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Original Research

Ebola outbreak preparedness planning: a qualitative study of clinicians' experiences

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ABSTRACT

Objectives: The 2014–15 Ebola outbreak in West Africa highlighted the challenges many hospitals face when preparing for the potential emergence of highly contagious diseases. This study examined the experiences of frontline health care professionals in an Australian hospital during the outbreak, with a focus on participant views on information, training and preparedness, to inform future outbreak preparedness planning.

Study design: Semi-structured interviews were conducted with 21 healthcare professionals involved in Ebola preparedness planning, at a hospital in Australia.

Methods: The data were systematically coded to discover key themes in participants' accounts of Ebola preparedness.

Results: Three key themes identified were: 1) the impact of high volumes of—often inconsistent—information, which shaped participants' trust in authority; 2) barriers to engagement in training, including the perceived relative risk Ebola presented; and finally, 3) practical and environmental impediments to preparedness.

Conclusions: These clinicians' accounts of Ebola preparedness reveal a range of important factors which may influence the relative success of outbreak preparedness and provide guidance for future responses. In particular, they illustrate the critical importance of clear communication and guidelines for staff engagement with, and implementation of training. An important outcome of this study was how individual assessments of risk and trust are produced via, and overlap with, the dynamics of communication, training and environmental logistics. Consideration of the dynamic ways in which these issues intersect is crucial for fostering an environment that is suitable for managing an infectious threat such as Ebola.

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Introduction

The Ebolaviruses are members of the family Filoviridae and were first identified in 1976 after two outbreaks in Africa.¹ The

frequency of confirmed outbreaks of Ebola has increased in the last two decades, with the 2014/15 Ebolavirus outbreak in West Africa representing the largest Ebolavirus outbreak in history, with 28,616 suspected cases and 11,310 deaths.² The Ebolavirus outbreak is set against a background of increasing

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globalisation, international travel and migration, with associated infectious threats. These have included, among others; severe acute respiratory syndrome, Middle East respiratory syndrome, Influenza A subtypes, and more recently, Zika virus.^{3,4} All of these outbreaks have resulted in significant public health responses internationally, with large resource requirements and implications for frontline healthcare professionals.

The 2014/15 Ebola outbreak in West Africa precipitated Ebola preparedness planning internationally,^{5–9} with extensive planning, policy development and considerable resource utilisation in countries (including Australia) that ultimately never experienced the management of a patient with Ebola. Guidance and policies provided varied significantly over the time of the outbreak. Locally at the institution in which this study was performed, guidance on Ebola management was formed at an institutional level, and more broadly at an organisational level (which resulted in alternations to local guidance), and both of these sources of guidance were modified in response to changing international guidance from organisations such as the Centers for Disease Control and Prevention.

Although phase 3 clinical trial for a vaccine is now underway,^{10,11} this does not represent the end of infectious threats, or indeed Ebola, with cases of Ebola in Guinea confirmed as recently as March 2016.¹² The challenges of outbreak management more broadly will continue, particularly in an environment of increasing globalisation and international travel.¹³

It is important to glean critical transferable knowledge from the experience of Ebola preparedness planning, to inform planning and policy development in the face of future epidemic threats.^{14–16} To this point, there has not been an in-depth study of the experiences of frontline hospital staff in preparing for Ebola in a resource-rich setting. This study provides a detailed qualitative analysis of the experiences of frontline healthcare professionals in an Australian Hospital, and the cultural/organisational dynamics which impacted on preparedness planning in the context of Ebola.

Methods

This qualitative study explores a range of hospital doctors' and nurses' experiences of the Ebola 2014/15 outbreak at a teaching hospital (450 beds) in Queensland, Australia, in February 2015. Following ethics approval (#HREC/14/QPCH/233), the directors of the particular hospital departments who would be responsible for delivering care to a presenting Ebola patient were approached for participation. The final sample of 21 health professionals included eight consultants and 13 nurses (four doctors and two nurses with managerial roles) of whom 12 were female and 9 were male. The sample included participants from Emergency Medicine, Infectious Diseases, Infection Control, and Management. To ensure confidentiality, further demographic details, including specific participant positions, have been withheld. The data were thematically analysed and systematically coded. Two members of the research team independently coded and cross-checked the data, which were then refined to further develop themes and an overarching interpretation of the data.

