Disaster documentation: improving medical information-sharing in sudden-onset disaster scenarios

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Third World Quarterly

Disaster Documentation: improving medical information-sharing in sudden onset disaster scenarios.

Journal:	<i>Third World Quarterly</i>
Manuscript ID	CTWQ-2018-0412.R2
Manuscript Type:	Article
Keywords:	disasters, health, diseases and medicines, humanitarianism
Abstract:	<p>This study investigates clinical practitioners' use of medical documentation during sudden onset disasters in order to better understand how we can improve practice. Thirteen participants, representing 9 nationalities and 6 clinical disciplines (having collective working experience of at least 15 different organisations providing disaster response), underwent semi-structured interviews using an inductive approach based in grounded theory. The initial codes and themes were analysed over 4 coding rounds and developed into selective codes. The findings suggest that: documentation is overwhelmingly de-prioritised in disasters due to competing demands; there is little incentive to complete documentation at an organisational or government level; practitioners acknowledge the importance and need for adequate documentation; paper documentation still has its place whilst electronic approaches have both benefits and drawbacks; and disasters require bespoke documentation solutions. Development of the EMT 'data management' role within EMTs may be one way to focus teams on key areas of improvement.</p>

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Table 1. Summary of participant characteristics

Study number	Age	Country of civilian practice	Work with NGOs/ government organisations/ Both	Role in national EMT response	Year of first deployment	Years in practice	Role
25	45	Hong Kong	NGOs	No	2006	20	Orthopaedic Surgeon
47	35	UK	Both	No	2010	14	Physiotherapist
10	40	UK	NGOs	No	2014	11	Emergency Nurse
96	55	UK	NGOs	No	2010	35	Surgical Nurse
90	42	Indonesia	Both	Yes	2004	17	Consultant Emergency Medicine
74	41	New Zealand	Government organisations	No	2015	17	Consultant Emergency Medicine
70	42	Belgium	Both	No	2003	19	Emergency Nurse
36	52	Australia	Both	Yes	1987	35	Emergency Nurse
33	55	UK	Both	No	2010	33	Consultant Emergency Medicine
31	43	Malaysia	Both	Yes	2001	19	Orthopaedic Surgeon
17	65	Israel	Both	No	1999	35	Paediatric surgeon
59	36	UK	Both	No	2015	13	Consultant Anaesthetist
23	57	Switzerland	Both	No	1999	34	Consultant Anaesthetist

Abstract (149 words)

This study investigates clinical practitioners' use of medical documentation during sudden onset disasters in order to better understand how we can improve practice. Thirteen participants, representing 9 nationalities and 6 clinical disciplines (having collective working experience of at least 15 different organisations providing disaster response), underwent semi-structured interviews using an inductive approach based in grounded theory. The initial codes and themes were analysed over 4 coding rounds and developed into selective codes. The findings suggest that: documentation is overwhelmingly de-prioritised in disasters due to competing demands; there is little incentive to complete documentation at an organisational or government level; practitioners acknowledge the importance and need for adequate documentation; paper documentation still has its place whilst electronic approaches have both benefits and drawbacks; and disasters require bespoke documentation solutions. Development of the EMT 'data management' role within EMTs may be one way to focus teams on key areas of improvement.

Keywords: qualitative; emergency medical teams; documentation; disaster

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INTRODUCTION

Medical record-keeping in sudden onset disasters (SODs) is an area where WHO has taken a clear direction since their publication of ‘Foreign (now Emergency) Medical Teams’ (EMTs) classification and standards in 2013.¹ The standards state quite clearly that EMTs responding to disasters are expected to keep medical records and to report regularly to the host country’s EMT co-ordination cell (EMTCC) within the Ministry of Health (MoH). WHO acknowledged the lack of homogeneity and sometimes absence of medical record-keeping in SODs.^{2,3} Subsequently they established a working group that created a minimum data set (MDS) for EMT reporting.

The MDS documentation has now undergone final approval and sign off by the WHO EMT secretariat. Whilst this is an essential step towards EMT standardisation, it is one which focuses mostly on the process of reporting data from medical records.^{4,5} What remains to be established is an initial standard against which we can measure the quality of EMT medical documentation for individual patients.

