

# Improving documentation within the acute stroke unit: Introducing a stroke specific clerking proforma

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## Abstract

The Royal College of Physicians outline the guidelines for acute stroke management, they highlight the importance of early identification to enable prompt and effective treatment. The first contact that a clinician has with a patient is usually at the point of clerking. The information obtained and impression formed are the key factors which determine the management plan. The documentation of the information gleaned is subsequently used by all of the medical team to determine the sequence of events from admission. It is crucial in determining any progression of symptoms, of particular importance in this group of patients in whom this can signify potentially fatal consequences. The quality of clerkings of patients admitted to the acute stroke unit in the Royal Devon and Exeter hospital was analysed and subjective data was obtained from the junior doctors involved in this process to determine how well these were being completed. Baseline measurements showed that junior doctors lacked confidence in this process and the initial audit demonstrated that only half of the recommended categories were being completed. To address this issue a stroke specific admission proforma was made and piloted on the ward. Following this, a re-audit was completed which showed a significant improvement in the quality of clerkings produced.

## Problem

The acute stroke unit is a busy ward with multiple new admissions during the day and out of hours. It can be a challenging ward to work on for junior doctors, in particular for those unfamiliar with current stroke guidelines and protocols. A number of clerkings of acute stroke patients do not include much of the vital baseline information needed to understand the nature of a patient's presenting complaint and the degree of neurological deficit. This information is crucial in monitoring the progression of symptoms, and therefore enabling immediate action in acute scenarios, potentially decreasing patient morbidity and mortality. In addition, there are various stroke specific investigations and initial management protocols required for these patients, which are often missed entirely, delayed, or documented poorly. These include ordering the correct investigations and prescribing the optimal medications for the patient. Furthermore, it is difficult to maintain continuity of care without a clear record of the patient's history, ordered investigations and management plan, often leading to duplicate or delayed requests/referrals (thus delaying management and possibly prolonging admissions).

## Background

Similar projects have been published on the BMJ Quality Improvement Reports journal, with the aim of producing a standardised proforma. Two of the projects; 'Checklist clerking document improves health promotion among medical admissions' [1] and 'How complete are our clerkings? A project aimed at improving the quality of medical records by using a standardised proforma' [2] were aimed at improving the quality of information included in the initial clerking. The first project focused on improving the assessment of social history including risk factors, and health

promotion by introducing a checklist. The second focused on the whole clerking to provide a standardised document, which could be used for the acute medical take. Each of these projects was successful in improving their intended outcomes, they are useful in highlighting successful methods and any limitations we may need to consider.

Another project 'Written medical discharge communication from an acute stroke service: a project to improve content through development of a structured stroke-specific template' [3] was carried out to assess the quality of stroke discharge summaries. The aim of this project was to create a structured template to aid junior doctors in writing discharge summaries to include the key information required for continuity of rehabilitation in the community. This project touched upon similar issues encountered on the acute stroke unit, in particular that specific guidelines for the content of acute stroke clerking documentation do not exist and that an organised stroke unit has been shown to reduce morbidity and mortality.

Many larger audits have been published that highlight the link between documentation and improved clinical outcomes in a hospital setting. An audit 'Improving the recording of the clinical assessment of stroke patients using a clerking proforma' demonstrated significant improvement in the recording of management plans. This project involved the authors prospectively identifying 244 consecutive stroke patients before and after the introduction of the proforma to identify changes in the completion of documentation [4]. A similar project 'Medical admission records can be improved by the use of a structured proforma' was carried out to assess the difference between documentation and user satisfaction following intervention. Similarly, it showed encouraging results by demonstrating a reduction by 13% in the amount of missing information considered to be essential for a thorough history.

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Furthermore, 84% of the doctors and nurses preferred the addition of a proforma, giving reasons such as improved speed of use, completeness, efficiency of post-take rounds, and ease of emergency review of unwell patients [5].

National and international guidelines, by the Royal college of physicians and world stroke organisation highlight the importance of timing in acute stroke care. They outline the key indications for immediate scanning in patients with stroke specific signs and those with less clear neurology. A number of these are determined by the patient's clinical signs, symptoms, and time of onset, all of which should be obtained during the clerking process [6,7]. A clerking proforma could act as a template to improve documentation of these factors, in addition to the patient background and management plan. It provides a clear point of reference for all members of the multi-disciplinary team, which is particularly important for stroke patients who often require intense rehabilitation by therapists from various specialties. This could ensure that information could be easily obtained and the management plan, which may include definitive intervention (thrombolysis/surgery), can be implemented in an efficient manner. As stated in previous projects, the easiest time to take a thorough history is at the point of admission when clinicians usually have access to family members and are able to obtain a collateral history [2]. Therefore, providing a document which can act as a prompt for the clerking doctor could ensure that vital information is recorded at the most opportune time.