Analytic rigour was enhanced by searching for atypical and contradicting cases in coding and theme development.

Results

Theme 1: Communication volume and inconsistency resulting in mistrust

Participants reflected on both the inconsistency and the volume of information that was being provided to them locally, and more widely from an organisational and a government level. This resulted in dismissal of information as clinicians were unable to assimilate the information in the limited time they had:

The flood of resources, as in documents from the CDC, or WHO or [organisational name] or whoever it is has just been incredible. You open up my Ebola file on the computer it's incredible. How would you ever make use of all of that? [gap in interview] ...And sometimes we were getting three or four different links per day [gap in interview] ...you'd get the West Dallas Journal sending out something about whatever. And everything would contradict each other. 'Do this, don't do that.'

Participant 5 (nurse)

I have to say you get bombarded with email and occasionally – well even the [organisation name] email, 'Ebola' delete, 'Ebola' delete.

Participant 6 (doctor)

Rapidly changing guidelines and policies were reportedly developed and altered 'on the fly', with contradictory messages from different sources and limited control over the changes at a local level, resulting in participant confusion and lack of trust in the information received.

Participants also reported inconsistencies in the information provided about transmission risks and the personal protective equipment required to be used:

...they didn't have much information on how to contract it. So that was scary and made you not want to do it [gap in interview] ...How it was transmitted. Like even they were saying it wasn't airborne, but yet we were wearing airborne masks.

Participant 15 (nurse)

Almost all of the participants discussed the fact that changing guidelines and the distribution of (even subtly) different information at a rapid pace limited training efficacy and produced heightened levels of uncertainty among staff:

That's why we're in need, well I believe, of a central expert group saying 'this is the plan, this is what's going to happen.' Rather than bureaucrats and politicians saying 'this is what we're going to tell everyone is going to happen and you're going to make sure it happens.'

Participant 7 (doctor)

The inconsistency and rapidly changing nature of the communication and guidelines was described as increasing the participants' perception of risk and lack of trust in information sources. The difficulties of this situation led participants to actively disengage from preparedness training.

Theme 2: Perception of relative risk and perceived preparedness

The dramatic nature of the Ebola threat, with its associated high mortality, in combination with the lack of confidence participants felt around knowledge of transmission routes, resulted in high levels of anxiety for participants. Some described an unwillingness to put themselves at perceived risk of transmission given that treatment of an Ebola patient was regarded as futile:

I guess the level of uncomfortableness when faced with the Ebola threat was death, as opposed to having to have a couple of days off work if you've got the flu or norovirus or something. It's not likely to knock off a health worker. Whereas this certainly does.

Participant 5 (nurse)

So if you actually have Ebola you're likely going to die. And you're going to die probably after you leave my department and everyone goes 'there's nothing I'm going to do for them, except give them something to help them be comfortable.' Then that is a lot different to say another outbreak that is treatable and carries that same risk.

Participant 10 (doctor)

This lack of certainty about their ability to help was seen in many ways to be contradictory to the values of their profession:

...one of the criteria for going in to any medical treatment situation is that it must be safe for the healthcare providers. And I think that that was very far from assured and I think it's very far from assured today in relationship to that specific situation.