The importance of medical record-keeping

There is evidence that medical record-keeping has existed for at least over three and a half thousand years. In that time its form and use has varied. Early case histories have been useful as teaching material whereas later in the 19th and 20th century they have been used to develop diagnostic criteria and more recently they have taken a role in individual patient care.^{6,7} This shift has meant that their role in providing statistical data has developed into a role to improve the quality of patient care.⁸ In the UK, medical records are today considered primarily useful for directly aiding individual care, with secondary purposes to improve public health, health services, epidemiological knowledge and for research.⁹

There is no formal research evidence demonstrating the utility of medical record-keeping in SODs however allied research in the UK has shown the benefit of standardising medical documentation.¹⁰ The findings suggest that standardised record may confer such benefits as improvements in diagnosis, accuracy of documentation, doctor performance and patient satisfaction.^{11,12} Notably one paper focussing on EMTs in the 2010 Haiti earthquake attempted to provide information about the surgical response and put forward potential improvements to future responses.¹³ However the inconsistency and low prioritisation of data collection made accurate conclusions and future recommendations impossible. Furthermore this poor data specifically impacted the continuity of care for individual patients seen by multiple different teams. Clearly EMTs working in SODs may face significant challenges such as limited resources, language barriers and overwhelming patient need. However the specific impact of these, and other potential issues, on medical documentation practice has not been explored.

Standardisation of reporting formats and content is one way to improve the quality of record-keeping and reporting. However, without understanding more about the dynamics of record-keeping from a practitioner's perspective, we cannot be confident that we can address all those issues which might prevent reporting from becoming as consistent and accurate as possible. Quantitative analysis of record-keeping in SODs has a very important place in illustrating what information is or is not collected. However its limitations lie in its inability to really understand why records are made in this way. The strength of analysis for this lies in qualitative approaches which can reveal a broader picture of the record-keeping process as it is performed. It is a greater understanding of a practitioner's perspective of medical record-keeping in SODs, that this research study seeks to establish.

The key findings of this study are that: practitioners do recognise the importance of documentation; documentation is outweighed by competing demands; incentives for

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documentation are missing; there are both challenges and opportunities of paper and electronic record-keeping; and there is a need for bespoke solutions for disaster settings.

For Peer Review Only

METHODS

13 practitioners were interviewed using a semi-structured approach. These practitioners were from 8 clinical disciplines, 6 were female and 7 were male and they had varying levels of clinical and disaster experience. Between them they had worked for at least 15 different international field organisations and were based in 9 different countries from across Europe, Asia and Oceania. They had a wide experience of different types of EMT, not only working across types 1 to 3 but also some with experience of specialist cells as well as national EMTs. A summary of their characteristics is shown in table 1.

[insert table 1 here]

The interviewer had some level of rapport/familiarity with approximately half of participants already (although none were concurrently close working colleagues). This was viewed as likely to provide some of the benefits of peer involvement, such as insider perspective, that might facilitate the interpretation of issues raised and a more open dynamic.¹⁴⁶ This approach acknowledges that there can never be a pristine approach to the process of participant selection and the interactivity of an indwelling researcher is an integral feature of engagement in qualitative research.¹⁵⁷ However, around half were not known to the researcher which provided a counter-balance to the known participants.

The pool of potential participants (87 in total, as these were able to be contacted via email) was drawn from practitioners listed below:

- Practitioners who were contacts of the host research institute and known to have worked in a disaster
- Practitioners listed on the UK-Med register of clinical staff known to have deployed at least once to a SOD
- Practitioners who attended the WHO EMT meeting in Hong Kong in 2016

It was expected that at least 6 interviews would be needed to achieve saturation of themes; however the guided likely range of 5-30 is based on sparse evidence within the wider literature.^{168,179} Once the first 6 had responded, each participant was assigned a random study number between 1 and 100. The association between them and their study number was stored in a password protected Microsoft® Excel® for Mac 2011 version 14.7.6 (170621) © 2010 document, which was saved onto a university password-protected laptop. The first 6 interviews were conducted and subsequent consecutive respondents were invited to interview until it was felt that saturation of themes was being reached. Each interview lasted between 24 and 57 minutes and all except one were conducted online using audio, the other was face-to-face.

