

Resuscitation of the written word: meeting the standard for cardiac arrest documentation

Neil Allan, Dominic Bell and Alison Pittard

ABSTRACT – The aim of this study was to audit cardiac arrest documentation within a UK teaching hospital, survey the regional use of proformas for data collection, and consider the need for a standardised national template. A prospective audit comparing cardiac arrest documentation to General Medical Council (GMC) professional standards and the ‘Utstein’ fields was carried out, along with a survey of regional resuscitation officers for the use of standardised templates. The main outcome measures were the design of ‘best practice’ template using GMC guidelines and the ‘Utstein’ fields. An audit of medical notes involving a cardiac arrest call against the template was performed. There was limited documentation concerning process, events and outcome of arrest calls, as well as minimal regional use of standard templates or consensus on the essential content of medical documentation. Documentation of cardiac arrests in the Leeds Teaching Hospitals does not meet the ‘Utstein’ recommendations to provide enough information for audit of cardiac arrest procedure. The regional survey indicates that this problem is likely to be widespread.

KEY WORDS: audit, cardiac arrest, documentation, medico-legal, proforma

Introduction

Cardiac arrest, unless the expected finale of a dying process managed symptomatically, is one of the most critical events in a healthcare setting, requiring timely, coordinated and standardised interventions if a successful outcome is to be achieved. Given the responsibility on trusts to define the resuscitation status of patients, it can be assumed that most arrest calls represent an unanticipated or undesirable complication of presenting disease or healthcare provision, with death indicative of failure of cardiac arrest procedure to reverse the triggering process. In such circumstances, regardless of a primary medical responsibility to audit outcomes and process, scrutiny of procedure can be expected under critical incident analysis, coroner’s investigation, complaint, civil proceedings or, occasionally, police or health and safety executive investigation. Even if the patient sur-

vives, comprehensive documentation of preceding events, timelines and process is essential when optimising or planning subsequent care.

These aspects and the need for a database to facilitate research and refine the cardiac arrest procedure were the subject of the 1995 symposium at Utstein Abbey, Norway.¹ The conference was attended by the European Resuscitation Council Executive Committee, the Emergency Cardiac Care Committee of the American Heart Association, the Executive Committees of the Heart and Stroke Foundation of Canada, the Australian Resuscitation Council, and the Resuscitation Councils of Southern Africa. The ‘Utstein’ templates for event documentation were derived and subsequently updated following review in Melbourne, Australia in 2002.²

The guidelines recommended four essential or desirable data categories to be documented, namely: hospital, patient, arrest and outcome variables, as well as the timing of four critical intervals: collapse to cardiopulmonary resuscitation (CPR), collapse to first defibrillation, collapse to advanced airway management, and collapse to administration of first resuscitation medications. It was anticipated that the use of this methodology for data collection would facilitate intra- and inter-hospital comparisons and support national and international research.

In the fifth edition of the *Advanced life support* manual, the Resuscitation Council (UK) recommends Utstein-style data collection and audit of all in-hospital cardiac arrests, but does not specify standardisation of medical note keeping.³

The professional responsibilities of medical practitioners regarding documentation are also set out in the General Medical Council’s (GMC) guidance *Good medical practice*,⁴ wherein it is stated that in providing care, doctors must:

keep clear, accurate and legible records, reporting the relevant clinical findings, the decisions made, the information given to patients, and any drugs prescribed or other investigation or treatment...make records at the same time as the events you are recording or as soon as possible afterwards.

The Leeds Teaching Hospitals NHS Trust does not currently use a standardised proforma for the documentation of cardiac arrests, and after review of specific patient records with limited information regarding cardiac arrest interventions, it was decided to prospectively audit documentation against the above standards, undertake a regional survey of practice, and review national initiatives.

The trust consists of 2,462 inpatient beds across multiple sites and caters for all major surgical and medical specialties. Cardiac

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arrest calls are initiated by healthcare professionals via the hospital switchboard and are attended by medical doctors, outreach nurses and hospital porters as part of the 'crash team'. There is no designated member of the team responsible for timekeeping or medical recordkeeping. Documentation is usually completed following the resuscitation attempt, directly into the patient's medical notes by any member of the medical team. There are currently no specific recommendations in place for this documentation.

