STRUCTURE OF CONVERSATIONS OF HEALTHCARE PRACTITIONERS ON EBOLA VIRUS DISEASE IN THE MEDSCAPE NETWORK, 2014-2018

BY

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CERTIFICATION

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DEDICATION

This work is dedicated

to Almighty God of all possibilities

and in loving memory of my late parents,

Mr Vincent Igwe and Mrs Theresa Igwe,

may your gentle souls rest in the Lord's bosom, Amen.

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To God be the glory for His benevolence and grace for this accomplishment. He has remained faithful to His promises, hence, my thanksgiving to Him. The privilege He accorded me is one for which He deserves my loyalty forever.

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ABSTRACT

The outbreak of Ebola Virus Disease (EVD) during 2014-2015 generated discussions and exchange of information among Healthcare Practitioners (HCPs) on social media and other platforms. These exchanges improved understanding of the disease. Previous studies have examined the medical aspects of the disease, with little attention paid to the nature and structure of conversations on the disease among HCPs on social media networks. This study was, therefore, designed to investigate the characteristics, trends, knowledge content, and relevance of conversations on EVD on the Medscape network and the participation behaviours and roles of different categories of HCPs.

Conversation and Social Network theories guided the study, while content analysis was adopted as the research design. Data on EVD topics and corresponding HCPs' posts on the topics from March 26, 2014 to April 27, 2018 were extracted from the Medscape network website. The data were analysed thematically, while a 1-mode network was developed to determine the centrality measures of the nodes representing the participating HCPs.

There were 391 EVD news topics and associated contents, and the HCPs responded to 234 of the topics which generated 7,343 conversations, while 157 topics received no responses. The trend of EVD conversations among HCPs showed a high conversation frequency of 6,479 (88.2%) at the peak period of EVD outbreak in 2014, but declined thereafter. The 234 news posts that received responses were on six main themes - management (106, 45.3%), risks (33, 14.1%), resources (29, 12.4%), treatment (25, 10.7%), transmission (19, 8.1%) and others (22, 9.4%), but the ensuing conversations by HCPs on the topics focused mainly on EVD risks (4,679, 63.7%). Almost all the conversations (7,230, 98.6%) were adjudged by medical experts to be relevant to the EVD topics and contents posted on the network. A total of 3,310 HCPs participated in the conversations, but only 95 were assessed active. Participation in the conversations by HCPs showed that medical doctors contributed 57.4%, followed by nurses (27.5%), pharmacists (2.2%), health/business administrators (2.2%), medical students (1.9%), and nursing students (1.1%), while miscellaneous other categories accounted for 7.6%.

Conversations by the healthcare practitioners focused mainly on Ebola virus disease management and risks, and were mostly relevant to the posted topics. Health agencies at national and global levels should recognise conversations among healthcare practitioners on social media networks as important sources of information on Ebola virus disease and other emerging diseases.

Keywords: Ebola virus disease, Knowledge sharing, Conversational structure, Social media, Healthcare practitioners

Word count: 390

TABLE OF CONTENTS

Page

LIST OF TABLES

LIST OF FIGURES

Page

Page

LIST OF ACRONYMS

CDCP	Centres for Disease Control and Prevention
CT	Conversation Theory
EVD	Ebola Virus Disease
HCPs	Healthcare Practitioners
KSB	Knowledge Sharing Behaviour
SDGs	Sustainable Development Goals
SNA	Social Network Analysis
WHO	World Health Organization

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Ebola Virus Disease (EVD) is an acute viral illness caused by Ebola virus, one of the most devastating viral diseases ever known to humanity (World Health Organisation, 2014). The earliest strain of EVD, the Marburg Haemorrhage Fever, was first diagnosed in 1967 in Germany and Belgrade Yugoslavia (now Serbia) and then in the United States of America in 1982 (Adjemian, Farnon, Tschioko, Wamala, *et al.*, 2011; Amman, Carroll, Reed, Sealy, *et al.*, 2012; Olival, and Hayman, 2014) The deadliest EVD strains, however, originated and spread in 1976 on the African continent specifically in Sudan and Zaire. This was followed by a less severe strain in the United States of America in 1989, Cote d'Ivoire in 1994, and Democratic Republic of Congo in 2018. However, the most lethal outbreak occurred in Liberia and other West African countries in 2014 (King, 2015; Stein 2015; WHO Ebola Response Team, 2018). According to WHO (2014), the natural reservoir of EVD transmission is the Fruit Bat. The EVD is transmitted to humans through contact with blood, body fluids or secretions of infected persons or wild animals. Ebola is so virulent that when contracted, it goes into the bloodstream and organs, shutting down the organs if proper medications are not taken and eventually kills the victim within 10 days. The symptoms which begin after 21 days include fever, muscle pain, headache, sore throat, vomiting, diarrhoea, rashes, bleeding gums, impaired kidney, and liver malfunctioning as well as a low white blood cell, platelet counts and elevated liver enzymes (Centres for Disease Control and Preclusion (CDCP), 2016).

WHO Ebola Response Team (2015) reported that a total of 8,997 persons were confirmed victims of the virus in Liberia, Sierra Leone, Guinea, Republic of Congo, Nigeria, Mali, and Spain including the United States of America as at October 2014. In West Africa, more than 28,600 persons across Sierra Leone, Liberia, Nigeria, and Guinea were infected with the virus during the 2014/2015 EVD outbreaks (CDCP, 2016). Nigeria

reported her first case of EVD on July 23, 2014 as a result of Patrick Sawyer's (a Liberian EVD patient) visit to the country. The news about the death of Patrick Sawyer inflicted fear and panic in the country especially in Lagos and Port Harcourt. Consequently, the country recorded 20 cases of Ebola and eight deaths during the outbreak (Onyeonoro, Ekpemiro, Abali, and Nwokeukwu, 2015). However, with the noble efforts of Late Dr Stella Ameyo Adadevoh who fought with her life and Federal Ministry of Health as well as support from the international health agencies, the country was declared Ebola virus disease free on October 17, 2014 (WHO, 2014).

The spread and morbidity risks associated with outbreak of EVD is higher compared to other emerging diseases and epidemics such as Avian Influenza, Severe Acute Respiratory Syndrome (SARS), Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome (HIV/AIDS), (WHO, 2014). However, the episodic nature of EVD occurrence, coupled with its highly infective and fast morbidity rates largely constrains research on the disease (Alexander, Sanderson, Marathe, Lewis, Rivers, Shaman, Drake, Lofgren, Dato, Eisenberg, and Eubank, 2015; Ribacke, Saulnier, Eriksson, and von Schreeb, 2016). Hence, these justified the need for this study. Nevertheless, dialogues among healthcare stakeholders and practitioners on issues relating to EVD during each outbreak was often globally and nationally extensive and intensive and generated substantial communicative and knowledge sharing information that could and should be harnessed for knowledge and expertise development on the management of the disease. In other words, one of the potentially useful ways to manage the disease effectively is through multi-directional and multi-dimensional knowledge sharing involving health care stakeholders, providers, policy makers, as well as victims and their families. Effective knowledge improvement and information flow and management are critical in the management of highly virulent diseases, its effects demand critical attention to prevent or limit future outbreaks.

Panahi, Watson and Partridge (2016) and Campbell and Miranda-Morel (2017) noted that knowledge sharing in form of conversation could be one of the many ways to enhance best practices on EVD among healthcare practitioners and other stakeholders. Communication and engagements through proximity networks among healthcare practitioners are critical in developing a clearer understanding for managing the disease.

Healthcare practitioners (HCPs) include professionals that provide preventive, curative, promotional or rehabilitative healthcare services in a systematic way to people, families or communities like doctors, nurses, pharmacists, lab technicians, and researchers. Healthcare practitioners need knowledge and understanding regarding EVD for their clinical interactions with other practitioners (Panahi *et al.*, 2016). They need expertise to discuss best lines of action to take regarding infected persons. This way, healthcare practitioners involved in managing EVD build familiarity among themselves, create bodies of knowledge and practices around the disease as well as build mutual respect, trust and confidence in attending to victims (Amidi, 2018; Panahi *et al.*, 2016; Steininger, Rückel, Dannerer, and Roithmayr, 2010).

Increased collaboration and fast response among healthcare practitioners are likely to reduce medical errors and costs of health care on the society, and also promote proper management of a health risk (Landman, Spatz, Cherlin, Krumholz, Bradley and Curry, 2013). Meeting human health needs therefore requires collaborative knowledge sharing among healthcare practitioners. This explained why efforts to address healthcare needs during the EVD crises was always intensed in cross border collaboration, conversation and knowledge sharing using any available means (Amidi, 2018; Mannan, Bakri, and Shaari, 2017; Panahi *et al.*, 2016; Steininger *et al.*, 2010; Younger, 2010; Mansingh, Osei-Bryson and Reichgelt, 2012; Waring and Bishop, 2010; McGivern, and Fischer, 2010; and Van de Wiel, Van den Bossche, Janssen, and Jossberger, 2011). Such information and knowledge sharing behaviours in form of conversation result from the paucity of body of knowledge on EVD, which forces healthcare practitioners to confirm and crosscheck their opinions, observations, and encounters with those of others before making decisions about what to do in the usual crisis situation of an EVD outbreak.

Panahi *et al.* (2016) observed that healthcare practitioners are usually gregarious, and this is more the case when they encounter a difficult situation. They share opinions about their experiences before reaching the conclusion to avoid or reduce diagnosis and treatment errors. For instance, during and after the EVD crisis in 2014, healthcare practitioners continued to share information and knowledge on their day-to-day clinical activities. They demonstrated their clinical skills and alternatives through videos and writings about usual and unusual encounters, as well as engaged on conversation

regarding the virus. This was both informally, as well as formally through various intellectual and social media and fora.

Generally, healthcare practitioners (HCPs) often struggle to overcome the constraints posed by physical co-location in meeting the health needs of people during epidemics (Abidi and Abidi, 2019). This is because the place where the epidemics occur may not be where the experts reside. Healthcare practitioners with various expertise are often located disparately; making interpersonal exchange difficult in times of healthcare needs (Sambo, 2014). Also, numerous unscientific or outrightly fake information emanates whenever there is an outbreak. For instance, in Nigeria, people were misinformed by unidentifiable 'medical experts' to bath in and drink salt water to protect themselves against EVD, and to consume *Garcinia Kola* (bitter kola) to constrain the replication of the organism in the body. Such misinformation is often as a result of inadequate health knowledge, limited communication, improper engagement and possibly mischief among people within an outbreak area. The misinformation often usually disseminates quickly globally through the Internet, often with devastating effects. Roache, Lawrence, Hougendobler and Friedman (2014) reported that cultural traditions such as hand shaking, hugging, and so on were critical issues among Nigerians and Liberians during the last EVD outbreaks in 2014.

Knowledge is created and exchanged through interaction and spontaneous exchange among two or more people, otherwise known as conversation. Conversation, as a subject, intersperses sociology where it is viewed from the perspective of human interaction (Wong and Waring, 2020). In communication studies, conversation describes a process of knowledge sharing (Wong and Waring, 2020) while cyberneticians consider exchange of signals among humans and machines or among machines as a form of conversation (Weiner 1948). Conversation is thought to basically happen informally and symmetrically for the purposes of either establishing or maintaining social ties. According to Wong and Waring (2020), formalised conversation is a form of knowledge sharing among individuals or groups with a target of meeting an information need or goal. In this study, conversation is conceptualised as a form of seeking for consensus about a matter on a particular concept such as EVD. Conversation creates and generates ideas among individuals or groups which can be used in making decision (Wong and Waring, 2020).

Ideas or information derived during conversation in form of knowledge sharing are dependent on the inference made by the participants from the conversation which, however, determines how they utilize the information for knowledge creation.

According to Panahi (2014), knowledge sharing is an act of communicating knowledge among individuals, groups or organisations. It is an interaction culture that involves the exchange of what one knows and wishes to share, and exchange of experiences and skills (Rauniar, Rawski, Morgan, and Mishra, 2019). Haeussler (2011) and Vilar (2012) stated that knowledge sharing encompasses a wide range of behaviours which result in the exchange of knowledge from one person to another. Knowledge sharing is a systematically planned and managed activity involving a group of educated and skilled individuals, such as healthcare practitioners, who are engaged in sharing their knowledge resources, insights, and experiences for a defined objective (Abidi and Abidi, 2019). However, in this study, knowledge was conceptualised as facts, actionable information, and skills acquired through intuition, experience or education. This is a theoretical or practical understanding of a concept for solving a problem or taking an action (Horvat, Sharma and Bobek, 2016). Knowledge enables interpretation of information through various processes of knowledge management (KM) such as knowledge sharing. For instance, healthcare practitioners on real-time conversation interpret posts or conversations made on the platform as they share their knowledge in order to demonstrate best practices, as well as developing discussions around particular cases and sharing experiences, or asking clinical questions.

In addition, Panahi (2014) concluded that knowledge is an important conduit for knowledge sharing among members or a group of people. This can be tacit or explicit type of knowledge (Polanyi, 1966). According to Nonaka and Takeuchi (1995) and Kołodziej and Khan (2013), tacit knowledge refers to the personal knowledge residing within an individual's mind in form of personal experience, know-how, insight, mental modes, and personal beliefs, whereas explicit knowledge refers to well-articulated knowledge that is written down and documented. Tacit knowledge is difficult to share in a formal language and is usually specific to a whole while explicit knowledge is codifiable and transmissible in a formal language. Nonaka and Takeuchi (1995) in their Socialisation, Externalisation, Combination, and Internalisation (SECI) model viewed the activities involved in

knowledge sharing as a dynamic interaction between tacit and explicit knowledge. The SECI model is a continuous process for converting tacit knowledge to explicit knowledge: socialisation (tacit to tacit), externalisation (tacit to explicit), combination (explicit to explicit), and internalisation (explicit to tacit). Panahi (2014) found that healthcare practitioners who are engaged in knowledge sharing mostly share their tacit knowledge while discussing their clinical matters. Panahi stated that information technologies can enhance the process of knowledge sharing among healthcare practitioners through socialising, practising, networking, storytelling, and encountering.

Information technologies, and Internet-based technologies and media in particular, are vital when relaying real-time knowledge sharing and networking among healthcare practitioners before or during any EVD outbreak. Technologies are deployed to support the interaction among healthcare practitioners in the form of real-time conversation challenges (Panahi *et al.,* 2016; Steininger *et al.,* 2010; Abidi and Abidi, 2019; Vijayakumar, Nair, and Pathan, 2013). Sequel to this, Buchholz (2014) observed that conversation occurs in various forms using information technology such as social media. Social media is an example of a known technology that enhances communication especially in the virtual world of our knowledge-based global society. Social media conversation also known as social network conversation is commonly studied to understand conversational exchanges among people from different professions (Bruns and Burgess 2011; Das, Yenala, Chinnakotla, and Shrivastava, 2016; Magnani, Montesi, and Rossi, 2012; Weninger, 2014; Zhang, Culbertson, and Paritosh 2017). Social networks are systems where individuals, groups, organisations are commonly linked together with the aim of sharing values, visions, and ideas to achieve a purpose or to meet information needs.

According to Kuss and Griffiths (2011), social networks are virtual communities where users can create individual public profiles, interact with real-life friends, and meet other people based on shared interests and expertise. Examples of this include Facebook, Foursquare, Instagram, LinkedIn, Pinterest, Tumblr, Twitter, Medscape, YouTube, ResearchGate, and PubMed. Xu, Chiu, Chen and Mukherjee (2014) noted that in social networks, members are geographically bound in an informal social entity to foster a sense of collectiveness and communal commitment, interactions, joint activities, relationships;

and a shared practice which the members strive to achieve. Social networking sites may be opened to members who may or may not belong to any profession called mainstream social networking sites such as Facebook, Blogs, and Twitter. Such networking sites have their major aims for socials and entertainment unlike professional social networking sites that are primarily driven by professional purposes, such as LinkedIn, Medscape, ResearchGate, and PubMed (Dannen and Myers, 2012).

Wenger (2011) highlighted that some professional driven social networks grant access to a single profession such as PubMed, Medscape, Agora, Teeal, Hinari, while some are open to many professions such as ResearchGate, LinkedIn, and Research4life. Among these professional driven social networks, Medscape network focuses on the interaction existing among healthcare practitioners globally. Pubmed is an indexing platform for health-related publications. Medscape offers both the latest medical news and access to advice/comments of healthcare practitioners on health issues globally. It also offers an essential point-of-care drug and disease information and relevant professional education.

In addition, Stewart and Abidi (2013) noted that in such single professions, social networks were deployed and used to enhance communities of practices. Communities of practices were characterised as set of individuals who share mutual interest, need, or enterprise towards the knowledge being shared. Wenger (2011) defined communities of practices as set of people who share concern or has passion for a profession they belong. In this study, they were referred to as the healthcare profession who interact regularly to learn how to improve. In addition, such a professional networking platform could be deployed to enhance knowledge sharing among members of a social network.

According to Stewart and Abidi (2013), knowledge sharing in a single professional social network environment such as healthcare practitioners was perceived as the sharing of best practices and evidence, contextualising such evidence with personal experiences and observations, and operationalizing the evidence via practical situation-specific strategies and recommendations. This single professional social network environment was referred to as a community of practice (Wenger, 2011). Corroborating these facts, Laurillard (2013) and Steininger *et al.* (2010) observed that in comparison with other professionals, embrace and use of modern knowledge sharing technologies such as blogs,

wikis and social networking websites such as Medscape network have pervaded medical practices.

Knowledge sharing technologies have introduced various models to understand knowledge sharing behaviour among users. A major model that best explains such is the Leveraging Internet for Knowledge Sharing (LINKS) model of Abidi (2007). The LINKS model has been used to conceptualise the establishment of electronic communities of practice for specialised knowledge sharing using the internet. The LINKS model recognises the key determinants of an online communities of practice in order to scientifically conceptualise and implement a purposeful health knowledge sharing environment for healthcare practitioners in an online social network. These key elements characterise healthcare knowledge sharing at three interrelated levels: conceptual, operational and compliance. The conceptual level stratifies knowledge sharing into three dimensions: the knowledge modality, the knowledge sharing context, and the knowledge sharing medium. However, in this study, the knowledge sharing context of the conceptual level was adapted because the variables of interest in this study were embedded in the construct. The study adapted knowledge modality to build knowledge taxonomy of concept shared among users of the social networks. The operational level addresses technical infrastructure issues pertaining to establishing a culture of collaboration between the stakeholders. A culture of collaboration is essential when establishing a successful knowledge sharing community. In addition, the study adapted the culture of collaboration among HCPs on Medscape network to establish a successful knowledge sharing community.

The compliance level addresses the underlying issue of perceived trust in the system. Evaluating trust at the compliance level requires contacting the online healthcare practitioners to determine the effect of online communication based on the knowledge they received from the online platform. This was beyond the scope of this study. Although the three levels are not hierarchical in nature, they are inter-related, and each level can be addressed in order to implement a successful knowledge sharing environment. Leveraging on the LINKS model for this study harmonised two important models to help provide a justified and holistic conceptual framework to help establish the patterns of knowledge sharing among HCPs on online social network: Conversation Theory and Social Network

(SN) theory. It was not a gainsaying to state that technologies constitute the primary memory or storage devices for conversations and that they have featured prominently in all efforts to model conversation in form of knowledge sharing known as Conversation Theory (CT) (Weiner, 1948; and Pask, 1975; Ryan, Scott, Freeman, and Patel, 2013). Adapting the Conversation Theory within the LINKS model for this study, certain elements formed the major constructs of the theory: the conversation itself, concept, participants and memory (Pask, 1975; Leung, 2008). These elements were also known to be the important variables of knowledge sharing context construct in LINKS model of Abidi (2007). Pask (1975) postulated that conversation characteristic constructs which capture the knowledge sharing context construct in the LINKS model enable understanding during conversation. The conversation is the comments of the participants, it exemplifies the rate at which the participants respond to the topic of discussion and include the contents of the comments itself (measured using the content analysis) and the rate of responses (measured using response analysis). The concepts or ideas are exemplified by the number of topics or themes in a conversation and often represent the actual encounter in the course of knowledge sharing from a professional perspective. They also indicate the depth of attention given to the problems addressed, the actual content being shared and participants' commitment to discussions. The participants consist of individuals engaged in the conversation. The memory is measured by the number of concepts which the participants in the conversation build. However, memory was not considered as a construct in this study because it was more of experimental whereas the study was not an experimental study.

Moreover, it is a prerogative to state that conversations on such social networking sites could be enhanced and determined by the level of interaction among the members of the network which according to Borgatti, Everett, and Johnson (2013) is known as the social network theory. To this end, Stewart and Abidi (2012) and Xu, Chiu, Chen and Mukherjee (2014) noted that the level of interaction in a given profession on social networking sites needs to be studied using group-level centrality measures from the social network analysis (SNA). These centrality measurements include the following: degree centrality, betweenness centrality, and the closeness of centrality nodes of participants in knowledge sharing. The concept of centrality measurements was used to identify the most

active and influential members of the community in terms of knowledge sharing or conversation. This was conceptualised as degree centrality, betweenness centrality, closeness centrality and the core of the nodes. The degree centrality measures the number of ties an individual node has on the network (Stewart and Abidi, 2013). Betweenness centrality refered to as a node which could include a member central to a network and it was used as a path between other members (healthcare practitioners) of the network. Closeness centrality measured how quickly a single member can reach other members of the network. This could also mean the degree of accessibility of such single member. The coreness of the nodes was measured in terms of how central a member was to the network.

From the microscopic view of the LINKS model juxtaposed with the social network theory, it was conceptualised in this study that the variables of culture of collaboration adapted from the LINKS model are interwoven with those of social network theory. For example, the centrality variable in the LINKS model represents the degree centrality, betweenness centrality, closeness centrality in the social network theory. The connection clustering variable represents the coreness of the nodes of participants in knowledge sharing in the social network theory.

This study conceptualised that both Conversation Theory (CT) and Social Network Analysis (SNA) were used to analyse online knowledge sharing among healthcare practitioners on EVD. Understanding the online knowledge sharing among healthcare practitioners was a prerequisite to enhancing the knowledge of the people in the society towards achieving a better health knowledge sharing community. Therefore, this study investigated knowledge sharing on Ebola virus among HCPs on a social networking site.

1.2 Statement of the Problem

Ebola Virus Disease (EVD) is a global issue with the potential rapid pandemic growth with the massive migration across borders (Omoleke, Mohammed and Saidu, 2016). However, increase in global human flow across borders requires instant connectedness among healthcare practitioners to contain and manage all diseases particularly virulent strains unfamiliar to communities. This required that healthcare practitioners be empowered to manage diseases such as EVD, Covid-19 and other virulent diseases that were hitherto strange to their communities. Research findings that exposed the

significance of generating substantial data from dialogue among healthcare practitioners on issues relating to EVD across borders have rarely provided substantial management strategies about the disease.

Research findings reported poor health knowledge and lack of engagement of healthcare practitioners resulting from little or no formalised knowledge sharing practise in the health care settings during the last EVD outbreaks. In Nigeria, as a reference point, a lot of misguided information emanated during the last EVD outbreaks in 2014 (when this work was initiated). The masses were advised by unknown/unidentifiable 'health experts' to bath and drink salty water in order to stay safe as a result of poor health knowledge and lack of engagement of healthcare practitioners. According to Campbell and Miranda-Morel (2017), knowledge sharing among healthcare practitioners in formal and informal settings is a way to address the lack of health knowledge and health professional engagement. The Medscape Medical News report in 2014 had highlighted that the first EVD patient (Thomas Eric Duncan) that died in the United States of America was due to lack of formalised knowledge and poor knowledge sharing practice in the health care settings evident among the nurse and the physicians who evaluated the patient (Medscape Medical News, 2014).

Research has shown evidence of heavy reliance of knowledge sharing among healthcare practitioners on technology to enhance their clinical expertise. However, these studies have rarely examined the conversational structure, centrality measures (degree centrality, betweenness and closeness), central group of active healthcare practitioners in social network environment as well as their knowledge sharing context and the culture of collaboration existing among HCPs to infer their online knowledge sharing behaviour using social network tools. The fact that some studies on knowledge sharing behaviour have been preoccupied in understanding the various aspects of human knowledge sharing behaviour, these studies have rarely applied Conversation Theory (CT) and Social Network theory. These theories are embedded in the Leveraging Internet for Knowledge Sharing (LINKS) model to decipher the interrelationship among participants in a conversation or show how conversations facilitated by machines explain human knowledge sharing behaviour.

Some studies on knowledge sharing among healthcare practitioners were guided by Social Capital Theory, Social Cognitive Theory, Technology Acceptance Model, Theory of Planned Behaviour and Theory of Reasoned Action (Lee, Park, and Lee, 2015; Singh, Chandwani, and Kumar, 2018). However, these studies rarely explored how the key constructs and variables of Conversation Theory (CT) can be exploited to improve understanding and policy interventions on the knowledge sharing conversation patterns and structure among healthcare practitioners. This could be used as basis for improved policies, systems and communications among healthcare practitioners and scientists during future pandemics. Hence this formed the knowledge gap which this study addressed. Accordingly, this study explored the use of CT in advancing research and understanding of knowledge sharing among healthcare practitioners during disease epidemics with specific focus on the EVD outbreak and its management during the 2014 to 2018 period.

Moreover, there was a dearth of knowledge by most of the previous studies to understand the interrelationships among CT variables extractible from conversations and how the knowledge sharing through the conversations were facilitated by the dynamics of the use of social networks to share knowledge by healthcare practitioners. Accordingly, this study filled the above identified knowledge and methodological gaps by using conversation theory and social network analysis to understand the structure of conversations and knowledge sharing on Ebola Virus Disease (EVD) among healthcare practitioners on online social network.

1.3 Objective of the Study

The main objective of this study was to determine the conversational structure, patterns and content of shared knowledge on Ebola Virus Disease (EVD) among healthcare practitioners with specific focus on the Medscape network. The specific objectives were to:

1. examine the topic content taxonomy on EVD newsposts among healthcare practitioners on the network;
2. ascertain the conversation taxonomy of EVD knowledge shared among healthcare practitioners on the network;

3. examine the topics of interest on EVD among healthcare practitioners on the network;
4. ascertain the timing and frequency of responses to EVD newsposts by the healthcare practitioners on the network;
5. ascertain the conversation trend of EVD knowledge shared on the network over time from 2014 to 2018;
6. determine the relevance of EVD knowledge shared among healthcare practitioners on the network to management of the disease;
7. examine the differences among different healthcare practitioners in their conversation participation behaviours on the network;
8. identify the most active and influential healthcare practitioners on EVD issues on the network.

1.4 Research Questions

The research questions include the following:

RQ1: What was the topic content taxonomy of Ebola virus disease news posted on the network?

RQ2: What was the conversation taxonomy of EVD knowledge shared among healthcare practitioners on the network?

RQ3: What EVD topics were of interest among healthcare practitioners on the network?

RQ4: How did healthcare practitioners respond to EVD newsposts on the network?

RQ5: What were the conversation trends of EVD knowledge shared among healthcare practitioners on the network?

RQ6: How relevant were EVD knowledge shared among healthcare practitioners on the network?

RQ7: What were the differences among different healthcare practitioners in their conversation participation behaviours on the network?

RQ8: Who were the most active and influential healthcare practitioners on EVD issues on the network?

1.5 Significance of the Study

The significance of this study encompasses every aspect of development which cuts across individual, sectorial, society, national and global development. The topicality of this study rests on the fact that, although the threat of Ebola virus disease has subsided in African countries particularly Nigeria, Sierra Leone, Liberia, Senegal, and Guinea, the tendency of it not reoccurring is not guaranteed due to the episodic nature or chronological history of its existence in Africa. An example was the re-occurrence of Lassa fever in some parts of Nigeria after it was thought to have been totally eradicated. Researchers found that there is a tendency of EVD reoccurrence in areas with surrounding forest loss, typically two years after subsequent EVD outbreak (Medscape Medical News, 2017). This trend of disease reoccurrence justified the need for this study such that the findings of this study served as a reservoir of knowledge and information for healthcare practitioners and other stakeholders to harness and mitigate its spread whenever there is EVD outbreak. The findings of this study have not only provided national awareness and strategies to mitigate its reoccurrence but a global awareness towards ameliorating such pandemic disease at regional and global level.

The findings of this study reaped benefits as it necessitated the need to have a global professional social media for HCPs and adopting such to share knowledge could help mitigate the effect of regional and global outbreaks and provide strategies where necessary to curtail such outbreak. In addition, such platforms could be a place to pose queries and reach other professionals for assistance where need be in cross-border knowledge. Moreover, at the global level, understanding how HCPs share knowledge on critical health-related issues such as EVD, with the possibility of a borderless pandemic, is a critical basis for this study. Studies such as this can strengthen global health systems by empowering HCPs including specialists and doctors capable of addressing health challenges when there is an outbreak of such diseases as EVD.

In addition, observing the occurrence and trend of Ebola virus disease, it can be deduced that the epidemic is common in Africa, thus, the importance of this study was conceptualised from two perspectives. First, the findings of this study were a major source of awareness raising in regions of concern and with the inhabitants of the region by providing a better means of information sources through HCPs. The findings of this study

revealed how HCPs could be of benefit to the populace to help mitigate the outbreak and to know the strategies to deploy to mitigate the spread of such outbreak.

The essence of the study conformed with the National Healthcare Bill (NHB) set forth by the Federal Government of Nigeria in 2014. The Act 62 (1 and 2) mandated establishment of health forum to facilitate interaction, communication, collaboration and knowledge sharing on National Health issues among concerned bodies to improve the quality of patient care and reduce the overall costs of healthcare in the society (National Healthcare Bill 62 (1 and 2), 2014). Insights from this study served as a model for national projects aimed at promoting interaction and knowledge sharing among HCPs and reduce the cost associated with the traditional method of seeking medical information and knowledge. The findings on the knowledge sharing of HCPs about the EVD promoted new ideas on how to improve knowledge on health-related issues within the nation.

The practicality of this study served as a benchmark for administrators of social networks in evaluating the usage of the discussion forum. This study highlighted the measures to be taken in order to determine the effectiveness of the platform. This provided a better means to assess the participatory level of the HCPs on the network by the administrators. The recommendations of this study also served as a reference point to the administrators of the Medscape network and other similar platforms in evaluating their system in order to enrich and transform the contributions of HCPs on the network. Furthermore, the practicality of this study served as a follow-up for WHO in evaluating the medical sector based on the advice and contributions from the HCPs on the social network. This advice and contributions of HCPs enabled the body to understand better possible outcomes to contain EVD in order to enhance the mitigation of EVD outbreaks. This study provided a method (centralities) for detecting similarity between HCPs which increased connectivity by connecting HCP to other like-minded individuals and organisations.

Finally, regarding academia, valuable reference material about EVD was targeted, as this study highlighted knowledge sharing of HCPs and promoted the needs of what is to be known about knowledge sharing of healthcare practitioners on EVD, also to validate knowledge being conceptualised by the masses about the virus. This study has also contributed to the research tradition of everyday life including knowledge sharing by

showing how HCPs made use of the opportunities provided by Web 2.0 technologies (social networking sites) to improve and work effectively. The findings of this study added to the literature by providing empirical results on the present state and possible reoccurrence of the Ebola Virus Disease.

1.6 Scope of the Study

This study focused specifically on the conversational structure, conversation trends, relevance of knowledge shared, participation behaviours and roles, patterns and content of shared knowledge on Ebola Virus Disease (EVD) among healthcare practitioners on the Medscape network. The features extracted include the topics/concepts posted, dates of post, number of participants, number of likes, medical fields of participants, participant's contributions and date of contribution.

In respect of time, this study covered the periods of March 26, 2014, to April 27, 2018. The methodological scope for this study was a retrospective document/content analysis design. The rationale behind this research design was the fact that it aided in problem identification, systematic data collection, analysis and presentation of data to clearly demonstrate a situation or events as they exist. Data were collected from Medscape network, a closed group restricted to healthcare practitioners only. The Ebola newsposts and conversations of the healthcare practitioners were retrieved using the hyperlinks from Medscape network webpage. Data were analysed with Nvivo, Microsoft Excel and social network analysis tools.

1.7 Operational Definition of Key Terms

The following were the operational definition of key terms;

Conversation Content Relevance: This is a measure of relevance of the content of EVD conversation among HCPs on the newsposts which originated the conversations.

Conversation Network: This is a group community of practice members who engage in knowledge sharing or interactions on one or more shared concepts with the aim of achieving an outcome.

Conversational Structure: This is a measure of how conversation occurs among HCPs on EVD issues on the network.

Conversation Taxonomy: These are the identified and labelled themes or shared knowledge elements within a set of conversations.

Conversation Trend: This is a timeline sequence of the frequency and patterns of newsposts and ensuing conversations among conversation network participants (HCPs) during a time period.

Degree of Accessibility: This is a measure of *closeness* of a node from other nodes in a network. Closeness centrality measures how quickly a node can access more nodes in a network.

Degree of Activeness: This is a measure of direct relationships of a node to the most active node in the network.

Degree of centrality: This is the number of direct relationships of a node in the network.

Edges: These are the conversation ties (social links) that link up the nodes together in a conversation network.

EVD Conversation: This is a spontaneous knowledge sharing on EVD or interactions of EVD knowledge among healthcare practitioners who engage in one or more shared concepts with the aim of achieving an outcome.

EVD Knowledgse Sharing: This is an act of communicating EVD knowledge among healthcare practitioners in formal and informal health care setting.

EVD Newsposts: These are news on EVD that are posted on the network by various stakeholders in EVD control, including the healthcare practitioners.

Healthcare Practitioners: Professionals that provide preventive, curative, promotional or rehabilitative healthcare services in a systematic way to people, families or communities like medical doctors, nurses, pharmacists, lab technicians, etc.

Inflential HCPs: These are HCPs who initiate and control the flow of knowledge within the network and are in position of power to influence the type of knowledge shared among HCPs on the network.

Knowledge: This is an adequate understanding of facts, concepts and basic foundation required by healthcare practitioners in order to perform a task as well as demonstrate best practices.

Knowledge Sharing Behaviours: These are various activities involved in knowledge sharing among healthcare practitioners on a particular concept as Ebola virus disease. This is an extent to which participants depict a concept when engaged in knowledge sharing.

Level of Influence: This is a measure of how central a node is to the network. It is also known as c*oreness* of nodes.

Level of Interaction: This is a measure of *betweenness* of a particular node within a network while connecting to other nodes in the network. Betweenness identifies an entity's position within a network of HCP in terms of its ability to make connections to other pairs or groups in a network.

Medscape: This is an online global forum for healthcare practitioners and consumers alike which offers latest medical news with expert perspectives and advice. It also offers essential point-of-care; disease and drug information including a drug database and drug interaction checker.

Memory: Representation of the collective opinions of participants in a conversational network which constitutes the knowledge the participants has about the concepts being discussed.

Node: The node represents the actors, participants, or members such as healthcare practitioners in a conversation. It also represents the threads, or the subject matter discussed in a conversation.

Participation Behaviours of Healthcare Practitioners of Different Professions: This highlights the propensity for knowledge sharing to provide insight among HCPs in different medical specialities. This reveals how conversations on the social network is dominated or not by various HCP professionals and how.

Response rate: This is a measure of how the HCPs respond to EVD news posts on the network including: total number of HCP who responded to EVD news post overall number of 'likes' made on the comments of HCP with respect to each EVD news post, and how quickly the HCPs responded to the news post which is determined by the average time interval between the date of a post and the dates of the associated responses for each post.

Social Network Analysis (SNA): This is a measure of relationships and flows between people, groups, organisations, computers, and other connected knowledge entities.

Social Network: This is a system where individuals such as healthcare practitioners, groups, organisations are commonly linked together with the aim of sharing values, visions, and ideas in order to achieve a purpose or to meet an objective.

Topic: Set of relations or subject matters being discussed in order to solve a particular problem.

Topics of Interest: Set of relations or subject matters that are of interest to the participants of knowledge sharing which are discussed in order to solve a particular problem.

Topic Taxonomy: These are the identified and labelled EVD news topic themes or shared knowledge elements within a set of news posts.

CHAPTER TWO

LITERATURE REVIEW

The chapter presented a review and critique of concepts, viewpoints and empirical studies on knowledge sharing on health issues on the online social networks. The theoretical perspectives and models of relevance to the study were also discussed. This provided the foundations for the proposed conceptual model of the study.

2.1 Concepts of Conversation and Knowledge

Conversation has been conceptualised by many scholars such as Pask (1962); Thursby, Thursby, Haeussler and Jiang (2018) as an element of knowledge sharing in a formalised environment/setting. According to Lin, Lee and Wang (2012), conversation is an act of communicating one's, and other people's ideas, opinions and imaginations. Earliest studies on conversation were from the field of communication and they posited that conversation obtains typically in spoken communication (Wong and Waring, 2020). However, ritualised exchanges such as greetings or orders from bosses to subordinates, and similar others, as well as interactions based on tightly focused topic or purposes, are not considered as conversation (Carter, and McCarthy, 2017). On the other hand, conversation occurs when different individuals and sources hold different information and knowledge pertaining to a certain problem, and a more complete knowledge required to solve that problem is developed by teasing together the information from different persons and sources (Gilbert, Mullen, Kelloway, Dimoff, Teed, and McPhee, 2021). Conversation encompasses a wide range of behaviours involving interchange of knowledge, ideas, experiences among people in a formalised settings or community of practise (Thursby, *et al.,* 2018; Haeussler, 2011; Vilar, 2012; Haeussler, *et al.,* 2014). Conversation occurs among parties in order to create and develop efficient knowledge to meet information needs. Knowledge is created and exchanged through interaction and spontaneous exchange between two or among more people, otherwise known as conversation.

Knowledge has been conceptualised by many philosophers since the classical Greek era which has accounted for many epistemological debates (Leidner, Alavi and Kayworth, 2010). Hence, many researchers have used diverse expressions to define knowledge. For instance, Nonaka (1994) conceptualised knowledge as "justified true belief". Tian (2017) defined knowledge as "stock of expertise" and as adequate understanding of facts, concepts, and their relationship and basic foundation required by an individual in order to perform a task. Knowledge is multifaceted and multi-layered, covering various aspects of human experiences. However, in order to understand what knowledge is, it may be helpful to first make a discrepancy between data, information, and knowledge. Tian (2017) noted that defining data, information, and knowledge is difficult but can be achievable from user's perspective.

Kołodziej and Khan (2013) defined data as the combination of words, sounds and figures without some contextual details and could result from some survey in the form of raw numbers, or some assumptions in form of words. Data is meaningless except to the person who originates it, whereas information is structured and so, meaning can be inferred from it. Also, Swart and Powell (2010) observed that data and information are different from knowledge primarily due to the absence or presence of context, meaning, and action. Tian (2017) contented that information and knowledge are differentiated based on the "interpretation". Leidner, Alavi, and Kayworth (2010) in differentiating information from knowledge noted that the key to distinguish between information and knowledge is not found in the content, structure, accuracy or utility of the supposed information or knowledge rather it is found in the minds of individuals. Knowledge is personalised information possessed in the minds of individuals which may or may not be new, unique, useful, or accurate as it relates to facts, procedures, concepts, interpretations, ideas, observations, and judgments.

Knowledge has a relative meaning which is largely dependent on the context, that is, it is context specific. Davenport and Prusak (2018) on the other hand defined knowledge as a 'fluid mix' of framed experience, values, contextual information, and expert insights that provide a framework for evaluating and incorporating new experiences and information. It often becomes embedded not only in documents or repositories but also in the organisational routines, processes, practices, and norms. Davenport and Prusak placed

more emphasis on experiential knowledge. This kind of knowledge is very important in organisational processes because it is the knowledge domain of experts in a particular field. Often, experts leverage on experience in order to carry out tasks effectively and efficiently.

Similarly, Leidner, Alavi, and Kayworth (2010) defined knowledge as a justified personal belief that increases an individual's capacity to act. This implies that for an individual to take an action, information is converted to knowledge based on the individual's understanding and interpretation of such information. In addition, Kołodziej and Khan (2013) stated that knowledge can be experience or information being communicated and shared. Arguably, this definition is incomplete because even though knowledge is an experience or information that can be communicated and shared, it should also incorporate the rules of application. Information is not knowledge until it is used to solve practical problem(s) or take actions. This is what differentiates knowledge from information which aligned with Elliott and O'Dell's definition of Knowledge. Hislop (2013) supported this assertion that knowledge can be understood to emerge from the application, analysis and productive use of data and/or information.

Data, information, and knowledge are interrelated. Data and information are useless if they cannot be applied. In order to extract value from data and information, some relevant and appropriate level of knowledge is needed (Tow and Kim, 2017). Consequently, data and information are useful only when they are applied or used to make practical decisions. Tow and Kim (2017) noted that data and information serve as building blocks for creating new knowledge. This connotes that data and information are the foundation upon which knowledge is built. Zheng, Yang, and McLean (2010) added that knowledge is a social construct with three facets which are: the reality through mental correspondence, personal experience and emotional affection with outside objects and situations. This definition of knowledge has three implications. First, knowledge can only be demonstrated as human beings' understanding of reality. Therefore, knowledge as a social construct does not exist in certain static state, and it is the outcome of the interaction between human beings and the outside world. Second, knowledge is learned and accumulated through personal and social life experiences. Third, there are at least

three channels that link an individual's inner state to outside reality: mental, behavioural and emotional processes.

The definition of knowledge according to Zheng, *et al* (2010), focused more on tacit knowledge which is very important for sustaining any organisation. This definition of knowledge has to do with what is in existence. When people interact or exchange views, what is conceived as knowledge is created and exchanged in the process. A major oversight of Zheng, *et al'*s definition is neglecting the fact that the use of language by people can also limit the understanding of what reality means because it is not every form of knowledge that can be captured by language especially when it involves translation from one language to another. Horvat, Sharma, and Bobek (2016) viewed knowledge as a social creation emerging at the interface between people and information and especially communities engaged in communication, knowledge creation, and knowledge sharing and learning. Hence, interaction is the central theme here. Horvat, Sharma, and Bobek's definition was argued by Elogie and Asemota (2013) as they opined that knowledge in this context is largely defining information. They supported their argument on the grounds that until information is used or applied to solve problems, it remains information regardless of being communicated or not. However, most scholars of online social media interaction use these two concepts interchangeably while making emphases on behavioural issues on online social network.

Schultze and Leidner (2012) had a contrary view of knowledge as they claimed that most of the research on knowledge management assume that knowledge has positive implications for organisations or sectors. They noted that knowledge is a double-edged sword: while too little might result in expensive mistakes or inefficiencies, too much might result in unwanted accountability which could be counterproductive. This position is relative as there are no clear indications of what will mean too much or too little information. In fact, it is believed that the more the knowledge base of an organisation, as well as inflow of knowledge, the better placed the organisation or sector in terms of satisfying the needs of the stakeholders. However, in this study, knowledge was conceptualised as a social creation emerging at the interface between people and information among communities engaged in communication, knowledge creation,

knowledge sharing and learning. This is because the study dealt with interaction existing on the online social network on a particular concept among healthcare practitioners.