The premise of the analysis strategy was to take a grounded theory approach. However there was transparency with regards to the interviewer's positionality as:

- a female emergency physician with a prior masters qualification (including some qualitative research training) undertaking a PhD
- a member of the WHO MDS working group
- a provider of consultancy for UK EMT (UK Emergency Medical Team)
- someone with an established interest in improving medical documentation within EMT practice.

The lens of investigation was focussed on drawing out documentation issues which might contribute to wider understanding of how documentation can be improved.

All interviews were audio recorded using QuickTime Player version 10.4 (894.12) Copyright © 2009-2016, Apple Inc. and the audio recordings were password secured on a university laptop and labelled using the participant's study number. The audio recordings were transcribed by professional transcription services 1st Class Secretarial Services

Copyright © 1999 - 2017, who subscribe to the Data Protection Act, registered number Z2116676 and adhere to the Code of Practice on Data Handling. Each individual transcript was returned to its participant, for comment: 5 out of 13 participants added further comment.

Analysis of the audio transcript was undertaken by the single researcher who conducted the interviews (and who had made notes throughout each interview). This was facilitated using NVivo for Mac version 11.4.1 (2079) Copyright © 1999 - 2016. The transcripts were redacted for any personal identifiable information (without removing meaning).

Adopting a constant-comparative approach allowed the interviews to generate new knowledge to create new/revise current theory, hence repeated revision of the topic-guide which eventually comprised the questions below:^{180,191}

- 1) Describe the types of medical record you have used which worked well/did not work well including use of paper/electronic records.
- 2) Is record-keeping a priority and what impact does it have on your own practice/donors/reputation?
- 3) Have you observed any medical record-keeping practice in colleagues and have they expressed ideas or opinions on the topic? Does gender or profession impact this?
- 4) The WHO are developing a minimum data set for daily reporting during SODs, do you think this will have any impact on record-keeping? Should there be a WHO universal record? How will standards be policed?
- 5) Are records fit for purpose and how does this compare to day to day practice?
- 6) Is time a barrier?
- 7) How accurate is record-keeping in this setting? Does language have an impact?

8) Which organisations should lead on medical record-keeping and why? Should it be WHO?

Limitations

The practitioners interviewed did not represent every registered/verified EMT. Notable is the absence of participants from mainland China, Russia and the Americas (despite invitation). It is difficult to ascertain whether a wider geographic participant pool would have significantly impacted the data especially as the themes which emerged within the interviews were shared by those from differing geographical regions.

Any discussion of medical documentation in scenarios with highly contagious dangerous pathogens was not made the focus of this study therefore, where it was briefly raised within the interviews it was not explored in detail.

Beyond this study there remain other key stakeholder groups, in particular the patients themselves and the MoHs whose role will be directly impacted by available data from documentation. It would be of great benefit to understand the patients' view on documentation. This may help draw attention to hitherto under-appreciated areas of importance when it comes to medical documentation in this setting.

In regards getting MoH perspectives, this is another essential area to investigate. Experience in an allied piece of research, trying to access this group, however, has proven challenging. Identifying the key individuals who would be engaged in MoH disaster response is not straight forward, often due to national MoH infrastructure. In order to address this question in some way, a more fruitful approach may be to focus on countries who have more recently

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3 experienced a SOD such as Nepal and Mozambique. In this way it will be clearer who from
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5 MoH was involved in co-ordinating the healthcare response and therefore who will have a
6
7 working perspective on the relevant aspects of medical documentation.
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10 11 12 *Ethics* 13

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15 The study was approved as low risk by the University ethical review process with
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17 reference 2017-0796-1846 on 17th February 2017.
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20 21 22 *Data access* 23

24 Anonymised interview transcripts will be available at the conclusion of the author's PhD
25
26 study period (predicted to be by September 2019) in an online data repository. Details of
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28 how to access this can be found via contacting the author directly.
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RESULTS

The following headings represent selective codes with sub-headings breaking down the main contributory themes.

