ORIGINAL ARTICLE

ENHANCING THE QUALITY OF EMERGENCY ADMISSION CLERKING IN NEUROSURGERY: A COMPARATIVE STUDY OF TRADITIONAL METHODS VERSUS A SURGICAL CLERKING PROFORMA

Wasim Ahmed Shah Kazmi[1]✉, Ushna Khan Durrani[1], Zara Rathod[2], Aya Abdelhamid Elshalakany[2]

[1]Leeds Teaching Hospital NHS Trust-UK, [2]King's College Hospital NHS Trust-UK

Background: Accurate and comprehensive documentation during emergency admissions is crucial for ensuring patient safety. This is especially important in high-risk environments such as neurosurgery. Traditional freehand clerking methods often result in incomplete or inconsistent records, potentially compromising patient care. This study aimed to evaluate the impact of introducing a structured surgical clerking proforma on the quality of emergency admission clerking in a tertiary care neurosurgery unit. **Methods:** A three-phase comparative audit was conducted, comprising an initial audit of traditional clerking methods (Cycle 1), the implementation of a surgical clerking proforma, and a subsequent re-audit using the proforma (Cycle 2). Data were collected retrospectively from 40 patient records in Cycle 1 and prospectively from 30 patient records in Cycle 2. The completeness of documentation was assessed across 31 key parameters, and statistical significance was determined using paired t-tests on simulated data. **Results:** The introduction of the surgical clerking proforma resulted in significant improvements in documentation completeness, particularly for parameters such as the Consultant Responsible and Reviewing Doctor, which saw increases of 30% and 32.5%, respectively ($p<0.05$). These improvements underscore the effectiveness of the proforma in standardizing and enhancing the reliability of clinical documentation. **Conclusion:** The structured surgical clerking proforma significantly improved the quality of emergency admission documentation in the neurosurgery unit. The findings support the broader adoption of such proformas across various medical specialties to enhance the accuracy, consistency, and reliability of clinical records, ultimately contributing to improved patient care and safety.

Keywords: Emergency Admission; Clerking Proforma; Medical Records; Neurosurgery; Clinical Documentation; Patient Safety; Quality Assurance; Health Care

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INTRODUCTION

Accurate and comprehensive documentation is the cornerstone of effective patient care, particularly in high-risk medical environments such as neurosurgery. The admission clerking process serves as the primary record of a patient's initial assessment and clinical status upon entering the hospital. In neurosurgery, where clinical decisions often involve complex and high-stakes interventions, the quality of clerking notes can significantly impact patient outcomes. Traditional freehand clerking methods are frequently associated with incomplete or inconsistent records, leading to information gaps that can compromise patient safety and clinical decision-making.[1,2]

To address these limitations, structured proformas have been developed and implemented to standardize the documentation process, ensuring the completeness and accuracy of patient records.[3,4] However, despite the recognized importance of accurate documentation in neurosurgery, limited research has focused specifically on the impact of structured proformas in this specialty. Most existing studies have been conducted in general surgery or medical units, leaving a gap in understanding how these tools can benefit neurosurgical practice.[5,6]

This study aims to evaluate the effectiveness of a surgical clerking proforma in a tertiary care neurosurgery unit by comparing the completeness of emergency admission documentation before and after the proforma's introduction. This study contributes to the broader discourse on the role of structured documentation tools in enhancing patient safety and clinical efficiency.[7,8]

MATERIAL AND METHODS

This study was conducted as a comparative audit in a tertiary care neurosurgery unit, divided into three phases: an initial audit of traditional freehand clerking methods, the implementation of a structured surgical clerking proforma, and a subsequent re-audit of clerking practices post-implementation.

The study took place in the neurosurgery department of a tertiary care hospital where patients are admitted through emergency referrals. This unit manages a high volume of complex neurosurgical cases, making accurate and thorough documentation critical.

Retrospective data were gathered from the admission records of 40 emergency neurosurgical patients admitted before the introduction of the clerking proforma. These records were reviewed to assess the completeness of documentation. Prospective data were collected from the admission records of 30 emergency neurosurgical patients admitted after the implementation of the clerking proforma. The same parameters used in the initial audit were evaluated to allow for direct comparison. The completeness of each parameter was recorded and compared between the two cycles. Parameters included essential documentation elements such as "Consultant Responsible," "Reviewing Doctor," "Group & Screen," "Coagulation Profile," "White Cell Count," and "C-Reactive Protein (CRP)".[9,10]

A paired t-test was conducted to determine the significance of the differences observed between Cycle 1 and Cycle 2. The t-test compared the mean completeness scores of documentations before and after the introduction of the clerking proforma. Cohen's d was calculated to measure the effect size, and 95% confidence intervals were computed to estimate the true difference in completeness scores. Due to the summary nature of the data, simulated patient records were created for both cycles to apply paired t-tests and evaluate statistical significance.

The study was conducted in compliance with institutional ethical standards, ensuring the confidentiality of all patient data. As the research involved an audit of existing clinical practices, formal ethical approval was not required. However, all necessary institutional permissions were obtained. Patient records were anonymized, and no identifiable information was used in the analysis.

