



## SELF-ASSESSMENT OF OPERATION NOTES WRITING AMONGST RESIDENTS IN A TEACHING HOSPITAL

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### ABSTRACT

**Context:** Operation note writing is an integral part of the surgical procedure and chronicles the details surrounding it.

**Objective of the study:** Is to determine the level of adherence of the surgical residents to standard guidelines on operation note writing.

**Subjects and Methods:** This is a cross-sectional survey of residents in the department of surgery, University of Benin Teaching Hospital, Benin City, using an anonymised self-administered questionnaire, which was adopted from the Royal College of Surgeons guidelines on operation note writing.

**Results:** Thirty-one residents (19 Senior Registrars and 11 Registrars) were sampled. 51.6% of respondents were 1 year or less in training. 71.7% of respondents regularly write operation notes, however 90.1% of respondents reported that the first assistant wrote operation notes; while 74.2% reported that they adhere to standard guidelines operation note writing. Date, name of surgeon and assistants, type of operative procedure, incision and findings were universally reported amongst respondents, whereas names of scrub nurses, time, prosthesis serial number, deep venous thrombosis and antibiotic prophylaxis were poorly reported. Only 3 respondents scored 100% with the mean score of 75.4% of identified parameters in the guideline used.

**Conclusion:** Training on operation note writing should be entrenched to ensure proper adherence to standard guidelines. Formative assessments of the process are imperative to improve compliance.

**Keywords:** operation note, surgical trainees

### INTRODUCTION

The operation note is the record of the activities carried out during a surgical procedure.<sup>1-3</sup> As a detailed record of surgical procedures, it serves for quality assurance of the surgical output and a veritable source for auditing of the practice. It enables peer review and provides a framework for comparing practice amongst surgeons whilst providing a template for measurement of outcomes.

It is a medico-legal document describing, chronicling and outlining the procedure as well as the postoperative orders.<sup>3-5</sup> It essentially allows the level of care to continue by other doctors and caregivers when the patient is transferred outside the theater, thus improving patient safety.<sup>3</sup> The operation note could be typed or handwritten clearly, without ambiguous non-standard abbreviations.<sup>3,4</sup> There are various conventions surrounding the writing of an operation note and various centers tend to adopt and evolve their own styles.<sup>5</sup> Various surgical colleges have attempted providing guidelines to help ensure standards and protocols. The Royal College of Surgeons of England (RCS) guidelines are some of the

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guidelines that have found widespread application.<sup>2,3</sup> Ideally the operating surgeon should write the operation notes, this is because the surgeon is best positioned to detail the activities including the nuances and reasons for deviation or adherence to the prescribed norms for that procedure. Increasingly, the first assistant is saddled with that responsibility especially when they are experienced senior registrars who have or are assumed to have ample knowledge of the procedure. So long as its not the operating surgeon writing the operation notes, there is a tendency for systemic errors to occur from omissions and lack of details.

Standard guidelines include patient identifiers, identity of the caregivers including anaesthetists, nurses, doctors etc. other parts include the indication for the procedure, the type of procedure done, whether emergency or elective, patient premedication, type of anaesthesia.<sup>2,3</sup>

Various measures are in place to inculcate the right styles and proper adherence to standard guidelines by surgeons in training. These include organized seminars and training workshop, formal lectures as well as informal teaching during clinical activities.<sup>6-8</sup> However, many residents are self-taught. This results in haphazard adherence to standard guidelines.<sup>8,9</sup> Whereas, some studies have examined the case records to ascertain the state of operation note writing in their centers, we have instead undertaken a self-reported assessment of residents' level of adherence in practice to standard guidelines in the hope that first the trainees can be shown the measure their own assessments have against a standard.<sup>9-13</sup> The feedback from this study should therefore help in formative assessment and education from the self-mirroring effect. There are studies from Nigeria on the audit of operation notes writing in tertiary centers.<sup>11-14</sup> The authors have not however seen any assessment based solely on trainees self assessment. Would their self-assessment mirror findings in the actual audit of the operation notes from other studies? Would the findings serve as a tool to directing training and learning? These are some questions this study seeks to answer. Surgical trainees require as part of their training, both didactic lectures and instruction on operation note writing as well as formative assessments to ensure adherence to standard guidelines and inculcation of proper practice before

they exit the training

Whereas formal training is essential as demonstrated by various studies, however some investigators have looked at the use of templates, which are developed for operation note writing.<sup>16-20</sup> This is also being deployed with the use of electronic medical records. It is thought that with the availability of a template, all aspects of the operation note would be addressed. Knowledge of operation note writing and adherence is also important in terms of recording of operative events for billing purposes and with uptake of insurance it is increasingly important that standardization is achieved.<sup>21</sup>