Methods

As there are no national or local guidelines for arrest documentation, an audit template was developed using the Utstein fields and the recommendations within *Good medical practice* (Fig 1).

Between October 2007 and December 2008 this template was prospectively compared by the lead author with the medical notes of 50 intra-hospital cardiopulmonary resuscitations, identified from switchboard records in the trust (25 from Leeds General Infirmary and 25 from St James' University Hospital). The records were selected by author availability. Out-of-hospital arrests and arrest calls in which full advanced life support was not required (ie not meeting the criteria for cardiac arrest) were excluded.

The resuscitation officer in each of the hospitals in the Yorkshire and Humber Strategic Health Authority was contacted by telephone to determine the presence or otherwise of standardised forms or guidelines on documentation and, if available, these were assessed for comprehensiveness against the above audit template.

In light of the results from both the audit and the telephone survey a nationally applicable template design was drawn up to stimulate debate among the relevant parties (Fig 2).

Results

Over the 14-month period, covering several rotations of medical staff, 50 resuscitation attempts were compared with the audit template. Approximately 100 switchboard-logged arrest calls were reviewed, with half being excluded.

The minimum GMC standards were predominantly achieved, with over 90% compliance in the fields of legible recording (94%), black photocopiable ink (96%), patient name (92%) and scribe signature (98%). There was poor compliance, however (34%), with the requirement to record rank and contact details (Table 1).

The process of the resuscitation attempt was poorly documented when compared to the 'Utstein' recommendations (Table 2). The time interval to response, a key element, was present in only 32% of records. The personnel present were rarely fully documented, with name, speciality and rank often lacking.

Important observations and interventions were not routinely documented in the medical notes (Table 3). Although the primary rhythm was recorded satisfactorily in 88% of cases, the number of cycles and number of shocks given were frequently

absent. The overall timings of the resuscitation were recorded in only 48% of cases.

Only one set of medical notes failed to record the outcome from the resuscitation (Table 4), but the decision making underpinning a declaration of futility was only documented in 40% of records.

The regional survey of the 15 acute hospitals in the Yorkshire Strategic Health Authority revealed an almost universal absence of policy on standards of arrest documentation. Although audit of process was declared to be in place in all but one hospital, only eight had a standardised proforma to replace handwritten note keeping, and within these hospitals it was estimated that compliance with either using this documentation or completing all the fields ran at less than 10%. Comparison of the forwarded documents against the audit template revealed limitations particularly in the fields of process of the arrest call, with minimal documentation regarding team leader and members of the arrest team. The events of the arrest were often not complete with crucial timings of response, defibrillation, airway management and medications absent from many of the proformas in use.

GMC standards:			
- Legible	Y / N	- Black Ink	Y / N
- Patient name	Y / N	- Patient DOB	Y / N
- Patient unit number	Y / N		
- Scribe name	Y / N	- Scribe signature	Y / N
- Scribe rank	Y / N	- Scribe contact details	Y / N
- Date	Y / N	- Time	Y / N
Process:			
- Who triggered arrest call	Y / N		
- Who responded	- Name	Y / N	
	- Speciality	Y / N	
	- Rank	Y / N	
- Time interval to response	Y / N		
- Patient circumstances prior to arrest	Y / N		
- Patient's clinical status on arrival	Y / N		
Events:			
- Primary rhythm	Y / N	- Number of cycles	Y / N
- Shocks given (joules)	Y / N	- IV access	Y / N
- Airway management	Y / N	- Drugs given	Y / N
- ABG	Y / N	- Blood results	Y / N
- ECG	Y / N	- Observations	Y / N
- Timings	Y / N		
Outcome:			
- Outcome	Y/N		
- Who made decisions	Y/N		
- Discussion with relatives	Y/N		

ABG = arterial blood gas; DOB = date of birth; ECG = electrocardiogram; IV = intravenous.

Fig 1. Audit template.

