



Research Article

TO ASSESS SURGICAL PRACTICE OF WRITING GOOD OPERATIVE NOTES USING A CLOSED LOOP AUDIT IN A RURAL MEDICAL COLLEGE

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ARTICLE INFO

Article History:

Received 30th September, 2022

Received in revised form 19th October, 2022

Accepted 21st November, 2022

Published online 28th November, 2022

Key words:

Operative notes, Audit, RCS Guidelines, Good surgical practice, Quality.

ABSTRACT

Aim: To assess and audit the quality of operation notes of Department of General Surgery as compared with guidelines laid down by Royal College of Surgeons. If this audit was found to be deficient, an adequate intervention followed by a re-audit would be undertaken to improve the quality of operation note sheets. **Method:** This is retrospectively prospective study done in the Department of General Surgery of our institute from October 2020 to August 2021. A retrospective audit (Audit 1-October-December 2020) was done to assess the standard of operation notes. When this was found to be deficient in quality, a reformed operation note sheet was devised in accordance with audited pitfalls and due training was carried out. This was followed by a prospective re-audit (Audit 2-June-August 2021) to assess improvement in quality. **Result:** The results of first audit were found to be very inadequate with mean 82.5% data point inclusion. This was followed by an upgradation in operation note sheet which now had prompts for all the missing data points. The data points such as type of surgery (elective/emergency), which were not captured at all in Audit 1, were captured in 94% of operation note sheets in Audit 2. The training helped significantly improve various low scoring data points such as date and time; name of theatre anaesthetist; operative findings; any extra procedure performed and the reason of the same; and details of tissue removed, added or altered. **Conclusion:** Close loop audits and revising operation note sheet according to recent guidelines can significantly improve the good surgical practice of writing standardised operative notes.

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INTRODUCTION

Operation notes are an important written clinical document in the surgical history of patient. It is also vital in post-operative care and safety of the patient. At the same time it helps audit patient care and serves as a legal record of patient's operative care¹. With increasing necessity to provide accurate record of operative procedure, it becomes surgeon's responsibility to ensure authenticity and completeness of the written operation notes. The Royal College of Surgeons Guidelines for Good Clinical Practice (Table 1); with its most recent version in 2014²; imposes surgeons to verify that all medical records are legible, concluded and precise. The aim of the study was to audit the quality of operation notes in Department of General Surgery against the guidelines of Royal College of Surgeons, and to perform a re-audit, if quality was found low, after implementing an adequate intervention.

METHODS

Ethics: When reporting studies on human beings, indicate whether the procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional or regional) and with the Helsinki Declaration of 1975, as revised in 2013. A

retrospectively prospective study was carried out in the Department of General Surgery from October 2020 to August 2021 to audit quality of operation notes of all patients undergoing surgery under general and spinal anaesthesia. Those patients who underwent surgery under local anaesthesia were excluded.

An audit 1 was done retrospectively from October to December, 2020 where operative notes from 100 consecutive operation performed in our hospital were audited by a single observer. All data collected in audit 1 were compared to RCS guidelines. These results were presented at Departmental audit meeting. Based on lacunae, an upgraded operative note sheet was devised. This sheet was then subsequently introduced into surgical practice (Appendix 1). Training sessions were held for post-graduate residents and faculties of the department regarding filling of an upgraded operative note sheet.

After a period of 5 months of incorporation of this revised operative note sheet, a re-audit was performed where 100 consecutive operative notes from surgeries performed during the month of June -August, 2021 were compared with RCS Guidelines.

For Statistical analysis, the presentation of the categorical variables was done in the form of number and percentage (%).

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The comparison of the variables which were qualitative was analyzed using Chi-Square test. If any cell had an expected value of less than 5 then Fisher's exact test was used. The data entry was done in the Microsoft EXCEL spreadsheet and the final analysis was done with the use of Statistical Package for Social Sciences (SPSS) software, IBM manufacturer, Chicago, USA, ver 21.0. A p value of less than 0.05 was considered statistically significant.

Table 1 Data included in RCS Guidelines

S.No.	Data Points
1.	Date and time of operation
2.	Elective / emergency surgery
3.	Names of operating surgeon and assistant
4.	Name of the theatre anaesthetist
5.	Operative procedure done
6.	Incision
7.	Operative diagnosis
8.	Operative findings
9.	Any problem / complications during surgery
10.	Any extra procedure performed and the reason why it was performed
11.	Details of tissue removed, added or altered
12.	Identification of any prosthesis used, including the serial numbers of prostheses and other implanted materials
13.	Details of closure technique
14.	Anticipated blood loss
15.	Antibiotic prophylaxis (where applicable)
16.	DVT prophylaxis (where applicable)
17.	Detailed postoperative care instructions
18.	Signature

RESULTS

All the audited operation note sheets were legible in our hospital. The result of both audits is shown in Table 2.

