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The surgical admissions proforma: Does it make a difference?

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HIGHLIGHTS

- This study compares freehand documentation versus a surgical admissions proforma.
- The proforma increased documentation in 28/32 criteria set by RCSEng.
- 89% of the surgical team preferred its use to freehand clerking.
- Audit quality control was also more reliable with the proforma.

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ABSTRACT

Admissions records are essential in communicating key information regarding unwell patients and at handover of care. We designed, implemented and evaluated the impact of a standardised surgical clerking proforma on documentation and clinician acceptability in comparison to freehand clerking. A clerking proforma was implemented for all acute general surgical admissions. Documentation was assessed according to 32 criteria based on the Royal College of Surgeons of England guidelines, for admissions before (n = 72) and after (n = 96) implementation. Fisher's exact test and regression analysis were used to compare groups. Surgical team members were surveyed regarding attitudes towards the new proforma. Proforma uptake was 73%. After implementation, documentation increased in 28/32 criteria. This was statistically significant in 17 criteria, including past surgical history ($p < 0.01$), medication history ($p = 0.03$), ADLs ($p = 0.02$), systems review ($p < 0.01$), blood pressure ($p < 0.01$), blood results ($p = 0.02$) and advice given to the patient ($p = 0.02$). The proforma remained beneficial after regression analysis accounted for differences in time of day, seniority of the doctor and nights or weekends (coefficient = 0.12 [$p < 0.01$]). 89% of the surgical team felt the form improved quality of documentation and preferred its use to freehand clerking. 94% felt it was beneficial on the post-take ward-round. Audit quality control was also more reliable with the proforma (inter-observer agreement = 99.3% [$\kappa = 0.997$]) versus freehand clerking (97.1% [$\kappa = 0.941$]). Our study demonstrates that a standardised surgical clerking proformas improves the quantity and quality of documentation in comparison to freehand clerking, is preferred by health professionals and improves reliability of the audit quality control process.

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1. Introduction

Accurate documentation in clinical records has been shown to improve patient care and clinician performance [1]. Admissions records are particularly essential in communicating key information when the patient is most unwell. The NHS Quality and Safety Programme states that a, "unitary document needs to be in place, issued at the point of entry, which is used by all healthcare professionals and all specialties throughout the emergency pathway" [2]. This standard applies to both medicine and surgery. Inadequate documentation has been linked with poor patient care. A recent Dutch study of 7926 medical and surgical patients found that poor quality of documented patient information was associated with a

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higher rate of adverse events (AEs) [3]. Furthermore, inadequate documentation has been implicated as a major source of error for clinical coders [4] and has medico-legal ramifications. Evidence has shown that doctors who record more data are likely to detect AEs [5]. This makes high quality documentation even more significant given the extremely narrow margin for error in the surgical environment.

The Royal College of Surgeons of England (RCSEng) Guidelines for Clinicians on Medical Records and Notes (1994) provides information regarding what a surgical admissions document should contain [6]. This includes patient history, past medical history, medication history, social history, examination including height and weight, and medical care plan including reports of all investigations, treatments and verbal advice given to the patient and their relatives. The National Confidential Enquiry into Patient Outcome and Death (NCEPOD) aimed to identify remediable factors in the care of emergency adult admissions. They found that despite recommendations from RCSEng and corresponding advice from the Royal College of Physicians regarding medical patients, the standard of initial assessment was poor or unacceptable in 7.1% [7]. Interestingly, they also found that the use of proformas aided initial assessment, but they criticised the lack of standardisation of the information recorded in proformas across the National Health Service (NHS).

Evidence also suggests that printed clerking forms are preferred by healthcare professionals in general surgery [8], orthopaedics [9,10], and general medicine [11,12]. Audit has shown that key information may be omitted frequently [13], however despite this many hospitals do not have structured clerking documents as policy.

Although there are numerous studies that audit the compliance of either freehand case notes or admissions proformae, there is surprisingly a paucity of studies directly comparing the efficacy of one against the other in surgical admissions. We aimed to assess whether the quality of documentation was improved when using a standardised surgical clerking proforma compared to freehand clerking at a district general hospital. We also assessed the attitudes of surgical team members towards the new proforma.