2.1.1 Knowledge Types

Most scholars of knowledge management have classified knowledge into two: tacit and explicit knowledge (Polanyi, 1966; Nonaka, 1994; Ajiferuke, 2011; Leidner, *et al.* 2010; Olatokun and Nwafor, 2012; Hislop, 2013; Tow and Kim, 2017). Polanyi (1966) was the first to introduce and define the term tacit knowledge. He referred this as knowledge that is very hard to communicate or share and is personal. Tacit knowledge is created through personal experience and rooted in actions. Nonaka (1994) explained that tacit knowledge comprises both cognitive and technical elements while Leidner, *et al.* (2010) added that the cognitive element refers to an individual's mental models consisting of mental maps, beliefs, paradigms and viewpoints and the technical element consists of concrete know-how, crafts and skills that apply to a specific context. Ajiferuke (2011) referred tacit knowledge as know-how, skills, or expertise. This form of knowledge allows the creation of ideas which contribute to innovation (Olatokun and Nwafor, 2012). Thite (2011) explained that tacit knowledge has a cognitive dimension, and includes our intuitions, guts feelings, values, beliefs, and mental models that we ourselves may not be aware of. Tacit knowledge is a past experience that occurred in an individual's mind without being aware of its existence.

Kołodziej and Khan (2013) confirmed that tacit knowledge is a form of knowledge which resides in peoples' mind and cannot easily be transferred, shared and understood. It could also be referred to as experiential knowledge that is, something acquired from experience. They also stated that since tacit knowledge is personal, it requires training, drawings, practical demonstration, interaction, dialogue for sharing and learning. Even though Hafeez and Abdelmeguid (2010) observed that tacit knowledge is the most valuable form of knowledge, organisations are struggling to discover how to motivate people to share it. This may be because since it is not easy to imitate, organisations can use it to build on their core competencies and use it to bring about innovation. However, since tacit knowledge is subjective and resides inside one's head, it is therefore difficult to communicate, comprehend and quantify. Kołodziej and Khan (2013) noted that tacit knowledge is difficult to store electronically because it is embedded in human minds. That

is, it is intuitive. Wipawayangkool and Teng (2016) corroborated and noted that tacit knowledge is difficult to articulate through a formal use of language.

On the other hand, explicit knowledge is a form of knowledge that can be codified, shared, easily understood and is context independent. This then refers to codified knowledge available in books, documents, manuals, figures, maps, diagrams (Polanyi, 1966; Nonaka, 1994; Ajiferuke, 2011; Hislop, 2013; Kołodziej and Khan, 2013 and Wipawayangkool and Teng, 2016). Explicit knowledge is documented, and everyone can take benefit of it (Elogie and Asemota, 2013). This implies that it can be made available to the public through ICTs. Stephen, Mary, Oluremi, Ayodele, and William (2018) viewed explicit knowledge as a form of knowledge that is completely transmissible. Individuals are consciously aware of its creation and usage and they are aware of its existence. For instance, HCP elicit both tacit and explicit knowledge in their expertise. They need to share knowledge, apply both experiential and acquired skill in performing their duties. These conditions make HCP an excellent profession to use as the basis for this study.

Griffith, Sawyer, and Neale (2013) conceived the third type of knowledge known as implicit knowledge. They claimed that it is somewhat between tacit and explicit knowledge. This implied that it is not entirely tacit or can be fully expressed as explicit knowledge. Language is used to transform tacit knowledge into implicit knowledge before it becomes explicit knowledge. On the contrary, a growing number of scholars have questioned the suggested dichotomy between tacit and explicit knowledge. They have instead suggested that tacit and explicit knowledge are inseparable and mutually constituted (Elogie and Asemota, 2013; Wipawayangkool and Teng, 2016). Tian (2017) explained that for an innovation to take place in an organisation or within a sector there has to be a symbiotic relationship between tacit and explicit knowledge.

Table 2.1 provided a summary of various classifications/types of knowledge that have been mentioned by various scholars. Although most scholars (Elogie and Asemota, 2013; Wipawayangkool and Teng, 2016) of knowledge management (KM) believed that knowledge is largely classified into two types (tacit and explicit) with Griffith *et al.* (2013) adding a third type, which is implicit knowledge, and can still be broken down into individual, social, declarative, conditional, relational, pragmatic, causal and relational types. All these are explained in Table 2.1.

Table 2.1: Knowledge Classification and Examples

Knowledge classification		**Definitions**	**Examples**
Tacit		Knowledge rooted in actions, experience, and involvement in specific contexts	Best means of dealing with a specific illness.
Explicit		Articulated, generalised knowledge.	Knowledge of various health challenges in a region.
Implicit	Individual	Created by and inherent in the individual.	Insights gained from health research
	Social	Created by and inherent in collective actions of a group.	Norms for inter-group communication.
	Declarative	Know-about	What therapy is appropriate for a particular illness?
	Procedural	Know-how	How to implement an information systems plan.
	Causal	Know-why	Understanding why an information systems project failed to achieve its objectives.
	Conditional	Know-when	Understanding when to do systems analysis and implementation
	Relational	Know-with	Understanding how a module of an information system interacts with other components of the system.
	Pragmatic	Useful knowledge for an organisation	Diseases and drug information, drug database, drug interaction checker, medical journal articles

Source: Adapted from Elogie and Asemota (2013)

2.2 Knowledge Sharing

Knowledge sharing (KS) encompasses a wide range of behaviours which result in the exchange of knowledge from one person to another (Lin *et al.,* 2009, Thursby *et al.,* 2018; Haeussler, 2011; Vilar, 2012). According to Abidi (2013), knowledge sharing is a systematically planned and managed activity involving a group of like-minded individuals engaged in sharing their knowledge resources, insights, and experiences for a defined objective. Haeussler, *et al.,* (2014) were more specific when they described knowledge sharing as an interaction culture that involves the exchange of what one knows and wishes to share, and experiences and skills. Knowledge sharing is about communicating knowledge among members of a group of people. The group may consist of members engaged in a formal institution, for instance, among professionals who belong to an association or among colleagues in a workplace, or informal, for example, among friends (Elogie, 2010).

Olatokun and Elueze (2013) stated that knowledge sharing is basically the act of making knowledge available to others within the organisation. The process of knowledge sharing, according to Van den Hooff and De Ridder (2014), consists of receiving, organising and transfer of knowledge from one person to another. Knowledge sharing can greatly improve work-quality, decision-making skills, problem-solving efficiency as well as a competency that will benefit the organisation at large (Syed-Ikhsan, 2014; Yang and Chen, 2017). Yang and Chen (2017) for instance, noted that KS consists of both the supply of new knowledge and the demand for new knowledge while Van den Hooff and De Ridder (2014) described KS as the process where individuals mutually share their (tacit and explicit) knowledge and jointly create new knowledge. This definition implied that every knowledge sharing consists of either bringing (or donating) knowledge and getting (or collecting knowledge). KS is a multi-dimensional activity and thus involves several contextual, cognitive, and communicative skills (Widden-Wulff and Ginman, 2014). Weggeman (2010) distinguished between a knowledge source and a knowledge receiver in KS processes, and Oldenkamp (2012) discussed how KS involves both a knowledge carrier and a knowledge requester. Van den Hooff and De Ridder (2014) stated that two central behaviours identified in knowledge sharing are as follows: (a) knowledge

donating, communicating one's personal intellectual capital to others; and (b) knowledge collecting, consulting others to get them to share their intellectual capital.

Cheng, Ho, and Lau (2018) found that there are two non-exclusive ways of knowledge sharing, i.e. closed-network sharing (person-to-person sharing) and open-network sharing (sharing through a central open repository). In the closed sharing model, an individual has the freedom to decide on the mode of exchanging and choose partners to share knowledge with. This type of interaction allows more personal touch and more directed sharing is expected. Many factors would explain the success of activity in knowledge sharing in this model, including personal relationship and trust. On the other hand, the open-network sharing refers to knowledge sharing among members of a group through knowledge repository, typically a central database system. It involves multiple individuals sharing with multiple knowledge repositories in the system. Knowledge repository in this form of sharing carries the characteristics of a public good (Muller *et al.*, 2005), thus insufficient voluntary sharing is anticipated. Open-network sharing is widely adopted in organisations to share organisational knowledge. The intensity and effectiveness of knowledge sharing through open network largely depend on the friendliness of the ICT system created, the incentive system as well as the organisational culture of the institution (Cheng *et al.*, 2018). Hsu (2006) in an effort to classify the different approaches used in literature to promote knowledge sharing summarised them into three approaches. The first approach is called 'tool-based'. The second approach is called 'incentive-based'. A third approach is an integrated approach which considers not only management values, organisational culture but also processes and structure to promote knowledge sharing. This third approach supports knowledge sharing in a virtual environment.

Much of knowledge sharing today occur in virtual environments. For example, Medscape social network is used for knowledge sharing among healthcare practitioners. Knowledge may also be shared in the context of incidental knowledge acquisition, because the knowledge acquired may be forwarded to others in form of news. Knowledge sharing based on these motives has much in common with "knowledge acquisition by proxy" identified by McKenzie (2014). That is, knowledge acquired without seeking since someone else shares it with others on their own initiative. In a survey on the activities of

university students engaged in knowledge sharing on the web, Laurillard (2013) found that the most frequently used methods of knowledge sharing were writing and forwarding of messages in the e-mail. Knowledge sharing was also carried out by copying and pasting a Uniform Resource Locator (URL) hyperlink to share knowledge in an email message. As to knowledge content, the students most often shared entertainment and personal knowledge; work or study related knowledge was also shared. However, the overall findings of the study suggested that the internet provides an instantaneous and effortless tool for knowledge sharing.

The advent of internet has amplified the possibilities of knowledge sharing of individuals which healthcare practitioners are not exceptional (Java, Song, Finin, and Tseng, 2018). As a result, many people use chat and instant message programme to share knowledge with friends, colleagues, and family. People now rely on online services such as Twitter, Facebook, MySpace, professional network, customised network, blog or social networks to share knowledge with the internet community (Laurillard, 2013). Online forum can be dated back to early 1980s, when some web versions such as vBulletin boards and Usenet newsgroups were established (Savolainen, 2011a, b). Essentially, these are web applications designed to manage user-generated content (vBulletin Community Forum, 2010). Literature indicated that an increasing number of people engage on online forum, either as active participants or silent observers (Nicholas, Huntington, Jamali and Williams, 2016). This is because such forums can help in knowledge sharing, problem solving, and provision of mutual support and empathy; in addition, such arenas are usually not discriminatory.

a. SECI Model of Knowledge Sharing

The Socialisation, Externalisation, Combination, and Internalisation (SECI) model was developed by Nonaka and Takeuchi in 1995 to explain how knowledge can be created and shared through a dynamic interaction between tacit and explicit knowledge. As shown in Figure 2.1, Nonaka and Takeuchi's knowledge sharing model, also called SECI model, presents four continuous but inter-related processes for knowledge sharing from tacit into explicit knowledge and vice versa. These four processes progress from socialisation through externalisation, combination, and internalisation, and back to socialisation in a spiral fashion.

(A) Socialisation depicts processes for knowledge sharing from tacit knowledge into a tacit form, involving the creation and exchange of new knowledge through shared experiences, hands-on experience, understanding, partaking in a casual social gathering.

(B) Externalisation shows processes for knowledge sharing from tacit knowledge to an explicit form, including solidifying and articulating tacit knowledge into explicit knowledge.

(C) Combination is the process of knowledge sharing from explicit knowledge into other organized explicit knowledge.

(D) Internalisation depicts knowledge sharing from explicit knowledge into tacit knowledge through reading explicit materials, reflecting upon, applying, and practising that accumulated knowledge in context.

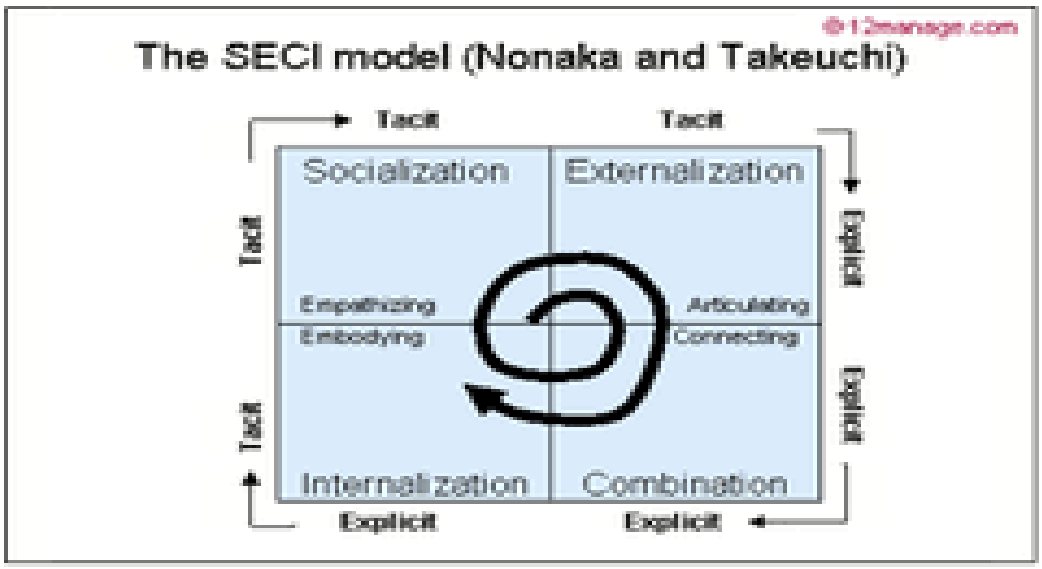


Figure 2.1: SECI model (Adapted from Nonaka, Toyama, and Konno, 2000)

The SECI model has been criticised by some authors who argued that the model is incomplete as a process of knowledge sharing. For example, Elogie and Asemota (2013) argued that knowledge sharing is more sophisticated than that posited by the SECI model and that knowledge types could be more than just tacit and explicit. In addition, Gourlay (2016) argued that some of the processes and examples mentioned in the SECI model are ambiguous and not supported by enough evidence. Furthermore, the model did not cover inherently tacit knowledge, a type of tacit knowledge that is not completely expressible. Firestone and McElroy (2015) believed that Nonaka and Takeuchi oversimplified knowledge conversions in their model.

Despite these criticisms, the SECI model is still the most popular and often cited model in the KM and Information System (IS) literature (Panahi, 2014). The SECI model discusses the processes of knowledge sharing in more detail than other knowledge management frameworks. However, other studies seem to replicate the SECI model's arguments. Hence, this model was considered important for the purpose of this study as it was deployed as a guide for further analyses and interpretations of findings of the study; thus, assisting in building knowledge taxonomy of EVD among HCP on online social network. According to Pellini, and Jones (2011), knowledge taxonomy is an integral part of the knowledge management strategy which focuses on enabling the efficient retrieval and sharing of knowledge, information and data across an organisation or community of practice. In this study, a knowledge taxonomy on EVD news/topics was developed to enhance efficient retrieval and sharing of EVD knowledge through HCP on online network.

b. Leveraging Internet for Knowledge Sharing (LINKS) Analysis Model

The Leveraging Internet for Knowledge Sharing **(**LINKS) analysis model, developed by Abidi Syed Sibte Raza in 2007, provided a conceptual model to help establish online communities of practice for specialised knowledge sharing using web 2.0 tools (Abidi, 2007). The LINKS model identified the key determinants of an online knowledge sharing environment in order to systematically conceptualise and implement a purposeful health knowledge sharing environment for an online community of practice. The LINKS model characterised healthcare knowledge sharing solutions at three interrelated levels: Conceptual, operational and compliance. The conceptual level

stratified knowledge sharing into three dimensions: the knowledge modality, the knowledge sharing context, and the knowledge sharing medium. The operational level addressed technical infrastructure issues pertaining to establishing a culture of collaboration between the stakeholders. The compliance level addressed the underlying issue of perceived trust in the system. The three levels were not hierarchical in nature, rather they were inter-related, and each level must be addressed in order to implement a successful knowledge sharing environment. Table 2.2 showed a summary of the LINKS model, illustrating the different levels and their constituent elements.

Table 2.2: Summary of the LINKS model

Level	Element	Description
Conceptual Level	Knowledge Modality	The knowledge modality characterised the type of knowledge being shared. Tacit, explicit, experiential and social knowledge are the key knowledge modalities that are typically shared through an online knowledge sharing environment
	Knowledge Sharing Context	The knowledge context aimed to define the topics being discussed, the motivation for knowledge sharing, the temporal relevance of the knowledge sharing and the orientation of the discussion stakeholders
	Knowledge Sharing Medium	The medium determined the range of methods that can be employed to share knowledge. Implementation of each medium imposes a different set of operational considerations. Examples include face-to-face environments, virtual meeting tools, synchronous and asynchronous messaging systems, et cetera.
Operational Level	Technical Infrastructure	The technical infrastructure characterised the technologies and strategies to be used to develop and deploy the knowledge sharing environment. It was imperative that the technical implementation of the project adequately addressed the conceptual level, in order to ensure maximum trust and engagement in the system.
	Culture of Collaboration	The culture of collaboration defined the ecosystem in which the online community of practice engages, collaborates and perpetuates knowledge sharing. Different community members have different levels of expertise, expectations, and experiences, and the community must be designed to facilitate knowledge sharing between these different members.
Compliance Level	Trust	A community of practice engaged and shared knowledge when there is sufficient degree of trust in (a) the veracity of the knowledge being explicated and shared; and (b) the pedigree of the member who is explicating and sharing knowledge. The aim of the compliance level is to institute mechanisms to establish trust in the knowledge sharing exercise so that the community engages in a free flow of knowledge sharing. In addition, for individuals to freely share knowledge there is need to instil trust in the eventual use of the knowledge, i.e., that the knowledge will be used for the right purposes and in the right manner

Source: Adapted from Stewart and Abidi (2013)

The three key variables of the LINKS model adapted in this study were directing information with respect to the knowledge sharing context of the healthcare practitioners, knowledge modality and culture of collaboration among healthcare practitioners. The study investigated the knowledge context of HCP using isolate detection. The isolate detection will identify the comments of healthcare practitioners that were within the context of their conversation, the concepts (topics) of knowledge sharing of HCP that were not responded to and determine what could be the cause of the lack of engagement (not being responded to).

2.2.1 Knowledge Sharing Behaviour

Conceptually, Hau, Kim, Lee, and Kim (2013) defined knowledge sharing behaviour (KSB) as the extent to which a person performs knowledge sharing. Forms of KS can be numerous following the understanding on the knowledge itself. Knowledge can be understood as either an individual asset or an organisational asset. KSB describes the factors that affect participant's knowledge sharing in relation to the knowledge he or she acquires. This is an extent to which participants depict a concept when engaged in knowledge sharing. There is also the understanding that knowledge is deeply constrained by one's personal interest observable in behaviour over an action during conversation. Generally, though, as people differ in the way they conceptualise issues, there is a tendency of not achieving the goal of conversation although some content is created. These differences which lead to misconceptualisation or misinterpretation of knowledge are highly observed when there is disagreement between participants in a knowledge sharing.

According to Leung (2008), concept, participants, memory constitutes knowledge sharing behaviour among people and these are observable in the language use, topic, commitment, and understanding as well as feedback derived from the conversation. Guo, Palmer-Brown and Lee Cai (2014) suggested that feedback enhances effective knowledge sharing. Also, Heinze, Procter, and Scott (2017) suggested that feedback is one of the most important indicators of good education. Wiener (1948) used the notion of feedback in cybernetics and added that knowledge sharing as feedback results to acquisition, use, retention and transmission of information as well as generation of further knowledge creation.

2.2.2 Knowledge Sharing Behaviour Factors

Several factors may affect knowledge sharing behaviour. Personal factors, like identification as experts in the relevant fields of study, group identity, and self-esteem are important considerations determining the passion to share knowledge (Evans, 2013). According to Kołodziej and Khan (2013), not all knowledge can be shared. The type and the amount of knowledge shared depend upon the estimation of the knowledge value to everyone, that is the perceived knowledge value (Lankes, Silverstein, and Nicholson, 2017). It also depends on the availability and extent of intellectual property protection for knowledge sharing activities. The fears that one might receive unfair recognition and accreditation, plus the risks of one's intellectual property being stolen, are some of the key reasons that discourage knowledge sharing activities (Riege, 2005).

One important factor in knowledge sharing is trust (Hislop, 2013). When there is lack of trust, whether it is regarding the way others will use the knowledge shared or the reliability of the knowledge resource, there is uncertainty and risk which can lead to unwillingness to share knowledge. On the other hand, when there is trust amongst individuals, there are no inhibitions to knowledge sharing. Technology is an important mediating factor in knowledge sharing because it provides access to a large volume of information and enables collaboration with teams that are geographically dispersed. The intervention of ICT is inevitably important as a tool for a successful knowledge management implementation (Tian, 2017). However, ICT functions as a platform for knowledge sharing is by itself insufficient to encourage knowledge sharing. Evans (2013) observed that the role of ICT for knowledge sharing can only be fully understood if it is related to the motivation for knowledge sharing. Brazelton and Gorry (2003) had exposed the idea that technology alone may not effectively encourage knowledge sharing activities. Kim and Jarvenpaa (2018) identified the importance of the existing relationship between communicating parties as a formula to shape technological-enabled-information activities. This is in line with Pask's conversation theory (CT) which was built on human-technological device to aid knowledge sharing between human-human or human-machine (Pask, 1975).

Stewart and Abidi (2012) considered community of practice in evaluating the knowledge sharing behaviour of practitioners in a clinical online discussion forum.

Similar to CT, a community of practice has 3 dimensions. Firstly, the domain which is the area of interest defined by the group. Secondly, the community is the individuals with a common interest to learn from one another. Thirdly, the practice is what the community members are striving to improve, taking the knowledge they glean from the community and putting it to use in their everyday activities. Monetary incentives and rewards are other key factors cited most frequently (Dube, and Ngulube, 2012; Evans 2013; Haeussler, *et al.*, 2014). Knowledge sharing is a costly activity unless the perceived benefits exceed the costs of sharing knowledge; knowledge sharing is hard to realise (Elogie, 2010).

In addition to incentives and rewards, organisational culture and leadership have a significant impact on the intensity of knowledge sharing too (Cheng, *et al.,* 2018). Bureaucracy and hierarchical level in an organisation, diversity of knowledge sharing team, team cohesiveness**,** and the fear that others will use the knowledge against them have also influenced the motivation to share (Dube, and Ngulube, 2012; Evans 2013).

Empirically, Mannan, Bakri, and Shaari (2017) investigated the factors affecting medical bloggers' knowledge sharing behaviour. Enjoyment in helping others and reputation were found to have significant direct effect on knowledge sharing, while encouragement by others, identification, and interaction ties showed no significant direct effect. More recently, Savolainen (2010) examined how dietary blogs were used in knowledge sharing. The study drew on the analysis of a sample of eight Finnish blogs. Findings showed that about 63% of the postings solicited support of some kind: the readers commenting on the bloggers' postings primarily offered informational support, esteem support, and emotional support. About 65% of the conversations provided support of various kinds. The bloggers mainly solicited emotionally oriented support by describing problems faced in the dieting efforts and reporting experiences of personal success. However, blogs do not primarily create knowledge since the main emphasis was laid on the sharing of experiences and opinions. The finding suggested that the blogs primarily served the ends of knowledge sharing, while they are less frequently used to source for knowledge from other contributors.

Hansen (2009) analysed the conversation reuse in an online technical support community. Findings revealed that successful conversations had the same characteristics, such as highly personal, immediate, and socially engaging. The study identified several

important characteristics that had implications for the reuse of postings: The discussion was shaped by the immediate and highly personalised information needs of requestors; postings on comments, techniques, and resources of general interest, as well as social exchanges; questions and replies often include links to outside resources (Hansen, 2009). These characteristics identified could inform virtual communities on improving their sustainability.

2.2.3 Knowledge Sharing on Health Issues on Online Social Network

Empirical studies have also revealed the role of online forums in varieties of health-related areas such as maternity care, cancer, diabetes, infertility, binge eating disorder, social phobia, and depression (Owen, Boxley, Goldstein, Lee, Breen and Rowland, 2010). For instance, Schoch and White (2016) examined the interactions in two listservs, one dealing with a chronic illness (diabetes type 1), and the other with a more acute disease (colon cancer). Data consisted of 1,000 messages from each list randomly selected in 1996. The study showed that questions indicating information needs accounted for 26 to 28% of all messages on the lists. Answers to questions or opinions concerning them were more general since 91% of the entire messages accounted for Colon list and 97% for Diabetic list (Schoch and White, 2016). This suggests that electronic lists function as sources of information as well as forums where knowledge sharing takes place.

A study by Loader, Muncer, Burrows, Pleace, and Nettleton (2013) in the use of a Usenet newsgroup on diabetes revealed that most messages provided informational support by specifying individual case histories and diet-related issues. In addition, the newsgroup served the ends of social companionship support and self-esteem support, that is, encouragement and attempts to strengthen the poster’s spirits.

In a study that focused on 30 discussion threads from the Usenet newsgroups in the field of nutritional matters, (Case and Given, 2016) found that about 13% of all postings entailed direct requests for information. A handful of persons were especially active in passing on advice and references. The information providers drew heavily on Web sources since they constituted about 80% of the cited sources. The participants relied strongly on full-text scientific journals available on the web, whereas the printed publications cited were mostly diet books.

Bai, Yao, and Dou (2015) found that within a computer-mediated support group for people dwelling with irritable bowel syndrome, informational support was most frequently provided. Chung (2014) explored how cancer survivors offer support on cancer-related internet mailing lists. The most common kind of support was information and advice based on the experience of survivors. Four major themes were associated with survivors' offers of information and advice: specific treatments; communicating with health care providers to find the best treatment; problem management strategies; and coping with cancer recurrence. Explicit emotional support was less frequent than informational support. In general, the seekers reported that they were looking for both informational and emotional support.

Eichhorn (2011) investigated the top five Yahoo! eating disorder support groups by drawing on a sample of 490 postings. The type of social support provided and the strategies used to solicit social support were analysed. About 54% of the messages posted solicited some type of social support, while about 56% provided some type of support. Out of the messages that solicited support, 25% requested for information. Out of the messages, about 30% provided informational support. Erfani, Abedin, and Blount (2017) investigated online supportive interactions within a psychosis social support group in Taiwan. The findings indicated that the most exchanged support types were information and network links.

Brewer, and Piper (2016) showed that cancer patients and companions found blogging activity to be most helpful for emotion and knowledge sharing, followed by problem-solving and prevention and care. Findings indicated that blogs function primarily as tools for emotion management and knowledge sharing rather than tools for problem-solving or prevention and care. In addition, cancer patients and their companions reported that they gain knowledge through their blogging activities and found the knowledge to be satisfactory.

Eysenbach, Powell, Englesakis, Rizo, Stern (2016) found 24,000 health-related discussion groups within Yahoo groups alone in 2004. The study attempted to review the efficacy of discussion forums as a medical intervention but found a dearth of quality papers. The study found 45 papers representing 38 studies, of which only 6 studied internet-based interventions as the primary focus of the project. One of the conclusions

was that there was no robust evidence that online knowledge sharing impacted health outcomes, but that there were clear health benefits when seeking information from online social network. One of the major findings of Eysenbach, *et al.*, (2016) was that virtual communities succeed when there is an intrinsic desire to communicate and share knowledge among participants on the network. This corresponded with other studies on online knowledge sharing which highlighted that effective online knowledge sharing is dependent on the ability of the participants to critically interpret post, respond to post and conversations on the network.

On the contrary, McLeod, MacRae, McKenzie, Victor and Brasel (2010) compared online journal clubs to face-face journal clubs in teaching critical appraisal skills. Finding showed a low participation rate on online journal clubs compared to face-to- face journal club since there was no explicit inducement to participate on online journal club. The rate of participation among members in a virtual community declines when there is no explicit inducement to participate and an intrinsic desire to engage in knowledge sharing.

Therefore, it was vital to find out how online forums are used in everyday contexts to enhance knowledge sharing in health-related area. Thus, the most intriguing question that motivated this study was how can knowledge sharing behaviour of healthcare practitioners in an online forum be determined? Earlier studies have focused on user-generated features of the online forum by comparing the features generated either from different online forums or from a particular online forum. This was quite different from the approach adopted in this study which aimed at evaluating the conversation pattern of healthcare practitioners on the news relating to Ebola virus disease posted in Medscape professional network using Social Network Analysis (SNA) tool. This study adopted the elements in conversation theory (CT) to understand the conversation pattern/relationship of healthcare practitioners in an online knowledge sharing network.

Similar to this study are earlier studies on applying Social Network Analysis (SNA) to understand the knowledge sharing behaviour of practitioners in a clinical online discussion forum (Stewert 2010; Stewart and Abidi, 2012). The study adopted the Leveraging Internet for Knowledge Sharing (LINKS) model to identify the key determinants of an online knowledge sharing environment, whereas this study was built on conversation theory (CT) to understand the conversational structure of HCP about

Ebola virus disease. However, this study provided a novel perspective in that it concentrated on the conversation patterns of healthcare practitioners on online knowledge sharing using the variables of CT to examine the conversational structure of HCPs. Secondly, the study contributed to the research tradition of everyday life knowledge sharing by identifying the activities of health practitioners on online knowledge sharing. This study on the subject matter was important since Ebola virus exemplified one of the most common epidemic diseases present in the world today since the year 2014 when this study was initiated.

2.3 Theoretical Frameworks

This study was guided by the Conversation theory and Social Network Theory

2.3.1 The Conversation Theory (CT)

Conversation theory (CT) was developed by Gordon Pask in 1975 based on his knowledge of theoretical study of control processes in electronic, mechanical, and biological systems known as cybernetics (Weiner, 1948). Weiner applied cybernetics in the study of communication and control in animal and machine, as well as in understanding the communication within an observer and between the observer and the environment (Weiner, 1948). The conversation theory attempts to explain learning/interaction in living organisms and machines (Pask, 1975). The fundamental idea of the theory was that interaction occurs through conversations on a subject matter which results in knowledge sharing. This conversation is obtained at different levels: natural language, object languages, and meta-languages. The level of natural language obtained during general discussion such as in sequences of concrete operation performed by P-individual in form of an informal agreement between participant A and B to engage in knowledge sharing with some specific topics in each domain. Pask conceptualised object language as a situation where people in a conversation move from general discussion to focus on a subject matter; for instance, in a general discussion within a domain called "Biology". Besides natural and object languages, Pask described the level of Meta-languages, consisting of languages that are specific to learning. Hence, human use of language during conversational interaction changes states of subject matters being

discussed. Evidently, therefore, the knowledge shared during this process will vary in scope, volume, and complexity.

Conversation theory is an applied epistemology which is of the view that in a conversational situation, there is an emergence of information/knowledge that is developed by means of a multilevel agreement-oriented exchange among participants. Pask's (1975 and 1976) conversation theory involves at least two participants, a modelling facility and at least three levels of interaction. The three levels of interaction are: interaction with a shared modelling facility, conversational interaction about how to solve a problem, and a conversation about why that method should be used.

Pask illustrated conversation theory with conversation skeleton or structure. Conversational structure is made up of horizontal connections indicating the verbal exchanges with two logical levels: the "how" and "why"; and the vertical connections highlighting the causal connections with feedback, and hierarchical processes that control or produce other processes. The universe of discourse or the modelling facility is used for instantiating or exemplifying the topic, solving problems and carrying out tasks by the participants in non-verbal commentary demonstrations which later provide a verbal commentary about "how" and "why". In conversation theory, conversational structure shows how participant (A) initiates a topic using the available resources to make a modelling move, to name it, and to explain why it is being made. Another participant (B) responds either by doing the same thing and comparing it with what A did/said or disagrees.

Pask (1975) discussed the applications of conversation theory in a medical diagnosis of thyroid disease task. In this case, the structure represents relationships between pathological conditions of the thyroid and treatment/tests. The medical students were encouraged to learn these relationships by changing the parameter values of a variable (e.g. iodine intake level). They interact with their mentors (medical doctors), asking "why" and "how" certain effects were made. They investigated the effects and made deductions from what they observed. This undercuts the current study which was based on interaction between healthcare practitioners. The healthcare practitioners engage in knowledge sharing among themselves on certain issue and make inference based on the knowledge they receive.

Other applications involve Heinze *et al.*, (2017) utilised conversation theory to understand blended learning in a part-time information technology course. An action research method was used to collect data from staff and students involved in the Bachelor of Information Technology programme at the University of Salford, United Kingdom using interviews and focus groups approach. The aim was to determine whether blended learning can be inferred using CT in part-time information course. It was found that CT has theoretical alignment with blended learning and suggested a need for amendments and enrichment of Conversational Framework in order to make the CT more applicable.

Leung (2008) also utilised CT to design blended courses using a collaborative inquiry approach for teaching and learning in McGill University of Canada. The blended course was designed from four principles derived from the key constructs of CT: conversation, concept, memory as well as participants. However, the effects of CT constructs which include language, topic, epistemological commitment, and understanding were used to formulate the criteria for assessment of the effectiveness of CT on blended course design. Leung suggested that Pask's CT provides potentially rich areas for research such as relationship between cognition and affects which lead to action and higher order thinking which emerge as a result of collaboration and epistemological commitment.

Use of CT in e-learning has also been conceptualised (Holland and Childress, 2016). Holland and Childress reviewed CT and its application to online learning using Bloom's taxonomy of educational objectives in order to show how various levels of cognition can be embedded into classroom conversation in learning. Finding revealed that CT can be utilised to capture the various levels of cognition which are used during classroom conversation on online learning. It was suggested that there is a need for further research in order to arrive at a general consensus of knowing the critical features that are most beneficial to students learning through online course dialogue. Further work was needed to implore questioning and response guideline used for training students to learn at an optimal level.

Conversation theory has also been tested with adult learners in different disciplines to determine if the theory was viable and valuable in all e-learning coursework situations. Elmendorf and Ottenhoff (2019) utilised CT in first-year biology as well as third-year Shakespearian literature student. Interestingly, findings indicated that CT's effectiveness

for adult e-learners crossed disciplines successfully and that this led to improved conversation skills, deeper learning, and formulated knowledge creation among diverse learners. Adenowo and Patel (2014) designed an Intelligent Tutoring Systems (ITS) for numerical disciplines. The research focused on software design driven by educational theories of CT and Cognitive Apprenticeship theory. These theories result to an integrated framework called an Augmented Conversation and Cognitive Apprenticeship Metamodel (ACCAM). However, the framework elicits new meanings and lays a foundation for future evaluation of a pedagogical engineering methodology.

Leung (2008) reviewed the limitations of conversation theory. Since CT originated in an experimental environment instead of everyday human interaction situation, the theory overlooks the pattern of conversation as well as the complexity of the human intentionality. The pattern of conversation includes various ways or activities involved in achieving conversation which has to do with the conversation itself, the topics being discussed, and the participants involved in the conversation. Complexity of human intentionality can be viewed as the behavioural attributes which are various activities involved in providing information, receiving information provided by other person, confirming receipt of the information, and confirming that the information is jointly understood. The theory did not consider the pragmatic context of information practices which is an act through which the information is sought, accessed and utilised which real conversations take place among human beings. Again, CT represents a highly intellectualistic approach to the processes of knowledge sharing and human learning which considers only the conceptual aspect of those processes. However, it disregards other facets of human actions such as attitudes, motivation, emotions, and feelings, confessed and concealed interests.

Attempts to model conversation can be traced to the works of Wiener (1948) who conceptualised cybernetics in his effort to understand human communication. The aim was to build a machine that could exhibit human behaviours: ‘think’, ‘learn’ and ‘communicate’. The knowledge that exists today regarding the complexity of the relationship between humans and machine was initiated by the experiments of Weiner (Pask, 1965). Weiner’s efforts were later found to be very useful during the Second World War when machines were programmed to make decisions on their own and instruct the

various parts of anti-aircraft guns to operate, based on their own “decision”. Generally, it is believed that the advancements in cybernetics are responsible for the Post-war explosion in computing machines.

Later, and based on the cybernetics framework, Pask (1975), a cybernetician and psychologist, proposed the Conversation Theory (CT). The essence of the theory was to model the nature and level of understanding that occurs when interaction takes place between living organisms and machines (Pask, 1975). Pask viewed conversation as consisting of multidirectional and multidimensional interactions among individuals who engage on one or more shared concepts with the aim of achieving an outcome such as learning or understanding. Pask showed that the level of outcome achievement among participants in a conversation will differ even when a consensus is reached. However, since the theory deals with interaction, analysing the level of interaction in the group is very crucial. This will create more insight on the applicability of the theory as suggested in earlier studies (Heinze et al, 2017; Holland and Childress, 2016, and Leung, 2008). The participants as highlighted in the theory form a network; hence the number of interactions existing between the participants, the participant with the highest number of connections and the participants that connect other participants during knowledge sharing can be derived from network analysis using centrality measures. However, social network analysis (SNA) can be used to examine the relationships existing among participants engage in knowledge sharing by focusing on centrality measures.

Pask’s theory is considered a trans-disciplinary theory that cuts across many disciplines: communication, information science, and, technology. Pask and others have extensively modelled his opinions using different scenarios (Leung, 2008; Laurillard, 2013; Thomas and Harri-Augstein, 2011; Patel, Kinshuk and Russell, 2013; Lankes, *et al.*, 2017; Scott, 2019; Ford, 2017; Chapman, 2013; Scott and Cong, 2010; Adenowo and Patel, 2014; Anderson, 2010). The results of these experiments have shown that Pask successfully complexified a hitherto simple daily-use term to show that the kernel of a conversation is covert in the knowledge shared among the participants.

From the experiments of Weiner (1948) and Pask (1978) and those that followed after, the focus of conversation theory has been on how machines communicate among themselves or with humans. Most studies that deployed CT were based on technology

modelling and learning and efficiency of machines in enhancing execution of tasks either among themselves or in concert with humans (Adenowo and Patel, 2014; Elmendorf and Ottenhoff, 2019; Heinze *et al.*, 2017; and Leung, 2008). CT has also been deployed to examine knowledge achievement in blending learning situation and collaborative learning. These studies rarely applied statistical reasoning to decipher the interrelationships among CT variables extractible from conversations or show how conversations facilitated by machines explain human knowledge sharing using the SNA tool. Specifically, what were the key concepts, outcomes, and understanding gained by the healthcare practitioners engaged in conversations being necessitated by the EVD crisis? Technically, to what extent did the CT constructs of concepts, participants, and conversation explained the healthcare knowledge sharing by the healthcare practitioners about EVD in the virtual space?

2.3.2 Social Network Theory

Social network theory is a theory used for mapping and measuring relationships and flows between people, groups, organisations, computers, and other connected information/knowledge entities using Social Network Analysis (SNA). Social network theory was developed by Wasserman Stanley in 1994. The SN theory was developed on the principles of graph theory to study the relations between actors, and how they influence the overall network (Wasserman, 1994). Social network theory focuses on relationships between social entities. It is an interdisciplinary tool which has widely been used in the social and behavioural sciences, as well as in political science, economics, organisational science, and industrial engineering (Abidi *et al.,* 2009). SN provides both a visual and mathematical analysis of human relationships. Unlike other social science theories, SN theory relates directly with the actors, whereas other social tools analyse the attitude of the actors. The main components of SN include the nodes and the edge. The node represents the actors, participants, or members in a conversation. It also represents the threads, or the subject matters discussed in a conversation while the edges are the conversation ties that link up the nodes together (Wasserman, 1994). A node can also represent attributes of member in a conversation which can be measured to define that particular member such as name, place of work, area of specialty and a person's comments.

There are two types of network modes in SN; a 2-mode network and 1-mode network. A 2-mode network has 2 classes of nodes that are linked together with an edge. For instance, the 2 classes can be the discussion forum members, and the threads they communicate on, linked together with an edge. The edge indicates that a specific member has communicated on a specific thread. A 1-mode network is created from the discussion forum members, in which a tie between 2 members indicates that they have communicated on a thread, and the value of the tie is the number of threads they have both communicated on.

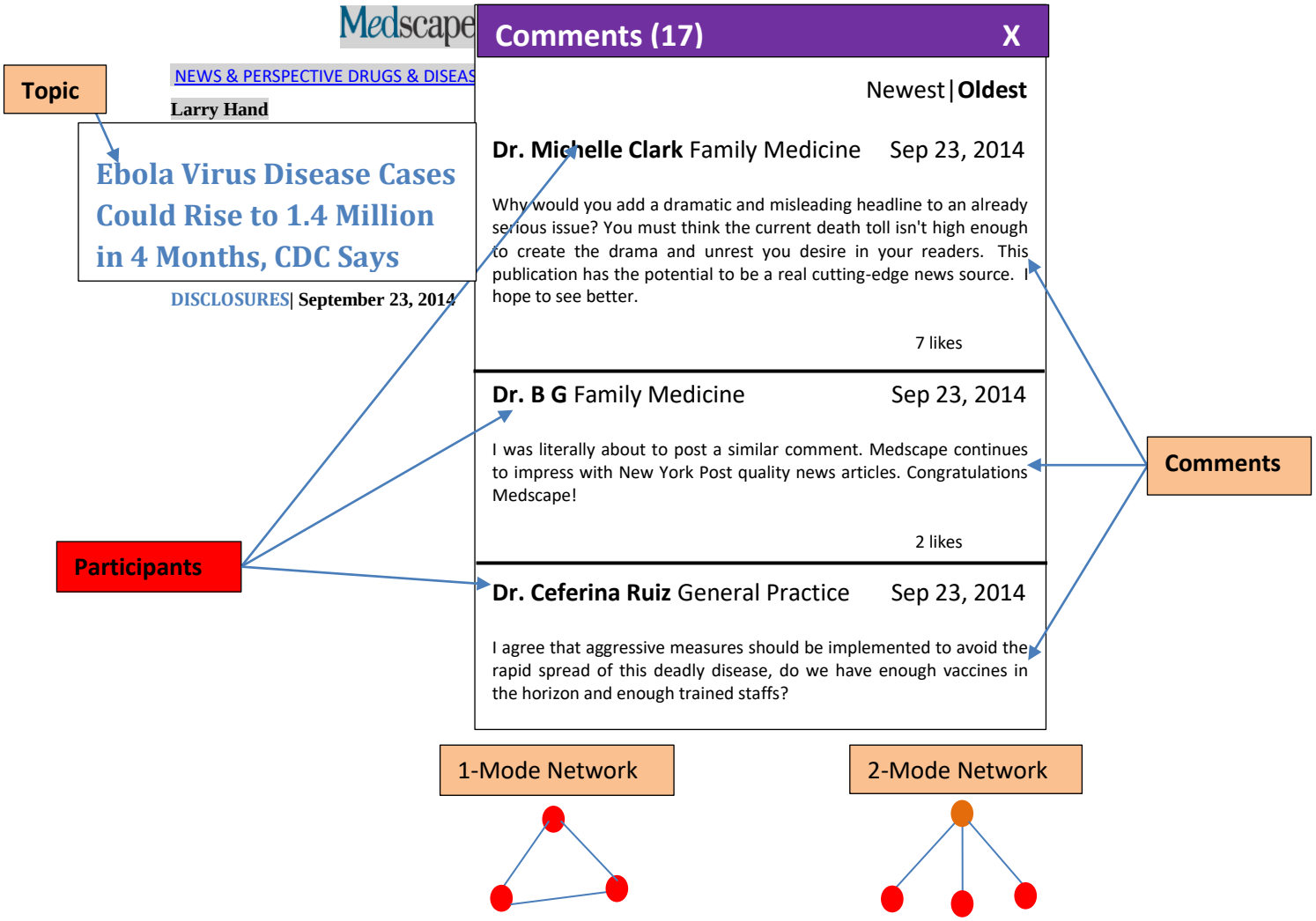


Figure 2.2: Threads from Discussion Forum, showing how 1-mode and 2-mode networks were created. Source: Medscape (2014)

Many SN were designed on 1-mode thread network. The 1-mode network, which this study was interested in, was used to build up matrices within the network which enabled conversation among the members on the network. However, a 2- mode network facilitated conversation among members on a subject matter. Knowledge sharing among healthcare practitioners was basically on a 1-mode network as they shared opinions of clinical expertise within a subject matter. The level of activeness and participation may depend on the medical field where the subject matters emanate. For instance, in knowledge sharing forum about EVD among healthcare practitioners, it is possible that healthcare practitioners with interest and expertise that relate to EVD were more active than other healthcare practitioners in the forum.

