery cases, a written operation note was more practical. The quality of the operation documentation may vary depending on a variety of factors. Audits of practice have been carried out worldwide, citing internationally recognized surgical body guidance documents as standard to measure practice against.

A 1994 study that evaluated quality of medical record keeping, found that postoperative instructions were

absent in nearly 75% of the operation notes and serial numbers of prostheses were rarely recorded. About 70 per cent of notes written by consultants could not be read by the nurses or junior doctors or they could not understand the procedure from the description.<sup>6</sup> In another study simply attaching a aid-memoir to the front of the operation sheets resulted in improvement in proper identification of operating surgeon from 74% to 93%, and the avoidance of unacceptable abbreviations from 53% to 84%.<sup>7</sup> It was suggested after these results that hand written notes need to be shifted to word processors, so as to ensure better quality.

In a retrospective, descriptive study the quality of operative notes at Omdurman Teaching Hospital, Khartoum, Sudan, were compared with the standards set by the Royal College of Surgeons, England 2008.<sup>8</sup> The results revealed that the date and time of surgery were documented well in 98% and 81% of notes respectively while personal details like patient name, gender and age were noticed in 28% - 33% of the operative notes. The largest omission was seen in the category of elective or emergency. This was stated in only 3.2% of the operation notes. The names of the surgeon and his assistants were seen in over 90% of the cases, but that of anesthetists and theatre attendants were missing in over 80%. The name of the operation to be conducted was documented in 92%, preoperative diagnosis in 25% and the operative diagnosis in only 23% of the cases. Problems encountered during the operation, extra procedures needed and details of closure were seen with varying amounts ranging from 25-37%. The investigators identified surgeon's names, operative diagnosis, findings, and mentioning of complications or problems as the key areas to be improved for optimal operation note recording.<sup>8</sup>

The use of computers for operation record keeping has also been explored in research. A study that compared operation notes on specifically designed proformas with those produced by word processors undergoing operations for colorectal cancer, found that computer notes were legible in all cases and scored higher on all criteria, and same time was spent generating them as manual records. The researchers were of the view that personal computers and machines can be effectively used for operation notes provided they are readily available in operating theatres, and the users adequately trained. Word processed notes have an added advantage that the data collected may be archived and analyzed automatically for audit and research.<sup>9</sup>

Operation reports have conventionally consisted of dictations that surgeons or their assistants complete after operative procedures. Research has shown that an operative dictation template can be used significantly to improve surgical residents' comfort level with dictation and has the potential to improve the quality of junior resident dictations.<sup>1</sup>

The concerns for the poor quality and omission of important information in the dictated notes have led several experts to propose use of alternative *synoptic* reports. Synoptic reports use computer based forms to describe the findings and important steps of an operation based on pre-defined templates for individual procedures. Park and his colleagues (2010) assessed the reliability and completeness of electronic synoptic reports (E-SORs) for pancreatic surgery developed at their institution. For 112 major pancreatic resections an attending surgeon and surgical fellow independently completed an E-SOR. Completeness was assessed by comparing E-SORs to a case-matched (surgeon and procedure) historical control of dictated reports. Results showed that E-SORs had significantly higher completeness checklist scores compared to dictated notes and were available in patients' electronic records in a significantly shorter time. Inter-observer agreement for individual categorical E-SOR items between attending surgeon and fellow was moderate to very good as indicated by the Kappa score. The integral strengths of E-SORs offer a real promise for a new standard for operative reporting.<sup>10</sup> The use of electronic operation notes have been promoted with the advent of electronic patient records. Compared to written operation notes following a proforma or guidance, or simple typed ones, electronic structured operation notes have the potential to carry a wealth of more information. Despite the demands placed on hospital informatics departments to build such systems or commission outside developers, and the learning curve associated with it there are a number of advantages. An electronic record has the potential to be accessed remotely in the incidence of a surgeon off-site being consulted and they have been particularly championed by specialties such as plastic surgery for whom photographs add an important dimension to the operative record.<sup>11</sup>

## PATIENT SAFETY

Patient safety is the major aspect of why it is necessary to have optimal record keeping in health care services including surgical units. The WHO safer surgery checklist (2009) provides guidance for operation note writing. It entails that an accurate, complete, signed surgical record should be maintained.<sup>12</sup>

All patient records should have following attributes:

- Clear: the patient clearly identified by his or her name and hospital number on each page, written legibly or typed and each entry signed, dated and timed based on recorded facts;
- Up-to-date: notes should be written as promptly as possible
- Tamper-proof: Records should be secure and attempts to alter records should be evident; if computerized systems are used, the date and author of an entry and modification should be noted

- Original: After an entry has been made it should not be changed. If a mistake is observed, amendments or corrections may be done, but clearly identified as such with date and sign and an explanation for the amendment.

The safe surgery checklist also identifies that the surgeon recording the operation note should at the minimum include; the name of the main procedure performed and any secondary procedures, the names of any assistants in the procedure, the details of the procedure and the intraoperative blood loss. The operative notes should also include anesthetist a nursing notes.

## CODING

Hospital payments are facilitated by accurate coding that is ascertained from patient notes including the operation note. Moreover, in order to bill third-party funders accurately key information must be adequately recorded in the dictated or typed operation note.

In an audit of operative notes used as billing documentation, a criterion was developed by certified professional coders from a multispecialty academic surgical practice. This took note of the 10 most common deficiencies for reimbursement of services. Seventy-six percent of the operation notes audited contained one or more audit criteria deficiencies. The three most common deficiencies included an incomplete description of all surgical procedures performed (56%), an inadequate description of the indications for procedures (49%), and only 45 per cent of the operative notes were dictated within 24 hours of the procedure. The study highlights the need for robust operative note recording practices and that in surgeons need to be vigorously trained for this.<sup>13</sup>

There is evidence that surgical residents are more likely as compared to the attending surgeons to commit mistakes and omissions in dictating operative notes leading to delayed or denied reimbursements. In a double-blinded study, residents' dictation resulted in 28% mistakes in coding mainly in complex, multicode, and/or laparoscopic cases. These results call for better education programs, mentorship by seniors and a quality assurance process.<sup>14</sup>

## THE FUTURE

With increasing sub-specialisation General Surgery encompasses an array of operations that incorporate a multitude of technologies. This means greater demands from operation notes for clinical care, medico-legal purposes and clinical coding in times to come. Electronic operation notes have been widely accepted as the mode for legibility and also detailing specifics of procedures. Some institutes have heeded the call for formal training on operation note writing. The Department of Surgery, King Abdul-Aziz University Hospital, Jeddah evaluated the effect of teaching surgical residents a standard model

of writing operative notes. The operative notes were assessed with regard to the 22 variables after 2 months of training. An improvement of 29-39.9% in recording medical record number (MRN) and date of the operation by surgical residents was observed after the training. There was a mild improvement of 4.7% and 5.9% respectively in identifying whether the procedure was an elective or emergency operation and writing the specifics of the procedure such as the position of patient and the incision. Documentation of the surgeon's name, assistant's name, anesthetist's name, name of the procedure and pre and postoperative diagnosis improved by 30%.<sup>15</sup>

In a survey that included U.S. Obstetrics and Gynecology residency program directors only 23% reported having a formal teaching program for instructing residents on how to dictate operative reports.<sup>16</sup> Similarly, a nation-wide survey in Canada demonstrated a marked deficiency in resident training in operative note recording.<sup>1</sup> Formal teaching regarding operative notes are a must in modern day surgical practice for quality operation note recording to facilitate quality medical care, defense from litigation and remuneration for surgical procedures.

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