2. Methods

The surgical admissions clerking proforma was designed based on standards set by RCSEng [6], with input from senior consultants. On-call teams were requested to use the proforma instead of freehand clerking and were not aware that they would be audited. Three data collectors independently conducted a retrospective audit of notes over a two-week period before and two-week period after implementation of the clerking proforma. Prior to implementation of the proforma, all admissions clerkings were performed freehand.

Acute trauma, orthopaedics, urology, elective admissions and patients initially clerked by other specialties were excluded from the study. Notes were also excluded if the patients had been clerked by the authors. Documentation both prior to and after implementation of the proforma was assessed according to the presence or absence of 32 criteria based on the RCSEng guidelines (see Table 1). Age criteria were applied in certain elements for relevance: package of care, activities of daily living (ADLs) and abbreviated mental test score (AMTS) were evaluated in those over 65 years, smoking and alcohol intake in those over 13 years, employment if between 16 and 70 years and a urinary pregnancy test if female between 13 and 50 years. Data was analysed using Stata 10 (StataCorp, Texas), and Fisher's exact test applied to compare the difference in documentation before and after introduction of the proforma. Regression analysis was performed to assess whether results were statistically significant after accounting for potentially confounding variables. A p-value of less than 0.05 was considered statistically significant. Inter-observer variation between the three data collectors was calculated by re-auditing 14 records in each group and noting the number of discrepancies.

Table 1
Criteria for documentation based on Royal College of Surgeons of England guidelines.

Presenting complaint	Oxygen saturations
History of presenting complaint	Respiratory rate
Past medical history	Cardiovascular examination
Past surgical history	Respiratory examination
Medication history	Abdominal examination
Allergies	Neurological examination
Family history	Abbreviated mental test score[a]
Package of care[a]	Height
Activities of daily living[a]	Weight
Alcohol[b]	Blood test results
Smoking[b]	Urinary pregnancy test[d]
Employment[c]	Plan
Systems review	Advice to patient
Blood pressure	Name
Heart rate	Grade
Temperature	Time

[a] Assessed in over 65 years of age.
[b] Assessed in over 13 years of age.
[c] Assessed between 16 and 70 years of age.
[d] Assessed females 13–50 years of age.

Questionnaires were issued to 20 doctors and nurses who had used or seen the proforma in order to evaluate their attitudes towards its implementation. The questionnaires were answered anonymously and responses were measured on a Likert scale ranging between 1 (strongly disagree) to 5 (strongly agree).

An ethics review was not sought as the study was registered and approved as an audit within the hospital, which is exempt from this process.

3. Results

Notes were audited for the period before (n = 72) and after (n = 96) introduction of the proforma. After introduction, the proforma was utilised in 73% of cases (70/96 records). Out of 32 criteria, documentation improved in 28, of which 17 were statistically significant (see Table 2).

Key criteria in the history including previous surgical history ($p < 0.01$), medication history ($p = 0.03$), family history ($p < 0.01$), package of care ($p < 0.01$), ADLs ($p = 0.02$), alcohol intake ($p = 0.01$) smoking ($p = 0.03$) and systems review ($p < 0.01$) were significantly improved with the proforma. Documentation of several essential elements of the examination were also significantly improved including blood pressure ($p < 0.01$), heart rate ($p = 0.04$), temperature ($p = 0.03$), oxygen saturations ($p = 0.03$), respiratory rate ($p = 0.04$) and neurological examination ($p < 0.01$). Documentation of urinary pregnancy test ($p = 0.03$) and the information given to patients ($p = 0.02$) was also improved.

Documentation of systems review (7% before, 40% after), neurological examination (3% before, 29% after), and advice given to the patient (4% before, 16% after) were all considerably improved although still poorly documented despite the proforma. AMTS was also considerably improved (0% before, 10% after), although this result was not statistically significant. Documentation of employment status, respiratory and cardiovascular examination, height and weight did not improve with the proforma and remained poorly documented. Documentation of presenting complaint, history of presenting complaint, past medical history, allergies, abdominal examination, plan, name, grade and time were not

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