### Material and Methods

This is a cross-sectional survey of residents in the department of surgery, University of Benin Teaching Hospital, Benin City, one of the premier tertiary hospitals in South-South Nigeria. It involved the use of a self-administered questionnaire, which was in two sections. Section A contained the characteristics of the respondents, which was anonymised without respondent identifiers containing 7 items. Section B contained the reported practice of the doctors as it pertains to operation note writing after surgical procedures. There were 20 items in section B. The questionnaire had face and content validation by the authors and was adopted from the Royal College of Surgeons guidelines on operation note writing.<sup>3</sup> The questionnaire both introduced the research work and sought consent from the respondents who were encouraged to participate in the survey.

All residents in the department were approached to fill the self-administered questionnaire, which was immediately retrieved to check for completion of answers. All the questionnaires were retrieved and the responses entered into excel spreadsheets, which were kept under strict confidence. The data was subsequently analyzed using the SPSS version 21. The result was presented in tables with level of significance taken as p-value < 0.05.

### Results

#### Characteristics of the Sampled Population

There were a total of 31 respondents. Nineteen were Senior Registrars (61.3%) and 14 registrars (38.7%). From the sampled population 71.0% of

**TABLE 1. CHARACTERISTICS OF THE STUDIED POPULATION**

<b>DESIGNATION</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Registrar	12	38.7	38.7
Senior Registrar	19	61.3	100.0
Total	31	100.0	100.0
<b>YEARS IN UBTH</b>			
1	9	29.0	29.0
2	7	22.6	51.6
3	3	9.7	61.3
= 4	12	38.7	100.0
Total	31	100.0	100.0
<b>FORMAL TRAINING ON OPERATION NOTE WRITING</b>			
No	18	58.1	58.1
Yes	13	41.9	100.0
Total	31	100.0	100.0
<b>OPERATION NOTE WRITER</b>			
Consultant or Operating Surgeon	3	9.7	9.7
First Assistant	28	90.3	100.0
Total	31	100.0	
<b>FREQUENCY OF OPERATION NOTE WRITING</b>			
Every time	11	35.5	35.5
Most times	11	35.5	71.0
Seldom	4	12.9	83.9
Sometimes	5	16.1	100.0
Total	31	100.0	
<b>ADHERENCE TO OPERATION NOTE GUIDELINE</b>			
No	5	16.1	16.1
Not Sure	3	9.7	25.8
Yes	23	74.2	100.0
Total	31	100.0	

**TABLE 2: FORMAL OPERATION NOTE WRITING TRAINING**

<b>Designation</b>	<b>No (%)</b>	<b>Yes (%)</b>	<b>Total (%)</b>
<b>Registrar</b>	8 (25.8)	4 (12.9)	12 (38.7)
<b>Senior Registrar</b>	10 (32.3)	9 (29.0)	19 (61.3)
<b>Total</b>	18 (58.1)	13 (41.9)	31 (100.0)

Chi-Square Tests 0.595 df 1 p-value = 0.440 not significant

**TABLE 3: FREQUENCY OF WRITING OPERATION NOTES**

<b>Designation</b>	<b>EVERYTIME</b>	<b>MOST</b>	<b>SELDOM</b>	<b>SOMETIMES</b>	<b>Total</b>
	<b>(%)</b>	<b>TIMES</b>	<b>(%)</b>	<b>(%)</b>	<b>(%)</b>
<b>Registrar</b>	2 (6.5)	2 (6.5)	4 (12.9)	4 (12.9)	12 (38.7)
<b>Senior Registrar</b>	9 (29.0)	9 (29.0)	0 (0.0)	1 (3.2)	19 (61.3)
<b>Total</b>	<b>11 (35.5)</b>	<b>11 (35.5)</b>	<b>4 (12.9)</b>	<b>5 (16.1)</b>	<b>31 (100.0)</b>