The basic principles of SN were the representation of nodes. This representation of nodes known as centrality measurements of nodes were used to identify the most active and influential members in the network: provided insight into the most important members in the social network and identified the members that were at the centre of the network in conversation. This was measured by degree of nodes; closeness; betweenness; eigenvector; structural holes and coreness (Wellman, 1988; Cheong and Cheong, 2011; Borgatti *et al.,* 2013). Figure 2.3 illustrated the centrality measures in terms of degree, betweenness, closeness, and coreness of the nodes. The alphabets were arbitrarily used to represent the nodes on the network.

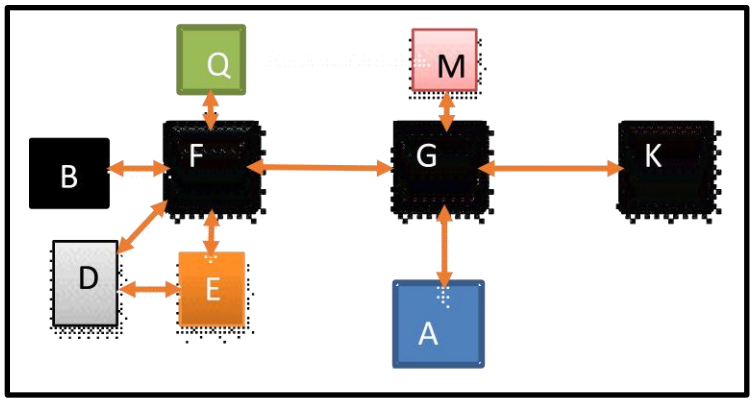


Figure 2.3: A Network Illustration of Centrality Measures with Nodes
Source: Borgatti *et al.* (2013)

Two nodes are connected if they regularly interact with each other or interact in some way. In Figure 2.3, node **F** regularly interacts with node **G**, but not with node **K**. Therefore, nodes **F** and **G** were connected, but there was no link drawn between nodes **F** and **K**. This network effectively showed the distinction between the three most popular centrality measures: Degree Centrality, Betweenness Centrality, and Closeness Centrality.

A. Degree Centrality: The degree centrality measured the number of ties an individual node has with other nodes in the network. A node with highest degree centrality was the most active participant or actor in the network. This node was a 'connector' or 'hub' in the network. For instance, in Figure 2.3, node **F** had the highest degree centrality, node **F** was the most active participant, not because it had more connections, but node **F** could connect other nodes on the network in different dimensions. What matters was where those connections led to and how they connected the unconnected nodes.

Mathematically,

A normalised degree centrality $C_{D(x)}$ of a node x was defined as:

$$C_{D(x)} = \frac{deg(x)}{n\text{-}1} \quad - \quad - \quad - \quad (1)$$

where n was the number of nodes in the network (Zweig, 2014)

B. Betweenness Centrality: The betweenness centrality measured the extent to which a particular node lies between the other nodes of the network which were often used as a path between other nodes in a network. Such node was the influential node since it can connect nodes together in the network. For instance, in the above Figure, while node **F** had many direct ties (**FQ**, **FB**, **FD**, **FE**, and **FG)**, node **G** has few direct connections (**GF**, **GM**, **GA**, and **GK**). Yet node **G** had one of the best locations in the network – node **G** was *between* two important nodes (**F** and **K**). Node **G** plays a 'broker' role in the network. A node with high betweenness had great influence over what flows and what does not flow on the network. A node with highest betweenness influenced the activities of knowledge shared in the network, without this node there will be a gap in the flow of information on the network.

Mathematically,

A normalised betweenness centrality $C_{B(x)}$ of a node x was defined as:

$$C_{B(x)} = \frac{2C_{B(x)}}{n^2 - 3n + 2} \quad - \quad - \quad - \quad (2)$$

where n was the number of nodes on the network (Zweig, 2014)

C. Closeness Centrality: The closeness centrality measured the distance of a node to other nodes, how quickly a single node can reach other nodes. Closeness centrality of a node *x* was defined as the sum of its distances to other nodes. However, in this way, more central nodes were assigned *smaller* values than less central ones. The most consistent way was thus to define the **farness** *F(x)* of a node *x* as:

$$F(x) = \sum_{v \in V(G)} d(x, v) \quad - \quad - \quad - \quad (3)$$

With this, the closeness centrality $C_C(x)$ of a node *x* was defined as the inverse of its farness:

$$C_C(x) = 1/F(x) \quad - \quad - \quad - \quad (4)$$

The pattern of direct and indirect ties of such node(s) allowed access to other nodes in the network more quickly than other nodes. Such node had the shortest paths to other nodes as it was close to every node. Such node was in an excellent position to monitor the knowledge/information flow in the network; it was likely to access information more quickly than other node on the network. It had the best visibility into what happened on the network. In Figure 2.3, node **G** had the highest closeness in the network and so, had more chance in accessing the information on the network.

The lower the degree of a node, the higher the betweenness of such node to other nodes in the network and the higher the betweenness of a node, the higher the closeness of that node in accessing other nodes. Other centrality measures include the eigenvector which measures the centrality of a particular node based on the centrality connection of other nodes. In this case, the centrality scores were assigned to nodes since connections to high-score nodes contributed more to the score of a particular node than connections to low score-nodes while the structural holes consider the position of the nodes on the network.

D. Coreness: Coreness measured how central a node was to the network. The coreness identified the central group of network members was determined using core-periphery analysis. The core-periphery analysis was a clustering algorithm that assumes that there

was a core set of nodes at the centre of the social network, and a periphery set of nodes that connect to that core (Wasserman, 1994; Borgatti *et al.*, 2013). The core-periphery analysis identified the members and threads that were at the centre of the 1- and 2-mode networks. Core-Periphery analysis on the 1-mode network identified those actors that had strong connections with many other members, while analysis on the 2-mode network identified the most central threads and the actors that were associated with them.

There had been an explosion of the use of the theory in a wide range of domains. A keyword search on Scopus conducted using "social network analysis" revealed 2,173 papers with SNA used in area of study as: social dynamics (Del-Vicario, Zollo, Caldarelli, Scala and Quattrociocchi, 2017), multiplex networks (Voros and Snijders, 2017), longitudinal research (Ryan and D'Angelo, 2018), individual social capital (Pena-Lopez and Sanchez-Santos, 2017), criminal networks (Calderoni, Brunetto, Piccardi 2017), empathic people (Kardos, Leidner, Pléh, Soltész and Unoka, 2017), student participation (Rabbany, Elatia, Takaffoli, and Zaiane, 2014), e-learning (Yudhoatmojo, Andika and Santoso, 2017), semantic web analysis (Rajabi and Abidi, 2017), collaboration levels (Luhrs and McAnally-Salas, 2016), family relationships (Sapin, Widmer and Iglesias 2016), networked discontent (González-Bailón and Wang, 2016), smoking cessation (Zhao, Wang, Cha, Cohn, Papandonatos, Amato, Pearson, and Graham, 2016), fabric of science (Shi, Foster and Evans 2015), critical thinking (Thormann, Gable, Fidalgo and Blakeslee, 2013), mobile phone networks (Miritello, Moro, Lara, Martínez-Lopez, Belchamber, Roberts and Dunbar, 2013), health and medicine (Rosenquist, Fowler, and Christakis, 2011), supply chains (Kim, Choi, Yan, and Dooley, 2011), movies (Park, Oh, and Jo, 2011), cattle movements (Aznar, Stevenson, Zarich, and Leon, 2011), fraud detection (Subelj, Furlan, and Bajec, 2011), spam detection (DeBarr and Wechsler, 2010), weighted networks (Opsahl, Agneessens, and Skvoretz, 2010), messages segmentation (Erlin, Yusof, and Rahman, 2010), co-authorship networks (Cheong and Cheong, 2011), and information systems (Cheong and Corbitt, 2009).

Social Network was adopted to investigate the central practitioners in a medical discussion forum (Rajabi and Abidi, 2017). The study examined the semantic web-based methods to enrich and transform a medical discussion forum. The result revealed a strong pattern of communication among the medical practitioners on the discussion forum. It also

identified the members that were at the centre of the discussion forum during conversation. In addition, SNA was deployed to investigate the knowledge sharing dynamics of a community of practice through an online discussion forum (Stewart and Abidi, 2012). The social network analysis carried out revealed a healthy network with strong communication patterns and identified the users that were at the centre of the community in terms of facilitating communication. The analysis also discovered the existence of strong interprofessional and interregional communication and a shortcoming as a result of a dearth of non-nurse participants.

Moreover, SNA was deployed to examine the relationship between social construction of knowledge and graduate student centrality in three online discussion forums (Gomez and Hernandez, 2018). The study identified the interaction patterns among twenty-one graduate students through analysis of discussion posts, measurement of student centrality and creation of social network diagrams. The findings of the study led to social construction of knowledge among the graduate students on online course on web conferencing in Spanish within Mexican sociocultural context.

Further, SN was used to analyse the participation of students in online courses (Rabbany, *et al.,* 2014). The study investigated the practicability of SNA by evaluating participation of students. The findings of the study enabled the instructor to identify a better approach to assess the level of participation of the student using participant's role, dynamic visualization, the topic of discussion and evolution tracking on the online discussion forum. Social network analysis was deployed to evaluate the use of Twitter as part of a foreign language learning course by analysing the interaction of learners and teachers over a period of 56 days (Stepanyan, Borau, and Ullrich, 2010). The findings indicated that there is greater interaction among students of similar levels and more attention is paid to higher achieving students. The study also revealed that there is a preference for study participants to interact with peers of the same gender, and that gender does not determine popularity.

To this end, this study utilised both the CT and SN theory to guide the development and operation of healthcare practitioners on online knowledge sharing network. Although, most studies involving CT have focused on technology modelling, this study omitted all aspects of the CT that involve technology design and humanimals and focused only on

human interaction. This study adopted a statistical modelling and social network analysis approach to study the online knowledge sharing behaviour of healthcare practitioners. This is concerned with patterns of discussions among healthcare practitioners.

Since this study was rooted in knowledge management discipline, knowledge modality embedded in the SECI model of Nonaka and Takeuchi (1995) was considered in this study. The knowledge modality analyses the content as well as determine the type of knowledge shared among healthcare practitioners on the online social network. Knowledge modality was efficient in building knowledge taxonomy from the topic discussed among participants on the network. EVD knowledge taxonomy was necessary as it served as a knowledge management drive for efficient information retrieval and EVD knowledge shared among HCP on the network and additional findings to EVD topic of interest of HCPs by identifying the conversations of HCPs that were within the context of EVD news on the network. In this study, the knowledge taxonomy (TX) of EVD topics on the network was designed by tagging the EVD news topics into major subjects/themes to capture the EVD issues. These subjects/themes include EVD outbreak management, EVD risk, EVD transmission, EVD treatment, and EVD resources. The subject tagging of EVD topics on the network was illustrated in Figure 2.4

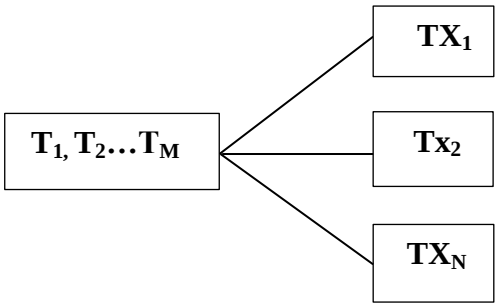
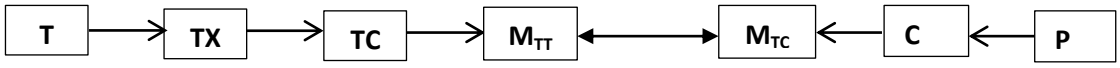


Figure 2.4: Tagging of EVD theme stratified by EVD topics on online social network

From Figure 2.4, T represents the EVD topics extracted from the network. Correspondingly, $TX_{1,}$ $TX_2 \ldots TX_N$ represent the subject/theme classification of EVD topics on the network. Understanding the knowledge content being shared within the community was very important, as this provded further insight into the knowledge sharing behaviour of the HCPs, particularly in terms of the kinds of knowledge they emphasize. The understanding was achieved by content mapping/clustering of EVD news and conversations of HCPs on the online social network to form medical terms/lexicons. The relationships between the concepts of T, TC, M_{TT}, G, M_{TC}, C and P were shown below.



Where:

T: Topic on EVD news

TX: EVD Taxonomy

TC: Topic Content on EVD news

M_{TT}: Medical Terms in the Topic content of EVD news

P: Participants on the network

C: Conversations of the participants

M_{TC}: Medical Terms in the Conversations of participants

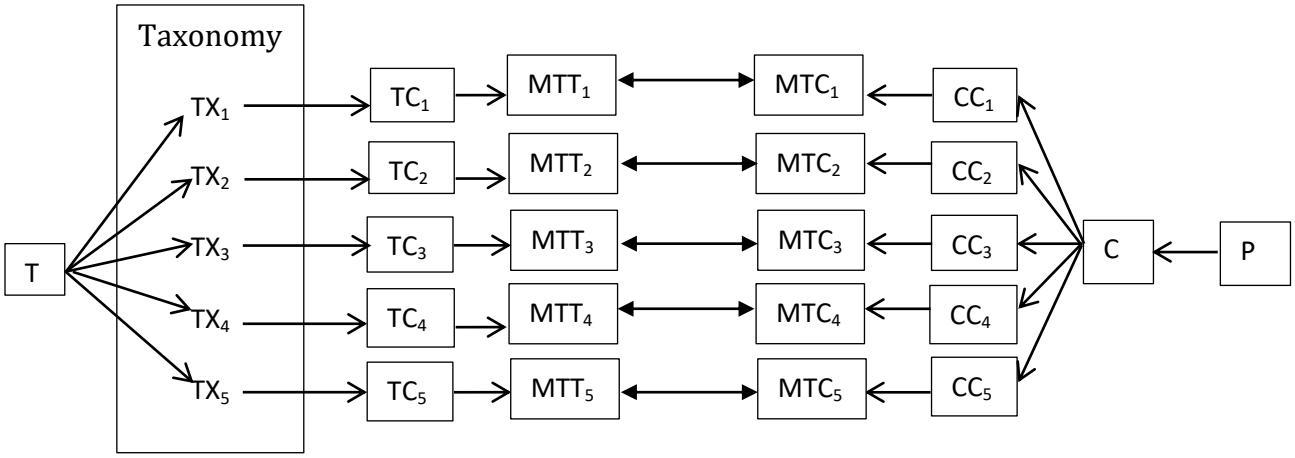


Figure 2.5: Content mapping of a medical term stratified by EVD news and conversations of a participant on online social network

From Figure 2.5, T represents the EVD news topics, while TX represents the subject/theme classification of EVD topics on the network. TC represents the topic content on EVD extracted from the network. Correspondingly, M_{TT} represents medical terms extractible from topic content (TC) with respect to the subject/theme (EVD outbreak management, EVD risk, EVD transmission, EVD treatment, and EVD resources) classification of EVD topics. P represents participants on the network, C is the conversations of the participant, while CC is the conversation content generated from the conversations of the participants. M_{TC} is the medical terms extractible from the conversations of the participant with respect to the subject/theme (EVD outbreak management, EVD risk, EVD transmission, EVD treatment, and EVD resources) classification of EVD topics. Content-based clustering of EVD news informed the most popular EVD medical terms used by the healthcare practitioners on the network, from which subgroups were derived and provide a second EVD news clustering based on content instead of connections. Exploring the relationships between these mapped terms provided greater insight into the content of the conversations and the community to further understand the topics of interest on EVD among participants (HCPs) on the network. This had provided a method for detecting similarity among users (HCPs), which was used to increase connectivity by connecting users (HCPs) to other like-minded individuals.

In addition, this study investigated methods to establish a culture of collaboration through different analytic approaches:

(a) Response analysis looked at the thread response patterns to determine the activity levels of both the HCP as whole and individuals, to get a broad sense of how the HCP engage in knowledge sharing (knowledge sharing behaviour).

(b) Influential analysis identified the most active HCPs on the network as well as determined the pattern of knowledge sharing among HCPs on online social network.

(c) Participatory analysis examined the level of knowledge sharing culture existing among HCPs on the network.

(d) Group level analysis examined how HCPs manage their professional barriers during knowledge sharing. This also examined whether the knowledge sharing on the online social network was dominated by a certain profession of HCP.

(e) Centrality represented a set of SNA metrics designed to identify the most central members of HCP on online social network, the leaders that were at the centre of the knowledge sharing on the platform. Identifying these key users was important for the development and maintenance of HCPs as a community of practice, as their presence greatly affected other members on the network. In addition, connection clustering looked at the leaders from macro level, attempting to identify a core group of HCPs within the platform (through core-periphery analysis) or identifying potential subgroups of HCPs based on their conversation patterns (through 1-mode and 2-mode clustering).

2.4 Conceptual Model

The conceptual model for this study was adapted from conversation theory and social network analysis and is presented in Figure 2.6. In this study, knowledge sharing is a social interaction involving the sharing of ideas/opinions on a subject matter among healthcare practitioners in an online forum. The healthcare practitioners on the online forum share their individual opinions about Ebola virus disease. The major elements of knowledge sharing among healthcare practitioners can be obtained from the conversation characteristics which include the concepts, participants, and conversation content (messages) as shown in Figure 2.6.

In the figure, Concept is the subject matter being shared, the Participants are the healthcare practitioners who are members in the online forum, and the Conversation and Knowledge content comprise the idea/opinions (conversations) of each of the healthcare practitioners on the social network. The edge connects participant with other participants or participants with their messages/conversations or participants with the subject matter in a social network.

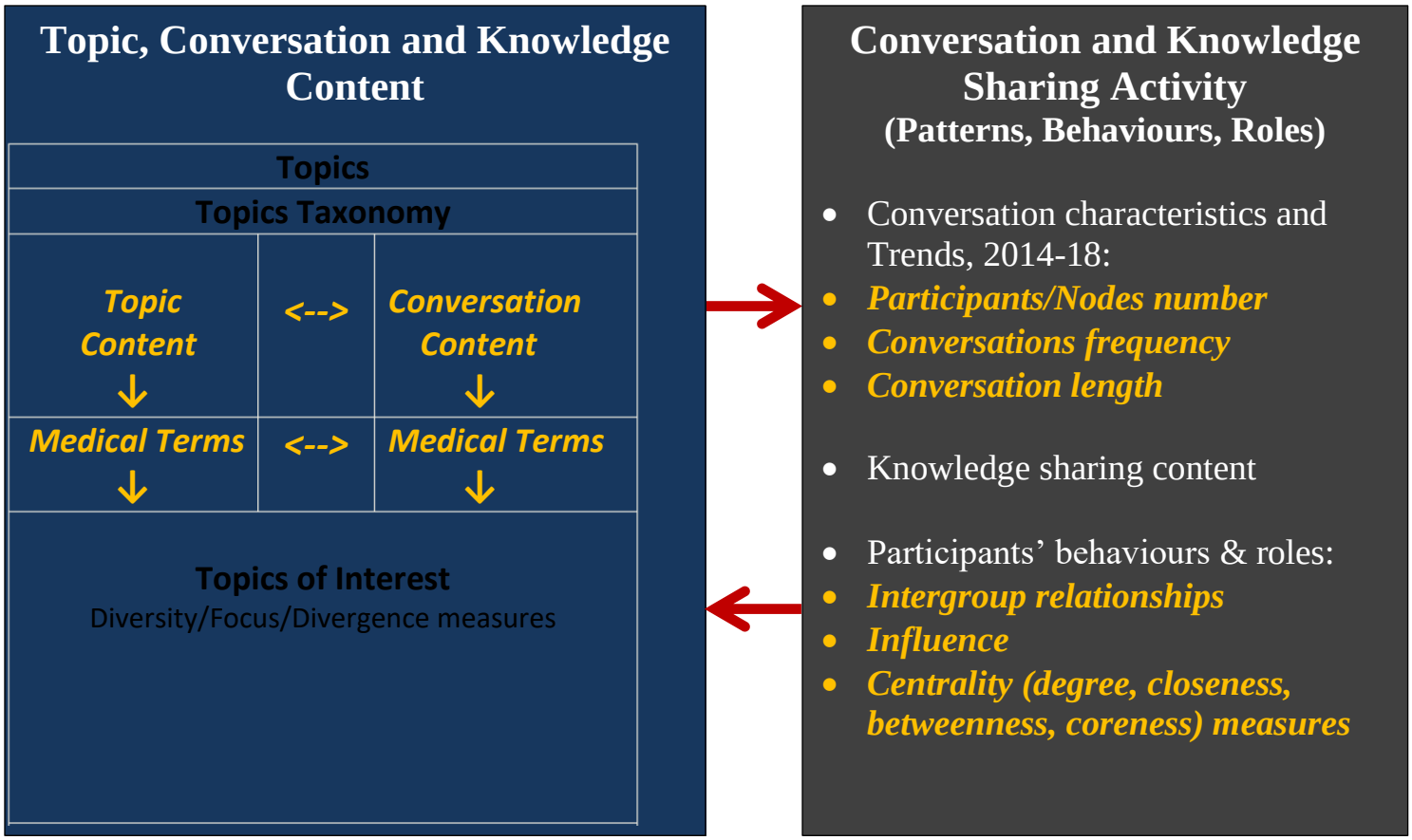


Figure 2.6: Knowledge Sharing Conceptual Model

In this study, it was conceptualised that knowledge sharing behaviour among healthcare practitioners on online social network can be explained with the conversation characteristics (concepts, participants, and conversation content/messages) and centrality measures (degree; closeness, betweenness and coreness). Hence, the study adapted the elements in the conversation theory and social network theory to provide a model of knowledge sharing behaviour (KSB) among healthcare practitioners on online social network (Figure 2.6).

The KSB model of healthcare practitioners on EVD issues was actuated by posted topics and the corresponding topic contents which generate knowledge sharing (KS) activity in the form of conversations relevant to each posted topic and topic content. The KS activity can be assessed and described in terms of the various variables in the KS activity box on the right. The model also showed that the nature of the knowledge content generated and shared can be assessed in terms of an initial constructed knowledge taxonomy of EVD knowledge based on the topics, as well as in terms of the medical terms extracted from the content of topics and associated conversations that may be classified under each initial or new taxonomy element. The medical terms can then be used to determine the topics of interest in EVD conversations among HCP on the network. The model postulated that elements in the knowledge content box on the left is influenced by the dynamics in the knowledge sharing activity box on the right, and vice versa, as shown by the right and left pointing arrows between the two boxes.

The basic principles of SNA were adapted to identify and map the most active, most influential, and most accessible HCP relative to other practitioners on online knowledge sharing of information and EVD knowledge. It was also used to identify the HCPs that were at the centre of the social network in terms of facilitating EVD knowledge sharing among the participants. The centrality measurements examined the level of interaction among the HCP by identifying the most active and influential healthcare practitioners on the network. These measurements include degree centrality, closeness centrality and betweenness. The central group of healthcare practitioners was also identified and mapped within the network using core-periphery analysis. Coreness measures how central the healthcare practitioners and their medical fields were to the network.

2.5 Appraisal of Literature Reviewed

From the review of literature above, it was deduced that in an online social network, knowledge sharing can be fostered by community of practice of professionals where people with similar interest or life experience share ideas through the medium of social network. It can be affirmed from the literature that healthcare practitioners engage in knowledge sharing on online social network about EVD on social media platforms such as Medscape through conversations or rather posts with regards to previously posted topics of interest on the network. This way, the healthcare practitioners build familiarity within such online network platforms, as well as create bodies of knowledge and practices that can improve knowledge development for managing EVD during outbreaks.

Online network was deployed in this study as an interactive online tool which could facilitate online knowledge sharing in order to bridge the gap posed by physical distance. Online knowledge sharing refers to the social interaction culture that exists among participant with shared common interest such as the healthcare practitioners and it was believed to serve as a tool to facilitate communication about health among HCPs. Although many studies have explored various SNA methods for analysing online communities, these methods have largely ignored the content of the messages when investigating the structure of the network. Content mapping techniques provided means for "understanding" the content of the messages within the community. Hence, the mappings from the tool into the SNA methods were key in improving our understanding of online communities.

Understanding the conversations and contents of the conversation of healthcare practitioners was very important as this enhances better understanding and built comprehensive knowledge about the disease. To achieve this, the LINKS model was adapted juxtaposing the conversation theory and social network analysis as tools to analyse and understand knowledge sharing behaviour in an online social network. It provided a means to understand online relationships in a way that statistical analysis cannot, as it was adapted to the dependent nature of the interpersonal relationships that challenges normal statistical methods.

CHAPTER THREE

METHODOLOGY

This chapter explained the various methods and tools used to implement the study. These include the research design, population of the study, variables, data sources, data collection methods and instruments, data analysis methods, and ethical considerations for the study.

3.1 Research Design

This study adopted a retrospective document/content analysis design owing to the fact that it aids in problem identification, systematic data collection, analysis and presentation of data to clearly demonstrate a situation or events as they exist. According to Aina (2001), a retrospective document design is an attempt to picture or document current conditions or attitudes that is to describe what exists at the moment. This was cross sectional research featuring both quantitative and qualitative data collection and analysis methods. The qualitative aspect pertained to the use of content analysis to identify and extract knowledge elements in the conversations among HCP on the Medscape network. The quantitative aspect utilised communication analysis methods and tools to determine the characteristics and patterns of knowledge sharing among HCPs on the Medscape network, including isolate, connection clustering, participatory, influential, centrality, group level and trend analyses.

3.2 Location and Population of the Study

The populations in this study were EVD newsposts on the Medscape network, and the corresponding conversations. All the EVD newsposts on the Medscape network between March 26, 2014 and April 27, 2018 constitute the total population of the newsposts. Healthcare practitioners include professionals that provide preventive,

curative, promotional or rehabilitative healthcare services in a systematic way to people, families or communities like the medical doctors, nurses, pharmacists, lab technicians, etc.

The data set used in the study was considered as a periodic sample of the newspost, conversations and participating HCP specific only to the period covered by the data set, which was from March 26, 2014 and April 27, 2018, and corresponded to the period of the 2014 Ebola Virus Outbreak in Central and West Africa. However, the population of newspost and conversations on EVD since the inception of the Medscape network could not be ascertained, and so was the total population of HCP registered on the network and participating in such conversations since the network inception. A preliminary visit to the network before the actual study showed that between March 26, 2014 and April 27, 2018, the population of posted topics and ensuing conversations on EVD issues among the conversing healthcare practitioners comprised 391 newsposts/topics and 7343 associated conversations (comments). The total number of HCPs who engaged in conversations on EVD newsposts on the network was about 3,310 healthcare practitioners.

3.3 Sampling Size and Procedure

The study adopted a total enumeration of the entire population. This was because the study was a periodic coverage of the entire data set between March 26, 2014 and April 27, 2018. The entire population of topics and conversations of 7500 data set were retrieved and utilised for the data analyses. The population of the newsposts and conversations that formed the data set of the study was presented in Appendix I.

3.4 Data Source

The source of data for this study was Medscape network, a worldwide leading online global forum for healthcare practitioners (Alexa Internet, 2019). The rationale behind the adoption of Medscape network as platform of data collection was because it offered the latest medical news with expert perspectives and advice. It also offered essential point-of-care; disease and drug information including a drug database (Medscape Drug Reference, or MDR) and drug interaction checker. Additionally, it featured a relevant professional education which comprises peer-reviewed original medical journal articles. This also includes major conference coverage, Continuing Medical Education

(CME), a customised version of National Library of Medicine's MEDLINE database. Medscape network has about 30 specialties such as infectious disease, gastroenterology, general surgery, and haematology-oncology, among others. “News on Ebola” was one of the forums under Infectious Disease specialty. The Medscape network is available free of charge for healthcare practitioners and consumers alike, but registration is required for membership.

3.5 Measurement of Variables

Table 3.1 was a summary of the research objectives, the associated variables and the methods used to measure the variables, as well as the expected outcome of the measurement.

Table 3.1: A summary of the research objectives of the study

Research Objective(s)	Construct/ Variable(s) in Focus	Method	Expected Outcome
1. Examine the topic content taxonomy on EVD newsposts among healthcare practitioners on the network	Topic content taxonomy	Theme mapping	○ Develop an EVD knowledge taxonomy based on the nature EVD topics on the network. ○ Determine what the most popular medical terms are within the community from the EVD news contents with respect to EVD knowledge sharing taxonomy (themes) developed in the study.
2. Ascertain the conversation taxonomy of EVD knowledge shared/ conversations among healthcare practitioners on the network	Conversation taxonomy	Theme mapping	○ Create an EVD knowledge taxonomy based on the nature of EVD conversations among healthcare practitioners on the network ○ Determine what the most popular medical terms are within the community from the conversations of HCP on each EVD news topic with respect to EVD knowledge sharing taxonomy (themes) developed in the study.
3. Examine the topics of interest on EVD among healthcare practitioners on the network	Topics of interest	Isolate Detection	○ Identify the overall Ebola news topics, Ebola news topics within the scope, Ebola news topics responded by HCP and Ebola news topics that were not responded (isolated topics) by HCP. Identify reasons for the isolated topics. ○ Determine the similarities between the responded and isolated EVD news topics. Identify the posters of EVD news topics and possibilities of HCP responding to other EVD news of the posters of isolated topics.
4. Ascertain the timing and frequency of responses to EVD newsposts by the healthcare practitioners on the network	Response rate	Response Analysis	○ Determine the knowledge sharing behaviour of HCP based on the response rate of HCP on the entire Ebola news. ○ Determine the knowledge sharing behaviour of HCP by the number of responses made by HCP on each Ebola news. ○ Identify how HCP respond to Ebola news topics based on their period of responses with respect to EVD knowledge sharing taxonomy (themes) developed in the study
5. Ascertain the conversation trend of EVD knowledge shared on the network over time from 2014 to 2018	Conversation trend	Trend analysis	○ Examine the conversation trend on conversation frequency developed within the study period (2014 - 2018), ○ Provide a conversation trend with respect to EVD knowledge sharing taxonomy (themes) developed within the study period (2014 - 2018)
6. Determine the relevance of EVD knowledge shared among healthcare	Knowledge sharing content	Thread clustering	○ Determine the relevance of knowledge content of HCP to EVD issues being discussed. ○ Determine whether the knowledge sharing content of HCP addresses the topic of their discussion or

practitioners on the network to management of the disease			previous conversation made on the topic. o Determine the knowledge resolution made by HCP about EVD issues.
7.Examine the participation behaviours across professions of healthcare practitioners on the network	Participation behaviours	Participatory analysis	o Examine the level of knowledge sharing culture that exists among HCP on Medscape network. o Identify an entity's position within a network in terms of its ability to make connections to other pairs or groups in a network to inform the level of interaction existing among HCP on the network. o Identify how quickly the healthcare practitioner can be accessed by their colleagues on the network
8. Identify the most active and influential healthcare practitioners on EVD on the network.	Active and Influential HCP	Influential and Group level analyses	o Identify the area(s) of specialty and professions of the most influential HCP on the network o Examine how HCP manage their professional barriers during EVD knowledge sharing on Medscape network. o Identify potential subgroups of HCP based on their conversation patterns (through 1-mode clustering). o Identify core group(s) of HCPs within the platform (through core-periphery analysis)

The key constructs and variables of the study were measured and analysed to answer the research questions of the study in the following ways:

(a) Topic Taxonomy

The topic taxonomy measured the nature of EVD news topics that were posted to the network by various stakeholders in EVD control, including healthcare practitioners. An initial working knowledge taxonomy of EVD based on the posted EVD topics and their content was created. This topic-based EVD knowledge taxonomy was created by evaluating only the news topics that were responded to by the healthcare practitioners on the network. These news topics were subsequently categorised and mapped into 11 minor themes and sub-themes (Appendix II). The minor themes were thereafter grouped into 6 major themes, which are:

i. *EVD Outbreak Management:* includes EVD topics which addressed the management strategies of the outbreak. It has four minor themes - EVD management (regional, local and global), alert/sensitisation (positive and negative), intervention (medical, governmental and non-governmental), and preventive measures.

ii. *EVD Risk:* includes EVD topics that addressed the risks associated with the outbreak. This has three minor themes - threats, effect, and casualties.

iii. *EVD Transmission:* includes EVD topics which addressed the transmission of the disease. This has two minor themes - causes and spread.

iv. *EVD Treatment:* includes EVD topics which addressed the treatment of EVD. It has no minor theme.

v. *EVD Resources/Education:* include EVD topics which addressed how information on EVD can be sought/obtained. This theme has two minor themes - research, and help.

vi. *Out of Scope:* includes EVD news topics on other health issues not related to EVD that were responded to by the HCPs on the network. It has no minor theme.

(b) Conversation Taxonomy

This taxonomy was derived from semantic interpretations of the content EVD conversations by healthcare practitioners in response to the topics posted on the network. This conversation-based EVD knowledge taxonomy was created by evaluating the

conversations of the HCPs on each EVD topic posted on the network. These conversations were also categorised and mapped into the 11 minor themes and the respective sub-themes in the created Topic taxonomy described above.

(c) Topics of Interest

The EVD topics posted within the period of coverage indicate the initial topics of interest on the network. The HCPs often respond directly to the newsposts or to the conversations by their colleagues on the posted topics. Moreover, whether and how the posted topics were responded to by HCPs through their ensuing conversations also informed about how interested they were in the topics and the conversation. In turn, the medical terms extracted from the conversations also showed what knowledge the conversations were about.

EVD topics posted on the network but not responded to by the HCPs were also identified and were regarded as isolate posts. These were categorised into three groups - broadcasts, errors and pendants. Broadcasts include administrative posts, conference announcement, and job advertisements. These newsposts do not necessarily require responses from HCPs, but they were posted on the forum to keep the HCPs abreast. Errors were processing and submission errors that caused posts to become disconnected from related other posts. They were largely caused by subject-line manipulation and participants/client processing problems. Pendants were EVD newsposts that HCPs could be expected to respond to but were not actually responded to by them. The study focused on the pendants because they were important for understanding the perceived importance of the knowledge content among HCPs on the network. Pendant topics could also leave the contributors of such posts becoming alienated from and eventually leaving the knowledge sharing forum.

Hence, firstly, the study predicted whether EVD newsposts would be pendants depending on if or how well the EVD newsposter is recognised within the network. This was determined by the number of times the poster has posted on the network during the study period. Usually, unrecognised posters on the network were less likely to receive responses. The study also identified the effect of pendants on their posters' subsequent participation. This was determined by comparing the previous contribution activity level of the posters of pendant news posts with their contribution activity level after repeated

pendant posts by them. The conceptual content of the pendant was also used to determine the EVD topics of low interest among HCPs on the network during the period. In addition, the initial EVD knowledge taxonomy developed in the study were used to identify the EVD topics that were of interest to the HCPs on the network. The entire EVD topics were also categorised and mapped into the 11 minor themes and the respective sub-themes in the created Topic taxonomy described above.

(d) Response Rate

The response rate measured how HCPs respond to EVD news posts on the network. This was measured using various computed statistics including: total number of HCPs who responded to EVD news post, overall number of 'likes' made on the comments of HCPs with respect to each EVD news post, and how quickly HCPs responded to the news post, determined by the average time interval between the date of a post and the dates of the associated responses for each post. These analyses were calculated and compared for each set of news posts classified under each of the main elements of the initial taxonomy developed in the study.

The response rate provided an overview of the activity levels of HCPs on the network. This also gave insight into how the HCPs perceive the network. Fast response rates suggested that HCPs were monitoring the incoming EVD news posts to obtain and share their knowledge with other HCP as actuated by news posts. Fast response rates showed that a newspost reflected likely on a trending EVD issue or topic that captured the interests of HCPs and motivated them to engage in knowledge sharing. Slow responses to the newspost may signify an unimportant or outdated issue, thereby attracting lesser attention of the HCPs. It may however also indicate that less careful or quick attention by HCPs to issues that may however be important for discussion in their own right.

Furthermore, also important was the duration of thread of each newspost. For each newspost with at least one conversation by HCP, two-time intervals were considered: (i) interval between date of the newspost and the date of first conversation; and (ii) difference between the date of newspost and the date of last conversation made on that post. The first-time interval was used to evaluate how quickly the healthcare practitioners respond to EVD newsposts. The second interval was used to determine the duration of attention of the network contributors to each post, indicating how long ideas last among the HCP. The

duration of threads provide insight into the characteristics/nature of EVD knowledge shared among HCPs on the network. In this study, if the HCPs responded quickly to the post, it suggested that the EVD information conveyed by the post quickly elicits conversation interest among the HCPs. The longer the duration of the threads for newsposts, the more the network was resourceful platform for discussing issues in the posts, and thereby for sharing rich information on EVD issues.

(e) Conversation Trend

The conversation trend examined the frequency and content of EVD conversations among HCP on the network during the period of the 2014 Ebola virus outbreak in Central and West Africa, which corresponded to the study period of 2014 to 2018. The conversation trend was used to show a timeline of the frequency and patterns of news posts and ensuing conversations among HCP during the duration of the 2014 EVD outbreak in the world as partially captured by the network. It highlighted the level of conversation that emanated among the HCPs during the initial period, mid-period and final period of EVD outbreak. The conversation statistics computed with respect to the Topic Taxonomy themes were compared during the different periods. High conversation frequency among HCP on the network informs the peak period of EVD-related conversations, which were compared with external data on how the 2014 EVD outbreak emerged, progressed and was declared ended.

In addition to tracking the frequencies of conversations during the EVD outbreak periods, the nature of the information and knowledge converses about were assessed by the medical terms extracted from the conversations among the HCP over the period of the outbreak. The frequently used medical terms by the HCP on the network examines the content of EVD conversation among HCP within the study period. EVD-related medical terms or words that dominate the conversations during various sub-periods of the outbreak were then considered as those deemed very important by the HCP on the network during the sub-periods. However, sequence of the most important terms or words provided insight to how conversations and knowledge sharing evolved during the period of the outbreak among HCP on the network.

In this study, conversation length was defined as the number of words contained in a conversation by an HCP and provide insight on the brevity or verbosity of the

conversation. High conversation length informed that HCP were inclined to make lengthy contributions of information in their conversations, and vice versa, which might or might not match various sub-periods of the outbreak. High conversation length indicated that the HCPs were engaged in more or deeper EVD knowledge sharing. This provides general insight into the willingness and readiness of HCP to engage in more or less intense EVD knowledge sharing on the network.

(f) Conversation Content Relevance

Assessment of the relevance of the EVD-related knowledge shared through conversations by HCP to the various EVD news posts provided further insight on the quality of knowledge shared on the network. The relevance of conversations to the corresponding news post was assessed by the researcher, using a 3-point Likert rating scale having "relevant", "partially relevant", and "not relevant" as possible ratings. The relevance ratings by the researcher for all conversations on newsposts were used to assess how the HCP actually shared information relevant to the news posts that elicited their conversations. If the conversations on a post were assessed highly relevant to the post, it showed that the HCPs were really focused in their knowledge sharing as elicited by the newsposts and implies that they consider the network as useful for knowledge sharing. However, if the conversation was not relevant to the post, it suggested that the network was not being used to focus on crucial EVD related issues in the news posts, or that the newsposts themselves were not really important to the HCP, which might be the reason they tend to digress from the issues in the newsposts in their conversations.

However, it was also possible that HCP might converse on issues of interest to them but using the wrong newspost threads. Thus, it was also useful to examine whether the comments by HCPs on a news post addressed the specific EVD topic of the newspost or may be other topics addressed by other newsposts on the network. To address this fact, the study further examined the extent to which the various EVD topics were addressed by the totality of the various conversations by HCPs on the network. This was identified by examining whether each of the conversation of HCPs addressed the EVD topic being discussed, or any previous topics or conversations of HCPs, or on any EVD subject matter not addressed by any of the posts.

Lastly, the study examined whether there was common understanding of ideas among HCP in their conversation in relation to the EVD newsposts (topics) and the extent of their consensus. To do this, EVD newsposts that highlighted problems requiring resolution were identified, as well as the extent to which each problem was resolved through the corresponding conversations. The extent of resolution was measured using a 3-point Likert scale having "Resolved", "Not resolved" and "Not applicable" as possibilities.

If the HCPs were able to resolve problems through their conversations, it indicated that in the EVD knowledge sharing through the network helps to enhance their clinical knowledge, problem solving and expertise. This provided insight into the usefulness and impactfulness of the network for sharing knowledge to resolve ambiguities and improve understanding of EVD-related knowledge among HCP.

(g) Participation Behaviours of Healthcare Practitioners of Different Professions

The participation behaviours of HCP were measured using the number of comments made by each HCP on EVD newsposts and compared among HCP belonging to different professions. The observed differences, if any, was used to understand the propensity for knowledge sharing by HCP through the network. This provided insight not only differences among practicing doctors, medical researchers, pharmacists, nurses, health policy makers, but also differences among doctors in different medical specialities. This revealed how conversations on the social network was dominated or not by various HCP professionals and how. A network was said to be dominated by a profession if HCP of different professions were not uniformly distributed across EVD newspost and associated comments on the social network. However, a situation where a profession dominates the network, such a profession was regarded as the most active profession on the network and can be relied on for knowledge seeking and sharing on EVD issues through the network.