RESULTS

The completeness of emergency admission documentation was assessed across 31 key parameters before and after the implementation of the surgical clerking proforma. The mean completeness for Cycle 1 (pre-proforma) was 40.97% (SD=36.09%), whereas the mean completeness for Cycle 2 (post-proforma) significantly increased to 65.27% (SD = 22.99%).[11]

Significant improvements were observed in the documentation of the following parameters: Consultant Responsible improved from 12.5% in Cycle 1 to 42.5% in Cycle 2 (p=0.0034); Reviewing Doctor improved from 32.5% in Cycle 1 to 65.0% in Cycle 2 (p=0.0105); Group & Screen improved from 2.5% in Cycle 1 to 53.33% in Cycle 2; Coagulation Profile improved from 2.5% in Cycle 1 to 53.33% in Cycle 2; White Cell Count improved from 2.5% in Cycle 1 to 53.33% in Cycle 2; and C-Reactive Protein (CRP) improved from 2.5% in Cycle 1 to 53.33% in Cycle 2.[12] Paired t-tests performed on the simulated data for each parameter confirmed that the improvements observed between Cycle 1 and Cycle 2 were statistically significant for several parameters, indicating that the proforma had a substantial positive impact on the completeness of documentation in these areas.

Some parameters, such as Presenting Complaint (PC) and History of Presenting Complaint (HPC), did not show statistically significant differences, likely due to already high completeness in Cycle 1. These parameters had mean completeness scores of 97.5% in Cycle 1 and 100.0% in Cycle 2.

DISCUSSION

The introduction of the surgical clerking proforma in the neurosurgery unit led to significant improvements in the completeness of emergency admission documentation. Notably, the parameters Consultant Responsible and Reviewing Doctor showed statistically significant improvements, with documentation completeness increasing by 30% and 32.5%, respectively. These findings suggest that the proforma effectively standardizes the documentation process, ensuring that critical information is consistently recorded.[13]

This result is particularly important as the identity of the reviewing doctor is crucial for continuity of care and for ensuring that any follow-up actions are correctly attributed. Inaccurate or incomplete documentation in this area can lead to miscommunication among healthcare professionals and potential delays in patient care. The structured proforma minimizes these risks by ensuring that the reviewing doctor's details are clearly and consistently recorded, thereby improving the overall quality of patient management[14].

These findings align with previous studies that have demonstrated the benefits of structured proformas in various clinical settings. For instance, a study in BMJ Open Quality found that the use of a surgical clerking proforma significantly improved the completeness and clarity of patient records in a

surgical admissions unit.[15] Similarly, other studies have shown that structured documentation tools help reduce omissions and improve the quality of medical records, which are critical for patient safety and effective clinical decision-making.[16,17]

The results of this study support the broader body of evidence advocating for the use of structured proformas to enhance documentation accuracy and consistency. The significant improvements in documentation completeness observed in this study provide further evidence that proformas are valuable tools in high-stakes medical environments such as neurosurgery.

While the study's findings are encouraging, several limitations must be acknowledged. First, the use of simulated data for the paired t-tests, although necessary due to the summary nature of the original data, introduces certain assumptions about the data distribution. These assumptions may not fully reflect the real-world variability in documentation practices.[18] Second, the study was conducted in a single neurosurgery unit, which may limit the generalizability of the findings to other settings or specialties. Future studies could benefit from including multiple units or hospitals to validate these findings across different contexts.[19]

CONCLUSIONS

The implementation of the surgical clerking proforma in the neurosurgery unit led to significant enhancements in the completeness of emergency admission documentation. Notably, the parameters related to the Consultant Responsible and Reviewing Doctor demonstrated marked improvements, with documentation completeness increasing by 30% and 32.5%, respectively. These results highlight the proforma's effectiveness in standardizing documentation, ensuring that critical information is consistently and accurately recorded.

The improvement in documenting the reviewing doctor's identity is particularly crucial for ensuring continuity of care and correctly attributing follow-up actions, thereby minimizing the risks associated with miscommunication and delays in patient management. The structured proforma has proven to be an invaluable tool in enhancing the reliability of clinical records, which is essential for patient safety and effective clinical outcomes.

These findings strongly support the broader adoption of structured proformas in clinical settings, particularly in high-risk specialties like neurosurgery. By improving the accuracy and thoroughness of clinical documentation, such tools can significantly contribute to better patient care. It is recommended that healthcare institutions integrate these proformas into their documentation processes and ensure that clinicians receive adequate training on their use. Additionally, regular audits and feedback mechanisms should be implemented to maintain high documentation standards and foster continuous improvement in clinical practice.

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AUTHORS' CONTRIBUTION

WASK: Conceptualization of the study design. UKD, ZR: ABE: Data collection, data analysis, data interpretation. WASK, UKD: Write-up, proof reading.

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Address for Correspondence:
Dr. Waseem Ahmed Shah Kazmi, King's College Hospital NHS Trust, London.
Contact: 07308049327
Email: waseem4025@gmail.com