Results of a simple intervention to improve documentation quality in major trauma

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Abstract

Objectives Accurate and thorough documentation is an important part of medical care, providing a legally binding historical record of events and means of communication. Trauma is a complex multidisciplinary environment, in which documentation is particularly important, but can be poor as a result. We investigate the effect of introducing a proforma documentation booklet, acting as a physical prompt to ensure full patient assessment, as well as full documentation, on documentation quality.

Methods A case note review of all major trauma patients admitted over 12 months at a district hospital was performed by clinicians with case note review experience 6 months before and after introduction of a trauma booklet. Documentation quality was assessed, as was the presence of complete trauma teams.

Results A total of 297 consecutive trauma patients over 12 months were reviewed: 136 patients preintervention and 161 patients after implementation of the trauma booklet. Use of a trauma booklet significantly increased the rate of primary survey documentation [82.8% (114/136) vs. 98.8% (159/161), χ^2 $P < 0.001$]. Similar results were seen for documented completion of secondary surveys [39% (53/136) vs. 66.5% (107/161), $P < 0.001$]. Following implementation of a trauma booklet, a significant increase in full trauma team presence was observed (43.4 vs. 67.1%, $P < 0.001$).

Conclusion This study has demonstrated the potential of the introduction of a structured proforma to significantly improve documentation quality in major trauma. In the future, all hospitals accepting trauma patients could benefit from the introduction of similar proformas.

Introduction

Trauma is the leading cause of death within the young adult population in the UK [1]. In the UK, major trauma is responsible for B20 000 hospital admissions per year [2]. However, when compared with the American major trauma services, it is found that there is a 20% higher in-hospital mortality rate in England and Wales compared with the USA [3]. The National Confidential Enquiry into Patient Outcome and Death review in 2007 showed that 52% of trauma patients received substandard care [4].

Since these findings, trauma care has gone through thorough review and significant changes in the UK [5]. Changes include the creation of a dedicated trauma network, with major trauma patients being referred directly to a major trauma centre. Each trauma centre is required to fulfil certain criteria, such as having 24-h trauma specialists and access to all major surgical specialities, before accreditation [3]. An important aspect of trauma care, which has not had many advances, is documentation quality in major trauma. In 1996, an audit of 138 trauma patients showed that only 40% of the patients had documentation of all four vital signs (respiratory rate, pulse rate, blood pressure, and Glasgow Coma Score) [6]. No substantial changes in trauma care have been made in the UK since 1994, until recently [7]. A recent UK study of 1752 trauma patients, identifying preventable errors in trauma care, recognized that ~ 10% of all errors were related to documentation errors [8].

Documentation is an important part of medical care, providing a medicolegally binding historical record of events, as well as serving as a vital tool for communication [9]. With the European working time directive resulting in increasing shift work patterns for clinical staff, with a greater frequency of patient handovers as a result, ensuring effective and safe handover of care of patients through assured documentation quality is even more important [10,11].

Trauma is a complex multidisciplinary environment, involving inputs from emergency department doctors, anaesthetists, general surgeons, orthopaedic surgeons and emergency department nurses [12]. Advanced Trauma Life Support guidelines, as well as World Health Guide-lines, state the necessity for thorough primary and secondary surveys for all trauma patients [12,13]. During the assessment and management of potentially extremely unstable patients, it is sometimes understandable why documentation may be poor [14].

To improve documentation quality for major trauma, we suggested the introduction of a trauma proforma that acts as a visual and physical prompt to complete the documentation for each patient. This visual aid will have various checklists to ensure that the patient has been thoroughly assessed. Further, the booklet will provide a narrative of events in one location, helping with continuity of care. Al Hussainy *et al*. [15] showed that introducing a proforma for orthopaedic surgical patients led to a significant improvement in documentation quality. Fa-mously, the introduction of the World Health Organization safety proforma before surgery worldwide has been shown to reduce patient morbidity and mortality rates, with death rates being 1.5% before introduction of the check-list and reducing to 0.8% after its introduction [16].