### Baseline measurement

Our aim was to produce a clear framework to guide junior doctors in managing acute stroke admissions, and to help them produce a comprehensive clerking and management plan that is well documented. Therefore, our audit assessed clerkings to the following standards, in keeping with these aims and the Royal College of Physicians guidelines on acute stroke management [4];

1. All patients should have a clear history of presenting symptoms and key negatives
2. All patients should have a clearly documented social history to identify their baseline function
3. All patients should have an accurate drug history (including allergy status, drug names, doses, timings, and routes)
4. All patients should have a full examination, including major systems and both peripheral and cranial nerves.
5. All patients should have a documented swallow assessment and plan for oral intake (ie, nil by mouth, free/thickened fluids, NGT, etc.)
6. All patients should have stroke specific investigations requested promptly
7. All patients should be started on appropriate VTE prophylaxis
8. All patients should be started on stroke prevention medications immediately following a CT/MRI head

The clerking doctor was audited on how well they met standards 1-7, and the senior clinician involved in post-taking the patient was tested on standard 7. We intended to improve compliance of these standards by August 2015 with the aim of achieving 100%. We

therefore created a data collection tool to effectively measure whether this target was being met.

In October 2014 the data collection took place over a two week period. 20 sets of notes were audited. 10 sets of notes were audited on the same day each week to ensure that the notes obtained would have clerkings by a variety of junior doctors. The notes were checked against the recorded standards, following which the data was analysed using Microsoft Excel. The initial results showed that the average percentage of required fields completed for the history was 55.5% in the first cycle. Of the examination fields, the average percentage was 47.5% and 65.6% of the required management fields had been recorded. The initial results with a breakdown of each category can be seen in supplementary information 1, which compares the results of the audit from the first to second cycle.

In addition to the objective measurements we had obtained, we felt that it was important to obtain a subjective measurement of the junior doctor's perspectives of clerking new stroke patients. Therefore, we made an online questionnaire on 'Instant.ly Survey', which we sent to all junior doctors involved in the acute medical take in November 2014. 27 junior doctors completed the survey, ranging from foundation doctors to core/specialist trainees. 58% (n=15) stated that they did not feel confident in clerking in new stroke patients, 31% (n=8) did not know about the initial stroke specific investigations required, 73% (n=19) did not know about the protocols for swallow assessments, 65% (n=17) did not know about the RD&E guidelines regarding VTE prescription and 58% (n=15) were unaware of the medications that should be prescribed. 92% (n=24) of the participants felt that a stroke specific proforma or check list would be useful. The questionnaire results can be seen in supplementary material 2.

See supplementary file: ds6593.doc - "Supplementary Material 2 : Questionnaire Results"

### Design

Our baseline measurements showed that documentation for initial clerkings were not meeting the standards we would expect. We felt that this could be explained by a lack of experience of junior doctors in clerking in stroke patients and therefore a lack of awareness of the required fields within the history, examination, and management plan.

We liaised with the junior doctors, consultants, stroke nurse specialists, and therapists to outline key factors they felt would be crucial in obtaining a thorough history. Following this, we made a 'Stroke Admission Proforma' consisting of a template for the documentation of the history and examination, with reference points to various guidelines accessible on the trust intranet, to aid in making a safe management plan.

### Strategy

PDSA Cycle 1:

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After obtaining our baseline measurements, we liaised with the junior doctors, consultants, stroke nurse practitioners, and therapists on the acute stroke unit to determine the key components that they felt would be useful to include on the proforma. Using their input we created our initial version of the proforma.

### PDSA Cycle 2:

We presented the results of our baseline measurements to the stroke clinical governance meeting and presented our draft proforma in January 2015. Discussions from the meeting were positive and it was agreed that the proforma could be used on a trial basis on the acute stroke unit. We attended the RD&E document approval committee (DAC) meeting in March 2015, the outcome was that we needed to make a few changes to the graphics to ensure that it was trust compliant and include further guidelines about stroke specific management. The proforma was amended and introduced to the acute stroke unit in April 2015 on a trial basis. All junior doctors involved in the acute medical take, that would be involved in clerking new admissions on the stroke unit, were informed of the new proforma.

### PDSA Cycle 3:

The proforma was trialled on the ward for two weeks, during which time we were extremely vigilant of their use. Only one proforma had been used during this time as the junior doctors were opting for the generalised acute medical unit (AMU) proforma instead. We discussed this with the team only to reveal that the printed version of the proforma was lacking some of the standardised paperwork, which was supposed to be included in all admission proformas (in accordance with RD&E guidelines). This included an abbreviated mental test score assessment, alcohol screening test and drug history proforma. Our short-term solution was to combine the two proformas whilst we were waiting for new stroke admission proformas to be printed.

### PDSA Cycle 4:

Between April to July 2015, a re-audit was completed to include 40 sets of patient notes in which a stroke admissions proforma had been used. The results showed significant improvement overall within the history, examination, and management sections, with further improvement in most of the sub-sections assessed as well.