The study also examined inter-group relationship across professions of HCP in terms of how HCP of different professions participate in same conversation on each EVD newspost. This was measured to determine how different types of professionals (such as doctors of different specializations, pharmacists, and nurses) operate as communities of practice on the social network. The identified inter-group relationships assisted in understanding how HCPs managed professional boundaries during EVD knowledge

sharing processes on the network. The inter-group relationships were measured using the number of HCP belonging to different professions who originated and/or participated in EVD knowledge sharing on various newsposts.

The inter-group relationship was carried out to determine which HCP professionals and specialists influenced or dominated knowledge sharing through their initial comments or frequency or intensity of comments on various EVD issues or topics. The network was said to be dominated by certain HCP professionals if their comments dominated EVD knowledge sharing. Such professionals served as conduit for knowledge sharing across HCP on the network. The potential problem though was the effect of dominant HCP professionals on other HCP professionals on the network, and whether it adversely affected participation by various HCP professionals on the network. The number of comments by HCP generated when a particular HCP from a certain profession initiated knowledge sharing with a newspost on the network was used to determine how different HCP professionals were connected on the network. HCPs were said to be professionally interconnected on the network if they engaged in EVD knowledge sharing regardless of the profession of HCP who originated the sharing.

(h) Active, Influential, Core and Peripheral HCP

The study identified the active and influential HCP on the network based on totality of EVD news posts and comments made by each HCP. Identifying the active and influential HCP wa important to understanding interactions and influencers among HCP on the network. This was because the active and influential HCP were more likely than other HCP to initiate and control the flow of knowledge within the network and were in position of power when it comes to what knowledge was shared among HCP on the network. Although some HCP may be very active on particular EVD news posts, they may however not respond to or converse on other EVD posts, which means that they cannot influence the overall flow of knowledge within the network. So, the level of influence on the network by each HCP was determined holistically based on the frequency, intensity of comments by each HCP. This study considered the HCP with greater number of comments and those who responded to many EVD posts as the active and influential HCP.

Active and influential HCP was determined based on a threshold of number of comments on each EVD newspost and across the entire EVD newsposts. To determine the threshold, both the average of conversations made and average of EVD newsposts responded to by HCP with more than one response were considered. In this study, interaction refers to conversations among HCP to share and bring about consensus on knowledge being shared, where HCP make comments and give feedback by responding to conversations of other HCP on the network. HCPs who made only one response/comment on each of the EVD news posts do not meet this assumption, and so were excluded from consideration.

Initial Comment Effect: The study also determined the effect of initial comment of HCP on EVD news posts on the network. This was used to further understand the position of power of individual HCP with respect to different types of knowledge shared on the network. Initial comment made by HCP on every EVD newspost usually had greater influence in determining the knowledge shared among HCP in connection with the post. This also determined how active a particular HCP was on network. An HCP was deemed to have greater power on the knowledge that was shared on the network if such HCP initiated comments on the EVD newspost.

Centrality measures*:* Centrality measures of Social Network Analysis (SNA) provided further information on the activity levels of each HCP on the social network. The centrality measures (degree centrality, betweenness centrality, closeness centrality, and coreness) were used to identify the most central or core HCP on EVD posts, conversations, issues, topics on the network. These central members of HCP played key roles on the network as their presence influenced and affected other HCPs on the network. Therefore, it was necessary to identify these central members for policy and motivational targeting to promote the development and maintenance of the HCP on the network as a community of practice.

The threshold that was earlier discussed was used to determine the core HCP who engaged in EVD knowledge sharing on the Medscape network. In this study, high degree centrality indicated that a particular HCP or group of HCPs was more central than other HCP on the network in terms of their being highly active and dominating on the social network. High closeness suggested that HCP were well connected and/or were quick to

connect to one another with their EVD knowledge on the network. High betweenness indicated that HCP acted as strong link for knowledge sharing on the network. Coreness identified the group of HCPs at the centre of the network. These group of HCPs had strong connections with many other HCPs on the network.

3.6 Data Collection Method

The study adopted a quantitative content analysis method of data collection using a data extraction guide. Content analysis fits into this study since the study was a web analysis of EVD newsposts among HCP on Medscape network within a period. According to Leedy and Ormond (2015), content analysis is a research technique used for objective, systematic, and quantitative description of the manifest content of communication. This involves making inferences by identifying the characteristics of messages in an objective and systematic manner. Another merit of content analysis is replicability. Content analysis is a research technique for making replicable and valid inferences from data to their context (Krippendorff, 2012). Prasad (2010) also described content analysis as the scientific study of the content of communication.

3.6.1 Data Collection Processes and Instruments

The EVD newsposts were retrieved from the webpages of Medscape in the hyperlinks listed in Appendix I. The attributes of the conversations and knowledge shared among HCP were retrieved from the webpages of Medscape using a Data Extraction Guide (DEG) in the following steps:

STEP 1: Start retrieval

STEP 2: Extraction of EVD newspost

STEP 3: Extraction of concept features of the post

STEP 4: Extraction of number of comment(s) made on each newspost by the HCPs

STEP 5: Mining of participant's features

STEP 6: End retrieval

The EVD newsposts were identified among other news posted on infectious diseases on the Medscape network. The features of each EVD newspost were retrieved one by one after each newspost. These features include the topics/concepts posted, dates of post,

number of participants, number of likes, medical fields of participants, participant's contributions and date of contribution. For each newspost, the content of the newspost, dates of post, news poster, number of participants who responded to the newspost were first retrieved. This was followed by retrieval of other features on that particular newspost. These features include name of participants, medical fields of participants, participant's contributions date of contribution, and number of likes were accessed and extracted by navigating through the number of participants. This was a continuous process until the last EVD newspost within the period of study was retrieved.

3.6.2 Validity and Reliability of the Instrument

The instrument used for the study was blind checked by the thesis supervisor to ascertain the face validity of the instrument. The reliability of researcher's ratings was assessed using inter-rater reliability testing methods. This was performed using 120 randomly selected newsposts and conversation pairs which were given to five trained medical graduates students to independently assess the relevance of each conversation to the post using the same 3-point rating scale used by the researcher. In more detail, the interrater reliability test was carried out in the following steps:

a. Training of coders on how to rate the relevance of each conversation to the corresponding newspost using the 3-point rating scale having the following rating options (not relevant =0, partially relevant =1, relevant =2).
b. Assigning to each of the coders two different EVD topics with at least twenty conversations each (Appendix III).
c. The researcher also rated the relevance of each conversation to the corresponding newspost for all the pairs of newspost and conversations rated by the trained coders.
d. Pearson Product Moment Correlation (PPMC) test with Statistical Package for Social Science (SPSS) tool was used to assess whether there was a significant relationship between the ratings by the research and each trained coder.

The PPMC results showed a significant relationship between the researcher's ratings and those by each of the trained coders (Appendix IV). These results showed that the

researcher and the coders were significantly related in how they assessed the relevance of conversations to newsposts for the test pairs of newsposts and conversations.

3.6.3 Pilot Study

A pilot study was carried in August 2018 and 2019 to ensure the feasibility of the analysis of the study. The data for the pilot study were extracted from thirty-seven (37) simple randomly selected EVD newsposts on Medscape network during the period (2014-2018). The data were selected across the years in order to have a representative data set across the study period (2014-2018). The features extracted include EVD news content, EVD news topics/concepts posted, EVD news posters, dates of post, names of participants, participant's area of specialty, participant's contributions (comments), date of contribution, number of threads, number of isolates and number of likes. However, out of 37 newsposts on EVD, only 16 EVD newsposts (43.2%) were responded to by the healthcare practitioners while 21 EVD newsposts (56.8%) were not responded to by the HCPs (Figure 3.1).

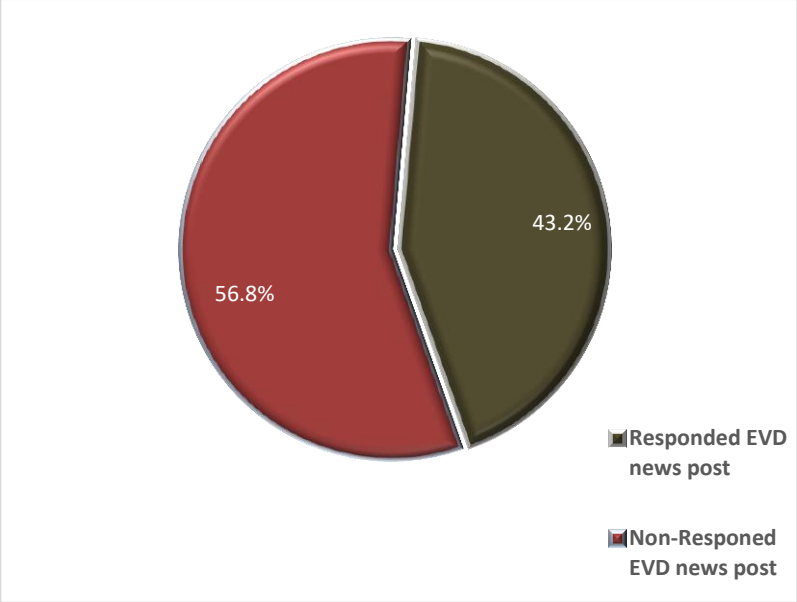


Figure 3.1: Characteristics of EVD news post on Medscape network

The EVD newsposts that were responded to by the HCP form the EVD topics of discussion for knowledge sharing among HCP on the network. There were 86 healthcare practitioners who engaged in EVD knowledge sharing on the network. Out of the 86 HCP, 82 (95.3%) HCP responded at least once on EVD newspost within the network. The total number of conversations made on the entire newsposts by the HCP was 91 conversations. Findings revealed that the entire (37) news posts were of interest to HCPs and they responded to 16 newsposts. There were three active and influential HCPs on the network. The findings of the pilot study implied feasibility of the main study. It recommends a replicate analysis in the main study with the entire data set with further findings using network analysis and other statistical tools to examine the conversational structure on EVD and pattern of knowledge sharing among the HCPs.

3.6.4 Procedure for Data Collection

The attributes were extracted manually using procedure described in the data extraction flowchart to extract the data from the network. The attributes extracted include the newspost (topic), dates of post, ensuing contributed conversations, date of each conversation, coded identity of HCP contributor of each conversation, area of specialty of each (contributor) participant, profession of each participant, content of the participant's contribution and number of likes given to the contribution. The extracted data were saved in a Microsoft Excel sheet. These attributes were subsequently analysed, compared and interrelated to address the objectives of this study. The attributes were grouped into concept and participants attributes.

The concept and participant features were extracted from each EVD newspost that had comments. The EVD concept features were first extracted from the Medscape webpages. These features include EVD newspost, date of EVD newspost, EVD news content, and number of conversations made on the newspost. The participant features include the number of participants, area(s) of specialty, profession of participant, participant's contributions (comments), date of contribution and number of likes. However, for EVD newspost that had no conversations, only the concept features were extracted on the network.

3.7 Data Analysis

The data extracted from the Medscape network wer analysed using the following complementary software tools: Microsoft Excel, NVivo version 12, Statistical Package for Social Science (SPSS) version 20 and Social Network Analysis (SNA) UCINET version 6. Microsoft Excel was used to examine the relationship in the knowledge sharing of HCP about EVD on the network. NVivo was used to analyse the EVD knowledge sharing content of the HCP and to visualise the nature of the medical terms (themes) mapped from the EVD news and conversations by the HCP. SPSS was used to carry out an inter-rater reliability tests of the relevance assessments of conversations to newsposts by the researcher and research assistants (PPMC test). SNA tool was used to examine further the online knowledge sharing behaviour of healthcare practitioners and visualise the patterns of knowledge sharing among HCP within the network.

The textual data collected for answering research questions one, two, three, four and five were analysed using NVivo software tool to provide insight to the nature of EVD knowledge shared among HCP. MS Excel software was deployed to analyse the data collected on research question six to eight using thread clustering. Thematic analysis was performed on research question one to identify and extract the medical terms and their occurrence frequencies in EVD topics. The frequencies were used to determine the trending EVD-connected medical terms on the network. Thematic analysis was also performed on research question two, on the conversations, to identify and extract medical terms and their occurrence frequencies. The obtained frequencies indicate which medical issues the HCPs concentrated on during their conversations, which also show the kind of knowledge shared on the network.

Research question six addressed the relevance of conversations of HCP on the network was analysed using MS Excel analytical tool. MS Excel analytical tool and SNA participatory analysis tool were deployed to analyse and address the participation behaviours of HCP on research question seven. Also, research question eight concerning the most active and influential HCP on the network was analysed using both MS Excel analytical tool and SNA influential analysis tool. Table 3.2 summarises how each of the research questions were analysed, with what instrument and data analysis technique.

Table 3.2: Mode of Data Collection and Analysis

	Variable for measurement	Data collection method	Collected/ Measured data	Data analysis Method and Tools	Method of data analysis
RQ1: What was the topic content taxonomy of EVD newsposts among healthcare practitioners on the network?	Topic taxonomy	Hyperlinks of Medscape webpage	EVD newsposts	Nvivo, MS Excel	Thematic analysis/ mapping
RQ2: What was the conversation taxonomy of EVD knowledge shared among healthcare practitioners on the network?	Conversation taxonomy	Hyperlinks of Medscape webpage	Conversations of healthcare practitioners	Nvivo, MS Excel	Thematic analysis
RQ3: What EVD topics were of interest among healthcare practitioners on the network?	Topics of interest	Hyperlinks of Medscape webpage	EVD newsposts and Conversations of healthcare practitioners	Nvivo, MS Excel	Isolate Detection and Content mapping
RQ4: How did healthcare practitioners respond to EVD newsposts on the network?	Response rate	Hyperlinks of Medscape webpage	Conversations of healthcare practitioners	Nvivo, MS Excel	Response Analysis
RQ5: What were the conversation trends of EVD knowledge shared among healthcare practitioners on the network?	Conversation trend	Hyperlinks of Medscape webpage	Conversations of healthcare practitioners	Nvivo, MS Excel	Trend analysis
RQ6: How substantial were EVD knowledge shared among healthcare practitioners on the network?	Knowledge sharing content	Hyperlinks of Medscape webpage	Conversations of healthcare practitioners	SPSS, MS Excel	Thread clustering
RQ7: What were the differences among different healthcare practitioners in their conversation participation behaviours on the network?	Participation behaviours	Hyperlinks of Medscape webpage	Fields and conversations of healthcare practitioners	Nvivo, MS Excel	Participato ry analysis
RQ8: Who were the most active and influential healthcare practitioners on EVD issues on the network?	Active and Influential HCP	Hyperlinks of Medscape webpage	Conversations and network link (connection) of healthcare practitioners	MS Excel, SNA	Influential analysis and Centrality measures

3.8 Ethical Considerations for the Study

Due to data privacy, information obtained from healthcare practitioners on the Medscape network was treated with a high level of confidentiality. No effort was made to match information retrieved from HCP on the social network with the real posters of such information. Therefore, personal information such as name, locations, among others of healthcare practitioners remains confidential. The study captured only the conversations made by healthcare practitioners on Ebola newsposts and was treated anonymously. The features extracted from the conversations include the topics/concepts posted, dates of post, number of participants, medical fields of participants, participant's contributions and date of contribution.

In addition, ethical issues which emanate as a result of improper citations and referencing of articles, misrepresentation of data and results, as well as manipulation of data and result were taken into consideration. The materials used in carrying out this study were cited and referenced accordingly. The data retrieved were analysed accurately in order to address the research questions of the study. No effort was made to misrepresent or manipulate the result obtained from the analysis of this study.

CHAPTER FOUR

RESULTS

This chapter presented the result of the data analyses of online data extracted from knowledge sharing among healthcare practitioners on Ebola virus disease on Medscape network. This chapter contained the characteristics of EVD news on the network, followed by answers to the research questions from the data that were categorised into themes with respect to the EVD knowledge taxonomy developed in this study and analysed using Nvivo 12 software tool. In addition, some research questions were also answered from the data derived from the healthcare practitioners and from a 1-mode network developed from social network metrices (95x95) of the active HCP and analysed using SNA UCINET 6 software tool.

4.1 Characteristics of EVD News on the Network

This section presented the findings on EVD news contents and topics, EVD news posters, dates of post, names of participants, area(s) of specialty, profession of participants, contributions (comments) of the participants, date of contribution, number of isolates and number of likes. Table 4.1 showed that 7500 data on EVD were extracted from the Medscape network.

The number of posts generated from the online network within the period of this study was 391 EVD news posts. These EVD news initiated the knowledge sharing among HCP on the network. Out of these news posts that were generated, 342 EVD news posts were within the scope of the study (EVD context). The HCPs responded to 206 EVD news that were within EVD context and did not respond to 136 EVD news that were within EVD context. However, 49 EVD news posts were out of EVD context, 28 EVD news posts were also responded to and 21 EVD news were not responded to by the HCP. In summary, 234 EVD news (59.8%) were responded to by HCPs and their responses generated about 7,343 comments on the network.

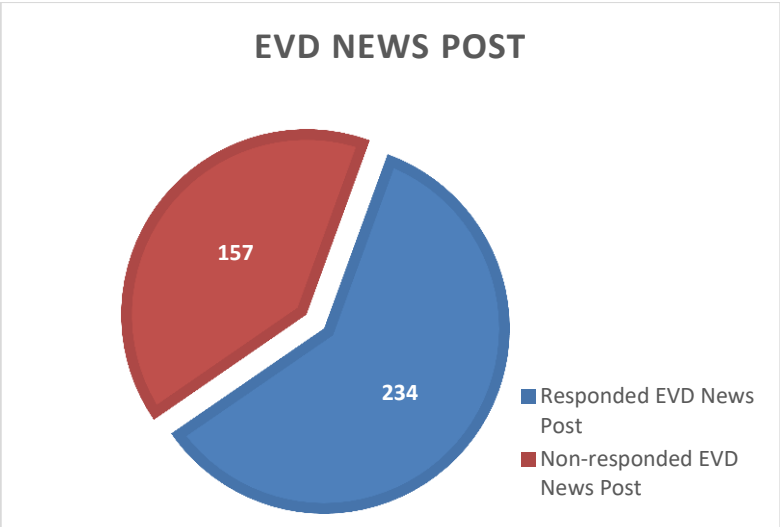


Figure 4.1: Characteristics of EVD news posts on Medscape Network

However, 157 (40.2%) EVD newsposts were not responded to by the HCPs (Figure 4.1). The entire news posts were analysed to address the research questions posed in this study. Table 4.1 showed the overall characteristics of EVD news on the network.

Table 4.1: Characteristics of EVD news on the network

FEATURES							
EVD News Posts	**Within EVD context (scope)**			**Out of EVD context (scope)**			**Total**
	Responded	**Non-responded**	**Total**	**Responded**	**Non-responded**	**Total**	**391 (100%)**
	206 (52.68%)	136 (34.79%)	342 (87.47%)	28 (7.16%)	21 (5.37%)	49 (12.53 %)	
Number of EVD news (responded/not responded)	**Responded EVD news posts**			**Non-responded EVD news posts**			**Total**
	234 (59.8%)			157 (40.2%)			**391 (100%)**
Number of Comments generated(responded)	7343						
Number of data extracted	**Number of comments generated (responded)**			**Non-responded EVD news posts**			**Total**
	7343 (97.9%)			157 (2.1%)			7500 **(100%)**
Area(s) of specialty	73						
Number of HCPs who made comments	**Responded at least once**			**Responded more than once**			**Total**
	2635 (76.6%)			675 (23.4%)			**3310 (100%)**
Number of EVD News Posters	**Identifiable**			**Non-Identifiable**			**Total**
	76			23			**99**
Response Rate	**Short period**			**Long period**			**Total**
	90.5%			9.05%			**100%**
Number of Likes	5511						

There were about 3,310 healthcare practitioners who engaged in EVD knowledge sharing on network. Out of the 3,310 HCP, 79.6% (2635) of HCPs responded at least once on EVD news post within the online social network. The EVD news was posted by 99 HCPs including the administrators of the online social network. However, the posters of about 23 EVD news could not be identified on the online social network. Moreover, 90.5% of HCPs responded to EVD newspost within a short period, while 9.05% of HCPs responded after a long period the EVD news post was made.

4.2 Answers to Research Questions

This section provides answers to research questions that guided the study. The qualitative textual data collected for research questions one, two, three, four and five were thematically analysed with NVivo 12 software tool. Identified themes from word frequency counts and word cloud were used to address these research questions. However, the structured quantitative data collected for research question six to eight were analysed using NVivo 12 software tool, MS Excel analytical tool and UCINET 6 (SNA) software tool. See Appendix V for the entire EVD newsposts used for this study.

Research Question 1: What was the topic content taxonomy of EVD newsposts among healthcare practitioners on the network?

Research question one examined the topic content taxonomy of EVD newsposts that were responded to by the healthcare practitioners on the network. There were two hundred and thirty-four (234) newsposts that were responded to by the HCP across the study period (2014-2018). The newsposts that were categorised are shown in Appendix VI. The categorisation of news contents and topics were used to build an initial EVD knowledge taxonomy which formed a framework for addressing most of the research questions posed in this study. The EVD knowledge taxonomy is shown in the Figure 4.2

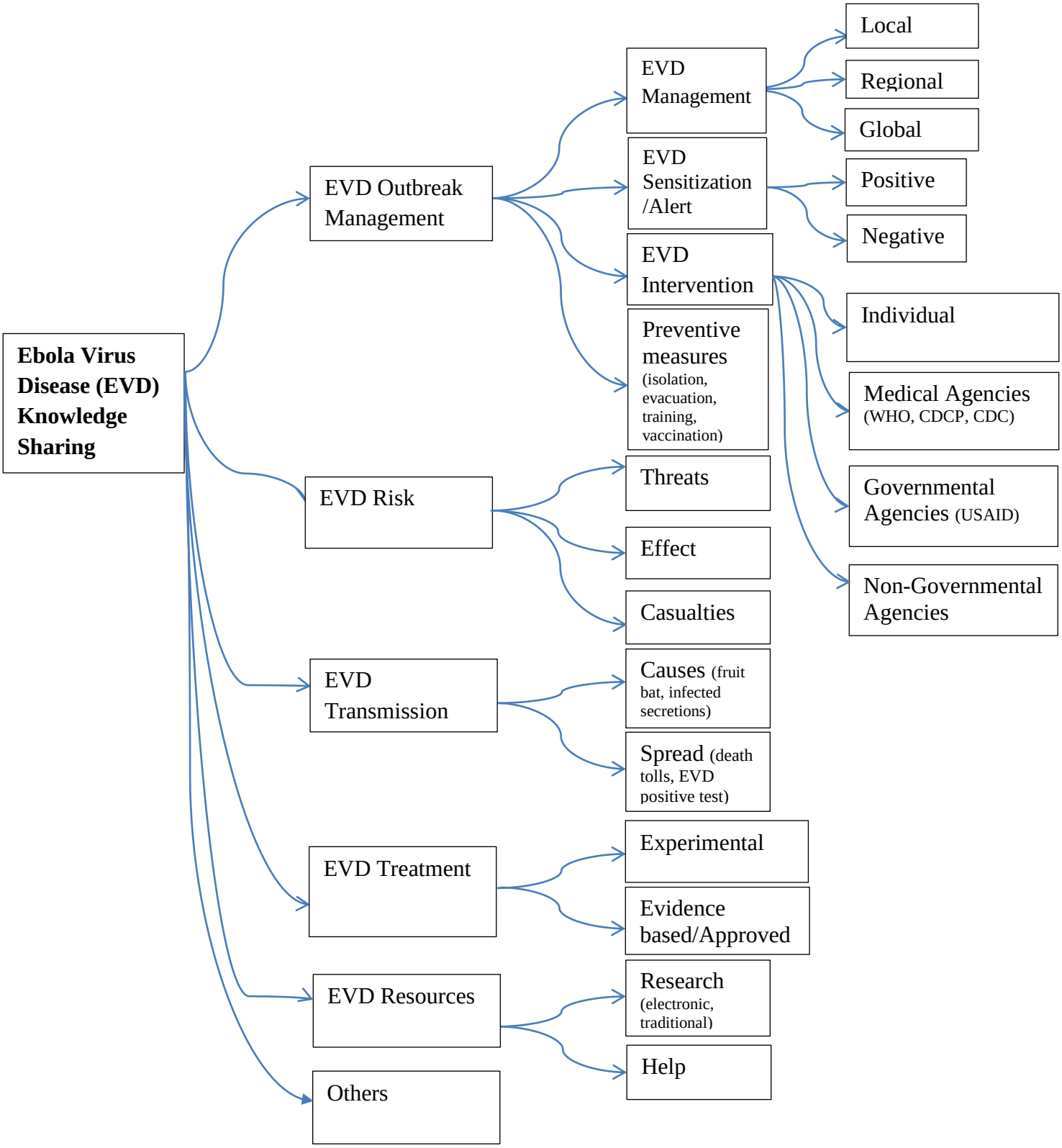


Figure 4.2: EVD Knowledge Sharing Taxonomy on the Medscape Network

The responded EVD newsposts were categorised and mapped into 11 minor themes along with their sub-themes (Figure 4.2). The minor themes were further grouped into 6 major themes, which are: EVD outbreak management, EVD risk, EVD Transmission, EVD Treatment, EVD Resources/Education, out of scope". The theme "out of scope" was also captured as "others" to examine if there were other health related issues that were posted on the EVD platform. The thematic mapping of the entire newsposts is shown in Appendix II. Derived themes from EVD news content and topics were first agglutinated to form a compound word without changing their form to ensure proper data handling and analyses using NVivo software. The agglutinated words (themes) *evdoutbreakmanagement, evdrisk, evdtransmission, evdtreatment, evdresourceseducation, outofscope* were then subjected to a word frequency query (Table 4.1). Below are some of the EVD newsposts categorised into themes.

EVD Outbreak Management: *"West African Nations Scramble to Contain EVD Threat"*

EVD Treatment: *"Test EVD Drugs Should Be Tried in Africa, Disease Expert Says"*

EVD Risk: *"As EVD Stalks West Africa, Medics Fight Mistrust, Hostility"*

EVD Transmission: *"Sierra Leone's EVD Doctor Contracts the Virus"*

Out of Scope: *"1st Zika Virus Case in Continental United States Confirmed in Texas"*

Table 4.2: Word count of the major themes derived from EVD news topic taxonomy

Word	Length	Count 2014	Count 2015	Count 2016	Count 2017	Count 2018	Total
evdoutbreakmanagement	21	93 (52.25%)	10 (25.64%)	2 (16.67%)	1 (33.33%)	-	106
Evdrisk	7	22(12.36%)	7 (17.95%)	3 (25.00%)	1 (33.33%)	-	33
evdresourceeducation	20	22 (12.36%)	7 (17.95%)	-	-	-	29
evdtreatment	12	22 (12.36%)	3 (7.69%)	-	-	-	25
outofscope	10	6 (3.37%)	6 (15.38%)	7 (58.33%)	1 (33.33%)	2 (100%)	22
evdtransmission	15	13 (7.30%)	6 (15.38%)	-	-	-	19
Total		178 (100%)	33 (100%)	12 (100%)	3 (100%)	2 (100%)	234

Among the 234 EVD newsposts that were categorised into 6 major themes of the EVD topic taxonomy, theme *evdoutbreakmanagement* occurred most (106) across the years. This was followed by *evdrisk* (33 times), *evdresourceseducation* (29 times), *evdtreatment* (25 times), *outofscope* (22 times), and *evdtransmission* (19 times). This result indicated that news on management of EVD outbreak were predominant on the network (Table 4.2). The newsposts on the management of EVD outbreak include EVD management, sensitisation and alert, intervention and preventive measures (isolation, evacuation, training, vaccination).

Chronologically, the theme *evdoutbreakmanagement* occurred 93 times (52.25%) during the first period of EVD outbreak in the year 2014, 10 times (25.64%) in 2015, 2 times (16.67%) in the year 2016 and once (33%) in the year 2017 (Table 4.2). However, there was no newspost on outbreak management in the year 2018. The theme *evdrisk*, was captured 33 times (12.36%) within the entire period. Hence, EVD news on EVD risk appeared 22 times during the period in the year 2014, 7 and 3 times in the year 2015 and year 2016 respectively, which were the mid period of EVD outbreak and once in the year 2017 which was the late period of EVD outbreak. There was no EVD news on "risk" in the year 2018. However, *evdresourceeducation* occurred 29 times (12.5%) in 2014 and 2015. However, *evdtreatment* appeared once (6.25%) in 2014, and *outofscope* occurred 3 times (18.75%) during the mid and the late periods of EVD outbreak in 2015, 2016 and 2018. Hence, the topic content taxonomy of EVD newsposts among healthcare practitioners on the network is shown in Figure 4.3.

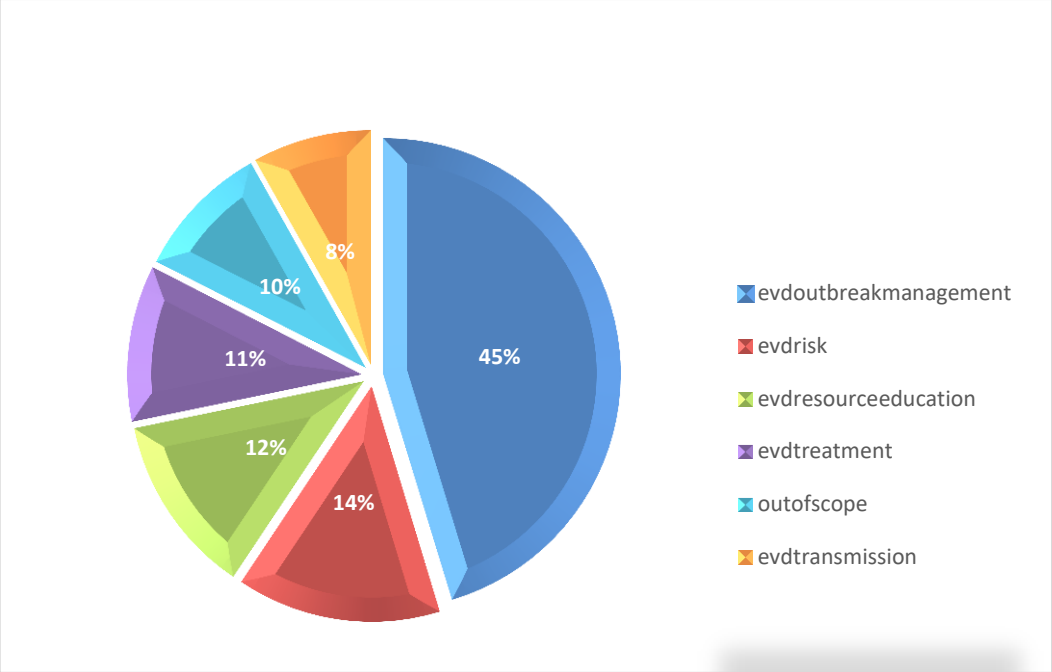


Figure 4.3: Topic content taxonomy of EVD newsposts among healthcare practitioners on the network

The result showed that during the early period of EVD outbreak in 2014, news on EVD mostly addressed issues about EVD outbreak management which were on local management (in different countries). In the mid and late periods of EVD outbreak in 2015, 2016 and 2017, news on EVD addressed issues on other health related case such as "*Zika Virus"* which may have similar symptoms as EVD.

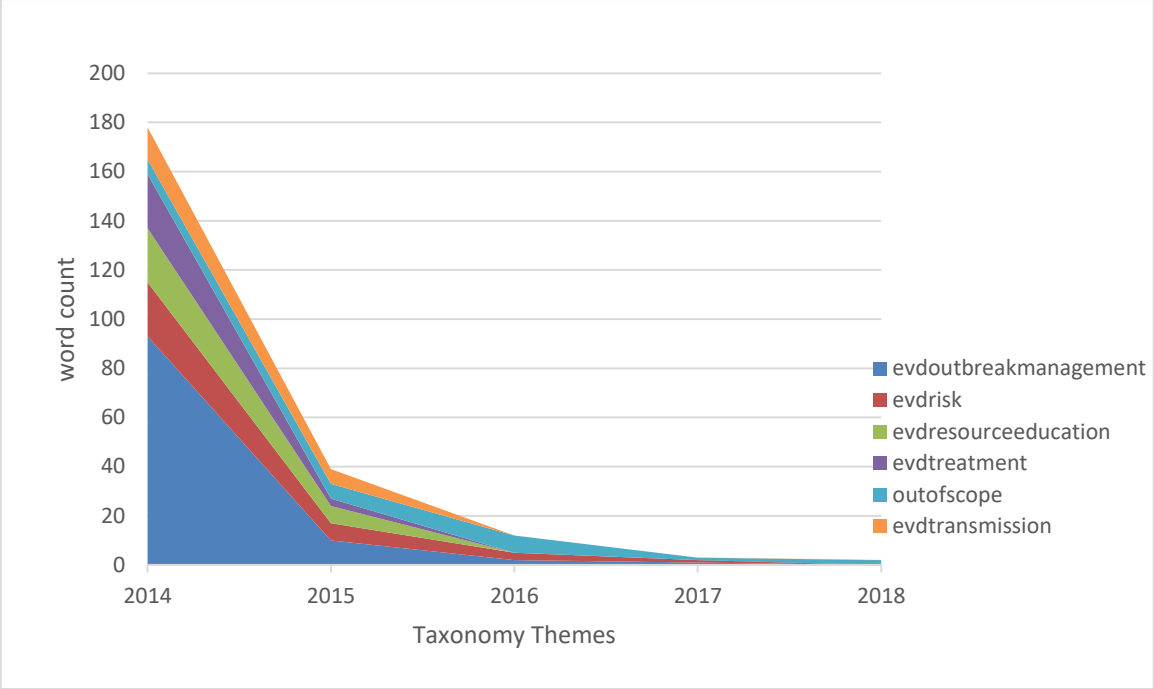


Figure 4.4: Timeline Chart on frequency of Newsposts categorised based on Taxonomy Themes on the network

Figure 4.4 showed that at the earlier stage of the outbreak, the newsposts majorly focused on EVD issues due to the intensive global tension which arose from the threat of the virus during the period of outbreak although issues on EVD outbreak management had the greatest number of posts compared with other EVD themes in 2014. But there was a decrease in 2015, 2016 and 2017 on the threats of EVD outbreak on the masses, thus, giving chance for other health related cases to be addressed on the network. At these periods, cases of survivals of EVD were posted on the network as well as other management strategies. Also, possible intervention plans were drawn during the last stage of the outbreak. As a result, newsposts on EVD declined unlike they were in the early stage, thus, giving room to newsposts on other health related issues on the network which was captured as "out of scope" in this study.

Research Question 2: What was the conversation taxonomy of EVD knowledge shared among healthcare practitioners on the network?

Research question two examined the conversation taxonomy of EVD knowledge shared among healthcare practitioners on the network. The HCPs made about seven thousand three hundred and forty-three (7343) conversations on 234 EVD news topics on the network. The conversations were categorised into the themes of the EVD knowledge taxonomy (Appendix VII). Each conversation was initially categorised and mapped into the 11 minor themes (Figure 4.2). The minor themes were thereafter grouped into 6 major themes: EVD outbreak management, EVD risk, EVD Transmission, EVD Treatment, EVD Resources/Education, Out of Scope.

To query, each conversation was tagged with the agglutinated version of the labels for its adjudged taxonomy main and minor themes, i.e. *EVDoutbreakmanagement, EVDrisk, EVDTransmission, EVDTreatment, EVDResourcesEducation, OutofScope,* so that the query function of the NVivo software can be used to count and chart the occurrences of each label in the entire conversation data set. The results are summarized below.

I EVD Outbreak Management

a) EVD Management (Local Management)

Example:

"We have not yet identified any case of Ebola in Liberia. We are still observing those cases reported at the border of Guinea with Liberia"

b) EVD Sensitisation / Alert (Negative sensitisation /Alert)

Example:

"If it's not airborne, how did the 5 other people in the taxi contract the virus? One would assume that her fellow taxi passengers would not have had any direct contact with her bodily fluids. I feel like we're not getting the whole story here, and that's a little frightening."

II EVD Resource/ Education

a) EVD Research

Example:

"Research posted here, http://TinyURL.com/StopEbola, done by the US Department of Defense and declassified in 2009 shows clearly that Nano Silver 10 PPM (which is NOT colloidal or ionic silver) inactivates Ebola virus. Nano Silver is a non-toxic substance which every member of the community can safely take. For my Protocol on its use enter email at www.NaturalSolutionsFoundation.com*."*

b) EVD help

Example:

"How will the POTUS FY 2015 45 mil impact on the actual epidemic? What are the immediate and long term priorities?"

III EVD Risk

a) EVD Threats

Example:

"Not only is this Ebola epidemic different in scope and quality than any that have occurred before, but in Liberia and the other countries we seem to be witnessing beginning of a breakdown in basic health care systems. The worst example of this occurred last week in Liberia when the medical staff of Redemption Hospital in New Krutown, Monrovia walked out after the death of a nurse because of their fear of Ebola, (http://allafrica.com/stories/201406200896.html). This case also highlights the fact that it is the frontline healthcare workers who place themselves in the greatest risk and in fact we know that many health care workers have succumbed to the disease in Guinea, Sierra Leone and Liberia…"

b) EVD Effect

Example:

"Ebola continues to claim the lives of Health Care Workers (HCW) in the affected areas. Having standard guidelines developed to use as default guidance in providing resuscitative intervention for Ebola patients is necessary, to protect the (HCW). I welcome the idea."

IV EVD Treatment

Example:

"What will it take to get those drugs or vaccines to Liberia and what are the drugs?"

V EVD Transmission

Example:

"Hmmmm,i hope it doesn't get to Nigeria"

VI Out of Scope (other health related issues)

Example:

"Removing tires and flower pots is just plain silly. We have drainage ditches, ponds and bayous all over the Houston greater metro area as well as in most of south Texas where is rains more than in Seattle. Spraying for mosquitoes is expensive, infrequently done and probably not very effective without also killing the beneficial insects needed for pollination. If this is a real public health problem, why aren't we working on a vaccine?"

The results in Table 4.3 showed that out of the 7343 conversations made by HCPs which were categorised into 6 major themes of EVD topic taxonomy, theme *evdrisk* was predominant with 4678 occurrences (63.71%), while *evdoutbreakmanagement* occurred at 961 times (13.09%), *evdresourceeducation* at 897 times (12.22%), *outofscope* at 672 times (4.08%), *evdtransmission* at 74 times (1.01%) and *evdtreatment* at 61 times (0.83%).

Table 4.3: Word count of the major themes derived from EVD conversations of the HCPs on the network

Word	Length	Count	Weighted Percentage (%)
Evdrisk	7	4678	63.71
Evdoutbreakmanagement	21	961	13.09
Evdresourceeducation	20	897	12.22
Outofscope	10	672	9.15
Evdtransmission	15	74	1.01
Evdtreatment	12	61	0.83
Total		**7343**	**100**

However, the result on the conversation taxonomy among HCP based on minor themes showed that *evdeffect* occurred most at 3770 times (56.47%). This predominant theme belongs to EVD risk major theme. This was followed by *evdthreats* at 801 times (12.00%) *evdsensitisationalert* at 557 times (8.34%), *evdresearch* at 457 times (6.85%), *evdhelp* at 426 times, *evdintervention* at 205 times (3.07%), *evdpreventivemeasures* at 166 times (2.49%), *evdcasualties* at 120 times (1.80%), *evdspread* at 70 times (1.05%), *evdtreatment* at 50 times (0.75%), *evdmanagement* at 42 times (0.63%), *evdexperimentaltreatment* at 10 times (0.15%) and *evdcauses* only occurred two times (0.03%). Figure 4.5 shows the nature of EVD conversations among healthcare practitioners based on minor themes

Figure 4.5: Conversation taxonomy of EVD knowledge shared among healthcare practitioners based on minor themes

In addition, the result on the conversation taxonomy among HCP based on subthemes showed that *positivealert* was highest and it occurred 464 times (57.42%), followed by *individualintervention* which occurred 151 times (18.69%), *negativealert* occurred 95 times (11.76%), "medicalintervention" occurred 30 times (3.71%), *localmanagement* occurred 19 times (2.35%), *globalmanagement* occurred 16 times (1.98%), "religionintervention" occurred 14 times (1.73%), "governmentintervention" occurred 10 times (1.24%), "regionalmanagement" occurred 5 times (0.62%), while "nongovernmentalintervention" occurred 4 times (0.50%). Further analysis on the conversation taxonomy among HCP were categorised into sub-themes in Figure 4.6.

Figure 4.6: Conversation taxonomy of EVD knowledge shared among healthcare practitioners based on sub-themes

The result indicated that the conversation of HCPs on EVD were mostly on issues on EVD risk which include effect, threats, and casualties. They also engaged in conversation on positive sensitisation of the disease outbreak. The result indicated that the HCPs shared their knowledge with their colleagues on the network on EVD issues especially on the EVD risk. They also engaged on ideas to sensitise their colleagues while receiving alert messages about the disease thus enhancing their clinical expertise and developing more insights about the disease.

Research Question 3: What EVD topics were of interest among healthcare practitioners on the network?

In this study, 391 newsposts on EVD were analysed to examine the topics that were of interest among HCPs on the network. Out of these topics, 342 newsposts (87.47%) addressed issues on EVD on the network (Appendix VIII). While 49 newsposts (12.53%) addressed other issues on the network. Hence, majority of the newsposts were within EVD scope for knowledge sharing among HCP on the network. This showed that these EVD newsposts were within the focus of EVD addressed in this study. These EVD newsposts formed topics of discussion among HCP on the online social network.

However, 234 (59.8%) EVD newsposts were responded by HCP and 157 EVD news posts were not responded by HCP on the network (Figure 4.1). There were 7343 conversations of HCP on 234 EVD topics resulting with a range value of 587 to one conversation on the entire EVD news topics. This indicated that the HCP made at least one conversation on the newspost on the network. The maximum conversation made on one newspost was 587 conversations. This also showed that the HCPs were active, and they engaged in EVD knowledge sharing. The number of EVD newsposts that were not responded to by the HCP was 157 (40.2%) EVD newsposts. These newsposts were regarded as isolate EVD newsposts.

The isolate analysis carried out on the isolated EVD newsposts showed that the entire isolated EVD newsposts include 136 (86.6%) pendants and 21 (13.4%) broadcast messages (Appendix VIII). The pendants are true problems within the network that were not responded to by the HCPs. Example of pendant EVD post is "*West African Ebola Outbreak Caused by New Strain of Disease: Study*". Broadcasts include administrative posts, conference announcement, and job advertisements which do not necessarily require

responses from HCPs, but they were posted on the forum to keep the HCP abreast. Example is "*Vodafone's Mobile Data to Be Deployed to Fight Epidemics in Ghana*". However, no EVD newspost among the isolated posts was posted as a result of an error. The result showed that the most of the isolated EVD newsposts were within EVD context of knowledge sharing among HCP on the network. The high percentage (86.6%) of pendants indicated that the EVD newsposts can form part of the topic of interest for the members who are the HCP.