Documentation in a disaster is outweighed in priority by other competing demands

Practicing in ‘crisis-mode’ with altered priorities

The description of working in a SOD indicates that there needs to be some deviation from usual practice and a shift to a recognised, more rudimentary triage-oriented response which aims to achieve the most for the most.¹²⁰ With regard medical documentation therefore there is an expression of this shift in priority:

‘when you are in a disaster environment, you don’t have time’ – participant 70
and
‘it just hadn’t been seen as a priority within the team’ – participant 74

Indeed participants delivered a strong message of practitioners being overwhelmed, using words such as: ‘busy’, ‘exhausted’, ‘chaos’, ‘immediate’, ‘hundreds’, ‘huge load’, ‘massive influx’, ‘all hands on deck’ and ‘so tired’. These all paint the backdrop to justify poor documentation:

‘In the initial phase I would say it would be too busy, yes, and nobody cares about the medical record’ – participant 23

However caution has historically been urged around reinforcement of the ‘chaos’ narrative in disasters, as it can deflect from the true nature of the immediate healthcare requirements.^{2113,2214}

Notably each of the rehabilitation and nursing participants provided a counter-narrative where being so busy should not justify absent documentation. This could reflect that it is *these* particular professionals whose everyday work will be directly impacted upon by poor or absent documentation created by other professionals. Those who never have to deal with the aftermath of poor documentation are often those completing the majority of the documentation. Therefore they may or may not have an appreciation of what follow-up is available post-discharge. Conversely, those who rely on documentation to carry out follow-up care are often not involved in making the majority of what is kept as a record. Hence we see a mismatch between expectations and priorities. Clearly a more complete understanding and knowledge of practice outwith a practitioner’s direct role may facilitate a greater investment in documentation. On the other hand, we must identify which documentation will be superfluous to *anyone’s* requirements in order to combat apathy amongst practitioners; who may disregard note-keeping entirely if they feel any of it will not be useful. Indeed we have already learned that a significant proportion of medical documentation in day to day routine practice is never actually read.²³¹⁵

Examples of those being relied upon to provide documentation, but who are reluctant to do so, came as anecdotes:

‘among the doctors, surgeons are the worst because they want to operate and they don’t want to write’ -participant 17

and

‘(quoting a surgeon) “I’m too busy to write notes, I’m here to do a job and I’m doing the surgery”’ -participant 36

It is possible that the international surgeons being quoted would not respond the same way in their home environment. Therefore there may be some display of a ‘hero’ complex manifesting itself where a view of one course of action (the surgery) is the most important factor which only the hero (the surgeon) can complete and is unparalleled by any other course of action (documentation).²⁴¹⁶ Surgical participants, whilst emphasising that this is not reflective of everyone, did concede that they had experienced certain personalities in their profession, working in a paternalistic way (even within day to day practice) who would be likely to take a less involved approach to documentation owing to their self-perceived role.

Competing demands of being overwhelmed by care requirements versus documentation

Summing up the general divide between good/efficient care and care which is documented, and reinforcing the idea that there is only enough time to achieve one of these things is the following quote:

‘It’s not important as long as I treat the patient correctly’- participant 33

Certainly we do know that in some settings, documentation has the potential to take the same, if not more, time than the clinical encounter.²⁵¹⁷ This statement is, however, counteracted by other participants who considered care to be poor if it is not documented (which ties in with many countries’ approaches to expected clinical care standards).²⁶¹⁸⁻³¹²³

However the former appears to represent the innate feeling, whereas the latter appears to represent what *ought* to be felt. This is perhaps best illustrated by the following quote which uses very evocative language:

‘I get too hung up with not being able to write it down on paper and keep a record then I get bogged down and I become inert and I don’t do anything’ – participant 31

There is almost a paralysis associated with even thinking about documentation which makes the practitioner feel less able to function if they are expected to document. This reflex feeling is akin to any situation in healthcare which results in pressure on capacity. There is a tendency to want to move directly from clinical scenario to clinical scenario, especially given the background feeling that in everyday practice we are inappropriately and over-documenting which may even be to the detriment of patient care, and yet the culture prevents us challenging this.³²²⁴⁻³⁴²⁶ There is a classic narrative in the following quote:

‘when you are in a disaster environment, you don’t have time to do that’ – participant 70

However, this statement must be taken in context: what precisely is ‘that’? Is this participant referring to not having enough time to document in the day to day sense, where we have already recognised that at times, the volume of documentation and information has reached an irrelevant and even detrimental level?^{3527,3628} It could be postulated that practitioners are becoming so used to documentation of this exhaustive nature in their day to day practice that the benefits of more proportionate documentation in disasters are getting lost.