This study examines the benefits of introducing a proforma for hospital admissions on improving documen-tation quality in major trauma.

Methods

A trauma proforma was designed on the basis of direction for the assessment of trauma patients from the American College of Surgeons' Advanced Trauma Life Support guidelines. The booklet included a registration page for each member of the trauma team to document his/her presence. Separate pages were in place, which indicated the criteria

to activate the trauma team through switch-board. The booklet also contained all the observation charts, prescriptions and checklists for transfer to speciality or tertiary centres.

A case note review of all major trauma patients over a 12-month period at a regional trauma unit (equivalent to a level 2 trauma centre) was performed by clinicians with case note review experience (A.T. and F.C.C.). The first 6 months were before the introduction of a trauma booklet, whereas the following 6 months were after the introduc-tion of the proforma. The postintervention period assessed was immediately after the assessed preinterven-tion period to limit confounding factors. No other changes in resources or management protocols took place during that time.

Documentation quality was assessed by checking for documented and completed primary and secondary surveys. The documented presence of a full trauma team was also evaluated. A full trauma team comprised an emergency department doctor and nurse, an orthopaedic surgeon, a general surgeon and an anaesthetist.

Statistical analysis comparing performance before and after the implementation of the trauma booklet was carried out using χ^2-tests. A *P*-value of less than 0.05 was considered statistically significant.

Results

Over the 12-month period, 297 consecutive major trauma patients presented to the emergency department. Of these patients, 136 presented before the implementation of the trauma booklet and 161 presented postimplemen-tation. The trauma booklet was used for all trauma patients presenting to the emergency department after its introduction.

There was a statistically significant increase in the rate of primary survey documentation. Before the introduction of the trauma booklet, the primary survey was documen-ted only

in 82.8% of patients (114/136), compared with 98.8% (159/161) postintervention (χ^2 $P <$ 0.001). Similarly, there was a statistically significant improvement in secondary survey documentation. Before the use of a proforma, the secondary survey was documented in 39% of the trauma patients (53/136), which nearly doubled to 66.5% (107/161; χ^2 $P <$ 0.001; Fig. 1).

When assessing the effect of the trauma booklet on trauma team presence, it was observed that there was a statistically significant increase in documented full trauma team presence. Following implementation of a trauma booklet, a significant increase in full trauma team presence was observed; 43.4% of patients had a full trauma team present before the introduction of the proforma compared with 67.1% after its introduction (χ^2 $P < 0.001$; Fig. 2).

Discussion

Trauma booklets have previously been in use at many trauma centres worldwide; however, the benefit of implementing such an intervention has not been assessed previously. This study demonstrates the positive impact that a physical aid, such as a trauma booklet, has on improving this aspect of care both at a tertiary trauma level and at district general hospitals. Through improving trauma documentation, patient care can be improved by providing a means of communication between various teams during handover or transfer to dedicated trauma centres.

Although a trauma patient may be alert and comfortable, it is vital to have a thoroughly documented assessment of the patient for both medicolegal and clinical reasons. The initial assessment will provide a baseline against which to compare patient progress or deterioration. One effect of implementing the European Working Times Directive has been an increasing number of medical professionals working in shift patterns, increasing

the number clinical handovers. In this context, poor information transfer and communication may regularly occur and has been shown to adversely affect patient care [17,18]. Improvement in the quality of documentation is important to mitigate these errors. The primary stated focus of this study has been to assess documentation quality, which has been linked to adverse events and outcomes in the past [19].

The visual aid will further serve as a reminder to complete a thorough secondary survey. Although not strictly a Hawthorne effect [20], the presence of a booklet provides an element of accountability, encouraging performance improvement, at the same time standardizing (and hopefully improving) documentation quality. Although secondary surveys are not a definitive assessment of a patient, they provide important information with regard to any injuries a patient may potentially have [21]. Having a secondary survey checklist within the proforma will reduce the rate of missed examinations, thus improving patient outcomes.