Further analysis was carried out on the posters of the EVD newsposts to examine why some posts were not responded to by the HCP. The average mean (1.5) of posters of EVD newsposts was used as a benchmark to identify the active EVD newsposters on the network. The result showed that 63.3% of the EVD newsposters were not active posters on the network since they posted less than two EVD newsposts. Hence, the result showed that most of the pendants were posted by unrecognised posters on the network (Appendix VIII). This indicated that the sources of information of these isolate EVD newsposts were not guaranteed since the posters were not recognised within the EVD news platform on the network.

Furthermore, 36.7% of the recognised EVD newsposters were analysed in order to determine the similarity between the recognised EVD news topics that were pendants of the isolate EVD topics and other EVD news topics that were responded by the HCPs. The result of the text comparative analysis showed that only 4% of responded EVD topics matched the pendants of the isolated EVD topics. However, only two EVD newsposts had similar EVD topics from both responded and isolated EVD newsposts. These EVD newsposts were posted by the same EVD newsposters as shown in the syntax below,

Responded EVD topic*: "Death toll from West Africa Ebola Outbreak jumps to 603: WHO"*

Isolated EVD topic: *"Death toll from West Africa Ebola hits to 337: WHO"*

The result showed that both the responded to and the isolated EVD newsposts were within the interest of the HCP. This also indicated that the most of the EVD topics were of interest to the HCP. However, some posters of these isolated EVD newsposts were not recognised by the HCP and thus were not responded to by the HCP on the network.

Further analysis was carried on thematic categorisation of the entire EVD newsposts with respect to the initial EVD knowledge taxonomy developed in the study. These themes were queried to identify the EVD topics that are of interest to the HCP on the network (Appendix VIII). The result in Table 4.4 showed that out of the 391 EVD news topics that were categorised into six major themes, *evdoutbreakmanagement* occurred most in 167 times (42.71%). This was followed by *evdrisk* which occurred 57 times (14.58%), *evdtreatment* in 53 times (13.55%), *outofscope* 49 times (12.53%), *evdresourceeducation* in 38 times (9.72%) and *evdtransmission* in 27 times (6.91%).

Table 4.4: Word count of the major themes derived from EVD news topic taxonomy

Word	Length	Count	Weighted Percentage (%)
evdoutbreakmanagement	21	167	42.71
Evdrisk	7	57	14.58
Evdtreatment	12	53	13.55
Outofscope	10	49	12.53
Evdresourceeducation	20	38	9.72
Evdtransmission	15	27	6.91
Total		**391**	**100.00**

The result indicated that most of the news topics which addressed issues on management of EVD outbreak were of interest among HCPs. The topics on management of EVD outbreak include EVD management, sensitisation and alert, intervention and preventive measures (isolation, evacuation, training, vaccination). These was followed by news topics on EVD risk and treatment. In addition, news topics which addressed other health related issues were also of interest to HCP on the network. This showed that network does not only focus on news on EVD rather there were situations where news on other health related issues were posted on the network for the interest of the members.

However, further analysis of EVD topics based on the minor themes (Figure 4.7) showed that *evedsensitisation* occurred most in 81 times (23.68%). This was followed by *evdtreatment* which occurred 53 times (15.50%), *evdintervention* occurred 41 times (11.99%), *evdthreats* occurred 39 times (11.40%), *evdpreventivemeasures* occurred 32 times (9.36%) *evdhelp* occurred 26 times (7.60%), *evdspread* occurred 24 times (7.02%), *evdmanagement* occurred 13 times (3.80%), *evdresearch* occurred 12 times (3.51%), while *evdcasualties and evdeffect* occurred 9 times (2.63%) each and *evdcauses* occurred three times (0.88%).

Figure 4.7: Word cloud for thematic analysis of EVD topics that are of interest among the HCPs categorised based on minor themes

The result in Figure 4.7 indicated that the news topics that focused on EVD sensitisation and alert were of greater interest to the HCP on the network. The sensitisation and alert belong to EVD outbreak mangement category. These was followed by news topics on treatment, intervention, threats etc. However, news topics which addressed EVD causes were of lesser interest to the HCP on the network. This showed that network focused majorly on issues which highlights how EVD can be contained within the globe.

The thematic analysis result of EVD topics based on sub-theme categorization showed that both *negative* (31.85%) and *positive* (27.41%) *sentisation*/*alert* were of interest to the HCP on the network (Table 4.5). Followed by *medicalintervention* (17.78%), *governmentintervention* (8.89%), *localmanagement* (5.19%), *regionalmanagement* (4.44%), *nongovernmentalintervention* (3.70%) *and religionintervention* (0.74%).

Table 4.5: Word count of the sub-themes derived from EVD news topic taxonomy

Word	Length	Count	Weighted Percentage (%)
Negativealert	13	43	31.85
Positivealert	13	37	27.41
Medicalintervention	19	24	17.78
Governmentintervention	22	12	8.89
Localmanagement	15	7	5.19
Regionalmanagement	18	6	4.44
nongovernmentalintervention	27	5	3.70
Religionintervention	20	1	0.74
Total		**135**	**100.00**

This result showed that both negative and positive sentisation/ alert were of greater interest to the HCP on the network. Followed by medical intervention, government intervention, local management, regionalmanagement, non-governmental intervention. However, religion intervention was of lesser interest to the HCPs on the network.

Research Question 4: How did healthcare practitioners respond to EVD newsposts on the network?

The result showed that, out of 7500 data generated from the network, 7343 responses were generated from knowledge sharing on 234 topics among HCP on the network (Appendix IX). The distribution of conversations of HCP made on the entire newsposts showed that the minimum and a maximum number of conversations was 1 and 587 respectively with a mean value of 31.38. The distribution was positively skewed indicating that the right tail of the distribution is longer than the left (Appendix X). There were about 3310 healthcare practitioners with 73 areas of specialties across different healthcare professions who engaged in knowledge sharing on the online social network. The result indicated that 2,635 (79.6%) HCPs made only one response within the network, while only 657 (20.4%) HCPs made more than one response on newsposts on the network. This showed that the HCPs were ready to contribute to newspost but, only one-fifth of the HCPs made additional contributions after their first response to the newsposts on the network.

The response rate of HCP to newsposts on the network was measured by examining the period of each conversation of HCPs to newsposts with respect to the taxonomy developed in this study (Table 4.6).

Table 4.6: Duration of conversations on EVD newsposts with respect to the EVD taxonomy

EVD taxonomy	Length	conversations within a day after the post	conversations ≤ one week after the post	conversations > 1 to ≤ 2 week after the post	conversations > 2 to ≤ 3 weeks after the post	conversations > 3 to ≤ 4 weeks after the post	conversations more than one month after the post
Evdrisk	20	1327	3077	162	40	20	52
Evdoutbreakmanagement	21	253	588	69	23	6	22
Evdresourceeducation	7	172	509	116	57	31	12
Outofscope	12	172	423	48	11	12	6
Evdtransmission	15	33	34	4	1	1	1
Evdtreatment	10	11	45	1	-	-	4
Total		**1968**	**4676**	**400**	**97**	**132**	**70**

The result showed that knowledge sharing among HCP on the network were mostly within one week after each newspost. This showed that the HCP responded actively to newsposts on the network within a short period after each newspost. Furthermore, the result in Figure 4.8 showed that EVD risk (3077), EVD outbreak management (588), EVD resources and education (509), other health related issues (423), as well as EVD transmission (34) and EVD treatment (45) were mostly responded to within one week by the HCP on the network. This indicated that the HCPs were active and willing to address any issue relating to newsposts on the network.

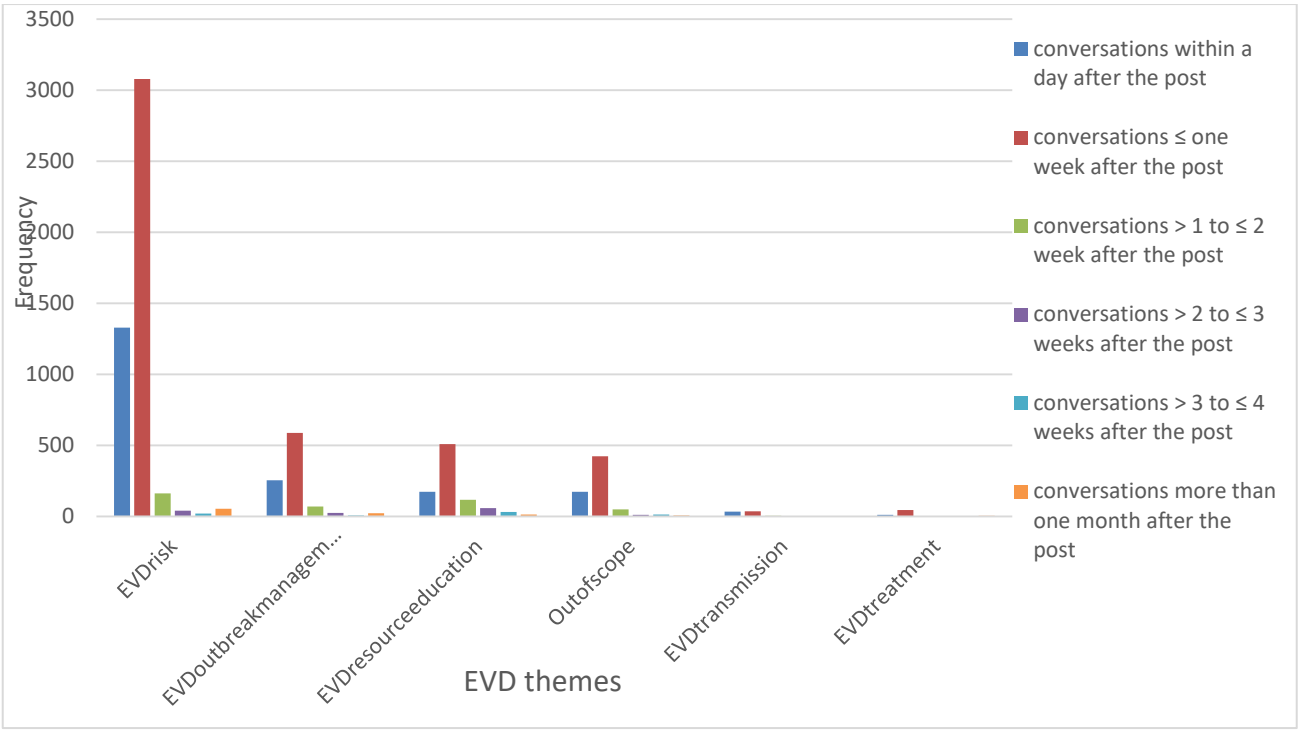


Figure 4.8: Speed of HCP responses to EVD newsposts by EVD taxonomy theme

In addition, Figure 4.9 below showed that conversations of HCPs which were made same day with the newspost were mostly on *evdrisk*. This showed that the HCPs were eager to contribute on associated with the virus.

Figure 4.9: Word cloud for thematic analysis of conversations made same day with newspost based on major themes

Figure 4.10 showed that conversations of HCPs made within one week after newspost were mostly on *evdresourceseducation,* followed by *evdrisk, evdoutbreakmanagement*. However, conversations were rarely made on *evdtransmission* within this timeline. Also, there was no conversation on *evdtreatment* within the timeline.

Figure 4.10: Word cloud for thematic analysis of conversation made within one week after newspost based on major themes

Figure 4.11 showed that conversations of HCPs made within two weeks after newspost were mostly on *evdrisk* followed by *evdoutbreakmanagement, evdresourceseducation*. However, conversations were rarely made on *evdtransmission* and *evdtreatment* within this timeline.

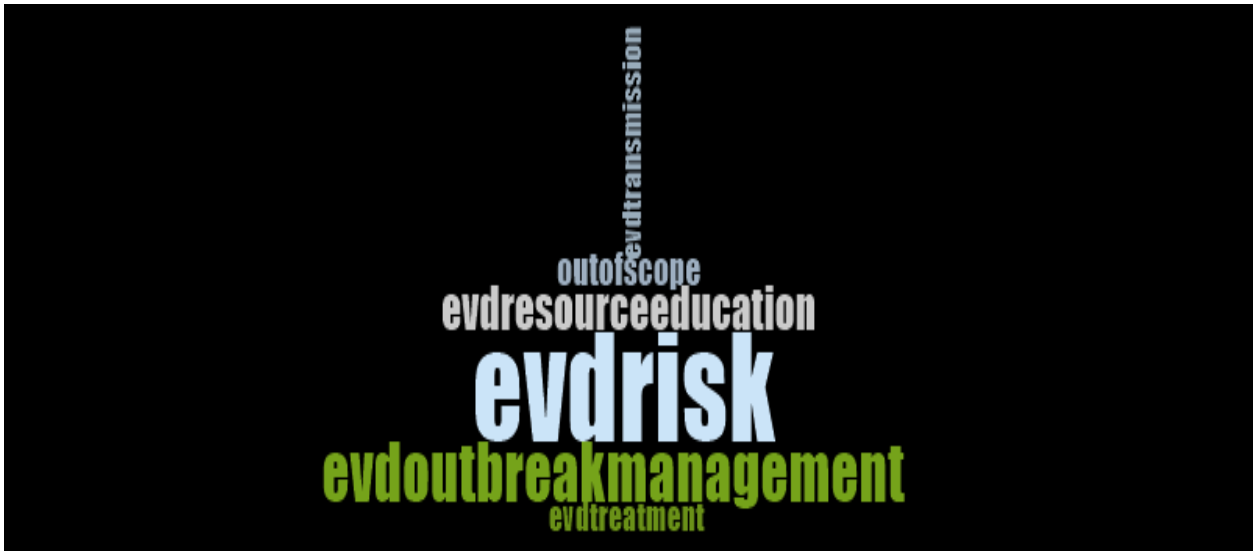


Figure 4.11: Word cloud for thematic analysis of conversation made within two weeks after newspost based on major themes

Figure 4.12 showed that conversations of HCPs made within three weeks after newspost were mostly on *evdrisk* followed by *evdoutbreakmanagement* and *evdresourceseducation*. However, conversations were rarely made on *evdtransmission* and *evdtreatment* within this timeline.

Figure 4.12: Word cloud for thematic analysis of conversation made within three weeks after newspost based on major themes

Figure 4.13 showed that conversations of HCPs made within four weeks after newspost were mostly on *evdresourceseducation,* followed by *evdrisk, evdoutbreakmanagement*. However, conversations were rarely made on *evdtransmission* within this timeline. Also, there was no conversation on *evdtreatment* within the timeline.

Figure 4.13: Word cloud for thematic analysis of conversation made within four weeks after newspost based on major themes

Figure 4.14 showed that conversations of HCPs made after one month of the post were mostly on *evdrisk, evdresourceseducatio*
n and *evdoutbreakmanagement,* However, conversations were rarely made on *evdtransmission* and *evdtreatment* within this timeline. The entire word cloud for thematic analysis of conversation made on newpost across the timelines based on major themes, minor themes and sub-themes are shown in Appendix XI

Figure 4.14: Word cloud for thematic analysis of conversation made within one month after newspost based on major themes

Further analysis in Table 4.7 showed that out of 7343 conversations of the HCPs, about 4676 (63.67%) conversations of the HCPs were made within one week after the post, while about 1968 (26.80%) conversations were made on the same day with the newsposts. The result also showed that about 400 (5.45%) conversations of the HCPs were made within two weeks after newspost and about 132 (1.79%) conversations of the HCPs were made within four weeks after newspost. However, about 97 (1.32%) conversations of the HCPs were made within three weeks after newspost while about 70 (0.95%) conversations of the HCP were made after one month of newspost. The result indicated that HCPs responded to newspost mostly within one week of the post (Table 4.7). This suggests that the HCP monitors the newspost on the network in order to share their EVD knowledge. The result also depicts that the newsposts on this network consists of trending issues on EVD that capture the interest of HCP to engage in knowledge sharing.

Table 4.7: Duration of thread among HCPs with respect to the period of EVD newsposts

Period of conversations	**Number of conversations (percentage in parenthesis)**
conversations ≤ one week after the post	4676 (63.67)
conversations within a day after the post	1968 (26.80)
conversations > 1 to ≤ 2 week after the post	400 (5.45)
conversations > 3 to ≤ 4 weeks after the post	132 (1.79)
conversations > 2 to ≤ 3 weeks after the post	97 (1.32)
conversations more than one month after the post	70 (0.95)
Total	**7343 (100)**

The response rate of HCPs to newspost was further analysed based on the duration of threads on the network. This provided insight into the nature of EVD knowledge sharing existing among HCPs on the network. Table 4.8 showed the period of the post of each newspost with respect to initial and last conversations made on the post. The initial conversations of HCPs showed that about 59% (138) of newsposts were responded to by the HCPs within one week after each post while about about 35.5% (83) of newsposts were responded to on the same day with the post by the HCPs. The result also indicated that 2.6% (6) of newsposts were responded to within two weeks after each post. However, about 1.3% (3) of EVD news posts were responded to within three weeks and one month after each post while only one EVD news post (0.4%) was responded by the HCP a month after the post. The result showed that the initial conversations of HCPs on newspost were mostly within one week. This indicated that healthcare practitioners responded quickly to newspost on the network.

Table 4.8: Duration of thread among HCPs with respect to Initial and Last conversations made on the Post

Duration of conversations	Initial conversations made on the Post (percentage in parenthesis)	Last conversations made on the Post (percentage in parenthesis)
Conversations ended more than 1 day to ≤ one week after the post	138 (59)	114 (48.7)
conversations ended within a day of post	83 (35.5)	9 (3.8)
conversations ended > 1 week to ≤ 2 weeks after the post	6 (2.6)	53 (22.6)
conversations ended > 2 weeks to ≤ 3 weeks after the post	3(1.3)	17 (7.3)
conversations ended > 3 weeks to ≤ 4 weeks after the post	3(1.3)	8 (3.4)
conversations ended more than one month after the post	1 (0.4)	33 (14.1)
Total	**234 (100)**	**234 (100)**

The last conversations made by HCPs on about 48.7% (114) of newspost were made in less than/or a week after each news post, while about 22.6% (53) of newspost were responded to in less than/or two weeks after each newspost. However, 14.1% (33) conversations were made on the newsposts after one month of the post while about 7.3% (17) conversations were made on the newsposts in less than /or three weeks after each post. Furthermore, about 3.8% (9) of newsposts were responded to on the same day with each newspost and about 3.4% (8) of news posts were responded to in less than /or one month after each post. The result showed that the thread on EVD among HCPs on the network lasts for a long period after each news post was made. This result indicated that the HCPs pay close attention to ideas made on EVD by their colleagues while sharing their knowledge on the social network. This showed that the network is a good knowledge repository on EVD for HCPs. It also indicated that the network can serve as a knowledge sharing platform for HCPs on EVD issues.

Research Question 5: What were the conversation trends of EVD knowledge shared among healthcare practitioners on the network?

This was measured to examine the conversation trends of EVD knowledge shared among healthcare practitioners on the network. To achieve this, conversations of HCPs were categorized with respect to EVD knowledge sharing taxonomy (themes) developed. These themes were queried across the five years study period (Figure 4.15). The result in Figure 4.15 showed that out of the 7343 responses of the HCPs that were categorised into six major themes of the EVD topic taxonomy, the theme *evdoutbreakmanagement* occurred 861 times (13.28%) in 2014, 77 times (13.07%) in 2015, and 24 times (10.53) in 2016 while *evdrisk* occurred 4222 times (65.1%) in 2014, 405 times (68.76%) in 2015, 46 times (20.18%) in 2016, six times (25.0%) in 2017 and 22 times (95.65%) in 2018. The theme *evdresourceeducation* occurred 864 times (16.33%) in 2014, 25 times (4.24%) in 2015, eight times (3.51%) in 2016 while *evdtransmission* occurred 72 times (13.3%) in 2014, three times (0.51%) in 2015 and *outofscope* occurred 406 times (6.26%) in 2014, 78 times (13.24%) in 2015, 150 times (65.79%) in 2016, 17 times (70.83%) in 2017 and once (4.35%) in 2018. The theme *evdtreatment* appeared 60 times (0.93%) in 2014, once in 2015 and 2017 respectively.

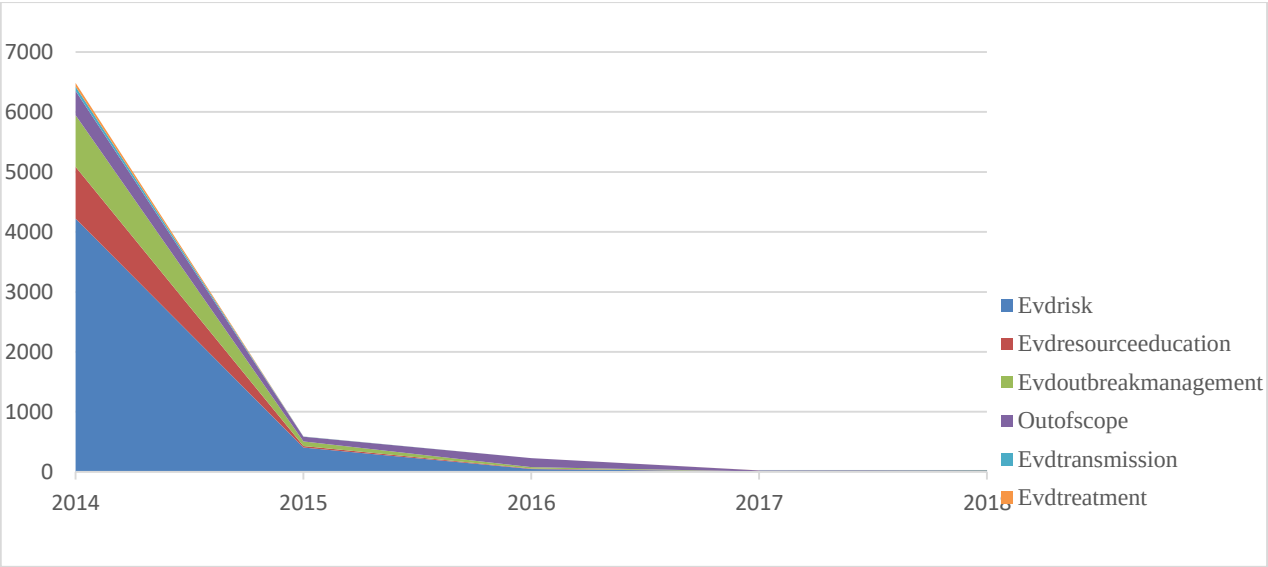


Figure 4.15: Major themes for conversation trends on the content of EVD knowledge shared among healthcare practitioners

The rate of comments, nature of comments and type of comments of EVD knowledge shared among healthcare practitioners are shown in Figure 4.15 above.

Figure 4.15 showed that the HCPs mostly engaged in knowledge sharing on EVD risk and EVD resources and education at the peak of outbreak in 2014, as well, EVD outbreak management, transmission of EVD, treatment of EVD and other health related issues were addressed by the HCPs on the network. At the mid period (2016) of EVD outbreak, issue on EVD was rarely or not addressed but at the final stage (2017 and 2018), issues such as EVD risk, treatment and other health related issues were addressed by the HCPs who engaged in knowledge sharing on the network.

However, the result in Table 4.9 showed that the minor theme *evdeffect* occurred most at 3345 times (55.03%) in 2014 and 375 times (73.39%) in 2015, 46 times (58.97%) in 2016, 4 times (57.14%) in 2017 followed by *evdthreats* which occurred 769 times (12.65%) in 2014, 30 times (5.87%) in 2015, and two times (28.57%) in 2017. The theme *evdsensitisationalert* occurred 498 times (8.19%) in 2014, 44 times (8.61%) in 2015 and 15 times (19.23%) in 2016. The theme *evdresearch* occurred 443 times in (7.29%) in 2014, 10 times (1.96%) in 2015 and four times (5.13%) in 2016.

Table 4.9: Word count of the minor themes for conversation trends on the content of EVD knowledge shared among healthcare practitioners

Word	Length	2014 Count (weighted percentage in parenthesis)	2015 Count (weighted percentage in parenthesis)	2016 Count (weighted percentage in parenthesis)	2017 Count (weighted percentage in parenthesis)	2018 Count (weighted percentage in parenthesis)
Evdeffect	9	3345 (55.03)	375 (73.39)	46 (58.97)	4 (57.14)	-
Evdthreats	10	769 (12.65)	30 (5.87)	-	2 (28.57)	-
Evdsensitisationalert	21	498 (8.19)	44 (8.61)	15 (19.23)	-	-
Evdresearch	11	443 (7.29)	10 (1.96)	4 (5.13)	-	-
Evdhelp	7	406 (6.68)	15 (2.94)	4 (5.13)	-	1 (100)
Evdintervention	15	180 (2.96)	16 (3.13)	9 (11.54)	-	-
evdpreventivemeasures	21	150 (2.47)	16 (3.13)	-	-	-
Evdcasualties	13	120 (1.97)	-	-	-	-
Evdspread	9	67 (1.10)	3 (0.59)	-	-	-
Evdtreatment	12	48 (0.79)	1 (0.20)	-	1 (14.29)	-
Evdmanagement	13	41 (0.67)	1 (0.20)	-	-	-
Total		**6067(100)**	**511(100)**	**78(100)**	**8(100)**	**1(100)**

The theme *evdhelp* occurred 406 times (6.68%) in 2014, 15 times (2.94%) in 2015, four times (5.13%) in 2016 and only once (100%) in 2018. The theme “evdntervention” occurred 180 times (2.96%) in 2014, 16 times (3.13%) in 2015 and nine times (11.54%) in 2016 while *evdpreventivemeasures* occurred 150 times (2.47%) in 2014 and 16 times (3.13%) in 2015. The theme *evdcasualties* occurred 120 times (1.97%) in only 2014, while *evdspread* occurred 67 times (1.10%) in 2014, 3 times (0.59%) in 2015. The theme *evdtreatment* occurred 48 times (0.79%) in 2014 and only once in both 2015 and 2017 while *evdmanagement* occurred 41 (0.67%) in 2014 and once (0.20%) in 2015.

Figure 4.16: Word cloud for minor theme categorisation of the content of EVD knowledge shared among healthcare practitioners in 2014

Figure 4.16 showed that the HCPs mostly engaged in knowledge sharing on effect of EVD outbreak and threats of EVD at the peak of EVD outbreak in 2014, as well as issues on sensitisation and alert, research, help, intervention, preventive measures, casualties recorded, spread, treatment, and management.

Figure 4.17: Word cloud for minor theme categorisation of the content of EVD knowledge shared among healthcare practitioners in 2015

However, effect of EVD outbreak and threats as well as issues on sensitisation and alert, research, help, intervention, preventive measures, spread, treatment, and management were addressed in the year 2015, but no issue on casualties was addressed in 2015 (Figure 4.17)

Figure 4.18: Word cloud for minor theme categorisation of the content of EVD knowledge shared among healthcare practitioners in 2016

At the mid period (2016) of EVD outbreak, issue on EVD was rarely addressed among the HCP on the network (Figure 4.18). However, only issues on EVD effect, threats and treatment were addressed in 2017 (Figure 4.19). Supprisingly, only issue on "help" was addressed in 2018 among the HCPs who engaged in knowledge sharing on the network.

Figure 4.19: Word cloud for minor theme categorisation of the content of EVD knowledge shared among healthcare practitioners in 2017

In addition, the result in Table 4.10 showed that *positivealert* occurred most at seven times (38.89%) in 2014 followed by *medicalagencies* four times (22.22%) in 2014, *localmanagement* occurred three times (16.67%) in 2014, *negativealert* occurred two times (11.11%) in 2014, and *globalmanagement* occurred once both in 2014 and 2015 while *individualintervention* occurred once (5.56%) in 2014.

Table 4.10: Word count of the sub-themes for conversation trends on the content of EVD knowledge shared among HCPs

Word	Length	2014 Count (weighted percentage in parenthesis)	2015 Count (weighted percentage in parenthesis)	2016 Count (weighted percentage in parenthesis)	2017 Count (weighted percentage in parenthesis)	2018 Count (weighted percentage in parenthesis)
Positivealert	13	405 (56.02)	44 (72.13)	15 (62.50)	-	-
Individualintervention	22	126 (17.43)	16 (26.23)	9 (37.50)	-	-
Negativealert	13	95 (13.14)	-	-	-	-
Medicalintervention	19	30 (4.15)	-	-	-	-
Localmanagement	15	19 (2.63)	-	-	-	-
Globalmanagement	16	15 (2.07)	1 (1.64)	-	-	-
Religionintervention	20	14 (1.94)	-	-	-	-
Governmentintervention	22	10 (1.38)	-	-	-	-
Regionalmanagement	18	5 (0.69)	-	-	-	-
Nongovernmentalintervention	27	4 (0.55)	-	-	-	-
Total		**723 (100)**	**61 (100)**	**24 (100)**		

The result in Table 4.10 showed that *positivealert* was highest and it occurred 405 times (56.02%) in 2014, 44 times (72.13%) in 2015, 15 times (62.50%) in 2016 followed by *individualintervention* 126 times (17.43%), 16 times (26.23%) in 2015, and nine times (37.50) in 2016. The sub theme *negativealert* occurred 95 times (13.14%) only in 2014, "medicalintervention" 30 times (4.15%) only in 2014, *localmanagement* 19 times (2.63%) only in 2014 while *globalmanagement* occurred 15 times (2.07%) in 2014 and once (1.64%) in 2015. The sub theme "religionintervention" occurred 14 times (1.94%) only in 2014, "governmentintervention" occurred 10 times (1.38%) only in 2014, "regionalmanagement" occurred five times (0.69%) only in 2014 and "nongovernmentalintervention" occurred four times (0.55%) only in 2014.

This showed that the HCPs mostly engaged in knowledge sharing on positive alert and sensitisation of the masses on EVD outbreak and intervention from medical agencies and individuals, negative alert and sensitisation of the masses, global management of the outbreak at the peak of EVD outbreak especially in 2014. However, at the mid period (2016) and final period (2017 and 2018) of EVD outbreak, issues on sub EVD themes were rarely addressed among the HCP on the network.

These results indicated that there was a high conversation frequency among HCPs on the network at the peak period of EVD outbreak in 2014 followed later by a decline at the off-peak of EVD outbreak. This means a high interaction tie among HCPs on the network especially at the peak period. This showed that the HCPs were willing and ready to engage in EVD knowledge sharing on the network.

Research Question 6: How substantial were EVD knowledge shared among healthcare practitioners on the network?

The level of relevance was measured to determine whether network was useful for EVD knowledge sharing among HCPs. The syntax below highlights the relevance of the conversations of HCP on EVD topics of discussion at three levels: relevant; partially relevant; and not relevant.

a) For the conversations that are relevant to the EVD topic of discussion an example is presented thus:

EVD news topic: "*Drastic Action Needed to Halt World's Worst Ebola Outbreak: WHO*".

Response:

"Not only is this Ebola epidemic different in scope and quality than any that have occurred before, but in Liberia and the other countries we seem to be witnessing beginning of a breakdown in basic health care systems. The worst example of this occurred last week in Liberia when the medical staff of Redemption Hospital in New Krutown, Monrovia walked out after the death of a nurse because of their fear of Ebola, (http://allafrica.com/stories/201406200896.html). This case also highlights the fact that it is the frontline healthcare workers who place themselves in the greatest risk and in fact we know that many health care workers have succumbed to the disease in Guinea, Sierra Leone and Liberia. Perhaps the standard techniques of case identification, strict isolation, contact tracing and monitoring will ultimately prevail in overcoming this epidemic, nevertheless this looks like a highly fluid emergency that appears capable of unravelling quite rapidly. Given these circumstances there is clear need for a vaccine right now to immunize health care workers and probably also asymptomatic contacts. In my opinion, even an experimental vaccine that has shown efficacy and safety in animal studies should be considered and held in ready. I asked the vaccine research community, are there vaccines in the pipeline available in sufficient quantity that might be usefully applied to this emergency? If so, could we agree that this is an idea with merit that should be vigorously discussed, proposed, and promoted to the various response coordinators working with ebola on the ground in Africa and elsewhere, (like the CDC, NIH, and the WHO)?
Thanks"

b) For the conversations that are partially relevant to the EVD topic of discussion, we have:

EVD news topic: "*West African Nations Scramble to Contain Ebola Threat*"

Response

"We have not yet identified any case of Ebola in Liberia. We are still observing those cases reported at the border of Guinea with Liberia"

c) For the conversations that are not relevant to the EVD topic of discussion, we have:

EVD news topic: "*Sierra Leone's Top Ebola Doctor Dies From Virus"*

Response

"I do not believe we should bring Ebola patients to the US. There is a risk in doing so."

Table 4.11 presented the result on the relevance of the conversations of HCP on EVD topics in three levels. The result showed that about 702 (9.6%) conversations of the HCPs were relevant to the EVD topics of discussion on the network. This indicated that the EVD newsposts on Medscape network were relevant to HCPs for EVD knowledge

sharing. Moreover, about 6538 (89.0%) conversations of HCPs were partially relevant, and about 86 (1.2%) conversations were not relevant. These results also indicated that HCPs also addressed other EVD related issues that were not in line with the topic of discussion. However, 17 (0.2%) conversations were isolated because they were written in another language apart from English language designated for this study.

Table 4.11: Summary Result on Relevance of the conversations of HCP

Relevance of conversation	**Number of Conversations (percentage in parenthesis)**
Relevant	702 (9.6)
Partially Relevant	6538 (89.0)
Not Relevant	86 (1.2)
Isolate	17(0.2)
Total	**7343 (100)**

Further analysis was carried to examine whether the conversations of HCP addressed the EVD topics being discussed, the previous conversations of HCP on EVD topics, or issues outside EVD topics (subject matter). In addition, some conversations of HCP were written in jargon or a different language outside English language. This is beyond the language scope of this study. These conversations are referred to as isolate conversations. The examples of these conversations are presented in the syntax below:

a) For the conversation which highlights EVD topic of discussion, we have:

EVD topic: *"Ebola: Are Treatments, Vaccines on the Horizon?"*

Response

"Treatment for Ebola is already here. The definitive study was declassified by the Defense Department in 2009. Nano Silver 10 PPM is available for use right now. You can read it at http://TinyURL.com/StopEbola. My protocol is available to those who request it at www.NSFMarketplace.com when you enter your email info. There is no purchase necessary"

b) For conversation which highlights the previous conversation made on EVD topic of discussion, we have:

EVD topic: *"Taxis, Planes and Viruses: How Deadly Ebola Can Spread"*

Previous conversation on the topic:

Gatherer noted that while Ebola doesn't spread through the air. . ."? May I ask how the 5 other people in the communal taxi then did contract Ebola from the index patient? I doubt all 5 or even most of the 5 were sitting next to her. If she appeared ill, would they not have kept their distance? It has been documented to be airborne transmitted between piglets and non-human primates: http://www.nature.com/srep/2012/121115/srep00811/full/srep00811.html

Response

"*One good sneeze (or cough) is all it would take!"*

c) For conversations that do not highlight either the topic or previous conversations (out of scope), we have:

EVD topic: Experimental Ebola Drugs Should Be Tried in Africa, Disease Expert Says

Response

"*Jeremy Farrar is outstanding!"*

d) For isolate conversations

EVD topic: "*WHO Chief Says Ebola Out of Control but Can Be Stopped"*

Response

"Les pesanteurs socio culturels dans le contexte africain ne facilitent pas l'accès aux patients contaminés par le virus EBOLA, mais nous pouvons y arriver en introduisant une campagne de promotion des mesures d'hygiène dans les communautés suspectées en mettant l'accès sur l'hygiène des mains, en insistant sur les avantages de ces mesures pour limiter la propagation de EBOLA dans notre contexte. Je pense que ceci pourrait être une porte d'entrée qui pourrait faciliter l'accès aux patients infectés. C'est ambitieux nous ne perdons rien en l'essayant."

The result in Table 4.12 showed that 797 conversations addressed the EVD topics being discussed, 6473 conversations addressed other conversations made on EVD topics, 56 conversations addressed neither the EVD topics nor conversations made on each of the EVD topics. However, 17 conversations were isolated because it was not written in English Language, thus, were not analysed.

Table 4.12: Conversations of HCP that addressed the EVD topics being discussed on Medscape network

Conversation Highlight	Number of Conversations (percentage in parenthesis)
Topic	797 (10.9)
Conversation	6473 (88.2)
out of scope	56 (0.8)
Isolate	17 (0.2)
Total	**7343 (100)**

The study also addressed the knowledge sharing problems identified by HCP during knowledge sharing in relation to EVD topic and how these problems were resolved. This was obtained based on how the HCP addressed the issue and the last feedback given on the topic by the HCP. Result on the analysis showed that some of the topics that were posted on the network do not require resolution. Example of this EVD topic is presented in the syntax below

EVD topic: *"Experimental Ebola Serum Grown in Tobacco Leaves"*

However, some of the topics that require resolution were completely resolved, partially resolved and not resolved. The syntax below presents how the topics were totally resolved, partially resolved, or unresolved based on the feedback given by the HCP on the network.

a) For a totally resolved EVD issue

EVD Topic: *"American Ebola Patient Improving"*

Response

"*Thanks for the update, we expect such containment measures, to enforced here in Nigeria, our public healthcare systems which is grossly inadequate has to be revamped. The government should pay more attention to health. We pray this outbreak doesn't get out of hand."*

b) For unresolved EVD issues

EVD Topic: *"West African Nations Scramble to Contain Ebola Threat"*

Response

"Senegal is closing the borders with Guinee to prevent further spreading of the virus. Does anyone know what is the expected time of the borders being closed? How is it going to be determined when the borders can be open again?"

The result showed that majority (183) of EVD topics discussed do not require resolution. About 19 EVD issues were completely resolved by the HCP during EVD knowledge sharing on the network. However, about 17 were partially resolved and 15 were not resolved. These findings indicate that HCP engage in EVD knowledge sharing to enhance their clinical expertise. This showed that the social network was useful for sharing EVD knowledge among HCP. Furthermore, it showed that the social network was impactful to them as it serves as a repository for knowledge sharing among HCP.

Research Question 7: What were the differences among different healthcare practitioners in their conversation participation behaviours on the network?

This research question was out to examine how the HCPs engage in EVD conversation across their professions. The profession of HCP who made conversations on each EVD newspost was analysed as well as their area of specialties. To achieved this, first, the area of specialties of the HCP were mapped and categorised into various professions of HCP (Appendix XII). Figure 4.32 shows the word cloud of the area of specialties of HCP who responded to EVD newsposts on the network. Also, the HCPs who originated conversation on each newspost were identified and counted.

Figure 4.20: word cloud of the area of specialties of HCP who responded to EVD newsposts on the network

Table 4.13 presents the professions of HCPs who responded to EVD newsposts indicating that medical doctors accounted for about 57.41% (1476) conversations on the entire EVD newspost. Nurses accounted for about 27.46% (706) conversations followed by "other" professions of HCP with about 6.65% (171) conversations, pharmacist accounted for about 2.22% (57) conversations, health/business administrators accounted for about 2.18% (56) conversations, medical students accounted for about 1.91% (49) conversations, nursing students accounted for about 1.13% (29) conversations while dentist and psychologists respectively accounted for 0.43% (11) conversations. However, healthitadministrator accounted for 0.08% (two) conversations. The conversations of athleticschoolcoach, optometrist and rehabspecialist were the least on the network and they accounted for 0.4% (one) conversation each on the network.

Table 4.13: Word count of rate of recurrence of EVD knowledge shared among different HCPs across professions on the network

Word	Length	Count	Weighted Percentage (%)
Doctor	6	1476	57.41
Nurse	5	706	27.46
Others	6	171	6.65
Pharmacist	10	57	2.22
Healthbusinessadministrator	27	56	2.18
Medicalstudent	14	49	1.91
Nursingstudent	14	29	1.13
Dentist	7	11	0.43
Psychologist	12	11	0.43
Healthitadministrator	21	2	0.08
Athleticschoolcoach	19	1	0.04
Optometrist	11	1	0.04
Rehabspecialist	15	1	0.04
Total		**2571**	**100**

The result showed that medical doctors and nurses made the highest number of conversations on the network and were the most active professionals in the online social network. The result also showed that medical doctors dominated the network and they made significant contributions (57.41%) on the network. Hence, doctors could be relied on for knowledge seeking on EVD on the network.

Further analysis was carried out on the interaction of HCP across their professions on the network using the number of conversations of HCP generated across professions of HCP who originates EVD knowledge sharing on the network. The group-level analysis was carried out in order to examine the inter-occupational communication existing among healthcare professionals (such as doctors, pharmacists, and nurses) on the network based on the number of EVD newspost they responded to and the number of responses made by the HCPs with respect to the originators of the conversation.

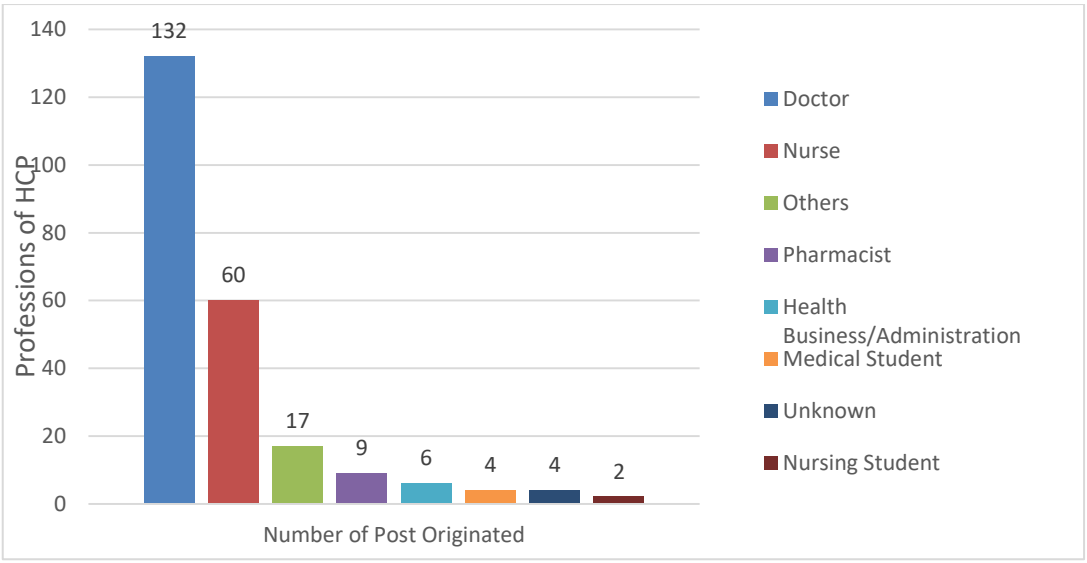


Figure 4.21: Professions of HCPs who originated knowledge sharing on the network

Figure 4.21 showed that about 132 (56.4%) EVD newsposts that were responded to were originated by the medical doctors. However, 60 (25.6%) and 17 (7.2%) newsposts were responded to by the nurses and other healthcare practitioners respectively. Pharmacists originated 9 (3.84%) newsposts while health business/administration originated 6 (2.56%) newsposts, medical student originated 4 (1.7%) and nursing student originated 2 (0.85%) newsposts. The result also showed that the profession of originators of about 4 (1.7%) newsposts were not known. This finding showed that medical doctors were the most active professionals on the online EVD knowledge sharing and they were among the top contributors on the network (Figure 4.21). The finding depicts that doctors serve as a conduit for knowledge sharing across HCP on the social network.