In-Hospital Cardiac Arrest Document The Leeds Teaching Hospitals NHS Trust

PATIENT LABEL

Patient Name: Date:
 Unit/NHS No.: Time:
 DoB: Name Of Scribe:
 Address: Contact Details:

Ward / Department: Hospital:

PROCESS

Time of Arrest Call: Time of Response:
 Name / Speciality / Rank Of Resuscitation Team (Leader First):

Witnessed? Yes No Arrested pre-hospital? Yes No

Last Documented Early Warning Score? Date: Time: Score: N/A

Interventions pre-arrest? (tick all that apply)

Oxygen I.V. access Paced
 Intubated Fluid resuscitation None
 Ventilated Inotropes Other:

Immediate Cause (Tick One):

MI / Ischaemia Thrombo-embolic Tension Pneumothorax Unknown
 Hypoxia Hypothermia Tamponade Other:
 Hypovolaemia Electrolyte Imbalance Toxic / Therapeutic

Condition On Arrival?

Conscious Respiratory Arrest
 Unconscious Cardiac Arrest

EVENTS

Initial Rhythm: Any Subsequent Rhythms: Final Rhythm (Non ROSC*): Final Rhythm (ROSC)

VF VF VF Sinus
 VT VT VT Paced
 Asystole Asystole Asystole AF
 PEA/EMD PEA/EMD PEA/EMD Other:

Other: Other: Other: *Return of Spontaneous Circulation

Pre-Cordial Thump? Yes No Time of First Shock:

Number of Shocks administered: 0 1-2 2-6 6-12 >12

Compression / Ventilation Ratio used: ?

Drug Therapy (tick all used and include number given):

Adrenaline x..... Amiodarone x..... Atropine x.....
 Other drugs (specify): x..... x.....

Route of Drug Administration: Intravenous Intraosseous Endotracheal
 Other:

Time of First Drug Administered:

Airway Management (tick all methods used):

Facial oxygen Self Inflating Bag Laryngeal Mask Intubation Other:

OUTCOME

Time of Cessation of Resuscitation:

Cause for Cessation of Resuscitation:

Return of Spontaneous Circulation Futile DNAR Order

Discussions With Patient / Relatives:

.....

Any Additional Information:

.....

Please Retain Top Copy in Patient's Notes, Bottom Copy To The Resuscitation Office

Fig 2. Proposed cardiac arrest proforma.

Discussion

Observations on the results

This audit exercise was restricted to one acute trust and, as such, recommendations for a nationally standardised template on the basis of these results may be viewed as premature. The deficiencies are, however, significant in magnitude and implication, and there is no reason to believe that the results are unrepresentative.

The GMC generic specifications for medical documentation reflect the importance of being able to establish who the records apply to, when they were written and by whom, for the ongoing care of the patient, medico-legal purposes and for professional defensibility. Regardless of the lack of relevant detail within the documentation, the absence of scribe contact details in two-thirds of cases on an issue of such significance raises questions on education and monitoring of this important component of medical responsibility.

The team leader and other members of the resuscitation team were documented in less than 50% of medical notes, and were frequently lacking from regional designed templates. This information should be recorded to identify those involved during both the audit process, and in the event of medico-legal proceedings.

Many of the Utstein-style recommendations were absent from both medical notes and pre-designed proformas. Both the audit and the telephone poll demonstrated critical inadequacy in hospital documentation of the majority of key time intervals. The only time intervals documented were the advanced life-support cardiopulmonary cycle times. In no records were any further

Table 1. The percentage of medical notes demonstrating compliance with General Medical Council standards of documentation.

	%
Legible	94
Black ink	96
Patient name	92
Patient date of birth	76
Patient unit number	58
Scribe name	68
Scribe signature	98
Scribe rank	50
Scribe contact details	34
Date	88
Time	82

timings recorded, demonstrating a lack of both training and understanding regarding the important aspects of the process. The audit also found conflicting statements, such as whether the patient had actually suffered a cardiac arrest or not, documented in various parts of the medical notes, by different scribes, which compounded the primary inadequacies, and made the exclusion criteria for the audit difficult to assess.

Commentary

Although this study has identified several deficiencies in the presentation and recording of important medical documentation, this in itself does not imply bad practice, as practitioners are unlikely to be aware of their responsibilities due to lack of training and national recommendations. It does, however, leave individuals and organisations vulnerable if this information is required subsequently for both ongoing care of the patient, and in the case of enquiry or even criminal proceedings.

