



A thorough note: Does a procedure-specific operation note proforma for laparoscopic appendicectomy improve compliance with the Royal College of Surgeons of England Guidelines?

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ABSTRACT

Introduction: Operation notes provide an insight into the operative process and stand as a legal document of a surgical procedure occurring. Maintaining accurate, complete and legible notes is fundamental for post-operative patient care and medico-legal purposes. This study aimed at comparing the quality of laparoscopic appendicectomy operation notes prior to and after the introduction of a procedure-specific proforma consistent with the Royal College of Surgeons of England (RCSEng) guidelines, 2014. **Methods:** Nineteen parameters based on the RCSEng 'Good Surgical Practice' 2014 guidelines were used to audit laparoscopic appendicectomy operation notes. The study consisted of a retrospective audit of 43 consecutive laparoscopic appendicectomy operation notes and a prospective audit of 57 consecutive operation notes following the introduction of a procedure-specific proforma (existing in both hard copy and electronic versions) for laparoscopic appendicectomy.

We assessed: (i) the overall compliance with the RCSEng guidelines, (ii) whether each parameter of RCSEng guidelines recommendations were clearly recorded in the operation notes, and (iii) legibility of operation notes. Statistical analysis for difference between the two groups was performed using the independent sample t-test.

Results: After introduction of a procedure-specific proforma for laparoscopic appendicectomy, average compliance with RCSEng guidelines increased from 66% retrospectively to 94% prospectively ($p < 0.00001$). In 8 of the 19 parameters assessed there was significant improvement in adherence to guidelines.

Discussion: The implementation of a procedure-specific operation significantly increased compliance with RCSEng guidelines. Such proformas may help reduce variability and standardise operation notes for the same procedure and improve post-operative care.

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1. Introduction

Operation notes are a fundamental means of communicating the operative findings and procedure details. They are of great value in surgical specialties as they provide information on post-operative patient care and have potential to be utilised for both audit and research purposes [1,2]. As they are the only legal document of a surgical procedure occurring, operation notes may be used in medico-legal cases. Surgical literature has demonstrated that up to 45% of operation notes are non-defensible in virtual court of law settings. Therefore, maintaining complete and legible operation notes is critical to avoid any potential shortcoming in a surgeon's defense [3]. The General Medical Council has further highlighted that ac-

curate note keeping is an important aspect of good medical practice [4]. Several studies have been conducted with the aim of improving the general quality of operation notes within various specialties following The National Confidential Enquiry into Perioperative Deaths that described some notes to be 'untidy one liners' [5]. Following the success of generalised operation note proformas, there have been few studies assessing the outcomes of procedure-specific proformas for common general surgical operations [6]. In this study, we evaluate the impact of a procedure-specific proforma for laparoscopic appendicectomy.

Acute appendicitis is the most common indication for emergency abdominal surgery in the United Kingdom. In recent years, there has been a forward trend in performing surgical removal of the appendix laparoscopically rather than open [7]. However, laparoscopic appendicectomy is associated with complications related to laparoscopic access, physiological effects of pneumoperitoneum and procedure-specific complications such as intra-abdominal abscess [8]. Therefore, operation notes for this procedure require

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standardisation so that they may facilitate surgical review in the eventuality of complications and ensure familiarity with operative steps for junior surgical trainees who often perform the operation.

The study aimed at comparing the quality of laparoscopic appendectomy operation notes in the emergency setting at a tertiary teaching hospital prior-to and after introduction of a procedure-specific proforma. The contents of the proforma were based on the Royal College of Surgeons of England (RCSEng) 'Good Surgical Practice' 2014 guidelines for operation note writing [9]. After initial assessment of operation notes, key areas of non-compliance were identified and incorporated into the procedure-specific proforma to facilitate complete adherence to the guidelines.

2. Methods

Nineteen recommendations based on the RCSEng 'Good Surgical Practice' 2014 guidelines were used to audit laparoscopic appendectomy operation notes (Table 1). Ethical approval for the study was granted by the clinical audit department and registered with the ID 3175. The study consisted of a retrospective audit of the 43 consecutive laparoscopic appendectomy operation notes performed in November and December 2013 at a tertiary teaching hospital. In this group, operation notes were either handwritten or typed using a generic operation note template software previously designed by the surgical department. However, after introduction of a procedure-specific proforma for laparoscopic appendectomy (existing in both hard-copy and electronic versions) a prospective audit of 57 consecutive operation notes was performed in November and December 2014 (Fig. 1). This new proforma was e-mailed to surgical trainees and consultants within the general surgery department and hard copies were also made easily accessible in the emergency theatre room. The operative cases were identified using the theatre management system using the keyword 'laparoscopic appendectomy'.