In addition, the originator's responses across the HCP professions were not uniformly distributed. Result showed that for each post, the HCPs from the originator's profession responded to the post but were most of the times not the top contributor in terms of number of posts responded to other originator's profession (Table 4.14). For instance, doctors are most of the times second in terms of number of posts responded to, and most of the times first in terms of the number of conversations.

Table 4.14: Inter-occupational communication in terms of number of newsposts

	Doc.	Nurse	Pharm.	Moderator	Dentist	Unknown	Medical Stud.	Nursing Stud.	Psych.	Health/Bus. Admin.	Others
Doctor (132)	132 (100%)	73 (55%)	19 (14.4%)	4	2	22	20	11	10	27	56 (42.4%)
Nurse (60)	40 (66.7%)	60 (100%)	17	1	3	10	8	9	3	18	24 (40%)
Pharmacist (9)	3 (33.3%)	4 (44.9%)	9 (100%)			1	1			1	1
Unknown (4)	2 (50%)	1				4 (100%)					1
Medical Student (4)	4 (100%)	3 (75%)				1	4 (100%)			1	3
Nursing Student (2)	1	1	1		1	1	1	2			1
Health/Bus. Administrator (6)	3	3	1				1			6	3
Others (17)	10	10	4		2	1	2		1	1	15

The result of the inter-occupational communication across the professions of HCP indicated that the HCPs responded to EVD newsposts irrespective of the profession of the conversation originators of the post (Table 4.14 and Table 4.15). The finding showed that the HCP engaged in EVD knowledge sharing regardless of the profession of HCP who originated the knowledge sharing.

Table 4.15: Inter-occupational communication in terms of number of conversations

	Doc.	Nurse	Pharm.	Moderator	Dentist	Unknown	Medical Stud.	Nursing Stud.	Psych.	Health/Bus. Admin.	Others
Doctor (132)	1517	465	21	4	3	626	25	14	11	39	128
Nurse (60)	385	481	28	2	3	434	14	11	3	22	64
Pharmacist (9)	12	12	11	0	0	1	2	0	0	2	2
Unknown (4)	4	2	0	0	0	3	0	0	0	0	1
Medical Student (4)	84	17	0	0	0	33	5	0	0	1	9
Nursing Student (2)	27	13	1	0	2	4	1	3	0	0	3
Health/Bus. Administrator (6)	35	9	2	0	0	0	1	0	0	6	10
Others (17)	87	31	7	0	2	35	2	0	2	8	32
Total (234)	**2151**	**1030**	**70**	**8**	**10**	**1136**	**50**	**28**	**16**	**78**	**249**

Research Question 8: Who were the most active and influential healthcare practitioners on EVD issues on the network?

The study identified the active and influential HCPs on the network using the conversations made on the entire EVD newspost and conversations made on each EVD newspost by the HCPs. This was determined to further understand the pattern of EVD knowledge sharing existing among HCPs on the network. Moreover, identifying the active and influential healthcare practitioners was important in developing strong interactions among HCPs on the social network. This was because the active and influential healthcare practitioners greatly affect the degree of activeness of other HCPs on the social network.

Active and influential HCPs were determined with a threshold of five conversations. This threshold derived given that almost 75% of the HCPs responded to only one post and the average number of posts responded to was 4.64, any HCP who responded to at least a modest 10% of the posts was considered active. This study considered the HCP who made up to five conversations and responded to at least five EVD newsposts as active HCP (Appendix XIII). However, the influential HCPs are active HCP that made initial conversations on EVD newsposts. The result showed that 2.9% (95 HCPs) of the HCPs responded to at least five EVD newsposts with a minimum of five conversations on the entire EVD newspost. Figure 4.22 presents the number of conversations made by active HCP with respect to the number of EVD newsposts they responded to the network. The result showed that these active healthcare practitioners include doctors, nurse and other health practitioners. The area of specialties of these active HCP are Endocrinology and Metabolism, Nutrition, family doctor, general practise, registered nurse etc. This implies that doctors and nurses are the most active professions on the network. As a result, these professionals have a greater chance to control the flow of knowledge within the online social network. From Figure 4.22, the most active HCP on the social network responded to 33 EVD newsposts and made 102 conversations on the entire network. The Figure showed that there was a sharp decrease in the number of conversations made by HCP and the number of posts responded to by the HCP.

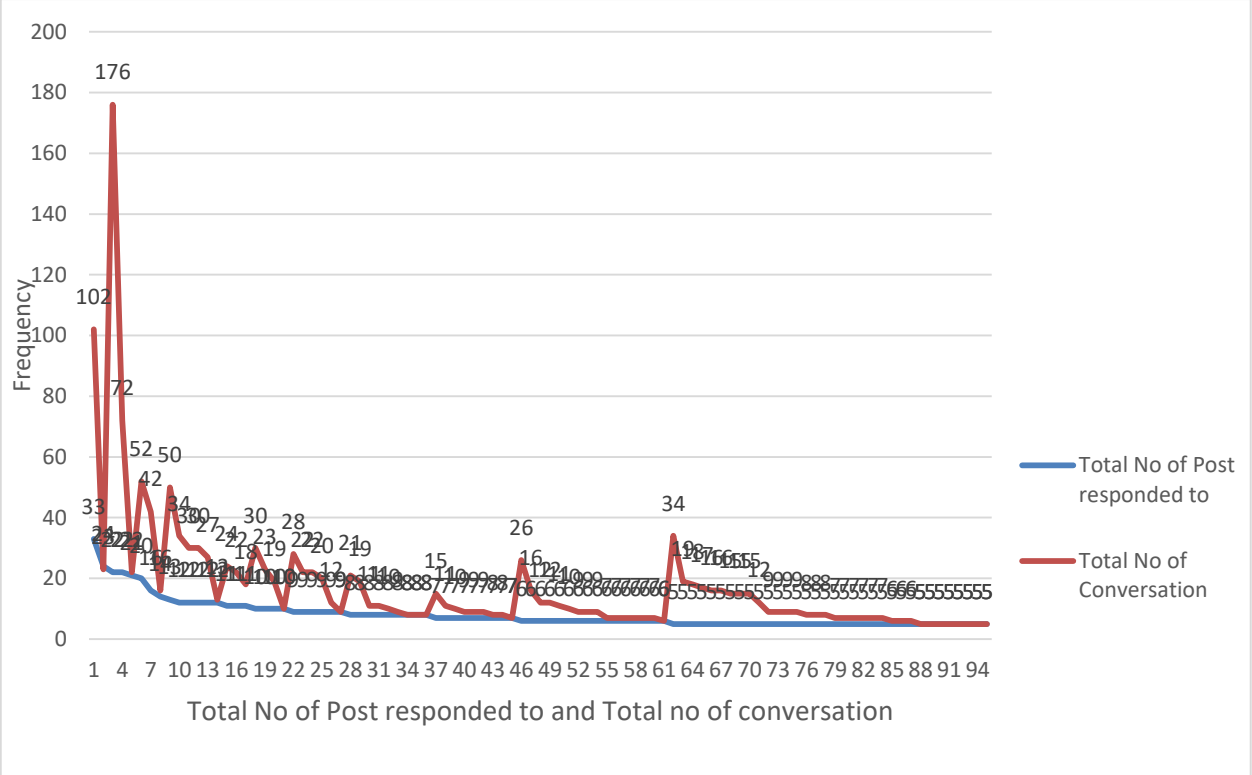
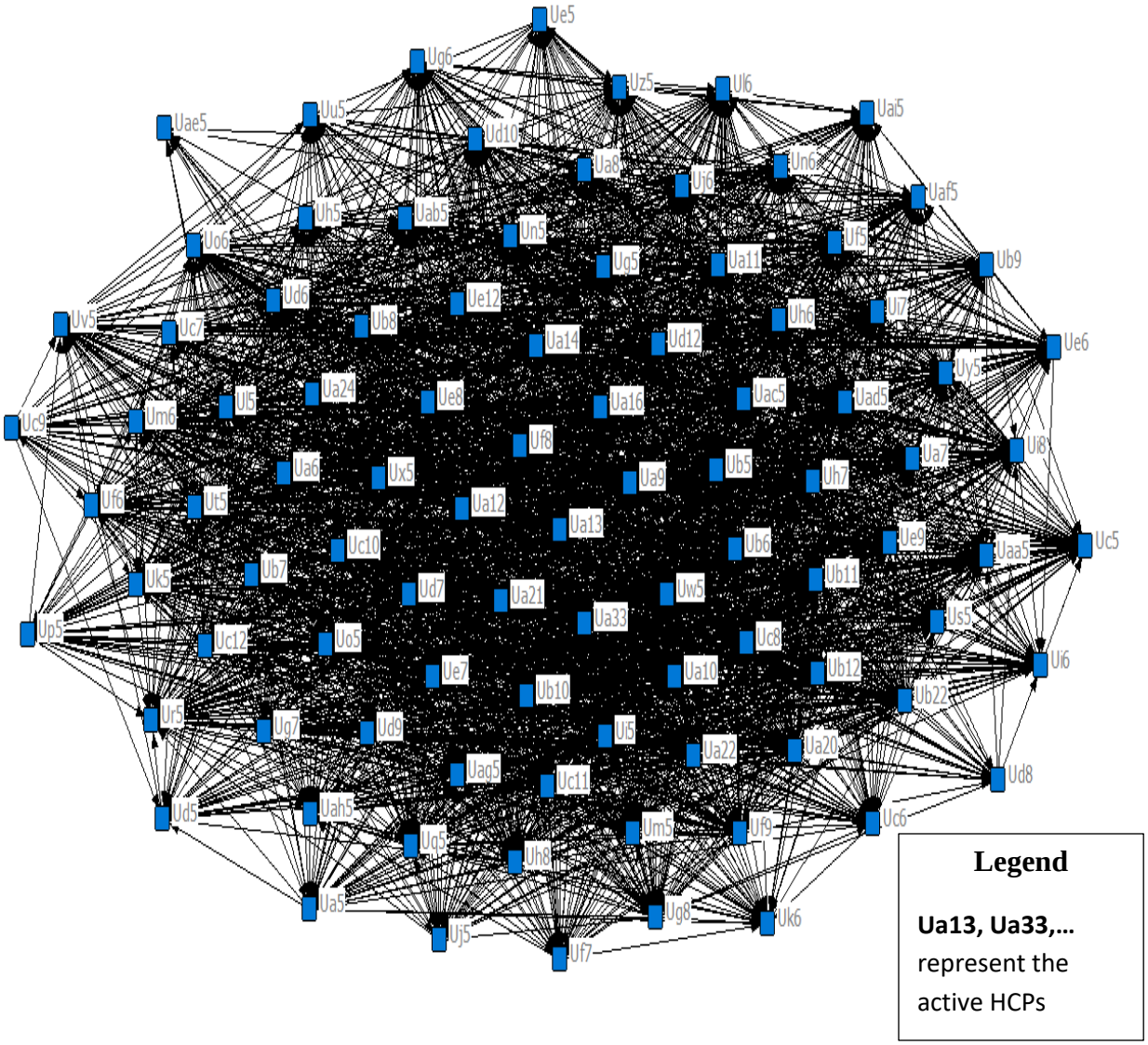


Figure 4.22: Number of conversations made by active HCP with respect to the number of EVD newsposts within the network

In addition, the study determined the effect of the initial conversation of HCP on EVD newsposts on the social network. This was used to further understand the position of power regarding the type of knowledge shared on the social network. Initial conversation made on every EVD newspost by the HCP has greater influence on the knowledge shared among HCP on the social network. Focusing on HCP who originated conversations on each EVD newspost, the study also established similarities between initial conversation to post and post responded to by HCP as well as initial conversation to post and the number of conversations made by the HCPs on the network. This determines how active a particular HCP is on the social network. Thus, active HCP is said to influence the knowledge sharing on the social network if such HCP initiated conversation on the network. The result in Appendix XIII showed that there were 95 influential HCP and active HCP on the network. The most influential HCP initiated up to five conversations on EVD topics and responded to 33 EVD topics on the network. Hence, the result showed that there was a similarity existing among originators of conversations and active participants on the network.

Centrality measures provided further information on the activity levels of each HCP on the social network. The reason for carrying out centrality measurement of SNA was to strengthen the research findings of this study. The centrality measures (degree centrality, betweenness centrality, closeness centrality and coreness) were used to identify the most central members of HCP on online social network. These central members of HCP play key role on the online social network as their presence greatly affect other members on the social network. Therefore, identifying these members was necessary for the development and maintenance of the group as community of practice. The mean value (4.64) of the total number of EVD newspost that had responses and the total number of conversations on EVD newspost was used as a threshold to determine the active HCP on the network. The threshold for active HCP on the network was five conversations. However only 95 healthcare practitioners met the threshold and were used for SNA analysis. Hence, Figure 4.23 shows a 1-mode network developed from social network metrices (95x95) of the active HCPs. The Figure shows the interaction of the nodes of HCP on the social network.



Legend

Ua13, Ua33,… represent the active HCPs

Figure 4.23: Visualization of the nodes of HCP on knowledge sharing about EVD on the network

For better visualisation of the active HCPs on the network, the threshold was increased to ten conversations. With an increased threshold, only 21 HCPs (2.11% of 95 HCPs) emerged. Figure 4.24 shows a 1-mode network developed from social network metrices (21x21) of 95 active HCPs.

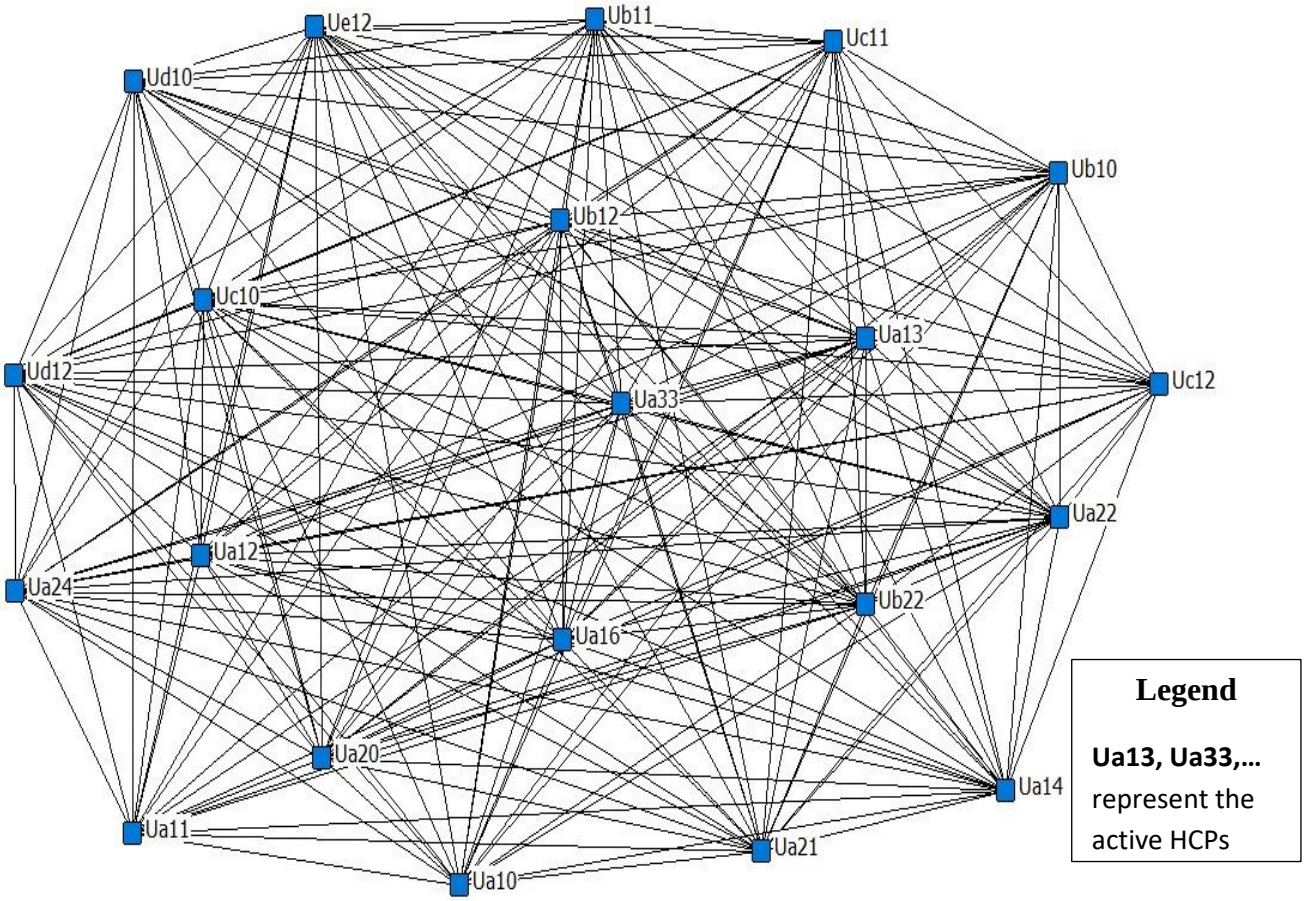


Figure 4.24: Visualization of the nodes of only 21 active HCPs on knowledge sharing about EVD on the network

The summary table of the centrality measures carried out in this study was shown in Appendix XIV. The results of the centrality measures were detailed below;

I. Degree of activeness of healthcare practitioners (Degree Centrality)

The degree of activeness of HCP was measured with degree centrality of SNA software. The result of degree centrality was shown in Appendix XV. The maximum degree on the network was 277. This showed that a member of the HCPs responded to about 33% (normalised value) of the entire EVD newspost. The result depicts a high degree (max. degree = 277) centrality of HCP. This was a positive finding because high degree centrality indicated that a particular HCP or group of HCPs dominated the network. This showed that the HCPs were active on EVD issues on the network. This finding supports the findings stated in preceding sections on centrality measurement.

In addition, the pareto line in Figure 4.25 showed the point of intersection of degree of activeness of the HCP. The chart showed that majority of the results of degree centrality were below minimal intensity. The result indicated that the healthcare practitioners on the network did not contribute on the entire EVD newsposts on the network.

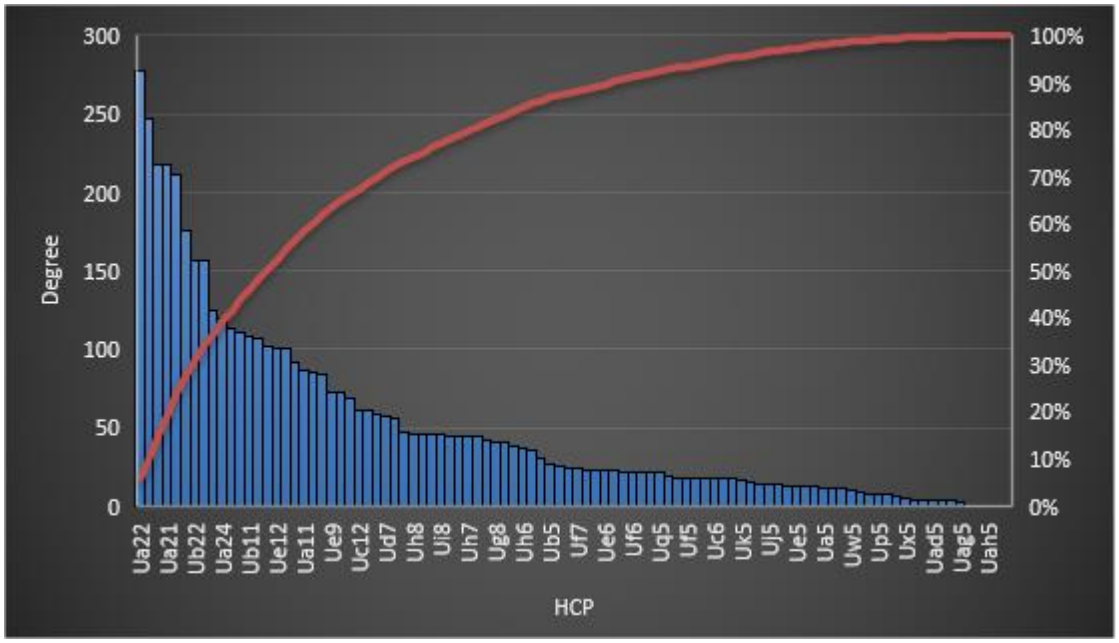


Figure 4.25: The Distribution and Summary Statistics on Degree of Activeness of HCPs

II. Level of interaction of healthcare practitioners (Betweenness Centrality)

The level of interaction of HCP was measured using the betweenness centrality. The result showed a low betweenness with a maximum normalised betweenness of 48.64 (Figure 4.26). This was a positive result given the high degree centrality result. This conformed to the assumption of SNA tool as stated in the previous chapter- the higher the degree centrality the lower the betweenness. The low betweenness indicated that no HCP acts as a communication gateway for the social network. Hence, there was little evidence to support the idea that there were members acting as conduit for knowledge sharing on the network. This finding showed that the HCPs have different avenues to interact with their members on the network. The finding indicated that there was a high level of interaction existing among HCP on the network which however encourages more knowledge sharing opportunities within the network.

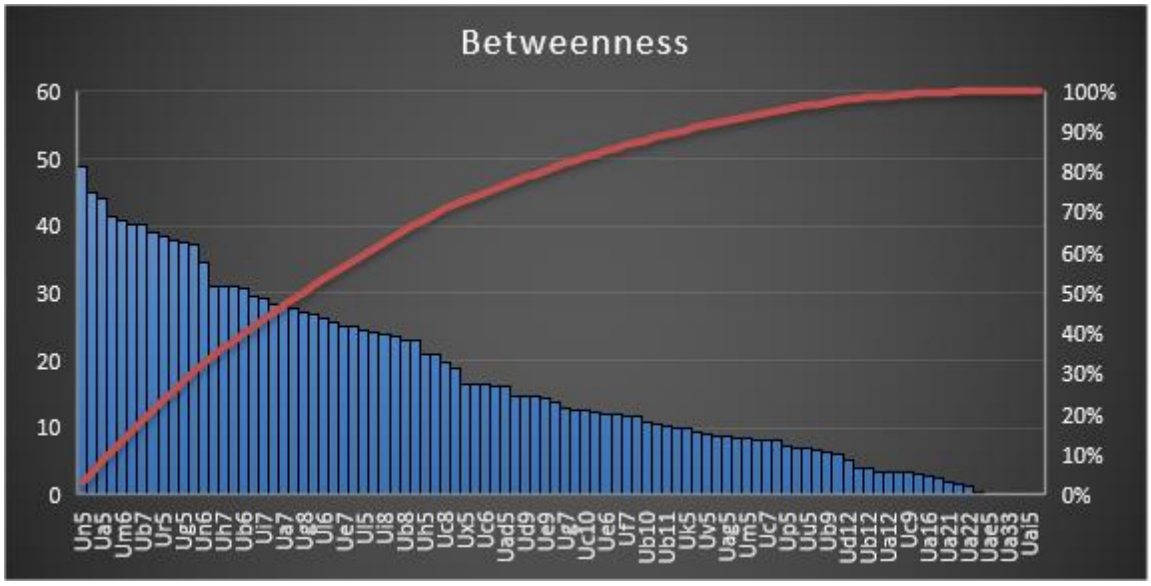


Figure 4.26: The Distribution and Summary Statistics on Level of Interaction of HCPs

III. Degree of accessibility among the nodes of healthcare practitioners (Closeness Centrality)

The degree of accessibility among the nodes of healthcare practitioners was determined using closeness centrality of SNA software. The result in Figure 4.27 showed that there was a high closeness among the nodes of HCP on the network. This was a positive finding as expected in a network with high degree centrality. The maximum closeness was 0.922 and this indicated that two HCPs engaged on knowledge sharing with 92% of the other HCP on the EVD newspost. The result indicated that there is a strong evidence to suggest that HCP on the network were well connected. They quickly access one another through knowledge sharing on EVD on the network.

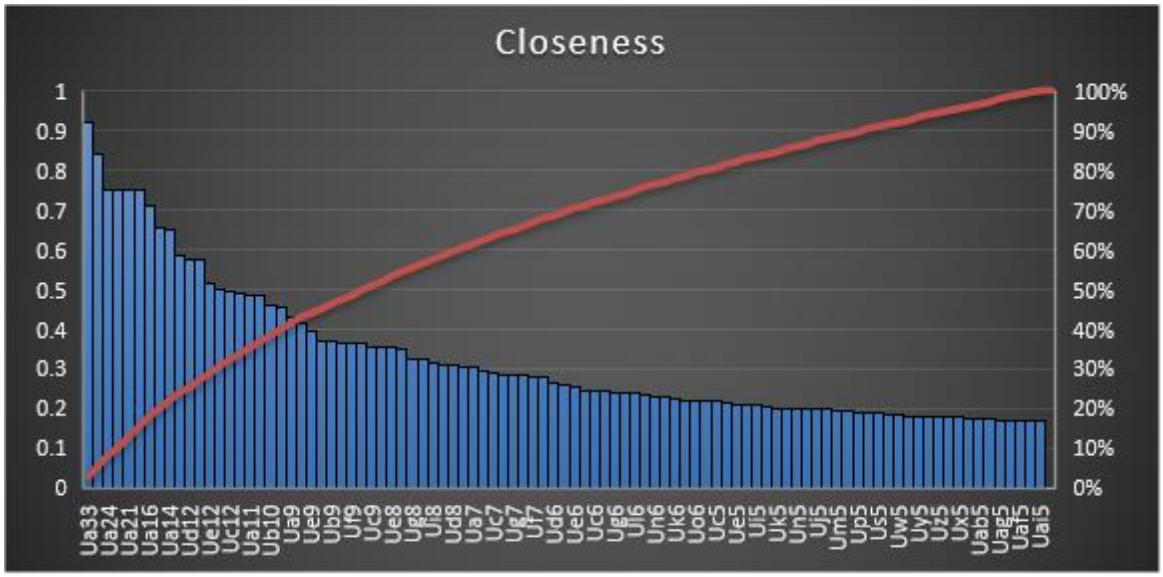


Figure 4.27: The Distribution and Summary Statistics on degree of accessibility of HCP

IV. Level of influence among the nodes of healthcare practitioners (Core-Periphery analysis)

The level of influence among the nodes of healthcare practitioners was measured using core periphery analysis of SNA. Figure 4.28 showed the group of HCPs that were at the centre of the network. This group of HCPs had strong connections with other HCP on the network. However, isolate HCPs were not included in the analysis as their coreness could not be calculated. As a result, core-periphery analysis of 1-mode network was only considered in this study.

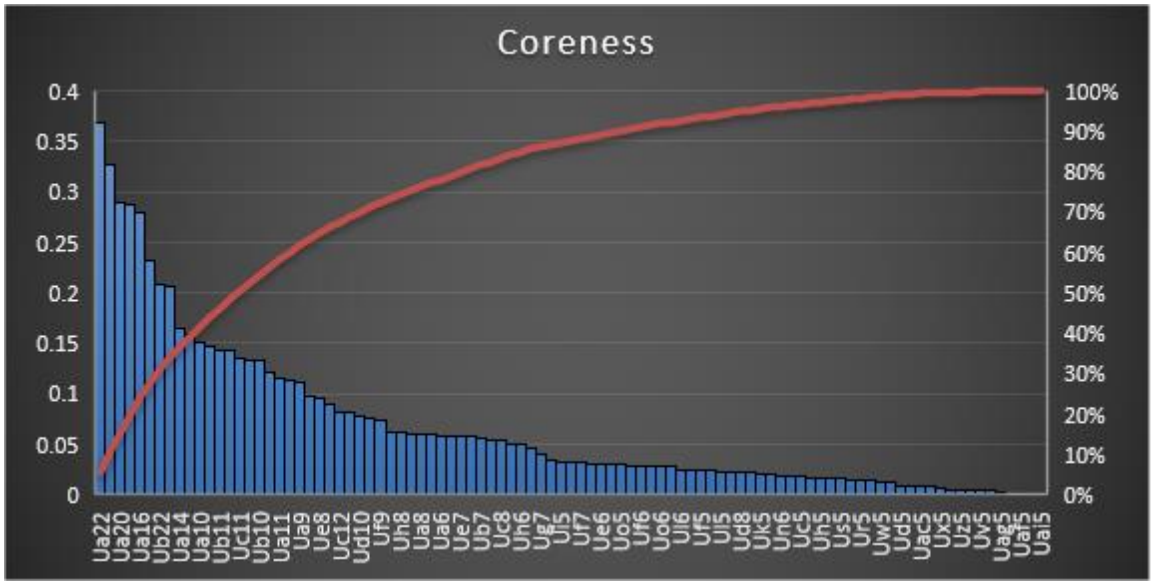


Figure 4.28: The Distribution and Summary Statistics on Level of Influence of HCP

Result of core-periphery analysis of 1-mode network in Table 4.16 showed that the core (influential) HCPs shared 2.33 threads, and 0.39 thread with periphery HCPs, who shared 0.84 thread with core HCP and 0.24 thread with each other. This result confirmed the finding on influential HCPs highlighted in the previous section about the presence of influential HCP who generate the bulk of knowledge content on EVD among HCP on the network.

Table 4.16: Knowledge sharing densities stratified by core-periphery structure in 1-mode network

1-mode Network	Core	Periphery
Core (27 HCPs)	2.33	0.39
Periphery (68 HCPs)	0.84	0.24
Total (95 HCPs)	**3.17**	**0.63**

CHAPTER FIVE

DISCUSSION

This chapter presented the discussion of findings of the study. This was carried out in line with the findings of previous studies in the literature review. The discussion of findings was done in line with the research questions that guided the study.

5.1 Discussion of Findings on the Research Questions

The major findings were derived from the answers to the research questions as discussed below. In this study, online knowledge sharing enabled collaboration and effective interactions among healthcare practitioners on EVD issues on the Medscape network. The HCPs interacted effectively while interpreting and responding to posts. This finding was in line with the major findings in the previous studies such as Eysenbach, Powell, Englesakis, Rizo, Stern (2016) which highlighted that the effectiveness of online knowledge sharing is dependent on the ability of the participants to critically interpret post, respond to post and conversations on the network. The nature of newsposts on EVD among healthcare practitioners indicated that during the early period of the outbreak in 2014, news on EVD majorly focused on EVD issues. This was as a result of the intensity of the outbreak and the threat of the virus in the world in this period. These posts mostly addressed issues about outbreak management especially on local management across the affected countries such as Nigeria, Senegal, Liberia etc. However, in the mid and late periods of the outbreak in 2015, 2016, 2017 and 2018, there were reports on survivals of EVD on the platform. Also, possible management strategies and intervention plans were drawn during the last stage of the outbreak. As a result, newsposts on EVD declined during these periods unlike they were in the early stage. This gave room for other Ebola related viruses such as *Zika Virus* to be addressed on the platform since they have similar effect with EVD.

In addition to this finding, the nature of EVD conversations among HCPs on the network indicated that during the EVD outbreak, HCPs mostly engaged on issues relating to EVD risk which include threats, effect and casualties. They also engaged on positive sensitisation of the disease outbreak. The result indicated that HCP shared their knowledge with their colleagues on the network on EVD issues especially on the risk about the virus. They also engaged on ideas to sensitise their colleagues while receiving alert messages about the disease thus enhancing their clinical expertise and developing more insights about the disease. Hence, online knowledge sharing among healthcare practitioners enabled interaction among HCPs and the masses. It also enhanced mitigation of the disease in the globe. This showed that there are health benefits when seeking information from online social network. This was a positive outcome which indicated that online knowledge sharing impacted health outcomes. The finding was in line with the major findings in the previous studies such as Eysenbach, *et al.,* (2016) which highlighted the usefulness of online knowledge sharing among HCPs in promoting good health and reducing health risk in the globe.

The study examined the EVD topics that were of interest among HCPs on the online network. The study found that the EVD topics that were of interest among HCP were mostly topics within the context of EVD knowledge sharing on the network. The study also identified the existence of pendants among the isolated EVD topic. These pendants include EVD topics of interest among HCPs that were not responded by the HCP on the network. The study found that majority of the pendants was posted by unrecognised posters on the network. This indicated that the information sources of these pendants were not guaranteed since the posters were not recognised within the EVD news platform on the online network. This conformed to the theoretical insight of factors affecting knowledge sharing behaviour as highlighted in the previous chapter. Recognition of posters of knowledge content as expert in the field of study is an important factor affecting knowledge sharing among community of practice. Recognised posters of knowledge content as experts determine the authenticity of knowledge content shared among community of practice (Evans, 2013). In addition, the analysis of the similarity between the pendants and the responded EVD topics revealed no significant similarity between the EVD news topics of the isolated pendants and the responded EVD topics. The implication

of this result is that both the pendants and the responded EVD topics can constitute knowledge sharing among HCP on the network.

It was no gainsaying that the network comprises trending issues on EVD that captured the interest of HCPs who engaged in knowledge sharing on the network. The study also showed that the span of EVD content shared among HCP was high. High conversation trend indicated that the HCPs pay close attention to ideas made on EVD by their colleagues while sharing their knowledge and discussing their clinical experiences on the network. The high conversation trend suggested that the HCPs were willing and committed to share their knowledge on EVD issues. It also depicted a strong interconnectedness among the participants. According to Mukherjee (2014), knowledge sharing among professional on the network should be characterised with a sense of communal commitment and interactions, willingness and a shared practice which the members strive to achieve. The type of interconnectedness observed among the HCPs on the network was a positive one as it was necessary to provide solutions to a wider range of health challenges.

The conversation trends on EVD knowledge shared among healthcare practitioners showed a high conversation frequency at the peak period of EVD outbreak in 2014. This result showed that there was a high interaction tie among HCPs on the network during the peak period of the outbreak. This was a positive finding as it showed that the HCPs were willing and ready to share their knowledge on EVD during the peak period of the outbreak. They were also ready to share their clinical expertise in order to mitigate the spread of the virus. In addition, there was a sharp drop-down on EVD knowledge shared among HCPs on the network after the peak period of EVD outbreak. This corresponded with the findings of previous studies on online communication which showed that trending issues trigger knowledge sharing among participants on a discussion forum (Rabbany, *et al.*, 2014; Rajabi and Abidi, 2017; Gomez and Hernandez, 2018). However, this low conversation frequency among HCPs on the network after the peak period of the outbreak gave room for the HCPs to address other EVD related issues on the network which may be as virulent as EVD.

The conversations made on EVD new posts were partially relevant to EVD and they also addressed other EVD related issues that were not within the EVD topic of discussion.

The implication of this finding was that HCPs create bodies of knowledge and practices round the virus and other viral diseases. They engaged in knowledge sharing on EVD to enhance their clinical expertise as well as build mutual respect, trust and confidence in attending to victims during outbreak. According to Panahi *et al.*, (2012), HCPs need knowledge and understanding for their clinical interactions with other practitioners. In this study, the HCPs on the network created familiarity among themselves as they discuss best lines of action to take regarding infected persons during EVD outbreak. The study found that the online social network was useful for EVD knowledge sharing among HCPs, it serves as a good repository for knowledge sharing on EVD among HCPs.

The study identified 95 active and 27 influential HCPs on online social network. However, the most active HCP responded to 33 EVD news posts and made 102 comments on the entire network. The most influential HCP initiated collaboration on 7 EVD newsposts and responded to 24 EVD newsposts with 23 conversations on the entire network. The implication of this result was that these active and influential HCPs controlled the flow of knowledge within the online social network. They also had greater power on the knowledge shared among HCPs on the social network. The finding conformed to the previous study on online knowledge sharing among medical practitioners. According to Stewert and Abidi (2012), active and influential medical practitioners have control over the flow of knowledge.

The occurrence rate of EVD conversations across the profession of HCP who engaged in knowledge sharing about EVD on the network showed a predominance of medical doctors on knowledge sharing on the network. Also noted was the participation of other health professionals on the network. These health professionals include nurses, pharmacists, dentists, health/business administrators, psychologists, medical and nursing students. These health professionals relatively participated on EVD knowledge sharing on the network. It was important to note that the profession of originators of EVD knowledge sharing did not influence the participation behaviour of HCPs on the network. This was because the participation behaviour of HCPs on the network was driven by individual engagement on EVD knowledge sharing rather than professional engagement on EVD knowledge sharing. The findings aligned with previous studies on online knowledge sharing; it showed that HCPs were self-motivated when participating with colleagues on

online knowledge sharing regardless of their profession. This was in line with the findings of (Lankes, *et al.,* 2017) which showed no difference in the participation rates of practitioners on the network and their profession.

It was of interest to recognise the contributions of many young professionals (medical and nursing students) on the network. Their participation demonstrated that they were passionate for knowledge seeking on EVD and can promote more contributions from experts and enhance connectivity on the network. It was important to note the low contributions of the moderators of the network on EVD knowledge sharing. Regardless, the active engagement of the moderators and facilitators of networks promote knowledge sharing on the network (Stewart and Abidi, 2012). The moderators' engagement on knowledge sharing on the network could motivate the HCPs to engage in EVD knowledge sharing on the network. The participatory behaviour across the professions of HCPs on the network was promising as this can provide a positive attitude in the HCPs community.

Health professionals identified on the network include medical doctors, nurses, pharmacists, dentists, health/business administrators, psychologists, medical students, nursing students and other HCP. Despite the predominance of doctors on the network, there was uniformity in the number of comments originated by HCP from each profession and the number of comments generated from each profession on the network. The finding showed a strong interaction across professions of HCP on the network. In line with this finding, was high closeness and betweenness scores identified in this present study which also implied a strong interaction across professions of HCP on the network. This finding of this study corresponded to previous work of Stewert and Abidi, (2012) which depicts a significant interaction across professions of HCP online discussion forum.

Centrality measures provided further information on the pattern of knowledge sharing on EVD among HCPs on online social network. The centrality measured the degree centrality, betweenness centrality, closeness centrality and coreness of HCPs to identify the most central members of HCP on online social network. The study found that there was high degree of activeness among HCP on the online social network. This implied that a particular HCP or group of HCPs dominated the social network and connected with other HCP in the network from different dimensions. This finding supported the previous findings of this study preceding sections on the active and

influential HCP on the network. The finding agreed with theoretical review on social network analysis. According to Borgatti *et al.,* (2013), an online network with high degree of activeness has many dimensions to connect its users on the network. This showed that the HCPs were active on EVD issues on the online social network.

Further, there was a high level of interaction existing among HCPs on the network. This implied that the network does not depend on a particular HCP or group of HCPs to share knowledge on the network. The study found that there was a low betweenness among the HCP on the network which is expected from a network with high degree centrality. This finding agreed with the assumption of social network theory by Borgatti *et al.,* 2013. According to Borgatti *et al.,* (2013), the higher the degree centrality, the lower the betweenness. In addition, the high level of interaction among HCPs on the network encourages more knowledge sharing opportunities within the network. This was because the HCPs have different avenues to interact with their colleagues on the online social network.

The study found a high degree of accessibility among the nodes of healthcare practitioners on online social network. There was a high closeness among the nodes of HCPs on the network. This implied that the HCPs quickly access one another through knowledge sharing on EVD on the online social network. This was a positive finding as expected in a network with high degree centrality. This finding was in line with previous work of Stewert and Abidi (2012) on online medical practitioners which highlighted a set of active community members with high centrality ranking across all measures. According to Borgatti *et al.,* (2013), the high closeness indicated that there was interaction among HCPs on the network. This showed a strong evidence to suggest that HCPs on the social network were well connected. Similarly, the coreness showed a strong connection among HCPs on the network. It also showed that there was a high level of influence existing among the nodes of healthcare practitioners. This result supported the findings from previous studies (Eichhorn, 2011) about the nodes of participants, there were group of HCPs that were more active and influential on the network. These HCPs serve as knowledge repository on the network since they generated and shared much information on EVD within the network.

This study was an exercise to continuously improve knowledge sharing with instant access to life-saving data and preventing the reoccurrence of devastating and possibly epidemic diseases such as the Ebola Virus Disease. This corresponded to the National Healthcare Bill (NHB) of the Federal Government of Nigeria of mandatory establishment of health forum to facilitate interaction, communication, collaboration and knowledge sharing on National Health issues among concerned bodies in order to improve the quality of patient care and reduce the overall costs of healthcare in the society (National Healthcare Bill 62 (1 and 2), 2014).

This study has contributed to the research tradition of knowledge sharing and continuous advancements by providing a global awareness and use of strategies to take preventive measures on pandemic outbreak. Specific findings in the study had useful implications in the theory and application of knowledge sharing on health and illness. The data on EVD evidence found on Medscape network implied that the platform is a knowledge repository/database. This online platform is beneficial to both HCPs and masses to acquire cross-border knowledge on EVD and other health issues. Medscape network enables both registered and non-registered members to pose queries or find updates of related health issues such as EVD. For a fully operating information society in the medical field, online media is a major tool to deploy (Stewart and Abidi, 2012). This tool enhances knowledge sharing and communication of not only EVD but other health-related issues. This implied that online communication enhances formalised knowledge sharing on EVD in health care professions.

The topic of interest on EVD identified in this study showed that the HCPs engaged on knowledge sharing about EVD. The topic of interest discussed by the HCPs on the network generated a bulk of useful information on EVD which can strengthen global health systems and empower HCPs in addressing health challenges when there is outbreak. In addition, it was observed that majority of the EVD news posts on the network were EVD issues in Africa, this implied that the epidemic is common in Africa. The findings of this study encouraged cross-border collaboration among medical experts in afflicted regions of both Africa including other global communities. This type of interconnectedness was necessary to provide solutions to a wider range of health challenges. The high response rate of HCPs to EVD news post on the network highlights

the significance of social collaboration and coordination among healthcare providers and its propensity to contribute in improving the quality of healthcare. This way a possible outcome to contain EVD outbreaks is envisaged.

As earlier mentioned, a major philosophy of the knowledge creation is that users cannot gain knowledge except they have access to the knowledge they need. Hence, the analysis of knowledge content generated by the HCPs showed that the knowledge created on EVD by HCPs is a good reference material for the populace which when accessed could guide against misguided information that emanate whenever there is outbreak of EVD. In addition, users can reach the HCPs by reading their comments on EVD and offer solutions to potential epidemic threats. Similarly, high connectivity within the nodes of HCPs indicated a strong link and networking among healthcare practitioners and its tendency to enhance knowledge sharing within the network. This justified the assumption of this study earlier stated whereby high connection brings about high networking on the platform and a corresponding increase in knowledge sharing chains within the platform.