An obvious hurdle to improvement in cardiac arrest documentation is that even with training and knowledge of the expected minimum standards it would be difficult for any scribe to recall all necessary components to accurately chart the resuscitation attempt into the medical notes, without the use of an aide memoire. The use of a template should capture the relevant data fields and would theoretically promote conformity with current clinical standards for arrest procedure, but it would appear that in trusts where a template has been introduced, compliance is a major issue, often below 10%. Various time-consuming strategies have been implemented to address this in different institutions, such as contacting the resuscitation team following the event, but with limited success, often due to delay in contact associated with shift-based patterns of working.

If, however, a national template was introduced, promoted and reinforced as part of the obligatory resuscitation courses, compliance with documentation should increase due to both familiarity and the accountability that comes with readily auditable procedure. The introduction of a national template should also improve resuscitation practice, on an individual practitioner basis by having an explicit standard defined and reinforced with every cardiac arrest, and on a broader population basis by informing change of practice through interrogation of a comprehensive national audit database.

Table 2. The percentage of medical notes demonstrating accurate documentation of the process of the resuscitation attempt.

	%
Who triggered arrest call?	46
Who responded → name	40
Who responded → specialty	46
Who responded → rank	38
Time interval to response	32
Patient's circumstances prior to arrest	80
Patient's clinical status on arrival	80

Challenges

The audit results, isolated use of proformas, poor compliance with these, and need for robust audit data, collectively raise a compelling case for a national template. The need for comprehensive information for audit purposes will inevitably have to be balanced against relative brevity and ease of completion to ensure maximal compliance, but this should be considered a challenge rather than an obstacle.

Within the literature there are good examples of potential means to implement these principles. Internet-based real time recording for cardiac arrest documentation and automated speech recognition have been proposed.⁵⁻⁷ These systems would be easily auditable and provide invaluable feedback, and thus demonstrate evidence of cardiopulmonary competency for both training and revalidation. Within the joint statement prepared by the Royal Colleges of Anaesthetists, Royal College of Physicians, the Intensive Care Society and Resuscitation Council (UK) it is recommended that: 'clinical staff should update their skills annually'.⁸ A national template would provide evidence of competency.

Responsibility for such an initiative should be led by the relevant national body, the Resuscitation Council (UK), but the overall process of implementation and data monitoring could be usefully assisted by the National Patient Safety Agency (NPSA), the parent organisation for other national outcome initiatives such as the Confidential Enquiry into Maternal and Child Health and the National Confidential Enquiry into Patient Outcome and Death.

Table 3. The percentage of medical notes demonstrating accurate documentation of the events during the cardiac arrest resuscitation.

	%
Primary rhythm	88
Number of cycles	48
Shocks given	28
Intravenous access	46
Airway management	76
Drugs given	82
Arterial blood gas	44
Blood results	8
Electrocardiogram	40
Observations	26
Timings	48

Table 4. The percentage of medical notes demonstrating accurate documentation of the outcome following the cardiac arrest.

	%
Outcome	98
Who made decisions	40
Discussion with relatives	54

Death is such an important outcome in healthcare that the current shortfall in documentation, audit and potential for improvement in the process, should not be ignored.

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Working party report

Medical rehabilitation in 2011 and beyond

This working party report examines the state of rehabilitation medicine (RM), and considers its development over the coming years.

The report revises the definitions around RM, in line with current practice. It also places rehabilitation in the context of acute illness management, arguing that commissioning – in the format newly proposed by the coalition government – should support interdisciplinary practice and clinical pathways which reflect the widespread overlap with other areas of medicine. Standards of practice are also discussed in the context of the National Service Framework for long-term neurological conditions. The report argues

that, while shorter-term programmes are functioning well, longer-term pathways need to integrate high-intensity treatments, greater consideration of the individual's participation in life, vocational needs, family relationships, and the need to return to as normal a life as possible.

Empirical proof of the effectiveness of rehabilitation is hard to gather. This document draws on evidence from a wide range of papers, reviews and Cochrane collaborations, to support the argument for increased investment in rehabilitation medicine for the future, embracing technological innovations and providing high-quality, personalised care. ■



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