We presented these results to the stroke MDT in May 2015. We received feedback from the team who felt that the proforma had been successful, and particularly useful for the junior doctors. Suggestions about further changes were made, including widening its use to involve the SNPs. This was discussed with senior members of the team who felt that this was an important next step. Other amendments suggested were to increase the list of stroke risk factors and to broaden the cranial nerves section to allow more detailed examinations to be recorded.

In June 2015 the use of the proforma was widened to include the SNPs and its use extended to AMU and the emergency department (ED) on a trial basis. The changes suggested by the MDT are in the

process or being implemented and will be included in the next version of the proforma.

## Results

A re-audit of 40 patients that had been admitted to the acute stroke unit was carried out in April to July 2015. Overall, the results showed that the proforma was being completed well and there was a clear improvement in the quality of clerkings in comparison to the baseline data (see supplementary material 1). The greatest improvement was in the recording of a management plan, which improved by 23% overall. 89% of the required criteria, as outlined in our standards had been met, in particular the documentation of requested investigations, VTE prescription, and secondary prevention plan. The only category within the management section that had deteriorated was the recording of an impression, which fell from 100 to 68%.

Of the standards outlined for a thorough history, these had been met in 76% of cases. The areas identified as being recorded most poorly in the initial audit, including review of systems and family history improved considerably, to 90% and 70% respectively. Parts of the social history had also improved significantly, including documentation of smoking and alcohol history, which were recorded in 100% of cases in the latter category. Documentation of all aspects of the examination other than 'limb power' improved, and this only decreased by 2%.

Overall, the number of categories which attained >90% adherence increased by 10. The number of categories in which <70% adherence had been met decreased by 20. Evidently, a significant improvement in the quantity and quality of information could be observed following the introduction of a structured proforma onto the ward.

See supplementary file: ds6592.doc - "Supplementary Material 1 : Adherence to Criteria for Stroke Admission Clerking"

## Lessons and limitations

The notes reviewed were collected over a relatively long period to ensure that the proformas were completed by a wide variety of clinicians, thus preventing user bias. However, our audit was limited to a small cohort as the sample of junior doctors involved in the acute medical take and responsible for the stroke clerkings would have been limited during the period of data collection.

The eight standards that set out to achieve in accordance with the RCP guidelines had only partially been met. However, although the re-audit showed that each standard had not been fully satisfied, and that all patients were not having the required assessments, each category had shown some improvement. In particular, the documentation of a social history, drug history and post take plan.

Notably, the documentation of an impression had decreased in the second cycle by 32%, from 100% to 68%. The explanation for this seems likely related to the nature of introducing a stroke specific

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clerking document, implying that the impression of a stroke would already have been made when selecting this document. However, including an impression is still felt to be an important process as it means that further thought has been given to the differential diagnosis following a thorough clerking and examination. This was reiterated in the stroke MDT meeting but wider publication of these results would be necessary to improve general compliance.

Although there was a significant improvement in most categories overall, several areas were identified as showing <70% completion and need to be addressed, particularly documentation of key negative findings within the history. This was also discussed in the stroke MDT and several suggestions were made, including the addition of a checklist within this section of the clerking. However, opinion about this was divided as some members felt that it would deter juniors from including any further information or detail as they would be more likely to tick boxes and not include any additional information. A check list was also decided against due to concerns that the proforma would become increasingly bulky and be unappealing to use, further reducing completion quality.

Unfortunately, the timescale of the project became a limitation as the initial aim was to complete the project within one academic year. This was determined due to the length of time key participants, in particular the junior doctors involved in the project, would be working in the hospital. Unfortunately, not all of our standards had been met and our target of 100% compliance has not yet been obtained. However, the proforma had been implemented on a pilot basis and continual development of the document had been intended, including ongoing review by the MDT with further subjective assessment. Information regarding the use of the proforma had been passed on to the new set of doctors rotating to the department via email and an introductory slideshow was also presented to the local quality improvement committee to ensure that information could be well distributed by doctors of various grades. Discussions within the department also included incorporating documentation guidelines into the resident orientation programme to ensure that it continues to be used correctly and so that any changes can be highlighted.

### Conclusion

This project was started as the documentation of clerkings and initial management plans on the acute stroke unit was noted to be inadequate, which was recognized as a potential delay in treatment and discharge. The importance of prompt recognition of patient's pathology, in initiating treatment has been recognized, in particular for stroke patients in whom certain management options are time dependent. The results of this project have shown that by introducing a stroke specific clerking document, the quality of information recorded has significantly improved. Future benefits include early rehabilitation due to earlier identification of patient's baseline function, reduced drug errors and increased awareness of safety procedures, such as swallow assessments, therefore reducing any potential complications such as aspiration pneumonia. Further audit could be carried out following the publication of the Sentinel Stroke National Audit Programme (SSNAP) annual report to determine if the introduction of the proforma has had an effect on

the department scanning and thrombolysis times. The document is still in it's development phase and further changes are in the process of being made to address the recommendations suggested by the stroke MDT. Further discussion within the team will take place on a regular basis to continue improvement of the proforma.

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### Declaration of interests

Nothing to declare

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### Ethical approval

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