The participatory behaviour across the professions of the HCPs on the network was promising. Progress such as this provides a positive attitude in the HCPs community. This also promotes regular online knowledge sharing to develop the best practices with respect to intellectual capital development in the medical fields. In addition, given the complexity in finding a cure of EVD, HCPs require instant and constant update and emergency consultation/conversation to handle outbreaks as they occur. This was a positive finding among HCPs who engaged on knowledge sharing about EVD in this study.

The method of data analysis adopted in this study which include thematic analysis of EVD knowledge taxonomy and network analysis have provided methods (word cloud and centralities) for detecting similarity between HCP which can be used to increase connectivity of among professionals. This study serves as a benchmark for administrators of social networks in evaluating the usage of the discussion forum. This study also highlighted the measures to be taken in order to determine the effectiveness of the platform which provides a better means to assess the participatory level of the HCPs on the network by the administrators. The effective result derived from the method of analysis adopted in this study showed that these methods could also be effectively used in measuring other online activities such as internet addiction, cyber security and internet use

in general. The overall outcome of this study could be a reference point to the administrators of the Medscape network and other similar platforms in evaluating their system in order to enrich and transform the contributions of the HCPs on the network. This also implied that the study could serve as a follow-up for WHO in evaluating the medical sector based on the advice and contributions from the HCPs on the network.

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATIONS

This chapter summarised the findings from this study and proposed the effectiveness of further studies. This section presented a summary of findings, followed by contribution to knowledge, conclusions and limitations of the study. Then suggestions for further studies. The last section was recommendations from the study.

6.1 Summary

The study deployed the conversation theory and social network analysis to determine the conversational structure on EVD among HCPs on Medscape network. To achieve this purpose, the study retrieved an online data from knowledge sharing among HCPs about EVD news post on Medscape network with the view to determine the conversational structure on EVD, pattern of knowledge sharing existing among HCPs on the network.

The population of the study includes conversation contents (features) on webpages generated by HCPs who are registered and engaged on EVD issues on the network. As at March 26, 2014 to April 27, 2018, features of knowledge sharing on EVD among healthcare practitioners generated 20 pages of three hundred and ninety-one (391) news posts with seven thousand three hundred and four three (7343) comments. The entire data retrieved within this period were processed with Nvivo software, MS Excel tool and SNA software. These data were used for data analysis in this study.

Statistical analyses and SNA were performed to address the research questions of the study. The result of the frequency distribution analysis and centrality measures revealed that there were 342 EVD topics that were of interest to HCP, while 234 EVD topics were responded to by the HCP. However, 157 EVD topics were isolated for being pendants, broadcast and error messages. There were 95 active and influential HCPs on the network. The result also revealed a high level of participation among HCP on the network,

as well as increased connectivity within the network. The network was dominated by the medical doctors, but their dominance did not affect the level of interaction of other professions. Also interesting was the strong interpersonal ties that existed among healthcare practitioners on the network suggesting that professionals engaged in knowledge sharing regarding issues such as EVD regardless of profession.

EVD knowledge taxonomy was developed from mapping of EVD topics posted on the network to form a medical term/ lexicon. Six EVD themes including EVD outbreak management, risk, transmission, treatment, resources, and others were developed. The EVD outbreak management had the highest percentage topic with about 50% of the entire EVD news posted within the platform. Interestingly, there was no topic on the history and symptoms of EVD within EVD news posted on the network. The EVD knowledge taxonomy serves as a navigation tool that could enhance easy access and retrieval of EVD posts as well as improving knowledge sharing among HCPs on the network.

6.2 Conclusions

The study examined the nature of newsposts on EVD among healthcare practitioners on the Medscape network. It was found that during the early period of the outbreak in 2014, news on EVD majorly focused on EVD issues. This was due to the intensive global tension which arose from the threat of the virus during the period of the outbreak. These posts mostly addressed issues about outbreak management especially on local management across the affected countries such as Nigeria, Senegal, Liberia etc. However, in the mid and late periods of the outbreak in 2015, 2016, 2017 and 2018, there were reports on survivals of EVD on the platform. Also, possible management strategies and intervention plans were drawn during the last stage of the outbreak. As a result, newsposts on EVD declined during these periods unlike in the early stage. This gave room for other Ebola related viruses such as *Zika Virus* to be addressed on the platform since they have similar symptoms with EVD.

In addition to these findings, the newsposts generated bulk of useful information on EVD which can strengthen global health systems and empower HCPs in addressing health challenges whenever there is an outbreak. A majority of the news on EVD that were posted on the network were incidence of EVD outbreak in Africa showing that the

epidemic was common in Africa. The findings could encourage a cross-border collaboration with medical experts in afflicted regions of both Africa and the globe.

In line with the knowledge taxonomy developed, the EVD topics were categorised into six major themes which include EVD outbreak management, EVD risk, EVD transmission, EVD treatment, EVD resources and others. It was worth noting that the majority of EVD topics discussed among the HCPs were mostly within EVD outbreak management. In this category, the HCPs shared their knowledge on topics which addressed the management strategies of the outbreak. The management strategies include EVD management (regional, local and global), alert/sensitization (positive and negative), intervention (medical, governmental and non-governmental), and preventive measures. The finding indicated that the HCPs engaged on discussions on management strategies to contain EVD. This was an interesting observation as it corroborated the opinion of Campbell and Miranda-Morel, (2017) that knowledge sharing among HCP was a sure way to handle and manage an outbreak.

The findings on conversation taxonomy of EVD knowledge shared among HCPs on the network showed that during the EVD outbreak, HCPs mostly engaged on issues relating to EVD risk which include threats, effect and casualties. They also engaged on positive sensitisation of the disease outbreak. The result indicated that HCPs shared their knowledge with their colleagues on the network on EVD issues especially on the risk about the virus. They also engaged on ideas to sensitise their colleagues while receiving alert messages about the disease thus enhancing their clinical expertise and developing more insights about the disease.

This study gives credence to the fact that the features of EVD knowledge sharing (topics, participants, and contents) determine the conversational structure of HCPs on online social network. Conversational structure of HCPs is a measure of pattern of knowledge sharing and conversation characteristics of EVD among HCPs on the network. Pattern of knowledge sharing and conversation characteristics of EVD among HCPs on the network are vital in order to determine the activity levels of HCPs. On this note, therefore, we conclude that conversations by the healthcare practitioners focused mainly on Ebola virus disease management and risks, and were mostly relevant to the posted topics on the network.

6.3 Recommendations

The study recommended that conscious and deliberate collective effort should be made by health agencies (WHO) at regional and global level to consider online forum such as Medscape network as a knowledge resource for HCPs and to the masses by demonstrating the value of sharing and using experiential knowledge derived from knowledge sharing among HCP on the network. This will mitigate the outbreak of EVD and other emerging diseases in the world.

In addition, the Medscape network administrators should monitor the influential HCPs on the network especially from the onset of knowledge sharing on the network. These HCPs could both engage other members and facilitate knowledge sharing on the network. This will enhance high levels of participation, contribution, and knowledge sharing among HCPs on the online network. This can also enhance participatory levels of HCPs across their professions.

Finally, government, non-governmental and educational sectors in EVD-prone countries should provide and participate in seminars and training on more profitable use of online professional networks such as Medscape network for knowledge sharing and information dissemination on issues relating to health and illness. The University community should apply the conversational structure to the academia to facilitate knowledge sharing among academic staff of the university.

6.4 Contributions to Knowledge

This study has provided a novel perspective that focussed on elements of conversation theory and SNA to measure the conversational structure of HCPs on online social network. The study was able to establish the fact that knowledge sharing is fostered by community of practice of professionals where HCPs build familiarity among themselves and create bodies of knowledge and practices that can improve knowledge development for managing EVD during outbreaks. Also, the study has provided a sophisticated and reliable method to assess the participatory level of HCPs on the network by the administrators. This can be deployed by the network administrators to enrich and transform the contributions of HCPs on the network. This study has also provided a

method (centralities) for detecting similarity between HCPs which can be used to increase connectivity by connecting HCPs to other like-minded individuals and organisations.

This study was able to establish a model for WHO in evaluating the medical sector based on the advice and contributions from the HCPs on the social network. These advice and contributions of HCPs would enable the body to understand better possible outcomes to contain EVD during outbreaks. Furthermore, in line with goal 3 of the 17 goals of SDGs which is on ensuring healthy lives and promoting well-being for all at all ages, this study has demonstrated that this goal can be achievable through patterns of knowledge sharing on EVD among HCPs on the network. This includes participatory behaviours of HCPs on the network, their response rate, conversation trend as well as centrality measures of HCPs.

This study has supported the recent National Healthcare Bill (NHB) of the Federal Republic of Nigeria in 2014 which mandated the establishment of health forum for effective and efficient interaction among HCPs in the nation. Improve the quality of patient care and reduce the overall costs of healthcare in the society (National Healthcare Bill 62 (1 and 2), 2014). This study is a model for national projects aimed at promoting interaction and knowledge sharing among HCPs. This study has demonstrated how new ideas are developed to improve knowledge of the masses on health-related issues within the nation.

The study was able to demonstrate that although the threat of Ebola virus disease has subsided in African countries particularly Nigeria, Sierra Leone, Liberia, Senegal, and Guinea, there is every tendency of its reoccurrence in these EVD-prone countries. This was due to the episodic nature or chronological history of its existence in Africa. However, this study has provided both regional and global awareness and strategies to reduce the adverse effect of EVD through contributions of HCP about EVD on the network. This study has demonstrated how to strengthen the global health systems through empowering the HCPs including specialists and doctors to be capable of addressing health challenges during an outbreak.

The study has demonstrated how knowledge sharing on EVD among HCPs has increased connectivity among HCPs and improved the clinical expertise of the HCPs on EVD issues. This is beneficial to the masses for improved patient care and provision of

useful advice on EVD to the masses. In addition, dissemination of the findings of this study through journal publication and conferences are very crucial to the masses to validate the knowledge and information being conceptualised about the virus. This would minimise misguided information which usually spread during outbreaks among the masses. The approach adopted in this present study has contributed to the research tradition of everyday life by identifying the activities of health practitioners on online knowledge sharing, thus adding value to knowledge.

6.5 Limitations of the Study

A major challenge and limitation to this study was the limited access to contacts of HCPs who made conversations to EVD newspost on the network. Details such as email address, institution affiliation, and the country of registered HCPs on Medscape network could not be retrieved. As a result, further findings on qualitative analysis were not carried out to evaluate the effectiveness of the forum by conducting an interview on the HCPs. This could be of interest to the administrators of the network and other agencies such as WHO towards alleviating the global spread of EVD. In addition, if the contacts of the active and influential HCPs on the network were identified, the masses could seek information about EVD from them in the case of any future outbreak. This would enhance the health knowledge and engagement of healthcare practitioners with the masses and reduce the spread and effect of misguided information during outbreaks.

In addition, some conversations of HCPs could not be analysed because they were written in other languages which was beyond the language scope of this study. The inter-regional/institutional ties among HCPs on this network could not be determined due to inability to access the affiliation of HCP on the network. Apart from inter-professional ties among HCPs analysed in this study, the inter-regional/institutional ties could further examine how the HCPs overcome barriers in knowledge sharing among them. This could determine whether the HCPs perceived hierarchical and professional classifications as barriers to their knowledge seeking and sharing.

6.6 Suggestions for Further Studies

The outcome of this study has demonstrated how conversational structure of HCPs on online network could be measured using the features of conversation and centrality measures. However, the following recommendations were made for further studies:

1. Future studies should deploy other methods of data collection such as questionnaires and interviews of quantitative and qualitative analysis respectively to investigate the pattern of knowledge sharing among HCP on online social network. This will further enhance effective knowledge sharing among HCP on online social network which will be part of the prevention of EVD outbreaks. In addition, since the findings of the study have shown the feasibility of carrying out research on EVD knowledge sharing among HCPs on the Medscape network, replicate studies on other trending viral diseases such as Coronavirus (COVID-19), Lassa Fever, monkey pox are encouraged using the framework of this study.

2. Future studies should adopt more SNA methods such as prestige centrality to determine the most active and influential HCPs on the platform using a 2-mode network to establish the ties existing between EVD topics and comments of HCPs on the network. In addition, Exponential Random Graph Models (ERGM) could be deployed in further studies in order to make inferences (hypothesize) on the knowledge sharing behaviour of HCPs on online social network.

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APPENDICES

Appendix 1: Hyperlinks of Ebola newspost and conversations of HCPs on the Medscape network

Hyperlinks of Ebola Newspost on Medscape Forum	No of Newspost	Post with no conversations	Post with conversations	No of Conversations
https//www.medscape.com/index/list_10077_20	15	10	5	9
https//www.medscape.com/index/list_10077_19	20	8	12	71
https//www.medscape.com/index/list_10077_18	20	6	14	151
https//www.medscape.com/index/list_10077_17	20	12	8	40
https//www.medscape.com/index/list_10077_16	20	10	10	54
https//www.medscape.com/index/list_10077_15	20	9	11	203
https//www.medscape.com/index/list_10077_14	20	8	12	161
https//www.medscape.com/index/list_10077_13	20	5	15	1828
https//www.medscape.com/index/list_10077_12	20	7	13	773
https//www.medscape.com/index/list_10077_11	20	5	15	983
https//www.medscape.com/index/list_10077_10	20	6	14	775
https//www.medscape.com/index/list_10077_9	20	5	15	831
https//www.medscape.com/index/list_10077_8	20	4	16	384
https//www.medscape.com/index/list_10077_7	20	8	12	42
https//www.medscape.com/index/list_10077_6	20	5	15	313
https//www.medscape.com/index/list_10077_5	20	8	12	287
https//www.medscape.com/index/list_10077_4	20	4	16	156
https//www.medscape.com/index/list_10077_3	20	9	11	188
https//www.medscape.com/index/list_10077_2	20	14	6	72
https//www.medscape.com/index/list_10077_1	16	14	2	22
Total	391	157	234	7343

Appendix II: Mapping of EVD newsposts/topics into themes

S/No	EVD TOPICS	MINOR THEMES	SUB-THEMES	MAJOR THEMES
1	West African Nations Scramble to Contain EVD Threat	EVD Management	Regional Management	EVD Outbreak Management
2	Guinea Says Has Contained EVD Outbreak, Death Toll Rises	EVD Management	Local Management	EVD Outbreak Management
3	Scale of Guinea's EVD Epidemic Unprecedented: Aid Agency	EVD Management	Local Management	EVD Outbreak Management
4	Guinea's First EVD Survivors Return to Family, Stigma Remains	EVD Threats		EVD Risk
5	Death Toll From West Africa EVD Hits 337: WHO Update	EVD Spread		EVD Transmission
6	Sierra Leone Shuts Borders, Closes Schools to Fight EVD	EVD Management	Local Management	EVD Outbreak Management
7	Guinea, Sierra Leone See Spike in EVD Cases: WHO	EVD Threats		EVD Risk
8	West Africa EVD Outbreak Still Spreading, 'Situation Serious,' Says WHO	EVD Spread		EVD Transmission
9	WHO Says West African EVD Outbreak to Last 2-4 Months	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management
10	First-Hand Experience From Guinea Offers New EVD Insight	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management
11	West African EVD Outbreak Caused by New Strain of Disease: Study	EVD Causes		EVD Transmission
12	West African EVD Epidemic 'Out of Control' -- Aid Group	EVD Spread		EVD Transmission
13	Drastic Action Needed to Halt World's Worst EVD Outbreak: WHO	EVD Intervention	Medical	EVD Outbreak Management
14	West African Nations Should Be Prepared for EVD: WHO Expert	EVD Management	Regional Management	EVD Outbreak Management
15	Fear, Suspicion Undermine West Africa's Battle Against EVD	EVD Threats		EVD Risk
16	Red Cross Suspends EVD Operations in Southeast Guinea After Threats	EVD Threats		EVD Risk
17	Test EVD Drugs Should Be Tried in Africa, Disease Expert Says	EVD Treatment		EVD Treatment
18	Fifty New EVD Cases and 25 Deaths in	EVD Casualties		EVD Risk

	West Africa – WHO			
19	As EVD Stalks West Africa, Medics Fight Mistrust, Hostility	EVD Threats		EVD Risk
20	Death Toll From West Africa EVD Outbreak Jumps to 603 – WHO	EVD Spread		EVD Transmission
21	Sierra Leone's Chief EVD Doctor Contracts the Virus	EVD Spread		EVD Transmission
22	Liberia Shuts Border Crossings, Restricts Gatherings to Curb EVD Spreading	EVD Management	Local Management	EVD Outbreak Management
23	Family of Texas Doctor With EVD Not Showing Signs of Virus	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management
24	Sierra Leone's Top EVD Doctor Dies From Virus	EVD Casualties		EVD Risk
25	Liberia Shuts Schools, Quarantines Communities to Halt EVD	EVD Management	Local Management	EVD Outbreak Management
26	Suspected EVD Cases Sent Home as Liberian Isolation Unit Fills Up	EVD Threats		EVD Risk
27	Taxis, Planes and Viruses: How Deadly EVD Can Spread	EVD Help		EVD Resource/ Education
28	Two Relief Workers With EVD to Be Evacuated to United States	EVD Preventive measures		EVD Outbreak Management
29	WHO Launching $100 Million Plan to Combat EVD	EVD Intervention	Medical	EVD Outbreak Management
30	WHO Chief Says EVD Out of Control but Can Be Stopped	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management
31	EVD Distracts From Worsening Cameroon Cholera Outbreak	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
32	Family of Doctor Sick With EVD Call for Prayers for His Colleague	EVD Intervention	Family	EVD Outbreak Management
33	American EVD Patient Improving	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management
34	U.S. FDA Says 'Stands Ready' to Work With Companies Developing EVD Drugs	EVD Treatment		EVD Treatment
35	Second EVD Patient Headed to US, NY Tests Possible Victim	EVD Casualties		EVD Risk
36	Experimental EVD Serum Grown in Tobacco Leaves	EVD Treatment		EVD Treatment
37	Second American Infected With EVD	EVD Casualties		EVD Risk

	Arrives in US			
38	EVD: Are Treatments, Vaccines on the Horizon?	EVD Help		EVD Resource/ Education
39	WHO Urged to Allow Experimental Drugs in 'Dire' EVD Outbreak	EVD Intervention	Medical	EVD Outbreak Management
40	Development Banks, U.S. Increase Support for EVD-Hit Countries	EVD Intervention	Government	EVD Outbreak Management
41	WHO Consulting Ethics Experts on Experimental EVD Drugs	EVD Intervention	Medical	EVD Outbreak Management
42	EVD Emergency Turns Spotlight on Experimental Drugs	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management
43	U.S. Allows Use of EVD Test Overseas as Crisis Deepens	EVD Preventive measures		EVD Outbreak Management
44	Ebola Virus: How Contagious?	EVD Help		EVD Resource/ Education
45	US Hospitals Capable of Averting EVD Outbreak, CDC Says	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management
46	Tekmira EVD Drug Gets Regulator Change for Possible Human Use	EVD Treatment		EVD Treatment
47	WHO Declares EVD a Global Public Health Emergency	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management
48	Evaluating US Patients for EVD: Guidance for Tennessee Clinicians	EVD Help		EVD Resource/ Education
49	Fighting Fear, Fatigue on the Front Lines of EVD	EVD Help		EVD Resource/ Education
50	Reader Poll: Is Your Hospital Prepared for EVD?	EVD Help		EVD Resource/ Education
51	Clinical Trial to Start Soon on GSK EVD Vaccine	EVD Treatment		EVD Treatment
52	U.S. Emergency Labs Ready to Work on EVD Drugs If Asked	EVD Intervention	Medical	EVD Outbreak Management
53	On EVD's Front Line, Doctor Finds Grief and Inspiration	EVD Intervention	Medical	EVD Outbreak Management
54	WHO Backs Use of Experimental Treatments for EVD	EVD Intervention	Medical	EVD Outbreak Management
55	Nigeria Races to Halt EVD Spread in Overcrowded Lagos	EVD Preventive measures		EVD Outbreak Management
56	Scientists Find How 'Nefarious' EVD	EVD Research		EVD Resource/

	Disables Immune Response			Education
57	U.S. Government Advances Development of BioCryst's Potential EVD Drug	EVD Intervention	Government	EVD Outbreak Management
58	Exclusive: NewLink Says EVD Vaccine Trial Could Start in Weeks	EVD Treatment		EVD Treatment
59	FDA Warns of Fraudulent EVD Drug Claims	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management
60	Liberia Hunts Escaped EVD Victims as WHO Calls for Controls	EVD Management	Local Management	EVD Outbreak Management
61	Liberian Police Fire Live Bullets to Disperse EVD Protest	EVD Threats		EVD Risk
62	Experimental EVD Drugs Needed for 'Up to 30,000 People'	EVD Treatment		EVD Treatment
63	Tekmira Drug Saves Monkeys With Marburg Fever, EVD's Cousin	EVD Treatment		EVD Treatment
64	UK and Wellcome Offer $10 Mln for Emergency EVD Research	EVD Intervention	Government	EVD Outbreak Management
65	Surviving EVD: Africa Cries Out for Healthcare Investment Boost	EVD Threats		EVD Risk
66	2 U.S. EVD Patients Released From Hospital	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management
67	EVD Therapies and Vaccines Need Priority, Support	EVD Preventive measures		EVD Outbreak Management
68	EVD: Excessive Precautions in US Hospitals May Be Harmful	EVD Preventive measures		EVD Outbreak Management
69	WHO Warns of 'Shadow Zones' and Unreported EVD Cases	EVD Threats		EVD Risk
70	Doctors in Developed Nations Need to Know How to Recognize EVD, Too	EVD Help		EVD Resource/ Education
71	Liberian Doctor Who Received Rare EVD Drug ZMapp Dies	EVD Casualties		EVD Risk
72	Sierra Leone 'Hero' Doctor's Death Exposes Slow EVD Response	EVD Threats		EVD Risk
73	WHO Pulls Staff After Worker Infected With EVD in Sierra Leone	EVD Intervention	Medical	EVD Outbreak Management
74	ICAAC to Showcase 'Extraordinary' EVD Efforts	EVD Intervention	Medical	EVD Outbreak Management

75	Canada's Immunovaccine Inc Says Test of EVD Vaccine Promising	EVD Treatment		EVD Treatment
76	EVD Causing Huge Damage to W. Africa Economies -- Development Bank	EVD Threats		EVD Risk
77	NIH to Begin EVD Vaccine Trial in Humans	EVD Treatment		EVD Treatment
78	West Africa EVD Outbreak Could Infect 20,000 People, WHO Says	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
79	Wanted: 60 Volunteers to Test EVD Vaccine in Middle England	EVD Treatment		EVD Treatment
80	Gene Studies of EVD in Sierra Leone Show Virus Is Mutating Fast	EVD Research		EVD Resource/ Education
81	BioCryst Expects to Begin EVD Study in Weeks	EVD Research		EVD Resource/ Education
82	Medical Charity MSF Wants U.N. to Take Lead on EVD Epidemic	EVD Intervention	Medical	EVD Outbreak Management
83	EVD Health Workers Should Get Danger Money, Expert Says	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management
84	Liberia Doctors Strike, U.N. Warns of Food Shortages Due to EVD	EVD threats		EVD Risk
85	More Resources Needed to Quell EVD, CDC Says	EVD Intervention	Medical	EVD Outbreak Management
86	Wealthy Countries Must Send Medical Teams to Halt EVD -- Medecins Sans Frontieres	EVD Intervention	Medical	EVD Outbreak Management
87	EVD Outpacing Control Effects: WHO	EVD Threats		EVD Risk
88	Third Patient With EVD Returning to US	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management
89	Chimerix Says Antiviral Shows Promise Against EVD	EVD Treatment		EVD Treatment
90	U.N. Says USD 600 mln Needed to Tackle EVD as Toll Tops 1,900	EVD Intervention	Government	EVD Outbreak Management
91	Third American With EVD Arrives in Nebraska	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management
92	WHO Urges Drug Companies, Regulators to Speed EVD Work	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management
93	WHO Advises EVD Therapies Derived From Survivors' Blood	EVD Treatment		EVD Treatment

94	UN to Set Up EVD Crisis Center, Aims to Stop Spread in 6-9 Months	EVD Intervention	Government	EVD Outbreak Management
95	Physicians, Nurses Desperately Needed in EVD-Hit Areas	EVD Intervention	Medical	EVD Outbreak Management
96	Obama: U.S. Must Fight EVD Now or Face Long-Term Risk	EVD Threats		EVD Risk
97	EVD Outbreak 'Perfect Storm' According to CDC	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
98	EVD Spreads Exponentially in Liberia, Many More Cases Soon -- WHO	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
99	EVD Death Toll Rises to at Least 2,296 – WHO	EVD Spread		EVD Transmission
100	EVD Likely to Spread Internationally; Modest Risk for US, UK	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
101	Experimental Interventions Invited on EVD Frontline	EVD Intervention	Medical	EVD Outbreak Management
102	Lessons on EVD Preparedness From the US and Canada	EVD Preventive measures		EVD Outbreak Management
103	Gates Foundations Pledges USD 50 mln to Fight EVD Epidemic	EVD Intervention	NGO	EVD Outbreak Management
104	EVD Highlights Slow Progress in War on Tropical Diseases	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
105	Microsoft Co-Founder Allen to Release USD Nine Million for EVD Fight	EVD Intervention	NGO	EVD Outbreak Management
106	US to Lead International Effort to Stop EVD	EVD Intervention	Government	EVD Outbreak Management
107	Want to Fight EVD? CDC to Train Health Workers	EVD Intervention	Medical	EVD Outbreak Management
108	EVD Vaccine Trial Finds 'No Red Flags' U.S. Senate Testimony	EVD Treatment		EVD Treatment
109	EVD, Marburg DNA Vaccines Prove Safe in Phase 1 Trial	EVD Treatment		EVD Treatment
110	First UK Volunteer Gets Experimental GSK EVD Vaccine in Trial	EVD Treatment		EVD Treatment
111	Scientists See Risk of Mutant Airborne EVD as Remote	EVD Threats		EVD Risk
112	Killings in Guinea Show Mistrust in Africa EVD Fight – WHO	EVD Threats		EVD Risk

113	U.S., Canada Allow Emergency Use of Tekmira's EVD Treatment	EVD Treatment		EVD Treatment
114	WHO Experts Advise Against Travel or Trade Bans on EVD-Hit Africa	EVD Preventive measures		EVD Outbreak Management
115	EVD Cases Could Rise to 1.4 Million in 4 Months, CDC Says	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
116	Liberia Facing Massive Shortage of Foreign Help Against EVD: U.N.	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
117	EVD Drug Trials to Be Fast-Tracked in West Africa	EVD Treatment		EVD Treatment
118	Ever-Present Endemic EVD Now Major Concern for Disease Experts	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
119	WHO Revises Up Number of Health Workers Killed by EVD in Sierra Leone	EVD Casualties		EVD Risk
120	US Hospitals Unprepared to Handle EVD Waste	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
121	Inovio to Start Human Trials of EVD Vaccine	EVD Treatment		EVD Treatment
122	Doctor Calls for Blood Donations to Treat Liberian EVD Victims	EVD Intervention	Medical	EVD Outbreak Management
123	EVD Toll Nears 3,000, but Spread in Guinea Stabilises	EVD Spread		EVD Transmission
124	Third EVD Patient Treated in the U.S. Free From Virus – Doctors	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management
125	Canada Says Poor Coordination Bogging Down EVD Vaccine Shipment	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
126	WHO Sees Small-Scale Use of Experimental EVD Vaccines in January	EVD Treatment		EVD Treatment
127	Collateral' Death Toll Expected to Soar in Africa's EVD Crisis	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
128	European Agency Collects Data on Experimental EVD Treatments	EVD Research		EVD Resource/ Education
129	Scientists Grapple With Ethics in Rush to Release EVD Vaccines	EVD Treatment		EVD Treatment
130	Rains Complicate Delivery of EVD Supplies in West Africa	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
131	First EVD Case Diagnosed in US	EVD Spread		EVD Transmission

132	Thousands of Children Orphaned, Rejected as EVD Wrecks Families	EVD threats		EVD Risk
133	UN EVD Mission Head Wants Significant Progress in 60 Days	EVD Intervention	Government	EVD Outbreak Management
134	U.S. Health Experts in Dallas Reviewing Potential EVD Exposure	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
135	Experts Question Two-Day Delay in Admitting Texas EVD Patient	EVD Help		EVD Resource/ Education
136	GlaxoSmithKline, NewLink Working to Bring EVD Vaccines Online: WHO	EVD Treatment		EVD Treatment
137	Recognizing Ebola Virus Disease for Tennessee Clinicians: Preparedness Is Key	EVD Management	Regional Management	EVD Outbreak Management
138	Possible Contacts in Dallas EVD Case Grow to 100	EVD Spread		EVD Transmission
139	U.S. Nears Solution for Safe Disposal of EVD Waste	EVD Management	Regional Management	EVD Outbreak Management
140	U.S. Nurses Say They Are Unprepared to Handle EVD Patients	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
141	Evaluating Patients for EVD: CDC Recommendations for Clinicians	EVD Help		EVD Resource/ Education
142	EVD Patient's Travel History Got Buried in Hospital HER	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
143	U.S. Defends EVD Response, About 50 Under Observation	EVD Management	Regional Management	EVD Outbreak Management
144	EVD Outbreak and Enterovirus in the Limelight at IDWeek	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
145	How Is EVD Transmitted? WHO Offers Guidance	EVD Help		EVD Resource/ Education
146	Aid Workers Ask Where Was WHO in EVD Outbreak?	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
147	High Risk EVD Could Reach France and UK by End of Oct, Scientists Calculate	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
148	More Cases of EVD Spreading in Europe 'Unavoidable,' WHO Says	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
149	U.S. to Require Tougher EVD Screening at Airports – Senator	EVD Preventive measures		EVD Outbreak Management
150	First Person Diagnosed With EVD in the US Dies	EVD Casualties		EVD Risk

151	How One U.S. Hospital Braces for EVD	EVD Intervention	Medical	EVD Outbreak Management
152	No EHR Flaw After All in EVD Case, Says Hospital	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
153	Dallas Hospital Assesses Second Man for EVD Symptoms	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
154	U.S. Medical Workers Get Crash Course on Treating EVD on Frontlines	EVD Intervention	Medical	EVD Outbreak Management
155	Chimerix Drug Used for EVD Shows Promise Against Adenovirus	EVD Treatment		EVD Treatment
156	Surgeons Face Practical, Ethical Challenges in Trying to Limit EVD 'Collateral Damage'	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
157	Dallas Hospitals Set Up EVD Wards as City Watches for Spread	EVD Preventive measures		EVD Outbreak Management
158	Reader Poll: EHR vs Communication in EVD Evaluation	EVD Help		EVD Resource/ Education
159	Experts Prioritise Two EVD Vaccines, Map Early Trial Plans	EVD Treatment		EVD Treatment
160	Texas Hospital Defends Itself Over Treatment of EVD Patient	EVD Treatment		EVD Treatment
161	EVD Fears Spread as Spanish Nurse Worsens, British Man Tested	EVD Threats		EVD Risk
162	Group Urges Bypassing Randomized Trials for EVD Therapy	EVD Treatment		EVD Treatment
163	Experts Closest to EVD Outbreak Testify	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management
164	Dallas Health Worker Tests Positive for EVD	EVD Spread		EVD Transmission
165	Healthcare Crippled as EVD Overwhelms Hospitals in Liberia	EVD threats		EVD Risk
166	Medical Evacuation Services Draw Line at Flying Out EVD Patients	EVD Preventive measures		EVD Outbreak Management
167	EVD Toll Rises to 4,033 – WHO	EVD Spread		EVD Transmission
168	U.S. Maker of Experimental EVD Drug ZMapp Seeks to Boost Output	EVD Treatment		EVD Treatment
169	New EVD Case Means New Safety Approach, CDC Says	EVD Preventive measures		EVD Outbreak Management

170	U.S. CDC Head Criticized for Blaming 'Protocol Breach' as Nurse Gets EVD	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
171	California EVD Researcher Seeks More Money Through Crowdfunding	EVD Research		EVD Resource/ Education
172	Nurse With EVD Receives Plasma From Survivor	EVD Treatment		EVD Treatment
173	Have EVD? CDC Will Travel	EVD Help		EVD Resource/ Education
174	Britain Begins EVD Screening at London's Heathrow Airport	EVD Preventive measures		EVD Outbreak Management
175	China Military-Linked Firm Eyes Quick Approval of Drug to Cure EVD	EVD Treatment		EVD Treatment
176	WHO May Declare Nigeria and Senegal EVD-Free Within Days	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management
177	Second Texas Healthcare Worker Tests Positive for EVD	EVD Spread		EVD Transmission
178	Facebook's Zuckerberg to Donate USD 25 mln to Tackle EVD	EVD Intervention	NGO	EVD Outbreak Management
179	Dallas Nurses Say Infection Control Ignored in EVD Care	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
180	Scientist Who Discovered EVD Frustrated by Deadly Guinea Outbreak	EVD Research		EVD Resource/ Education
181	First Dallas Nurse With EVD to Be Transferred to NIH	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management
182	US Hospitals Unequipped to Deal With EVD, Experts Warn	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
183	Emory Anesthesiologists Offer Insight on Bracing for EVD	EVD Help		EVD Resource/ Education
184	Lawmakers Grill CDC Chief Over EVD Response	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
185	Obama Names Former White House Official Klain EVD 'Czar'	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
186	World Health Organisation Declares Senegal EVD-Free	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management
187	Fear of EVD Spreading Faster Than Virus in U.S.	EVD Threats		EVD Risk
188	Texas Health Worker Isolated on Cruise Ship Over Possible EVD Contact	EVD Threats		EVD Risk

189	Pentagon to Create Medical Support Team for U.S. EVD Response	EVD Intervention	Medical	EVD Outbreak Management
190	Healthcare Workers in the Firing Line of EVD Crisis	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
191	EVD, the Asthma Epidemic, and the Microbiome at CHEST 2014	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
192	New CDC Guidance for EVD PPE Calls for No Skin in the Game	EVD Preventive measures		EVD Outbreak Management
193	Flu Drug Aimed at EVD May Also Fight Norovirus, Study Finds	EVD Research		EVD Resource/ Education
194	Home Care Kits Highlight Gaps in West Africa's EVD Response	EVD Management	Regional Management	EVD Outbreak Management
195	U.S. Restricts Entrants From EVD-Hit Nations to Five Airports	EVD Preventive measures		EVD Outbreak Management
196	California Nurses' Union Pulls EVD Into Contract Talks	EVD Preventive measures		EVD Outbreak Management
197	Ebola Virus Disease (EVD) Preparation in New Hampshire	EVD Preventive measures		EVD Outbreak Management
198	U.S. CDC Announces New EVD Monitoring Steps for Travelers	EVD Preventive measures		EVD Outbreak Management
199	Hospitals' Struggles to Beat Back Infections Began Before EVD Arrived	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
200	Klain a Good Pick for EVD Czar, Experts Say	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
201	Routine ICU Care May Effectively Treat Even Severe EVD	EVD Treatment		EVD Treatment
202	A Turning Point for EVD? Possible Reinfection?	EVD Help		EVD Resource/ Education
203	Could Survivors' Blood Stop EVD?	EVD Help		EVD Resource/ Education
204	U.S. Setting Up Network of Hospitals for EVD Care – Officials	EVD Intervention	Government	EVD Outbreak Management
205	EVD Virus Is Undetectable in Amber Vinson, Family Says	EVD Threats		EVD Risk
206	Experts to Test If Survivors' Serum Can Help EVD Patients	EVD Treatment		EVD Treatment
207	Physician in New York Tests Positive for EVD	EVD Spread		EVD Transmission

208	Current Scale-up of Aid Unlikely to Contain EVD in Liberia	EVD Management	Local Management	EVD Outbreak Management
209	Microsoft Co-founder Allen Commits USD 100 mln to EVD Fight	EVD Intervention	NGO	EVD Outbreak Management
210	Stalled Surgeon General Confirmation Weakens EVD Efforts	EVD Threats		EVD Risk
211	Doctor With EVD in New York Stable; Nurse Is Virus-Free	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management
212	NY, NJ to Quarantine Returning Clinicians With EVD Contacts	EVD threats		EVD Risk
213	WHO Expects Around 200,000 EVD Vaccine Doses by Mid-2015	EVD Treatment		EVD Treatment
214	Only 6% of Hospitals Well Prepared for EVD, Poll Finds	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management
215	Experts Oppose Quarantine for Returning EVD Care Workers	EVD threats		EVD Risk
216	CDC Suggests Quarantine-Lite for Some EVD Clinicians	EVD Threats		EVD Risk
217	Restrictions Imposed by U.S. States in Response to EVD	EVD Preventive measures		EVD Outbreak Management
218	Common Sense EVD Measures Save Lives in Africa, Teach US	EVD Help		EVD Resource/ Education
219	U.S. Isolates Troops, Australia Imposes Visa Ban on EVD-Hit West Africa States	EVD Preventive measures		EVD Outbreak Management
220	U.S. FDA Issues Emergency Authorization for Two New EVD Tests	EVD Treatment		EVD Treatment
221	Edges of EVD Outbreak Expanding in West Africa	EVD Spread		EVD Transmission
222	Obama Defends No-Quarantine Policy for Returning EVD Workers	EVD Threats		EVD Risk
223	Isolating Most Severe EVD Patients May Stop Epidemic	EVD Preventive measures		EVD Outbreak Management
224	Emergency Departments Train for EVD	EVD Preventive measures		EVD Outbreak Management
225	EVD Fatality Rate 74% in Sierra Leone; Bleeding Is Rare	EVD Spread		EVD Transmission
226	Australian EVD 'Tsar' Questions Government's West Africa Visa Ban	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management

227	U.S. Nurse Fights Maine Quarantine Over EVD Fears	EVD Threats		EVD Risk
228	In U.S. EVD Fight, No Two Quarantines Are Quite the Same	EVD Preventive measures		EVD Outbreak Management
229	Clinicians Back Quarantine, Travel Bans in Medscape EVD Survey	EVD Threats		EVD Risk
230	Why Do Health Workers in Protective Suits Catch EVD?	EVD Help		EVD Resource/ Education
231	U.S. Quarantines 'Chilling' EVD Fight in West Africa: MSF	EVD Threats		EVD Risk
232	CDC Issues Guidelines for Possible EVD Cases in ED	EVD Help		EVD Resource/ Education
233	U.S. Nurse Who Treated EVD Patients, Maine Reach Deal on Monitoring	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management
234	WHO Guidance on PPE for EVD Stresses Individual Choice	EVD Help		EVD Resource/ Education
235	US EVD Research Priorities: Training, Training, Training	EVD Research		EVD Resource/ Education
236	U.S. Scientists Say Uncertainties Loom About EVD's Transmission, Other Key Facts	EVD Research		EVD Resource/ Education
237	US Nurses Plan Embarking on Global Strike Over Lack of EVD Prep	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management
238	With Good Hospital Practices, Emory Rises to EVD Challenge	EVD Preventive measures		EVD Outbreak Management
239	Texas Ready to Clear All Contacts of Three EVD Cases	EVD Sensitisation/ Alert	Government	EVD Outbreak Management
240	EVD Virus Disease Preparation in New Hampshire: Update #1	EVD Preventive measures		EVD Outbreak Management
241	CDC Stockpiling EVD Protective Gear for Hospitals	EVD Preventive measures		EVD Outbreak Management
242	West Africa's EVD Epidemic Leads to US Protective Gear Backlog	EVD Preventive measures		EVD Outbreak Management
243	NYC Physician Who Had EVD Will Be Discharged Tomorrow	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management
244	New York Doctor Now Free of EVD Discharged From Hospital	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management
245	EVD: Aggressive Hydration Key to Effective Treatment in US	EVD Treatment		EVD Treatment

246	Sierra Leone Doctor With EVD May Be Coming to US for Care	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management
247	Sierra Leone Surgeon in US Dies of EVD	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
248	Frail System Raised EVD Risk for Liberian Health Workers	EVD Threats		EVD Risk
249	EVD: Liberia Cases Declining, Remote Clusters Appearing	EVD Spread		EVD Transmission
250	EVD Preparation in New Hampshire: Update #2	EVD Preventive measures		EVD Outbreak Management
251	WHO Seeks Swifter EVD Test to Help Stamp Out Epidemic	EVD Intervention	Medical	EVD Outbreak Management
252	Disconnect Between Workers Fighting EVD and Those at Risk	EVD Threats		EVD Risk
253	EVD Discoverer Piot Sees Long, Bumpy Road to Ending Epidemic	EVD Spread		EVD Transmission
254	New 15-Minute Test for EVD to Undergo Trials in West Africa	EVD Treatment		EVD Treatment
255	Management and Transport of Persons Under Investigation (PUIs) for Ebola Virus Disease (EVD): Alert for Utah Clinicians	EVD Threats		EVD Risk
256	US Designates 35 EVD Treatment Centers	EVD Intervention	Government	EVD Outbreak Management
257	EVD Waste Disposal: Nebraska's Strategy	EVD Management	Local Management	EVD Outbreak Management
258	EVD: FDA Staff Argue for Randomized Clinical Trials	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
259	EVD Preparation in New Hampshire: Update #3	EVD Preventive measures		EVD Outbreak Management
260	Simple Intravenous Fluid Could Save Many EVD Patients, Specialists Say	EVD Treatment		EVD Treatment
261	EVD Patient's ED Doc Calls Care 'Appropriate' Based on Data	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management
262	EVD Airport Screening Finding Few Suspected Cases in US	EVD Spread		EVD Transmission
263	EVD Survivors Crucial to Containing the Epidemic: Experts	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management
264	EVD Vaccine Trial Halted Temporarily	EVD Treatment		EVD Treatment