There are limitations to this study to consider. It would be desirable to compare longer-term impact on documentation quality after implementation of the trauma booklet to assess the degree of retention of change and any learning curve that might be present. Follow-up data will continue to be collected as part of an important tool for clinical governance measures and audit. Although the booklet highlights the increased documented presence of a complete trauma team, this may not truly reflect a real increase in trauma team presence, as before the introduction of the booklet many specialities may have attended a trauma call but provided no documentation of their presence when they felt their specialist services were not warranted.

Conclusion

This study has demonstrated the potential of the introduction of a structured proforma to significantly improve documentation quality in major trauma. In the future, all hospitals accepting trauma patients could benefit from the introduction of similar proformas.

Acknowledgements

This study was presented at the Association of Surgeons of Great Britain and Ireland, Glasgow, UK, May 2013, and at the Association of Surgeons in Training, Manchester, UK, April 2013.

Conflicts of interest

There are no conflicts of interest.

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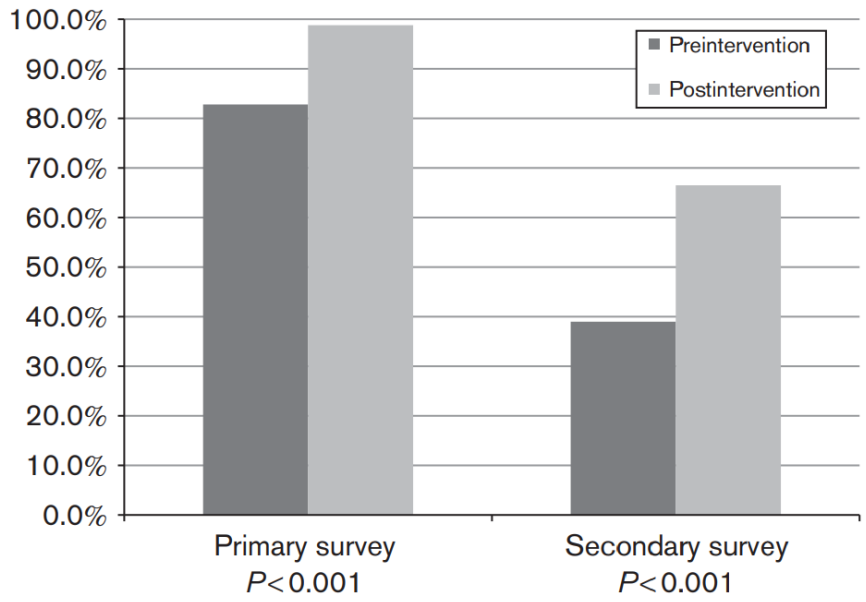
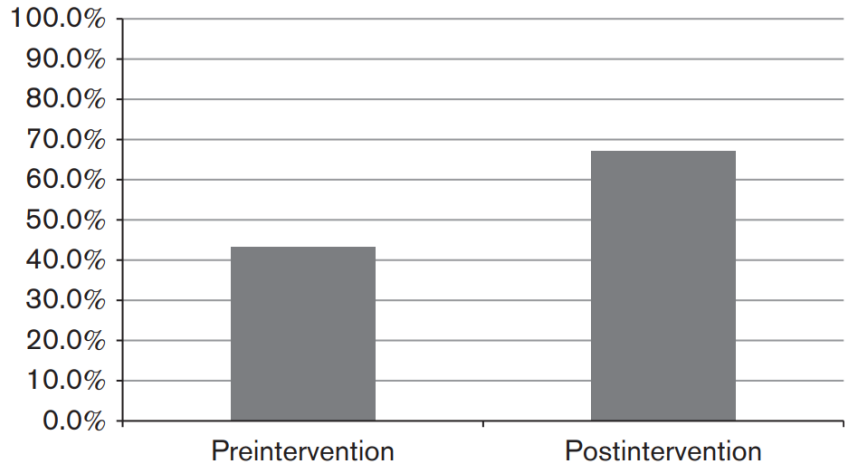
Fig. 1



Graph comparing documentation of primary and secondary surveys before (dark grey) and after (light grey) intervention.

Fig. 2



Graph comparing full trauma team presence preintervention and postintervention. *P*< 0.001.