The following parameters were assessed: (i) the overall compliance with the RCSEng guidelines, (ii) whether each of the RCSEng guidelines recommendations were clearly recorded in the operation notes (regardless of whether or not they occurred), and (iii) legibility of operation notes. Statistical analysis for difference between the two groups was performed using the independent sample t-test. Preparation of the manuscript was in accordance with the Stan-

Table 1
Operative note criteria required by the Royal College of Surgeons of England as demonstrated in 'Good Surgical Practice' 2014.

Royal College of Surgeons of England Operation Note Guidelines, 2014
Date
Time
Elective/emergency procedure
Name of theatre anaesthetist
Anaesthesia
Names of operating surgeon and assistant
Operative procedure carried out
Incision
Operative diagnosis
Operative findings
Problems/complications
Extra procedure performed and why it was performed
Details of tissue removed, added or altered
Details of closure technique
Anticipated blood loss
Antibiotic prophylaxis
DVT prophylaxis
Detailed post operative instructions
Signature

dards for Quality Improvement Reporting Excellence (SQUIRE 2.0) guidelines [10].

3. Results

Following the introduction of the procedure-specific proforma, the average compliance with RCSEng guideline parameters increased from 66% retrospectively to 94% prospectively ($p < 0.00001$) (Table 2). Both groups were found to be 100% compliant in recording date, operating surgeon, anaesthetist and anaesthesia, operating procedure, incision, findings and closure. However, recording of emergency procedure, time of operation, antibiotics prophylaxis, DVT prophylaxis, blood loss, histology, additional procedures and signature showed significant improvement after introduction of the procedure-specific proforma (Table 3). Although there were also improvements in recording of operative diagnosis, complications and post-operative instructions, these were not significant. The average score legibility of operation notes improved from 95% to 100%.

4. Discussion

The RCSEng 'Good Surgical Practice' 2014 guidelines have made clear recommendations on what is expected to construct clear, accurate and robust operation notes [9]. Previous studies have focused on the use of generic bullet point aides as memoirs or included sub-headings within proformas to improve consistency of handwritten operation notes [2,11–13]. Furthermore, studies have commented on the superiority of electronic proformas targeting potential areas of improvement, mainly legibility and avoidance of information omission [14,15]. The overall use of generic operation note proformas have shown to significantly improve adherence to the RCSEng guideline parameters and therefore have a beneficial impact on post-operative patient care and communication within the multi-disciplinary setting [2,12,14].

There have been further advances in the development of procedure-specific proformas in specialties such as orthopaedic surgery [15,16]. However, the use of such proformas in other specialties such as general surgery is less widespread [6,17]. Therefore, our study aimed at addressing this issue and improving documentation of general surgical operation notes in adherence to RCSEng guidelines particularly for procedures commonly encountered by surgical trainees. We devised a procedure-specific operation note proforma for laparoscopic appendectomy (a procedure that is performed daily in most acute hospital settings by surgical trainees). After introduction of this proforma, the average compliance with RCSEng guidelines increased significantly from 66% retrospectively to 94% prospectively ($p < 0.00001$). Notably in 8 of the 19 RCSEng guideline parameters assessed, there was significant improvement in adherence to guidelines.

The RCSEng guideline parameters that demonstrated significant improvement were recording of whether the procedure was emergency or elective, time of procedure, antibiotic prophylaxis, DVT prophylaxis, estimated blood loss, details of tissues removed, whether any additional procedures were performed and documenting of signature (Table 3). There are several reasons for these results in the

Table 2
Overall compliance with RCSEng guidelines prior-to and after introduction to the procedure-specific proforma.

	Retrospective (N = 43)	Prospective (N = 57)
Mean	66%	94%
Median	68%	95%
Range	52.6%–78.9%	84%–100%
P-value		<0.0001

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