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Poor quality baseline & low expectations

The general feeling portrayed by the interviewees across the board, regardless of experience in either smaller or larger, better known, NGOs such as Médecins Sans Frontières (MSF) and the International Committee of the Red Cross (ICRC) is conveyed by:

‘We don’t have a good patient record document to use in the field at this moment’ – participant 25

Some practitioners did reflect on the established use of medical records by their organisation, but in most cases recognised an ambivalence towards record-keeping. At the same time there was little to suggest that even higher authorities, such as MoHs, were in general, demanding to receive copies of any records. One practitioner recalled arriving back to their home country with notes still on their mobile phone for which at no point had they been asked. This anecdote ties with evidence from the 2015 Nepal earthquake, where only 54% of the EMTs (referred to as FMTs in the associated report) provided at least *one* daily report to central co-ordination.³⁷²⁹

Incentives for disaster documentation are not forthcoming

Record-keeping is unstructured, implying low importance

Incentives – whether positive or negative in origin – are needed to promote record-keeping. When handled sensitively, such incentives are generally considered to improve aspects of good medical care.³⁸⁹ One practitioner indicates that government pressure and mandate to document would encourage national EMTs to improve their record-keeping. Another practitioner commented that in organisations where there is a legal benefit to record-keeping, there will be better medical documentation as a secondary outcome. This fits with the non-disaster experience.³⁹³ However in organisations without a clear and defined pathway, the firm incentive to establish a routine is weak and depends on individual volition which may or may not be present.

Training practitioners regarding the priority of documentation bolsters perceived importance

One key area which recurred was the benefit of training in documentation. This served two purposes: it demonstrated organisational commitment to driving more effective documentation, and familiarised practitioners with the documentation process. This acts as a reminder and a prompt, something which can sometimes improve compliance.⁴⁰³ Another interesting reflection was the effect of working with colleagues who were familiar to each other in their day to day environment. This helped reinforce a more normal way of working, which would, in their usual practice setting, always involve documentation. This potentially negates any perceived peer pressure to avoid documentation (in favour of hands-on care) when faced with unfamiliar colleagues.

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Those practitioners (such as nursing and rehabilitation professionals) who relied on the record for follow-up care were very drawn towards highlighting follow-up as a priority. Some, who had more operational and logistical experience, drew attention to documentation helping drive quality improvement whilst positively impacting disaster management in the shorter term. This highlighted that all practitioners, regardless of focus and position within the field hospital may benefit from some experience of other positions within the field hospital in order that they actively take on some of the priorities of their colleagues. This would permit more inclusive solutions and greater appreciation of how priorities may need rebalancing: a benefit derived from such a collaborative approach to healthcare.⁴¹³³

Development of documentation standards acts as encouragement

Practitioners express an anxiety over whether their documentation is adequate:

‘it would be good to have a bit of guidance around what the expectation would be’ – participant 59

However another dimension to this is the need for national bodies such as the MoH to mandate expectations of organisations who then may have similar expectations of their practitioners to circumvent the following idea:

‘people won’t collect information because they don’t know what they’re meant to be collecting’ – participant 10

This mandate may generate an incentive and framework for practice which is currently lacking. Contrary to the common belief that litigation was the main driver for developing documentation standards in day to day practice, it arose from a drive to improve quality of care and therefore it is *this* desire which ought to be placed at the forefront.⁴²³⁴ Alongside this, any standards must comply with data protection guidelines, which is a concern voiced by many participants.

The common thread to all of these ideas is that practitioners, on the whole, express disquiet about working within systems without standardised approaches to documentation and a desire for more clarity. The majority (nine participants) were very keen to see a WHO standard template for individual records to be made available. Although they commented that some teams would likely use their own version of a record, it was felt that many teams would be keen to use and/or adapt a WHO-developed individual patient record.