Participant 11 (doctor)

Despite describing feeling underprepared to manage a patient with Ebola, there was also a sense of limited or superficial staff engagement with the training guidelines or sessions. Many participants acknowledged that they had either not read the guidelines provided to them, or had 'skimmed them', had little or no face-to-face training, and limited experience using personal protective equipment (PPE). There was a perception that at a local, organisational and national level, the adequacy of preparedness was defined by managers or politicians without consultation with, or recognition of, frontline staff. Resource allocation nationally for Ebola preparedness training was perceived by participants to be inadequate, reflected locally by an inadequate number of educator staff:

Now I've been to the in-services and you listen and that, but when it comes to the crunch, I've done it once, donning and doffing. I don't know whether I'll get another chance. So is that adequate or

not? I don't know. I don't know whether it is. I'd like to think, I mean there's only two educators, or three to do all of us. [gap in interview] ...Personally I think we need to have a lot more, so that we're confident. It makes us quicker. But I don't think that's going to happen, there's two staff to 180. I mean there's heaps of us.

Participant 2 (nurse)

The participants described conflict between the desire to be trained to protect themselves, with their widespread perception that it was unlikely that they would be required to manage an actual case of Ebola, resulting in reported low prioritisation of training demands (including education sessions and policy review) because of more immediate pressing clinical demands:

We [emergency department] had trouble even running a simulation because of competing demands on the day.

Participant 8 (doctor)

...for a disease like Ebola to run rampant through a First World country like Australia, it just won't happen. We don't have sanitation issues, we don't have the extended family, we don't have the funeral process, practices that they have in western Africa [gap in interview] ...So back to the risk of a walk-in, exceedingly rare, exceedingly unlikely for it to happen.

Participant 5 (nurse)

In sum, participants reported being highly anxious and dissatisfied with the training provided, yet reluctant to engage in training for Ebola preparedness due to a perception that they were unlikely to manage an actual clinical case—a complex dynamic of anxiety and scepticism.

Theme 3: Practical and environmental barriers to preparedness

Planning for Ebola raised enormous practical barriers which participants identified as having a significant role in limiting the preparedness of health services. The inappropriateness of the Emergency Department for the clinical care of an Ebola patient, due to both spatial arrangements, the large number of staff rotating through shifts and competing demands within the department, was perceived to be a significant issue:

Well it's not appropriate in any of our Emergency departments to manage an Ebola patient beyond the initial screening and stuff. There's no area in any of our [emergency] facilities [geographic location] that's appropriate. [gap in interview] It's just a room with an en-suite next to it, there's no entry room to go in. So you're doing donning in the corridor, you're doing doffing at the ambulance bay.

Participant 5 (nurse)

Participants reflected that adequacy of training was assessed by managerial staff, and that little attention was paid to how frontline clinical staff felt about their training. Rather,

attempts at preparedness were seen to be 'box ticking' exercises, with little concern for the limitations highlighted by the training exercises:

...environmental challenges were everything from didn't have the equipment, didn't know how to set it up, had the patient sitting out in a main area while the ambulances were unloading new patients, right where the Ebola patient was sitting. The ambulances were just ramping on the day, unloading patients right into that area. They were cross-contaminating themselves, there was no donning and doffing processes, everyone was just reading a script, everyone thought it was a bit of a lark. And yeah the [senior staff member] then sent an email out to the exec saying 'DEM [Department of Emergency Medicine] did their run through, yeah it was mostly positive, thanks to everyone for helping.' And I'm thinking so the higher exec are doing their little tick that box.

Participant 12 (nurse)

Training inadequacy was perceived to be exacerbated by the difficulties and physical limitations of the recommended PPE for managing a patient with Ebola, which was noted by multiple participants. The equipment was described as cumbersome and hot, and staff reported finding it difficult to communicate with others who were wearing the PPE in training exercises. Basic clinical procedures were deemed impossible by participants while wearing the recommended PPE:

I just think the contact precautions that we have, the ability that we'd have to do our jobs and use our skills appropriately without significant risk to ourselves, I think would be, we don't have the time to put on all this gown, you don't have the time to take it on and off. You can't focus when you're sweating, you can't hold the cannula, you can't intubate....

Participant 6 (doctor)

The reported physical challenges of managing an Ebola patient, combined with the limited training that participants perceived they had received, and the general anxiety around transmission, resulted in a reluctance to engage in training and preparedness planning.