Table 2 Result of both audits

NO.	DATA	AUDIT 1 (%)	AUDIT 2 (%)	P value
1	Legibility	100	100	
2	Date and time	74	96	<.0001*
3	Elective / emergency procedure	--	94	<.0001*
4	Names of operating surgeon and assistant	90	98	0.033*
5	Name of the theatre anaesthetist	81	98	0.0001*
6	Operative procedure carried out	97	99	0.621*
7	Incision	94	98	0.279*
8	Operative diagnosis	90	99	0.010*
9	Operative findings	59	89	<.0001†
10	Any problem / complications	01/01 (100%)	04/04 (100%)	-
11	Any extra procedure performed and the reason why it was performed	03/10 (30%)	15/16 (93.7%)	0.001*
12	Details of tissue removed, added or altered	70	92	0.0001†
13	Identification of any prosthesis used, including the serial numbers of prostheses and other implanted materials	04/06 (66.6%)	12/12 (100%)	0.098*

14	Details of closure technique	97	99	0.621*
15	Antibiotic prophylaxis (where applicable)	100	100	-
16	Detailed postoperative care instructions	99	10	<.0001*
17	Signature	90	99	0.010*
MEAN		82.50%	97.16%	

There were few gleaming deficiencies in audit 1. Some very low scoring data points included - operative findings which was captured in only 59%, details of extra procedure performed were mentioned in only 30% case sheets and details of prosthesis used was given only in 04/06 (66.6%) cases.

After introduction of an upgraded operation note sheet, there was a marked improvement amongst all data points, with all data points scoring almost >90%. In old operation note sheet, there was no provision for type of surgery (elective/emergency) column; which was then added in improvised operation note sheet and hence got captured in 94% case sheets in audit 2. The mean percentage of data points included in audit 1 was a mere 82.5%, which then rose to an acceptable 97.6%. Low scoring data points of audit 1 also improved significantly as shown in Table 3.

Table 3 Significantly improved data points

DATA	AUDIT 1 (%)	AUDIT 2 (%)	P value
Operative findings	59	96	<.0001*
Details of extra procedure performed	70	92	0.0001†
Details of prosthesis used	66.6	100	<.0001*

DISCUSSION

The quality of the operative note is of utmost importance as it is a precise record of in-theatre events. A comprehensible, well-structured operative note is a part of medical record and may serve vital role in medico-legal cases in present times of rising standards of patient care and rising litigations against doctors. Operation notes are valuable part of patient's hospitalization history; yet each year the journal of the Australian Medical Defence Association reports cases where litigations have arisen because of shortcuts taken while jotting down operation note sheet³.

Operation notes in our hospital are hand written, so legibility of operative notes is of utmost importance. Legible notes foster communication among health care professionals and it also aids in proper patient care⁴. Legibility of operative notes in our study was 100%.

In audit 1, the type of surgery (elective/emergency) was not mentioned in an operative note sheet as there was no such provisions in the old format. This was troubleshooted and a column for capturing this was added in revised note sheet. Because of this data point, type of surgery was seen in 94% of operation note sheet in audit 2.

A study conducted by Hamza A, et al⁵ showed that the date and time of operation were noted in 98% and 81% respectively. Whereas, date and time mentioned in operative notes of our institute contained 74% in audit 1 which then rose to 96% in audit 2. Similar data mentioned in study done in one institute of India were only 25.4% and 10.4% respectively⁶. In study done by Baigrie RJ, et al⁷, it was found that post-operative instructions were present only in 25% of operation

notes and details of prostheses were rarely mentioned. Compared to above study, post-operative instructions were present in all the operation note sheets that we audited. Details of prostheses used were mentioned in only 66.6% of cases in audit 1, which was included in low scoring data points. After use of an upgraded operation note sheet and rigorous training, it rose to 100%. In our study, other low scoring data points such as operative findings and details of extra procedure performed were also present in only 59% and 30% respectively in audit 1. After introduction of new operation note sheet and proper training, above two parameters caught up to 89% and 93.7% respectively in audit 2.

Several factors might explain the inadequate quality of operative notes: lack of proper training on operation note writing for medical graduate, lack of time, substandard note format. The gold standard for operative note record is an electronic operative note either printed and placed in patient's case sheet or stored in database⁸⁻¹¹; thus providing a valuable resource for further audits research. But in many hospitals, a computer based operative note is not feasible as it entails more cost, staff training and maintenance. There can be some other options available for data input practice; such as free text entry or template-based system. In our institute, free text entry system was used for operation note records until an upgraded template based operation note sheet devised according to RCS Guidelines was introduced. Studies have shown that a use of template-based system is more cost and time effective¹². It increases compliance with set operative guidelines and also reduces errors.

Some methods of improving paper based operative notes are: an aide-memoir sheet / data points placed where operative notes are written^{4,13}, educating and training of surgeons or using an operative checklist / operative note proforma sheet^{14,15}. These all have been shown to improve operation note quality.

CONCLUSION

In this paper, we provide evidence that in a low resource setting like ours, a template-based paper operative note proforma conforming to RCS Guidelines can be used effectively to write comprehensive operative notes. Improving the quality of operation notes improves surgical practice and helps mitigate surgical disasters.

Appendix 1

Name: _____ I.P. No.: _____		Details of Prosthesis used: _____	
Age/ Sex: _____ Date and time of operation: _____		Details of tissue removed/added/altered: _____	
Surgeon: _____ Anesthetist: _____		Any drain inserted: (Yes/ No), if yes, type of Drain: _____	
Name of Scub nurse: _____ Name of OT technician: _____		Post-operative instructions: _____	
Operative diagnosis: _____ Emergency/Elective Procedure: _____			
Procedure Performed: _____			
Type of Anesthesia: _____ Operating Time: _____			
Operative Findings: _____		Signature with Name and Designation with time and date	
Incision: _____			
Steps of Procedure: _____			
Additional procedure performed: _____		Sponge count before closing: _____	
Any complications: _____		Instrument count before closing: _____	
Closure: _____		Bleep sent for HPE: _____	

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