EMTs are looking to WHO for guidance and standards, though it is acknowledged that the international and inclusive requirements of the WHO constitution do not allow it to simply develop an idea and roll it out.⁴³³⁵ The process takes time and can be undermined if there are large NGOs who could be instrumental in the process and yet prefer to use their own protocols. The notion of larger NGO exceptionalism was referred to indirectly and sometimes directly within several interviews. It was felt that this may undermine more collective efforts; whereas their large influence might instead be of good use in furthering the agenda of standardisation. We must also look beyond WHO, whose aim is to act in a supporting role to in-country MoHs during times of crisis. It is the country itself who ought to take the lead in how it requires documentation and reporting from EMTs. However a

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WHO framework of standards is an essential layer of security to bolster any national capacity.

For Peer Review Only

Practitioners acknowledge the benefits of documentation

Accountability is essential

Practitioners do have an awareness of the risk of litigation, despite it having been minimal compared to regular practice in a high-income country:

‘from a medicolegal perspective, where do you stand?’ - participant 31

This has implications both on a personal and organisational level, especially with increasing scrutiny as the sector moves towards professionalisation.⁴⁴³⁶ From a personal perspective, the practitioners are aware that not only do they have a duty of candour to their patients to record what has been carried out, but also to be transparent about their own practice. Valid, informed consent is certainly one area which participants suggested was not uniformly well documented in the field and it is one in which there is real potential for harm in the absence of documentation, especially given its prominence in recent guidance papers.⁴⁵³⁷ Furthermore there have been rare, although high profile, cases of alleged clinical negligence taken against practitioners for care delivered during, for example, Hurricane Katrina in 2005.⁴⁶³⁸

The interviews do suggest that those wishing to practice in the best interests of their patients would like this documenting so that they can be separated from those practising in a less than optimal manner and who may not, therefore, document their actions as exemplified by the following quote:

‘I don’t want my name associated with any poor practice’ – participant 31

That said, there is also a purported fear of documenting, because of concern that it will not be of good enough quality because of a perceived lack of time. However, the benchmarks for expected care in this setting are still in evolution, some only recently being established. Thus, often, clinical decision-making reflects anecdotal experience despite best intentions to standardise practice.⁴⁷³⁹

A challenging environment does not override the importance of documentation

Those advocating for good documentation regardless of situation did so vehemently in some cases, such as this participant who felt that clinical pressure was not so high that spending time documenting was detrimental to patient care:

‘I’ve done a few missions and I’ve never experienced such a huge pressure on the staff. I mean in people dying because you are documenting. I have never experienced that’ – participant 25

It was also reflected upon as to how patients themselves behaved in the circumstances:

‘I have always seen patients waiting... patiently ... don’t think they would disagree if we take a little more time to document what we’re doing.’ – participant 25

Although a subjective perspective, this viewpoint may give some insight into where the source of pressure to work at speed comes from. From the researcher’s experience as an

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3 emergency physician, using UK ~~national health service~~ (NHS) practice as a comparator, and
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5 considering others' experiences; patients' expectations and attaining government targets does
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7 add pressure. Additionally, ill patients waiting to be treated with inadequate resources are
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9 known contributory factors to the sense of stress, as well as whether technology and
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11 administration are functioning well.⁴⁸⁰⁻⁵⁰⁴² Within the context of a SOD, where most outside
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13 teams will arrive some days after the immediate surge in casualties, the acute pressure is
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15 unlikely to last for very long, if at all, and this matches the experiences of the participants.⁵¹⁴³
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17 Other pressures related to administration are certainly present, however within a field hospital
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19 they are often simplistic and will be normalised quickly. Government time-targets are not
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21 relevant in most field settings and patient demands and expectations may not manifest
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23 themselves unduly due to local cultural norms. What remains is queue-length which may
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25 consist of very unwell patients who, in the main, are unlikely to be critically ill at the stage of
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27 EMT arrival. If this thought process is then brought to its natural conclusion it could be apt
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29 to quote:
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38 'So we have time to take care of the people in a proper way' – participant 25
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42 Bearing in mind that:
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47 'the amount of time required to put in place a very, very simple record with clear
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49 instructions for the patient and for people that are providing follow-up, is minimal.' –
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51 participant 96
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56 This was echoed by other participants who reflected that there is time in the day which could
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58 realistically be designated for collation of records even if this is a significant amount of work.
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Poor documentation hinders follow-up

