

## An Audit of the Quality of Surgical Operation Notes in a Nigerian Teaching Hospital

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**Background:** Operation note records are important tools for ensuring patients' continuity of care, for research purposes and medico-legal reasons. They can effectively serve these purposes only if well documented. The main objective of this study was to assess the practice of recording the operation notes among surgical trainees in a Nigerian Teaching Hospital.

**Methods:** Operation notes completed by doctors in the Surgery Department over a 2-month period were audited for completeness, legibility and conformity to the standards of the Royal College of Surgeons of England.

**Results:** There were 100 operation notes reviewed, two-thirds of these were written by Senior Registrars, majority of which were for elective operations (63%). Only 37 of the operation notes were appropriately completed with about two-thirds either incomplete or wrongly filled. The cadre of the surgical trainee did not significantly influence the completeness of the operation notes. Legibility of the operation notes was associated significantly with completeness ( $p < 0.04$ ).

**Conclusion:** Standards of operation note writing in our practice needs to be improved upon. The challenges of legibility and completeness of documentation can be overcome by the use of an aide-memoire as well as computerized operation notes.

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### Introduction

Operative findings and post-operative plans contained in the notes do not only serve as a vital means of communication between health professionals, but are also the only legal record of an operation<sup>1</sup>.

Historically, there is a general agreement that the written history of medicine began in Egypt, 3000 BC in the Smith's Papyrus. From the writings of ancient Greek and Roman physicians who studied in Alexandria, it is known that in Egypt, operable (superficial) tumors were treated by cautery with a hot iron or by excision with a knife. Hippocrates (460-375 BC) and his disciples established writing and note-taking as an important part of medicine. With the invention of the printing press by the Germans in 1450, documentation about patients gradually became more widespread.<sup>2</sup>

The importance of operation notes cannot be over-emphasized for several reasons, viz, the matter written in the notes affect patient care, are important in record keeping, are valuable in research, innovative strategies and are imperative for legal matters<sup>3-5</sup>. It is thus important that operation notes are accurately filled and should adequately represent the patient's details so as to assist with the immediate and long-term care of patients. They should also be filled immediately after completion of surgery and be legible with the avoidance of abbreviations, among other requirements<sup>6</sup>.

Operation notes can either be hand-written or computerized, of which various forms exist. Although there are variations in the formats based on institutional differences, all are united in the desire to accurately document peri-operative events with regards to patient care. Most audited operation notes in literature have been assessed using the Royal College of Surgeons' Good Surgical Practice Standards<sup>6</sup>, which was also utilized in this review.

The need to ensure data accuracy, improved research output as well as the growing number of medico-legal events necessitate accurate documentation of operation notes. This study, which reviews the practice of operation note writing in the Surgery Department of a Nigerian tertiary teaching hospital, aims to identify possible pitfalls with a view to proffering practice-improving solutions.

### Materials and Methods

This was a prospective audit of completed operative notes by Doctors in the Surgery Department of Obafemi Awolowo University Teaching Hospital, Ile-Ife between February and March 2015 in the General Surgery, Cardio-thoracic, Urology, Plastic, Paediatric Surgery and Orthopaedic Units. Operative notes were randomly selected and a proforma was developed to capture relevant data with respect to appropriateness, completeness and legibility of the notes. Legibility was assessed by two different assessors and deemed legible if both the operative findings and post-operative orders were decipherable by both assessors. Completeness was assessed using the Royal College of Surgeons' Good Surgical Practice standards<sup>5</sup> format. Data was analyzed using the IBM Statistical Package for Social Sciences Version 20, with statistical significance determined (using the Fischer's exact test) at  $p < 0.05$ .