Chi-Square 13.834 df 3 p-value 0.003 significant

**TABLE 4: ITEMS THAT YOU INCLUDE IN YOUR OPERATION NOTES**

<b>Twenty Listed items in the standard operation note</b>	<b>Yes</b>	<b>Not Sure</b>	<b>No</b>	<b>Total</b>
Date	31 (100)	0 (0.0)	0 (0.0)	31(100)
Names of Surgeon Assistants	31 (100)	0 (0.0)	0 (0.0)	31(100)
Operative Procedure	31 (100)	0 (0.0)	0 (0.0)	31(100)
Incision	31 (100)	0 (0.0)	0 (0.0)	31(100)
Operative Diagnosis	31 (100)	0 (0.0)	0 (0.0)	31(100)
Findings	31 (100)	0 (0.0)	0 (0.0)	31(100)
Time	15 (48.4)	1 (3.2)	15 (48.4)	31(100)
Elective or Emergency	21 (67.7)	3 (9.7)	7 (22.6)	31(100)
Scrub Nurse/Circulating Nurse	12 (38.7)	2 (6.5)	17 (54.8)	31(100)
Anaesthetist	19 (61.3)	2 (6.5)	10 (32.3)	31(100)
Complications	18 (58.1)	5 (16.1)	8 (25.8)	31(100)
Additional Procedures Performed And Why	23 (74.2)	6 (19.4)	2 (6.5)	31(100)
Tissue Removed Or Altered	27 (87.1)	3 (9.7)	1 (3.2)	31(100)
Prosthesis/Implanted Materials Serial Number	17 (54.8)	9 (29.0)	5 (16.1)	31(100)
Closure Technique	28 (90.3)	1 (3.2)	2 (6.5)	31(100)
Estimated Blood Loss	25 (80.6)	0 (0.0)	6 (19.4)	31(100)
Antibiotic Prophylaxis	19 (61.3)	2 (6.5)	10 (32.3)	31(100)
DVT Prophylaxis	7 (22.6)	3 (9.7)	21 (67.7)	31(100)
Detailed Post Op Orders	27 (87.1)	2 (6.5)	2 (6.5)	31(100)
Signature	26 (83.9)	2 (6.5)	3 (9.7)	31(100)

TABLE 5: MEAN SCORE OF REPORTED ADHERENCE TO STANDARD GUIDELINES

Score (percent)	
Mean	15.94(75.9)
Std. Error of Mean	0.551(2.6)
Median	16.00(76.2)
Mode	17(80.9)
Std. Deviation	3.065(14.6)
Variance	9.396(213.1)
Range	13(61.9)
Minimum	7(33.3)
Maximum	20(95.2)
Percentiles	
50	16.00(76.2)
75	18.00(85.7)
90	19.80(94.3)
95	20.00(95.2)

them frequently write operation notes (every time or most of the time); though 58.1% of them have not had any formal training on operation note writing and 51.6% were 2years or less in the residency training program in the hospital. Overwhelmingly 90.3% identified that the first assistant writes the operation notes from their experience. While 74.2% claim to adhere to the guidelines for operation note writing. Table 1

#### Cross-Tabulation Between The Designation And Formal Training In Operation Note Writing

There were more senior registrars (9/19) trained in operation writing than registrars (4/12), however this was not statistically significant. Table 2

The senior registrars essentially were the group involved in operation note writing with 18/19 involved every time or most of the time as against 4/12 for registrars. This finding was statistically significant at 99% p-value <0.001

#### Adherence To Standard Guidelines

There was complete adherence to six items in the guidelines namely, name of operating surgeon, date, name of the operative procedure, operative diagnosis, incisions and findings. Whereas other items scoring above 70% but not up to 100% included tissue removed or altered, closure technique, additional procedures, estimated blood

loss, detailed postoperative orders, and signature. Items like name of circulating or scrub nurse, time and DVT prophylaxis had the poorest adherence of <50%. Table 4

The mean score of all respondents about items in the standard guidelines was 15.94(75.9%) with a median score of 16; minimum of 7 and a maximum of 20 with only three respondents scoring 20 (100%). Table 5

#### DISCUSSION

Most of the respondents in this study were senior registrars (61.3%) who were involved in writing operation notes every time or most times (71%) (Table 1). Our attempt at stratifying the respondents according to those who frequently write operation notes, showed that it was written in most cases by the first assistant (90.3%) (Table 1). This may give room for errors/omissions in the notes especially in situations where the notes are written, unsupervised, by assistants who may not have clearly grasped the operative procedure.<sup>3,5</sup> Other studies from Nigeria showed that senior registrars are the main writers of operation notes in all the centers.<sup>11-14</sup> This was irrespective of whether they were the operating surgeons or not. Therefore training, supervision and formative assessment should be directed to these senior registrars in order to ensure proper adherence



to standard guidelines.