Concerns regarding the impact of documentation on follow-up were raised in the main by those practitioners whose work depends upon it i.e. rehabilitation staff and nursing staff.⁵²⁴⁴ Those practitioners more likely to have a single patient interaction or minimal input into any subsequent interactions did not focus on this particular area. Although this element of the documentation is very much in the patient’s interests it does not have an impact on the larger scale data collection in disasters. Consequently, this aspect is not commonly referred to in the literature. On an individual basis, it is only this aspect (plus a prescription for medication) of documentation which has a direct impact on patients and this is reflected upon within the interviews:

‘what we require to be able to work safely and effectively in that kind of situation is a clear post-operative instruction’ – participant 96

Follow-up of patients was raised by one participant in the context of the well-established problem of antibiotic-resistance, such that not knowing what was tried previously on a chronically infected wound, does not help the decision-making process as to what anti-microbial to try next.⁵³⁴⁵ Consequently multi-drug resistance becomes more of a risk and the likelihood of trying a previously unsuccessful treatment is increased.

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Paper and electronic solutions present both challenges and opportunities

Impracticalities of paper records

Paper records pose very specific problems which were raised repeatedly such as:

- potential for paper to be spoiled or misplaced
- difficulty carrying volumes of paper around
- poor hand-writing
- having to double-write everything if the patient and practitioner keep separate copies

There were some proposed remedies (existing both within and outwith the interviews) to address these issues, such as using self-copy paper and training reminders regarding adequacy of note-keeping.⁵⁴⁴⁶

Impracticalities of electronic records

Discussions about electronic records are ubiquitous within the humanitarian community. Opinion is often divided, and yet there is an inevitable pull towards an ever-digitalised world, despite some concerns that the data generated may not be as meaningful as hoped.⁵⁵⁴⁷ The volume of participant comments pertaining to the challenging aspect of electronic records was significant and can be summarised as follows:

- Poor functionality in hot/humid climates
- No link between different field hospital systems
- Set-up may not be instantaneous
- Reliance on a power supply risks failure
- Learning to use the system takes time & experts are needed to troubleshoot

- Reliance on printing creates a risk that patients cannot have copies to take away
- Requirement for multiple devices to serve the needs of a whole field hospital
- For short/simple patient encounters an electronic system can slow things down
- Increased target for theft when a field hospital has many electronic devices

Some teams have had success with introducing an electronic system. However these had the resources and support to maintain it, which is something EMTs need to consider when assessing their own capacity.⁵⁶⁴⁸

The benefits of technology can be harnessed for efficiency if used wisely

One interviewee had a good experience of information technology in field hospitals. This participant was cautious about endorsing this technology and reflected that their team has information technology support staff who deploy. Their system may not be efficient in a less complex facility and had some early problems with coding entries compared to co-existing paper records.

Many other participants presented an open-minded approach to technology, with some displaying cautious optimism and others a full embrace of technology:

‘the advantages to my mind in a disaster setting are even bigger than they are in a regular setting’ – participant 47

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However there is a subtle subtext in this quote: if the ‘advantages...are even bigger’ this is a reminder that disaster setting is *different* to a day to day setting. Therefore solutions to the problems faced in a disaster need to be tailored differently; just as they might be tailored differently in mass casualty settings.⁵⁷⁴⁹

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The circumstances of disasters require bespoke solutions

Language barriers

Participants reflected that to demand that all documentation should be in a local language may not always benefit a patient directly (who may be illiterate or whose local language is primarily verbal) or indirectly, if the follow-up team happen to be another international group unable to understand the local language. Furthermore, local facilities may compile some or all of their documents in English, even if the predominant local language is different. On the other hand, if English is adopted by the EMT then it may not necessarily be legible to local patients or practitioners. However, the host country MoH are likely to be able to understand English at some level. To balance benefits in these circumstances, the WHO has leant towards using English as the standard reporting format. However, this does not mean that the language of practice, and especially of consent, should not be that of the patient, via translators if necessary.⁵⁸² Reporting in English is an imperfect solution but participant responses overall agreed that the problem is currently best managed in this way.