Discussion

This study illustrates a range of important implications for Ebola preparedness, as demonstrated in the case study of an Australian hospital. The themes emergent from the interviews, and explored in the results above, are interrelated. For example, the vast amount of information, which was constantly changing and sometimes contradictory, developed a dynamic of mistrust among hospital staff which then influenced their engagement with training exercises. This was further reinforced when the logics of training (i.e. PPE procedures) were viewed as incommensurable with the environment within which care was to be provided. In this study, we can see the dynamics of communication influencing the forms of staff engagement with training which then combines

with structural/environmental impediments to create the 'perfect storm' of variables (thus limiting Ebola preparedness). Understanding the interplay of risk perception, the idiosyncrasies of localised environments, and the influence of these factors on the implementation of 'best practice' at the clinical coalface is critical for successful preparedness planning in the future.

Risk perception is known to have a critical impact on the consequences of outbreak threats, with factors such as: potentially serious outcomes from infection, a lack of protection measures, a rapid increase in cases or deaths, clinical uncertainty such as around the route of infection and a suspicion that the risks are being downplayed increasing concern.¹⁷ This study reveals many of these variables in the case of Ebola, critically contributing to the escalation of healthcare professionals' risk perception (including the risk of death from Ebola, the uncertainty around transmission and PPE and lack of trust in the information provided), and as a result contributing to disengagement from preparedness exercises. Similar findings have also been found in Canada, which concluded that a single point of reference within an organisation to facilitate knowledge transfer would assist in overcoming the mistrust of frontline staff related to training and preparedness.¹⁸

The conflicting messages conferred to participants in this study were broader than the local health service and included messages from higher level organisational and government bodies. There was also significant media coverage in Australia which emphasised the domestic risk with extensive coverage of every possible Ebola patient.¹⁹ For instance, in the United States, it was documented that the language around Ebola changed from 'outbreak' to 'epidemic' after the latter was used in a speech by President Obama.¹⁹ The authors suggest that even subtle changes in language can increase perceptions of risk. The effect of inconsistent communication on trust and engagement should be considered by public health and government bodies as well as frontline health services.

The challenges of engendering staff engagement in Ebola preparedness training has been acknowledged in both resource limited and resource-rich settings, with experts calling for benchmarking of pandemic preparedness for countries of all resource capabilities.^{5,20–22} Deficiencies in preparedness for Ebola occurred in both resource-limited and resource-rich settings, and experts call for benchmarking of pandemic preparedness for countries of all resource capabilities.^{22,23} Pandemic preparedness is argued as 'an essential tenet of human and economic security'.²² Benchmarking can be informed by in-depth studies such as this, which identify barriers to effective training and planning in healthcare settings by revealing the complex interactions and influence of human relationships and communication with other variables. This study provides insights into the challenges of effective training and training efficacy feedback, which are likely to have broader relevance than Ebola, and indeed than infection control training. The critical importance of evaluating the experience and efficacy of training, from a frontline clinicians' perspective, is evidenced in this study.

While this study is limited in generalisability by the small sample and data collection at one hospital, this hospital is reasonably representative in terms of size and resources for wealthier nations with strong investment in healthcare. This study suggests that rigorous control and consistency of information flow from a government, to health service, to local clinician level, with increased resources for staff likely to be involved in direct patient care, and feedback from clinicians as to training effectiveness, would have been effective in increasing the confidence of frontline clinical staff to manage a patient with an infectious threat such as Ebola. The overwhelming nature of preparedness training and the fear and frustration it produces suggests that infection control training including the context of different infections such as Ebola, and including the evidence (and lack of evidence) surrounding policies, would be useful on an ongoing routine basis, rather than in reaction to a current outbreak. It is essential to learn from Ebola rather than moving on without full and careful consideration of how service providers can be better prepared in the future. In addition to the need for accurate scientific knowledge of an infectious threat,¹⁵ it is critical to consider the communicative, environmental, cultural ‘platform’ for outbreak responsiveness, to allow the best possible care for patients and protection of healthcare professionals.

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Ethical approval

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Competing interests

The authors declare no conflicts of interest.

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