### Results

One hundred operation notes were reviewed in this study, all of which were hand-written. Sixty-three of them were written for elective while thirty-seven were written for emergency operations. Most (65%) of the notes were written by Senior Registrars, 32% by Registrars, 3% by House Officers while none was written by Consultants. Only 37% of the operation notes were completely filled, while 63% had at least one important missing detail. Of importance were failure to document preoperative PCV/Hb, describe appropriate surgical incision or describe the nature of resected specimen and the closure technique. (Table 1)

**Table 1.** Missing Details in the Operation Notes

Parameter	Absent (%)	Total
Pre-Op PCV/Hb	32 (32)	100
Appropriate Incision Stated	22 (24)	90
Resected Specimen	7 (20)	35
Closure Technique	16 (18)	90
Signature	9 (9)	100
Appropriate Post-Operative Instructions	7 (7)	100
Date Of Surgery	7 (7)	100
Name Of Assistant	3 (3)	100
Operative Procedure Performed Stated	3 (3)	100
Name Of Patient	1 (1)	100
Operative Findings	1 (1)	100
Name Of Surgeon	0/0	100

In 15% of the operative notes, the operative findings were deemed illegible while in 9% the post-operative orders were illegible. Legibility had a significant correlation with completeness of operative notes ( $p=0.01$ ).

## Discussion

The importance of appropriately written operation notes cannot be over-emphasized. Rising standards of health care and increasing litigation make this particularly important.

The fact that only 37% of the operation notes were appropriately filled is a reflection of the sub-optimal quality of documentation of peri-operative details of patients and this calls for improvement. Audits from Nigeria and other part of Africa have demonstrated similar, and in some instances, poorer results<sup>7-9</sup>. Those from developed countries however showed marginally better results<sup>1, 10</sup>.

Several factors might explain this disparity. There is no formal training on proper operation note writing standards for medical students, fresh medical graduates or even residents. Much of the learning is usually on-the-job training which is usually imperfect and not standardized across board. This also translates to a reduced quality of note writing as these young residents get promoted to more senior levels and have to teach the younger doctors what they themselves did not learn well<sup>11, 12</sup>.

Another possible factor is the unavailability of personnel - with increasing population and low availability of personnel and expertise, especially in the surgical specialties, there is increasing burden on the limited personnel both to operate on patients and accurately document.<sup>11</sup>

Surgeons also have to work under circumstances of erratic power supply, inadequate resources (time, theatre space, appropriate and functional instruments, and support staff), limited funding and indigent patients – this is significant pressure for the surgeon working in a low-resource setting like ours.<sup>11</sup> The surgeon thus has to use the least resources – to attend to the most patients; making accurate documentation a secondary consideration.

Internationally, handwritten and/or narrated notes are known to lead to numerous mistakes, provide incomplete information, may be of poor quality and cause confusion with regards to patient care and further follow up<sup>13, 14</sup>. In this study, although all the op-notes were handwritten, there was still a fairly good level of legibility with regards to the operative findings, procedure and post-operative order (84 and 90% respectively), given the previously highlighted constraints. It is however possible to improve on these standards as it has been shown that electronic operation notes are better documented and has a legibility of 100%<sup>15</sup>.

Computerized operation notes have been demonstrated to offer a better documentation than handwritten notes and are being proposed to replace the latter<sup>15, 16</sup>. In our environment however, challenges of erratic power supply and poorly developed hospital-based electronic record keeping facilities may, at the present, prevent its widespread use. Aide-memoires attached to operation notes have been shown to improve on the quality of documentation with respect to completeness and legibility<sup>10</sup>. Its introduction in our setting may also serve as an initial positive step at improving the standards while efforts are ongoing to switch to digital operation notes.

Notable in this review is the fact that none of the reviewed operation notes was written by Consultants, who are the primary care givers. Opinion is generally divided worldwide on who to write operation notes and it has been proposed that Consultants/Specialists might write better notes. This has not however been the case from studies reviewed. For example, Rogers et al reports that while specialist surgeons were more likely to describe their actions accurately, they were less likely to describe wound closure methods or dressings used, as well as complete adequate postoperative orders. The study also showed worsening legibility with increasing seniority<sup>5</sup>. This may be partly due to the fact that, in some climes, the wound closure and post-

operative details are usually handled by the Senior Residents while the specialist concentrates more on the operative procedure. Further studies might be needed to accurately clarify these findings.

## Conclusion

- The role of the operation note to the post-operative care (immediate and future) of a patient cannot be over-emphasized.
- Incomplete or inappropriately filled notes could affect optimal care delivery and weaken a surgeon's defense in the event of litigation.
- The high numbers of inappropriately filled notes make a formal training of surgeons on operation note writing imperative.
- Electronic operation notes will improve completeness and legibility, as well as an aide-memoire, particularly in our setting.

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