Balancing outsider response with local care provision

The sensitivities of being a non-local health-care provider are widely understood and yet remain a challenge. One participant reflected that:

‘I don’t want to have our activity or the activity of the team seen as a drop in the ocean’ – participant 17

To remain sensitive to this came the suggestion of using local documentation practices:

‘essential to use what they would normally use’ – participant 90

However this participant was pushed further and challenged on the ethical dilemma this poses when the ethical standards of the local health care provider are considered to be less robust than the usual working practices of the non-local health-care provider. Many participants reflected on this precise experience of poor local note-keeping, and it has been discussed within the wider literature.⁵⁹³⁻⁶¹⁵⁵

Tailoring & designing records for the purpose of disasters

Practitioners repeatedly reflected that documentation is:

‘not very well suited for field hospitals or those kind of missions’ – participant 25

Therefore suggestions were made for focussing on simplicity and limiting the information requirement within documentation:

‘a document that you know you need to stick to’ – participant 10

‘it motivates people to document well if it’s easier’ – participant 25

‘the important thing is to have just key information captured’ – participant 96

Furthermore, having to repeat any information within a document was considered to be counter-productive and detracted from its completion. Similarly, all the information should aim to be included in single-sheet documents. Poor document design, which might be tolerated in a slower-paced, less pressured environment, will potentially undermine compliance with documentation in a faster, highly pressurised setting.⁶²⁵⁶ Comparing this with the commentary on technology, it appears that spending time and effort on content and design in the setting of a disaster is paramount, and possibly even more important than in the routine practise setting, where its development already requires a concerted and consistent effort.⁶³⁵⁷ Disaster documentation, as with all medical documentation, has no catch-all efficient solution to each aspect of care, and therefore different approaches will be required for different tasks and areas of the field hospital.⁶⁴⁵⁸

In the non-SOD day to day, setting the existence of documentation has pre-dated the expectation of documentation. Thus, many years of layered, non-streamlined processes have been adopted into healthcare settings such as the UK NHS.⁶⁵⁵⁹ In SODs the expectation of documentation currently supersedes any long-standing embedded process and culture of documentation therefore there is an opportunity for change and developing a system which fits the need. Within this opportunity is the potential to hone what vital data are required for the main stakeholders.

The utility of the record beyond the individual patient benefit includes informing the coordinators of the disaster response. This requires collation and reporting. This is another sticking point in the acute setting:

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‘to manually go through 800 individual patient documents, crazy, absolutely crazy’ – participant 10

This is therefore another indicator that collation must be considered in the design of any documentation system whilst remembering that:

‘we don’t have time to do different set of data’ – participant 70

Several participants commented that it is common practice to have both an overall record of patients attending as well as sometimes having an individual patient record. Depending who is completing these items, there is inevitably some repetition generated and a frustration (plus likely inaccuracy) which develops as a result.⁶⁶⁹

Conclusion

The interview content strongly suggests that bespoke and tailored documentation solutions are key to tackling this aspect of care in a SOD. Any associated standards must balance asking for too much (and alienating practitioners into not documenting) with asking too little (and instilling any idea that low standards are acceptable). Identifying this balance and line of acceptability (and indeed incentive for documentation) is a challenge which will benefit from input from a multi-disciplinary range of field practitioners from multiple specialities. This will avoid biasing data priority in favour of only surgical workload which has historically overshadowed the non-surgical workload in SODs. As such, keeping documentation evenly focussed on both surgical and non-surgical work, will help maintain emphasis on providing and reporting on a complete offering of joined-up and inclusive care.

These findings add some much needed understanding to the dearth of literature around documentation by EMTs in SODs. Certainly a recent literature review demonstrated that the available knowledge of practice in this domain is limited and almost exclusively descriptive and quantitative in nature.⁶⁷ What is also demonstrated is the very non-standardised and basic approach to documentation adopted in the majority of EMTs. Therefore these findings have the opportunity to shape progress in this field as we go forward.

One notably absent element of infrastructure within EMTs is the mandatory inclusion of a data management role along with guidelines as to what this role must encompass.⁶⁸ To tackle the challenge of paper-based or electronic documentation it is essential that pre-deployment trialling and testing is undertaken. The UK EMT is one team working on its data management capacity: developing training for those who will be tasked with the role very specifically and developing a detailed standard operating procedure for data management.⁶⁹

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Given that the process of documentation requires such specific attention prior to, during and post-disaster, having such a role within all EMTs may be just what is needed to spend time collaboratively resolving some of the remaining challenges in disaster documentation raised in this study.

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