Self assessment and self reporting have an inherent bias of either under reporting weaknesses or embellishing strengths which may be a challenge with its use as means of identifying challenges in a clinical setting.<sup>22</sup> There is also the fear of confabulation.<sup>22</sup> However, it serves as a snapshot of the knowledge of respondents who in our study were asked the parts of a standard operation notes. Their responses therefore are a direct reflection of their level of knowledge which means areas of knowledge gap are easily identified and addressed appropriately. This is important in settings where poor adherence is due to lack of knowledge and training.<sup>4</sup>

There were areas that appear properly imbibed as normal parts of a proper operation note from the respondents. These include date, names of surgeons and assistants, operative procedure and incision (Table 4). They appear universally accepted and demonstrate strong adherence, similar to findings by other investigators.<sup>5,12</sup> Thus these areas must be areas that all surgical residents appear to have imbibed as integral part of a properly written operation note.

The areas of time, scrub nurse/circulating nurse and prophylaxis appear to show some poor adherence (Table 4) and it may be as a result of lack of knowledge about their necessary inclusion in a standard operation note or laziness/omission on the part of the operation note writer.<sup>1,4,14,16</sup> These areas however have strong medico-legal implications and in fact have strong impact on postoperative care.<sup>2,3</sup> It thus presents a good point of emphasis on training (both formal and informal) as well as supervision on the part of the consultants and trainers to ensure that this is corrected.<sup>6-9</sup>

There was a low level of formal training (seminars, lectures) on operation note writing (41.9%) in this study (Table 2). This is similar to reports by Gillman et al and Eichholz et al.<sup>6,8</sup> It would seem that operation note writing does not feature high up in the formal training schemes of most departments as it is probably assumed that it would be imbibed intuitively. However, various studies appear to show that formal training is imperative and should be continuous to ensure proper compliance to standard guidelines.<sup>5</sup>

Despite the low level of formal training, the study

showed a high self-reported adherence to operation note writing guidelines, with a mean percentage score of  $75.9 \pm 14.6\%$  and most of the respondents captured in the 95th percentile (Table 6). This may be attributed to the apparent success of informal training in theaters sessions, ward rounds and other clinical activities by trainers as well as self-learning by residents. However, this should not be taken on face value as critical areas of the operation note writing were still not being adhered to and formal training sessions are still necessary.<sup>4</sup>

Various studies have identified the need for development and use of templates in operation note writing and the ascendancy of electronic medical records has made this even easier to deploy.<sup>16,18-20</sup> The presence of a template immediately makes the operation note "complete" so long as all fields are filled. Adherence even in the presence of templates remains to be monitored, supervised and enforced as Cahill et al demonstrated in their study that adherence actually dropped following an intervention program.<sup>5</sup> Studies in the Niger-Delta region, eastern and southern regions of Nigeria has shown that there are challenges in the surgical residency training in the various hospitals.<sup>23,24</sup> Thus this work serves to emphasize the need for continuous training and evaluation of residents rather than reliance on self-learning.

### The limitations of the study

This study requires further work in directly assessing the operation records to ascertain the definite level of adherence as the self-report or assessment may be either too generous or too negative and thus not be an appropriate record of the true state of affairs of operation note writing in surgery.

This study did not address issues that can only be gotten from actual audit of operation notes, such as legibility, depth of details of the operative procedures, outline and pattern of the notes and structure of the operation note.

### CONCLUSION

Operation note writing being an important aspect of the surgical routine of surgeons, appropriate training should be entrenched to ensure proper adherence to standard guidelines. Use of a guideline proforma with appropriate sections in writing

operation notes, could improve level of adherence and is advocated by the authors. Lastly, formative assessment of the process is imperative to improve compliance.

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