	After Joint Pains: Geneva Hospital			
265	EVD Cases Up Dramatically in Last 4 Weeks, CDC Reports	EVD Spread		EVD Transmission
266	Screening Organ Donors Can Prevent Transmission of EVD Virus	EVD Treatment		EVD Treatment
267	Jury Still Out on Potential EVD Treatments, EMA Says	EVD Treatment		EVD Treatment
268	EVD Remains a 'Long, Hard Fight,' CDC Chief Says	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
269	EVD Virus 2014: Timeline of the World's Largest Outbreak	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
270	Experimental Drug May Stop Vascular Leak in EVD	EVD Treatment		EVD Treatment
271	CDC Worker Monitored for Possible EVD Exposure in Lab Error	EVD Preventive measures		EVD Outbreak Management
272	EVD Fears in Pregnant Women Reducing Healthcare Use	EVD Threats		EVD Risk
273	EVD: When to Intervene in Life-Threatening Events, Guidance	EVD Help		EVD Resource/ Education
274	Ebola Virus Disease Preparation in New Hampshire: Update #4	EVD Preventive measures		EVD Outbreak Management
275	Scientists Ask if EVD Immunizes as Well as Kills	EVD Help		EVD Resource/ Education
276	WHO Clears 15-Minute, Easy-to-Use Test for EVD	EVD Preventive measures		EVD Outbreak Management
277	Public Health Specialists Warn EVD May Still Surprise	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management
278	Low Viral Load EVD May Be Helped by Experimental Drug	EVD Treatment		EVD Treatment
279	Craig Spencer's Fight With EVD and Political Expedience	EVD Intervention	NGO	EVD Outbreak Management
280	Texas EVD Nurse Says Hospital Failed Her and Her Colleagues	EVD Threats		EVD Risk
281	Preparation and Foresight Key to Treating EVD Safely	EVD Treatment		EVD Treatment
282	Physician Safe After EVD Needlestick, Experimental Vaccine	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management
283	EVD Crisis Leaves West Africa	EVD Sensitisation/	Negative Alert	EVD Outbreak

	Vulnerable to Measles	Alert		Management
284	US EVD Response Fed Fear, Presidential Commission Says	EVD Threats		EVD Risk
285	US Healthcare Worker With EVD Arrives at NIH in Bethesda	EVD Spread		EVD Transmission
286	U.S. EVD Patient Now in Critical Condition: NIH	EVD Spread		EVD Transmission
287	FDA Panel to Discuss EVD Vaccine Development in May	EVD Treatment		EVD Treatment
288	Merck, NewLink EVD Vaccine Appears Safe, Effective In New Studies	EVD Research		EVD Resource/ Education
289	Five U.S. Health Workers Released After EVD Monitoring in Nebraska	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management
290	EVD Vaccine Safe, Immunogenic in Phase I Trials	EVD Treatment		EVD Treatment
291	Reader Poll: Did the US Make the EVD Response Worse?	EVD Help		EVD Resource/ Education
292	Rapid Tests Needed Quickly to Improve EVD Screening	EVD Preventive measures		EVD Outbreak Management
293	Possible Sexual Transmission of EVD Reported	EVD Causes		EVD Transmission
294	Ebola Virus Persists in Eyes Months After Clearing Blood	EVD Effect		EVD Risk
295	Can the EVD Outbreak Strengthen Global Health Security?	EVD Help		EVD Resource/ Education
296	WHO Issues Interim Advice on Sexual Transmission of EVD	EVD Help		EVD Resource/ Education
297	FDA Panel Considers Best Approval Process for EVD Vaccines	EVD Treatment		EVD Treatment
298	Nurses With Tablets and Bikers With Smartphones Join EVD Fight	EVD Intervention	Medical	EVD Outbreak Management
299	CDC's EVD Risk Communication Strategy Found Lacking	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
300	EVD Drug Development Slowed by Lack of Patients	EVD Treatment		EVD Treatment
301	Global Health Leaders Ask G7 for Post-EVD Rapid Response Unit	EVD Intervention	Medical	EVD Outbreak Management
302	EVD Could Hit Again and We Would	EVD Spread		EVD

	Hardly Do Better –MSF			Transmission
303	Liberia Finds 2 EVD Cases Weeks After Being Declared Free of It	EVD Spread		EVD Transmission
304	Tests Show EVD Probably Remained Latent in Liberia	EVD Spread		EVD Transmission
305	Thousands of EVD Survivors Face Severe Pain, Possible Blindness	EVD Effect		EVD Risk
306	Antivirals May Work Against EVD	EVD Treatment		EVD Treatment
307	EVD Survivor Will Kick off IDWeek With Intimate Insight	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management
308	Physician EVD Survivor Describes Lasting Effects	EVD Effect		EVD Risk
309	EVD Sexual Transmission 6 Months After Illness Confirmed	EVD Causes		EVD Transmission
310	UK Nurse with EVD Critically Ill Again	EVD Effect		EVD Risk
311	Scottish EVD Nurse 'Recovering'	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management
312	U.K. Nurse Who Had EVD Relapse Now Free of Virus	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management
313	Symptoms Persist Despite Recovery from Ebola Virus	EVD Effect		EVD Risk
314	Malaria Drugs May Make a Difference in EVD Outcomes	EVD Treatment		EVD Treatment
315	After EVD, Two Other Tropical Diseases Pose New Threats	EVD Threats		EVD Risk
316	EVD Outbreak Over as Liberia Gets All Clear, WHO Says	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management
317	Dozens Feared Exposed as Sierra Leone Confirms New EVD Case	EVD Threats		EVD Risk
318	Nurse With EVD, Pauline Cafferkey, Back in Hospital	EVD Effect		EVD Risk
319	Persistent Neurologic Symptoms Common in EVD Survivors	EVD Effect		EVD Risk
320	Health Workers Rush to Contain Fresh EVD Outbreak in Guinea	EVD Intervention	Medical	EVD Outbreak Management
321	Experts Warn Complacency on EVD May Leave Vaccine Work Unfinished	EVD Treatment		EVD Treatment

322	EVD Survivors Pose Little Risk to Care Providers Six Weeks After Viremia Clearance	EVD Threats		EVD Risk
323	EVD Virus RNA Evident in Semen for a Year or Longer	EVD Effect		EVD Risk
324	Texas Hospital Reaches Settlement With Nurse Infected With EVD	EVD Intervention	Medical	EVD Outbreak Management
325	One Fourth of Patients Infected by EVD May Be Asymptomatic	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
326	EVD Vaccine 100% Effective in Clinical Trial	EVD Treatment		EVD Treatment
327	Multivariable Score Predicts Ebola Virus Disease Severity	EVD Research		EVD Resource/ Education
328	Liberia Investigates Death Of Celebrated EVD Fighter Amid Stigma Fears	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
329	Person Dies of Ebola Virus in Congo in New Outbreak	EVD Casualties		EVD Risk
330	Ebola Virus RNA Can Persist in Semen Years After Infection	EVD Effect		EVD Risk
331	From EVD to Mudslides, Sierra Leone Learns Painful Disaster Lessons	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
332	US Invests $170 Million in Late-Stage EVD Vaccines, Drugs	EVD Intervention	Government	EVD Outbreak Management
333	EVD Survivors Affected by Variety of Neurologic Symptoms	EVD Sensitisation/ Alert	Negative Alert	EVD Outbreak Management
334	After EVD, West Africa Must Brace for More Deadly Fevers – Study	EVD Research		EVD Resource/ Education
335	Uganda Confirms One Death From Ebola Virus-like Marburg Virus	EVD Casualties		EVD Risk
336	Motorbikes, Trust and Pepper Soup - EVD Tips to Tackle Deadly Diseases	EVD Help		EVD Resource/ Education
337	EVD Ring Vaccination Strategy May Stymie Rural Outbreaks	EVD Treatment		EVD Treatment
338	Want to Know When EVD Will Strike Next? Look to the Forest	EVD Help		EVD Resource/ Education
339	Certain Biomarkers May Distinguish EVD Fatalities From Survivors	EVD Treatment		EVD Treatment
340	EVD Victims Sue Sierra Leone	EVD Sensitisation/	Negative Alert	EVD Outbreak

	Government Over Mismanaged Funds	Alert		Management
341	Ebola virus Antibodies Present in Populations With No History of Outbreaks	EVD Sensitisation/ Alert	Positive Alert	EVD Outbreak Management
342	Antibody Response to Single-dose EVD Vaccine Stable at Two Years	EVD Treatment		EVD Treatment

Appendix III: Coding Sheet on Responses of HCPs on EVD news topics

Intercoder A

Dear respondent,

Kindly assist with the rating of the conversations with respect to the topic as found below. For each of the corpus, kindly mark **(X)** below the rating you think is the most appropriate for each of the conversation. The corpora were generated from an online social network where English jargons are not prohibited. As a result, kindly disregard wrong sentences or grammatical errors within the conversations.

Please note that your responses are subjective and would only be used to enhance this study.

Thank you.

EVDNP 24NP15

Was the conversation RELEVANT to the topic? Please mark (X)

TOPIC	**CONVERSATIONS**	**Not Relevant (0)**	**Partially Relevant (1)**	**Relevant (2)**
Taxis, Planes and Viruses: How Deadly EVD Can Spread	Gatherer noted that while EVD doesn't spread through the air. . ."? May I ask how the 5 other people in the communal taxi then did contract EVD from the index patient? I doubt all 5 or even most of the 5 were sitting next to her. If she appeared ill, would they not have kept their distance? It has been documented to be airborne transmitted between piglets and non-human primates: http://www.nature.com/srep/2012/121115/srep00811/full/srep00811.html			
Taxis, Planes and Viruses: How Deadly EVD Can Spread	One good sneeze (or cough) is all it would take!			
Taxis, Planes and Viruses: How Deadly EVD Can Spread	In Liberia's communal taxis, people are squished together very tightly - 2 people in the front bucket seat, for example, 4 in the back seat of what we would call a compact car, and often numerous market bags and even live animals. So the other passengers would have no choice but to sit very close to her, close enough to share her sweat and potentially other bodily fluids.			
Taxis, Planes and Viruses:	What about TB there was a lesson forgotten and recovered for AIDS treatment: TRITHERAPY.			

How Deadly EVD Can Spread	Infectious diseases needing antibiotherapy are all leading to resistance without the principle of TRITHERAPY. As soon as you use an antibiotic for an infection, this antibiotic is bound to create a resistance somehow somewhere and sometime, and this is happening right now everywhere antibiotics are used, one by one, and would not happen if TRITHERAPY would be uses every time. OF course, this has a cost. But what is the actual cost now that we face multiple resistance for multiple antibiotics? The epidemiologic principles apply here with EVD. It will spread if we do not have the extreme approach to it.			
Taxis, Planes and Viruses: How Deadly EVD Can Spread	Why take the chance?			
Taxis, Planes and Viruses: How Deadly EVD Can Spread	Is anyone else concerned that they are allowing two people infected with EVD to come into the USA. Reportedly in conjunction with the CDC.			
Taxis, Planes and Viruses: How Deadly EVD Can Spread	The newspaper article I read today about bringing two EVD patients to the US, said the transmission is blood to blood. This article seems to refute that.			
Taxis, Planes and Viruses: How Deadly EVD Can Spread	What is the life of the Ebola virus? Does it survive on any structures; as in countertops,cars, etc?			
Taxis, Planes and Viruses: How Deadly EVD Can Spread	Please l'età us nave more news about tris infestino in the nera future thanks			
Taxis, Planes and Viruses: How Deadly EVD Can Spread	Are there any survivors from EVD outbreaks? If there are, do these survivors have immunity?			
Taxis, Planes and Viruses: How Deadly EVD Can Spread	That's important			
Taxis, Planes and Viruses: How Deadly EVD Can	If it's not airborne, how did the 5 other people in the taxi contract the virus? One would assume that her fellow taxi passengers would not have had any direct contact with her bodily fluids. I feel like we're not			

Spread	getting the whole story here, and that's a little frightening.			
Taxis, Planes and Viruses: How Deadly EVD Can Spread	I contacted the CDC through its web site to ask the following question:How long does the Ebola virus survive outside a host? For example, if an infected person who is having symptoms somehow gets bodily fluid on an object, say saliva on a drinking glass, how long will the virus live on the drinking glass?I got a response back surprising fast:Thank you for your inquiry to CDC-INFO. In response to your question about how long EVD can survive outside the body, we are able to provide you with the following information. The time that Ebola virus can remain infectious outside the body varies depending on the temperature, humidity, and pH levels, as well as other factors, but roughly about 1 to 2 days.For more information on EVD, please visit the following CDC website:http://www.cdc.gov/vhf/ebola/I followed the link which was a link to a lot of other links and could not find where this is explicitly documented. Also, it is not clear how to clean/sanitise/disinfect surfaces that may have been infected or merely as a precaution. Does soap and water work? If not, what sort of agents will destroy the virus, if any?			
Taxis, Planes and Viruses: How Deadly EVD Can Spread	I'm perplexed by the information being disseminated, or lack there of. As many have noted here, we are being told the virus isn't airborne, but how can so many healthcare people be coming down with this? They surely know and follow all the precautions for being around infected people? And also, we are told that people are only contagious when they have symptoms, and that by the time people are displaying symptoms they are unlikely able to travel. Yet, one of the woman in the above article was able traveled by bus and taxi, and presumably wasn't presenting symptoms, and somehow managed to infect others. I saw a troubling article that said the airports are on the lookout for people with symptoms. If they find someone they say they will put them in isolation. But what about all of the other people that person has been in contact with before someone noticed they were having symptoms? And lastly, I saw an article about a doctor saying that most U.S. hospitals can handle a situation where a patient comes in and presents with symptoms. Again, the protocol seems to put them in isolation. But what caught my attention was the idea that it would be an			

	isolated incident with only a single person presenting with the disease. What about 10 people? 50? 100? 1000? More? I don't think the U.S. hospitals are really prepared for this. I sure hope no need arises.			
Taxis, Planes and Viruses: How Deadly EVD Can Spread	Regarding M D | Other Healthcare Provider conversation below: "I contacted the CDC through its web site to ask the following question: How long does the Ebola virus survive outside a host? For example, if an infected person who is having symptoms somehow gets bodily fluid on an object, say saliva on a drinking glass…"CDC-INFO's response: "… The time that Ebola virus can remain infectious outside the body varies depending on the temperature, humidity, and pH levels, as well as other factors, but roughly about 1 to 2 days. For more information on EVD, please visit the following CDC Roughly 1 or 2 days! Yikes! Consider a sweaty hand on a railing or door knob. A good open- mouth sneeze into a hand and then onto a public surface. Now, consider this on a crowded subway or bus, in a large US city. Instead of telling us how low the risk is, they should focus on keeping our borders tightly closed against EVD. Paraphrasing an old saying: It's easier keeping the toothpaste in the tube than trying to put it back! website: http://www.cdc.gov/vhf/ebola/"			
Taxis, Planes and Viruses: How Deadly EVD Can Spread	I am recalling two events from my praxis "abroad", in 2003 a Chinese patient, young and with a persistent dry cough apparently wheezing and covered with sweat, fainted in front of the SARS CNN news screen in the waiting hall on his way to the reception. This happened in Conakry Guinea, I was lucky to realise it was stridor, with retrosternal dullness and X ray confirmed a retrosternal tumour mass, swift diagnose with receptive Ministry of Health stopped the blinking orange light already labelled on Conakry by BBC. Patient successfully medevac to China with support from China embassy that identified a Chinese anaesthesiologist in country. One year later we received an European patient from an NGO working in a Sierra Leonian refugee camp in Guekedou area with an overt haemorrhagic fever with severe thrombocytopenia - ruled out Malaria and Typhoid, alerted the Haemorrhagic fever network and decided to send the case of high containment air medevac to Geneva, I DDX suspicion Lassa (not confirmed) and ruled out YF at that time and immediate support from Freetown brought Ribavirin in country to start the treatment. The patient survived, also due to the continuous support of the personnel in CMI clinic. In 2003 the SARS panic left me with the surgeon and			

	ICU doctor alone in the hospital in a few minutes. ALL have run away. We started training people about awareness of hygiene so in 2004 all stood by our side, also because they knew that there is a clear distinction in contagion from airborne versus fomites / contact communicable diseases. At that time there was no suspicion of EVD there and also cholera was sporadic. Now the dynamic changed including beyond EVD also Chikungunya and Dengue DDX. The proximity of rural to urban communities has never made the transition more fluid and the complete lack of hygiene in hospitals infection centres, I think it is time to rethink the awareness increase and address several levels including sanctioning those who spread out rumours misguiding the attention from the real priorities. I think it is a decent point of view that risks in an EVD Treatment Centre are different from the street and that potential transmission trough fomites and aerosolised viruses cannot be excluded in the EVD Treatment Centres - explaining the higher bio safety level. How many MSF France doctors got infected? - hopefully no one - as they are leaders in compartmentalising and reinforcing hygiene. Sure not leaders in PR. I saw that the CDC has started a good initiative but when it comes to clear and scientific language I found sometimes CDC has some political restrictions. I am suggesting that Medscape specialist in hygiene goes after this issue as it did for the family care practitioner T zone' earlier this year about hand hygiene but also about personal attitude in considering unprotected sexual intercourse for a prolonged time (how long?) after EVD for the survivors.			
Taxis, Planes and Viruses: How Deadly EVD Can Spread	This article exposes the inadequacies in our present system in containing the high mortality transmissible Ebola virus as the stories of taxis, bikes and also lying public risking other people selfishly exposes our conundrum, unless u get effective vaccine global isolation strict must be implemented as even temp checking is inadequate eg-Texas case			
Taxis, Planes and Viruses: How Deadly EVD Can Spread	Gatherer noted that while EVD doesn't spread through the air. . ."? May I ask how the 5 other people in the communal taxi then did contract EVD from the index patient? I doubt all 5 or even most of the 5 were sitting next to her. If she appeared ill, would they not have kept their distance? It has been documented to be airborne transmitted between piglets and non-human primates: http://www.nature.com/srep/2012/121115/srep00811/full/srep00811.html			

EVDNP38NP5
Was the conversation RELEVANT to the topic? Please mark (X)

TOPIC	CONVERSATIONS	Not Relevant (0)	Partially Relevant (1)	Relevant (2)
EVD: Are Treatments, Vaccines on the Horizon?	good update			
EVD: Are Treatments, Vaccines on the Horizon?	Thanks for this stuff, it is very encouraging.			
EVD: Are Treatments, Vaccines on the Horizon?	Treatment for EVD is already here. The definitive study was declassified by the Defense Department in 2009. Nano Silver 10 PPM is available for use right now. You can read it at http://TinyURL.com/StopEbola. My protocol is available to those who request it at www.NSFMarketplace.com when you enter your email info. There is no purchase necessary			
EVD: Are Treatments, Vaccines on the Horizon?	求神保守战斗前线的宣教士……,			
EVD: Are Treatments, Vaccines on the Horizon?	Vietnamese anouned that ebola virus was ready to prevent.			

Intercoder B

Dear respondent,

Kindly assist with the rating of the conversations with respect to the topic as found below. For each of the corpus, kindly mark **(X)** below the rating you think is the most appropriate for each of the conversation. The corpora were generated from an online social network where English jargons are not prohibited. As a result, kindly disregard wrong sentences or grammatical errors within the conversations.

Please note that your responses are subjective and would only be used to enhance this study.

Thank you.

EVDNP 21NP09

Was the conversation RELEVANT to the topic? Please mark (X)

TOPIC	CONVERSATIONS	Not Relevant (0)	Partially Relevant (1)	Relevant (2)
Sierra Leone's Chief EVD Doctor Contracts the Virus	Sorry for our coleague, we hope and pray he to win the butle with EVD.			
Sierra Leone's Chief EVD Doctor Contracts the Virus	Very sad. Can only hope he will be one of the few to get better. A true soldier to stand when most will run.			
Sierra Leone's Chief EVD Doctor Contracts the Virus	The Infection Prevention & Control policy, strategy, paln and implementation status of the health care facilities of all the three countries as well as Nigeria should be reviewed immediately			
Sierra Leone's Chief EVD Doctor Contracts the Virus	I am sad to read such news but, as every front liner be it a policeman,priest,health inspector,nurse and any work that there is contact with a disease be it, viral or bacterial for which we have no medication or viral immunity at present, such as EVD, terrifies us because we do not know if we and our loved ones will contract it and succumb to it. That's why we should never take off our guard from prevention such as physical protection and in such cases I think the best way is to quarantine whole towns where outbreaks occur.			
Sierra Leone's Chief EVD Doctor Contracts the Virus	I worked with Dr Kahn and had the priviledge to teach him He was very passionate about his work with Viral Haemorrhagic fevers A fund must be set up in his honour to promote work across the subregion He will be sorely missed			
Sierra Leone's Chief EVD Doctor Contracts the Virus	Country governments within the west African sub region need to really rise up to the occasion. First, the borders are too leaky - the boko haram insurgency and EVD outbreak are proof of that fact. There needs to be a heightened and sustained coverage			
Sierra Leone's Chief EVD Doctor Contracts the Virus	I respect the efforts of dr. sheikh umar khan.he is the hero of people mashaAllah and the one who lives for people,the world sustains for him			
Sierra Leone's Chief EVD Doctor Contracts the Virus	Hope he will come out of this ordeal.....			

Sierra Leone's Chief EVD Doctor Contracts the Virus	In Sha Allah !!!			

EVDNP 24NP15

Was the conversation RELEVANT to the topic? Please mark (X)

TOPIC	CONVERSATIONS	Not Relevant (0)	Partially Relevant (1)	Relevant (2)
Sierra Leone's Top EVD Doctor Dies From Virus	This is not H1N1, SARS, or bird flu. This is a highly infectious virus with a very high mortality rate and no treatment. The CDC and State Department should ban all travel to the United States from west Africa and Nigeria for a period of 90 days. There will only be one chance to curtail the spread of this virus and I'm afraid our elected officials are going to blow it.			
Sierra Leone's Top EVD Doctor Dies From Virus	Is this the doctor who was treating his sister or other relative and did not realise it was EVD? A tragedy to lose people like this. RIP			
Sierra Leone's Top EVD Doctor Dies From Virus	Dr. SP, this is not spread through the air. It is blood and body-fluids borne. And, unlike chicken pox, the flu, etc, it is not contagious in the days preceding symptoms. So the chances of it spreading uncontrolled in a country where basic rules of hygiene are the norm are MUCH lower than the other illnesses you named. Medical professionals should be reassuring the public, not becoming alarmist.			
Sierra Leone's Top EVD Doctor Dies From Virus	Its sad may his soul rest in peace			
Sierra Leone's Top EVD Doctor Dies From Virus	It is such a tragedy to lose even one of these trained professionals who is willing to lay down his life. Please support this effort with any political clout, prayer, and disposable income you may be able to spare.			
Sierra Leone's Top EVD Doctor Dies From Virus	Agree with Dr S P			
Sierra Leone's Top EVD Doctor Dies From Virus	So very sad, may God rest his soul very close to Him in Heaven			
Sierra Leone's Top EVD Doctor Dies From Virus	Sadness and respect from France			

Sierra Leone's Top EVD Doctor Dies From Virus	My heart goes to his family. This doctor died because of the love and care he had for his people and country. Like Jesus who died for our sins.			
Sierra Leone's Top EVD Doctor Dies From Virus	From the bottom of my heart may his soul rest in peace in Heaven.He died because of his love to people. Western Australia			
Sierra Leone's Top EVD Doctor Dies From Virus	Research posted here, http://TinyURL.com/StopEbola, done by the US Department of Defense and declassified in 2009 shows clearly that Nano Silver 10 PPM (which is NOT colloidal or ionic silver) inactivates Ebola virus. Nano Silver is a non-toxic substance which every member of the community can safely take. For my Protocol on its use enter email at www.NaturalSolutionsFoundation.com. Dr. Rima			
Sierra Leone's Top EVD Doctor Dies From Virus	Its so unfortunate ...may his soul rest in peace			
Sierra Leone's Top EVD Doctor Dies From Virus	May his soul rest in peace			
Sierra Leone's Top EVD Doctor Dies From Virus	I do not believe we should bring EVD patients to the US. There is a risk in doing so. Respectively, Joy Hamer			
Sierra Leone's Top EVD Doctor Dies From Virus	How many Dr.Sheik Omar Khan can be found now?I really admire the few who are still around.			

Intercoder C

Dear respondent,

Kindly assist with the rating of the conversations with respect to the topic as found below. For each of the corpus, kindly mark **(X)** below the rating you think is the most appropriate for each of the conversation. The corpora were generated from an online social network where English jargons are not prohibited. As a result, kindly disregard wrong sentences or grammatical errors within the conversations.

Please note that your responses are subjective and would only be used to enhance this study.

Thank you.

EVDNP 33NP19

Was the conversation RELEVANT to the topic? Please mark (X)

TOPIC	CONVERSATIONS	Not Relevant (0)	Partially Relevant (1)	Relevant (2)
American EVD Patient Improving	The Lord answered to nber of people's prayer. God bless Emory ID team' hands			
American EVD Patient Improving	EVD infected patients could be treated effectively in a supporive high levelled medical care			
American EVD Patient Improving	I wonder whether the two patients could have gotten the potentially life saving serum if they had been in the US. The FDA might have blocked that.			
American EVD Patient Improving	"No risk to those caring for these pts w EVD". Ha!! Read the WHO fact sheet on EVD. Transporting pts with this virus to the US is beyond comprehension. This virus has never been in the US until now. What kind of grandiosity pervaded this manuever. Whoever decided this did not read the WHO fact sheet on treating pts w EVD. I am incredulous!!			
American EVD Patient Improving	It amazes me that the patient's waste will be flushed into the public sewer system. During heavy rains, it is common for raw sewage to back up onto lawns or into basements. What of the rats/bats/mosquitos that also live in the sewers--won't they become a reservoir for the virus? The arrogance is astounding.			
American EVD Patient Improving	I am happy to see that we take care of the people we put in "Harms Way" FDA need to revamp proticals on use of expermental drugs to treat unteratable people.			
American EVD Patient Improving	I find it interesting that although the CDC says that the virus is not spread thru airborne droplets, the hospital is taking extreme caution in filtering the air that the patient is breathing.			
American EVD Patient Improving	I don't understand why they would transport people with such a virulent disease into the US. There are SO many things that could go wrong. Why take the chance?			
American EVD Patient Improving	Research posted here, Nano Silver is a non-toxic substance which every member of the community can safely take.http://TinyURL.com/StopEbola, done by the US Department of Defense and declassified in 2009 shows clearly that Nano Silver 10 PPM (which is NOT colloidal or ionic silver) inactivates Ebola virus. Nano Silver is a non-toxic substance which every member of the community can safely take. For my Protocol on its use enter email at www.NaturalSolutionsFoundation.com.			

	Dr. Rima			
American EVD Patient Improving	i wish,both of them, perfect health			
American EVD Patient Improving	I worked in Liberia last year. I learned more about Tropical Medicine in six months there than an ID doc learns in four years. It is entirely unclear and contra intuitive as to why the CDC considered importing a lethal disease into the US when their staff could assist the patient in Liberia. It defies their own policy. The Humanitarian missions by religious groups in the US is begrudged in Liberia out of poverty. This self aggrandizement doesn't have a lasting impact on Liberians. I spent my time teaching local staff and found that assistance to be more valuable than the direct care I provided. Again it confounds me that the TSA would allow someone with an untreatable illness to enter the US (short of supportive care). Placing the population at risk for an individual is a disservice to the community. There is wrong, then there is wrong, and then there is this.			
American EVD Patient Improving	So now we have the real live Ebola virus right here in the US. God bless these 2 poor souls and I pray for their recovery but why expose our health care workers to it? I don't care how secure and protected the environment is, how state of the art we are. There is always human error and just one little oops can infect God knows how many innocent people. Why not treat them where it all started? Are they now going to send everyone infected here for treatment? I just don't get it.			
American EVD Patient Improving	Thanks for these detail update. I wish the affected west African countries can manage all hospital clients as discussed above.			
American EVD Patient Improving	Healty life style, presonal and environmental hygiene as well as early identification and treatment is the key to lock out EVD			
American EVD Patient Improving	what is the content of this experimental serum? How was it prepared			
American EVD Patient Improving	What about the medical personnel that were over in Africa? They should have remained on Africa for the 21-30 day hold instead they were sent back to the USA were they are roaming Around! The very least they should have returned and had to be held, tested, and quarantined for the recommended time frame regardless if they wore Protective gear or not! I swear this is governments way of population control...			
American EVD Patient Improving	Thank you for keeping us up to date.			

American EVD Patient Improving	To all those expressing HORROR at the fact that American EVD patients were brought back to their home country for advanced level care... Shame on you! If it were your family members or loved ones; you would have wanted every effort made to save them! God bless the rescuers of these Americans and their caregivers and God bless America!!!			
American EVD Patient Improving	Thanks for the update, we expect such containment measures, to enforced here in Nigeria, our public healthcare systems which is grossly inadequate has to be revamped. The government should pay more attention to health. We pray this outbreak doesn't get out of hand .			

EVDNP37NP3
Was the conversation RELEVANT to the topic? Please mark (X)

TOPIC	**CONVERSATIONS**	**Not Relevant (0)**	**Partially Relevant (1)**	**Relevant (2)**
Second American Infected With EVD Arrives in US	That's an incredible doctor:patient ratio.			
Second American Infected With EVD Arrives in US	Congratulations to the organisation who performed the transport of both of infected medical officers, and also to the Emory hospital team which accepted them.Hope they will recover and this will be a great succes of those who undervent this kind of non proven treatment, an also a hope for future inefected persons. God bless all of them!			
Second American Infected With EVD Arrives in US	Wow, had me somewhat worried about them. Very glade that they are doing well and that they soon to return home.			

Intercoder D

Dear respondent,

Kindly assist with the rating of the conversations with respect to the topic as found below. For each of the corpus, kindly mark **(X)** below the rating you think is the most appropriate for each of the conversation. The corpora were generated from an online social network

where English jargons are not prohibited. As a result, kindly disregard wrong sentences or grammatical errors within the conversations.

Please note that your responses are subjective and would only be used to enhance this study.

Thank you.

EVDNP 44NP15

Was the conversation RELEVANT to the topic? Please mark (X)

TOPIC	CONVERSATIONS	Not Relevant (0)	Partially Relevant (1)	Relevant (2)
Ebola Virus: How Contagious?	It is the volume of the viral innoculum that is important with each virus needing a certain number of companions to establish a foothold. Droplets from a sneeze or a cough don't spread HIV. NOT so with EVD.			
Ebola Virus: How Contagious?	It is called an epidemic for good reason. 1700 documented cases and 900 dead so far tell us something about contagion and virulence.			
Ebola Virus: How Contagious?	So the HazMat suits and the specially equipped airplanes are just silly? Wow, what a relief! I think a better infection to compare EVD to, for contagion potential, would be Norovirus. Would you send the author of this article, along with a few hundred other people, on an ocean cruise, with 1 person on board who is infected with EVD, but not yet showing symptoms? Anybody willing to sign up for such a cruise? (Seriously, there is no health topic that Medscape can't somehow redirect to being about the glories of vaccines, no acknowledgement that they don't work that great, they wear off unpredictably, the vaccinated can shed virus or be asymptomatic carriers, they can have serious side effects, and the diseases they protect against are in the majority of cases mild, and render dependable lifelong immunity, including protection of infants by maternal antibodies, and can have other benefits such as mumps infection decreasing ovarian cancer incidence by about 30%.) But, remember, according to Medscape, you really have to TRY to catch EVD...			
Ebola Virus: How Contagious?	Thank you for the information.			
Ebola Virus: How Contagious?	You can't separate the politics and lies from the facts from the CDC. Remember the A.I.D.S. epidemic and how they repeatedly insisted the blood supply was			

	safe and how they refused to prohibit homosexuals from donating blood? I'm sure if there are any hemophilliacs left alive that contracted the disease from their blood transfusions they would tell us not to believe anything from the cdc. Half-truths, quarter truths and outright lies.			
Ebola Virus: How Contagious?	Funny, I thought the best way to isolate contagious disease was quarantine. Why in the world would we bring infected people back to the US to treat???? Whatever happened to quarantine?? It's pure idiocy to bring deadly infection, with no known cure, treatment, or vaccine, into any country!! Pictures speak louder than your words. The fact is that it is very easy to pass it from person to person. Evidence: two doctors, who, one would believe, know how to prevent and protect themselves from the disease and take every precaution to do so (we have been told). Then why, oh why, did they contract it? I don't believe they "worked" at getting it. They were working to get rid of it. If THEY can get it, then what future do the REST of us have?			
Ebola Virus: How Contagious?	An interesting observation has been reported with respect to the incidence of this disease. The malaria model has been applied to it with respect to wet/dry weather conditions and the mosquito population with similar findings. The incidence rises and fall with those variables. It is possible that the disease could be transmitted by a mosquito having fed off an infected human?			
Ebola Virus: How Contagious?	I should add that a cursory search suggest that there are yet unresolved issues related to studies already completed on the question of a mosquito borne vector for this particular disease and perhaps the viral entitiy itself.			
Ebola Virus: How Contagious?	Regarding: “Compared to the airborne organisms spread by casual contact, it takes effort to get infected with both of these viruses [HIV and EVD]," Adalja says.” Here are some scenarios to consider: Saliva--EVD is transmitted through saliva. A cough or sneeze produces an aerosol of droplets. Wouldn't that be considered a body fluids transfer? Supposedly aerosols from a cough or sneeze can be transmitted up to 6 feet.A good open mouth sneeze will expel a lot of saliva. If a person sneezes into his/her hand, then handles a door knob, etc. Wouldn't that transmit the virus? Sweat—EVD is transmitted through sweat. A sweaty hand that holds onto a railing or door knob could easily be picked up by the next person in line. That could be followed by the hand-to-face routine that occurs frequently in people. Rubbing the eyes, etc. Snot—Wouldn't EVD be in snot also? Someone			

	who wipes his nose with his/her hand and then touches a door knob, etc. I don't think these are unrealistic scenarios. There is a case of a woman in Africa who cared for her dying sister, and then thought she was getting EVD also. She traveled by taxi to visit her husband to see him one last time. There were 5 persons in the taxi with her. They all died!			
Ebola Virus: How Contagious?	I see the secondary gain of bringing those two patients to CDC/Emory under severely strict body fluids precautions, with the intention of supporting it with a research infrastructure. Beyond that, Travel in and out of those countrys needs to be prohibited until the disease has run its course.			
Ebola Virus: How Contagious?	I remember when Medscape articles were apolitical. A valued educational source "back then".			
Ebola Virus: How Contagious?	World Health Organisation declares EVD outbreak a global emergency and the CDC does not. I have to wonder who is right and who is playing with our nation's health. I'd have to suspect somewhere in the middle. Not an emergency but not something we neglect. We have West Nile, Dengue Fever and now Chikungunya. Sorry but I'm not impressed with the CDC's confidence.			
Ebola Virus: How Contagious?	Thank for informations. I have not ideea about EVD			
Ebola Virus: How Contagious?	Please consider revising this article or even taking it offline. Among other problems it contains critical inaccuracies. By repeatedly comparing HIV with EVD it creates the impression that the risk of infection would be similar for both diseases ("it takes effort to get infected with both of these viruses [HIV and EVD]"). I would like to point to the CDC transmission risk assessment for EVD (http://www.cdc.gov/vhf/ebola/hcp/case-definition.html). Examples: High risk: Direct skin contact with .. blood or body fluids [and that includes vomit and saliva, possibly sweat also] Low risk: having direct brief contact (e.g., shaking hands) with an EVD patient. o me that sounds like transmission in normal life is very real.The rate of infection in health care workers is unprecedented (more than 240 cases in health care workers compared to about 1500 in non health care workers, source: WHO). I am sure these health care workers used everything available to them to protect themselves. Personally I do not know of any other dangerous disease that has such a high rate of transmission from patient to caregiver (and I have great respect for the people doing this difficult job).			

	The case count of the current outbreak shows exponential growth with a doubling period of 34.8 days (Science, DOI: 10.1126/science.1259657) Taken together these are all hallmarks of a highly contagious disease that is spreading aggressively.			
Ebola Virus: How Contagious?	Que dieu nous protège!!!			

EVDNP 67NP7

Was the conversation RELEVANT to the topic? Please mark (X)

TOPIC	CONVERSATIONS	Not Relevant (0)	Partially Relevant (1)	Relevant (2)
2 U.S. EVD Patients Released From Hospital	it is goog nows			
2 U.S. EVD Patients Released From Hospital	Cool,don't see the reason why this drug shouldn't be legalised and used to treat other EVD patients in Africa.			
2 U.S. EVD Patients Released From Hospital	Some conversations and questions: 1.- If these two individuals were the first ones to take the medicines, will be great to check if is eliminating the virus from the semen of a very young M.D. This will be more secure for his significant other, because condoms can brake so easily. 2.-If the virus mutate, the vaccine will be difficult to do for one year to another? 3.-The production of the medicine will be possible, but very expensive for a poor country as Africa to obtain. Is the WHO or ONU capable to buy for them? Or is CDC from USA or other reach countries willing to donate to poor countries when an outbreak happens?			
2 U.S. EVD Patients Released From Hospital	A little confused about this. There is no cure for viruses, only treatments. How are the doctors and the CDC so certain these 2 Americans are free from being carriers? Especially since the treatment they received are experimental. Viruses are known for being dormant and resurfacing at any point and time.			
2 U.S. EVD Patients Released From Hospital	The recovery of the two Americans gives a ray of hope for the management of EVD.Could ZMapp also be made available for the patients in the poor countries affected,even if we are still			

	not sure of its efficacy against EVD.The situation is so desperate that any intervention which gives some degree of hope should be made available to those who need it.			
2 U.S. EVD Patients Released From Hospital	Is it true that the virus can be seen in the semen or body fluid after 6wks of recovery from EVD illness.Then post-recovery or recovering patients shld be able to infect naive patient .			
2 U.S. EVD Patients Released From Hospital	Excellent update on EVD situation			

Intercoder E

Dear respondent,

Kindly assist with the rating of the conversations with respect to the topic as found below. For each of the corpus, kindly mark **(X)** below the rating you think is the most appropriate for each of the conversation. The corpora were generated from an online social network where English jargons are not prohibited. As a result, kindly disregard wrong sentences or grammatical errors within the conversations.

Please note that your responses are subjective and would only be used to enhance this study.

Thank you.

EVDNP 54NP10

Was the conversation RELEVANT to the topic? Please mark (X)

TOPIC	**CONVERSATIONS**	**Not Relevant (0)**	**Partially Relevant (1)**	**Relevant (2)**
WHO Backs Use of Experimental Treatments for EVD	AS THE DISEASE B CUM EPIDEMIC V MUST TAKE HARD SEPT TO GETS RESULT BC IN UNDER DEVELOP COUNTRIES DIFFICULT TO CONTROL IT			
WHO Backs Use of Experimental Treatments for EVD	Health care workers and residents in EVD-affected areas would be far better served if the first world would provide needed supplies (gowns, gloves, masks, IVs, sterile needles, sterile bandages, . . . perhaps even portables that could be used for isolation) and trained personnel than by shipments of an experimental treatment never tested in humans. The two U.S.			

	patients don't count as a test. We have no way to tell whether the treatment had any effect positive or negative on their course. This wasn't even a Hail Mary pass. It was an unthinking, knee jerk response to a horrible situation, a way to feel like something was done. We don't have a magic bullet for everything. EVD is readily contained by adequate barrier methods and effective (which means it must be humane) quarrantine. Otherwise-healthy patients will usually recover if (a big if) there is good supportive care. In the long run, better education, sanitation, and access to (adequate, well-provisioned) health care are apt go much further in protecting populations from a whole host of ills than untested EVD medications.			
WHO Backs Use of Experimental Treatments for EVD	I completely feel that experimental treatment is completely that "experimental" and could possibly cause more harm than good. We should make better efforts to control and quarantine the virus at it's source; not allow it to be wide spread to residents across the globe. Let's get back to the basics here.			
WHO Backs Use of Experimental Treatments for EVD	If I understand it correctly, EVD produces hemorrhagic symptoms among other ones. Scurvy is also hemorrhagic in its symptoms. We know that vitamin C reduces or eliminates the symptoms of scurvy. We also know that vitamin C is antiviral. If experimental drugs are to be used, why not try vitamin C in an IV at mega-dose levels? I know I'm probably outside the "box" but what have we got to lose? Also I have read studies about the effect of vitamin C on dengue hemorrhagic fever within 48 hours. Lives are at stake, let's use things we know will help and not hurt. At worst, vitamin C will only be a nutrient.			
WHO Backs Use of Experimental Treatments for EVD	Just thinking... How about cloning antibodies from those who recovered from the EVD infection? Or modifying them? Just thinking...			
WHO Backs Use of Experimental Treatments for EVD	Hmmm! Sounds like the current EVD outbreak in some west African countries has turned the global health community into panic. Shouldn't the experts look at environmental factors in the EVD stricken areas as a way of finding containment solution to this outbreak? For the EVD confirmed case, yes, because of its high mortality but should it be morally justified to administer these yet-to-be approved drugs on exposed but unconfirmed case?			

WHO Backs Use of Experimental Treatments for EVD	As It is a matter of emergency,and the drug has proven its efficacy in some people .I think others can also benefit from this trial			
WHO Backs Use of Experimental Treatments for EVD	Dr. Rene's comment is somewhat disconcerting in that he think others can also benefit from the trial based upon limited efficacy and emergency. We must be very careful to clearly define the meaning of "others". Perhaps a definition of "others" would add clarity to Dr. Rene's comment.			
WHO Backs Use of Experimental Treatments for EVD	Pharmacist B S makes a good point. We did not do exactly like B S states for HIV and now we are treating epidemic portions of TB, Anal Cancer, HPV of the mouth and observing greater numbers of mouth cancers. Control, Quarantine, isolating the infectious areas, determining clearly the hosts and transmission form (maybe it is bats as has been proposed and maybe it is not). But the point made is clear: back to basics that can be implemented with results while the loner term biological investigations continue. A virus that targets first the immune system and then invades and subsequently causes an explosive eruption of cytokines is not easy virus it overcome. Most likely there will be more than one remedy			
WHO Backs Use of Experimental Treatments for EVD	The idea of Gary of using vitamin C may be supported .Vitamin C associated with ZMapp could be effective , who knows?			

EVDNP 88NP12

Was the conversation RELEVANT to the topic? Please mark (X)

TOPIC	**CONVERSATIONS**	**Not Relevant (0)**	**Partially Relevant (1)**	**Relevant (2)**
EVD Outpacing Control Effects: WHO	International Communities efforts to discover vaccine/s and medicine/s on Ebola Virus/es should be unified. This has to be done to prevent the possibility by someone using this virus/es as a bioterroristic agents in the near future. Where are our geniuses in the field of Research, Medicine, WHO, and etc.? The entire Human Race is still optimistic being the Lord of all creations as empowered by God that our specie in the Animal Kingdom is MORE INTELLIGENT than Ebola virus/es!			

EVD Outpacing Control Effects: WHO	So far we Have no positive EVD Cases iN India			
EVD Outpacing Control Effects: WHO	I'm really impressed with this report on EVD infection. I pray the result of the Geneva Meeting will be positive			
EVD Outpacing Control Effects: WHO	EVD is a viral infection. Our approach to most viral infections is not to treat them after the infection is established. We all know that influenza vaccination is pretty effective. Why we are going down the path of the zMapp's is of concern. Clearly the commercial considerations have something to do with it. We should look at preventative regimes which we are familiar with, and either try them out in the affected areas or at least do laboratory trials that confirm such efficacy. This is not going to be a quick fix situation, and the sooner we recognise that we are in for the long haul, the better. EVD was unheard of in West Africa a short while ago. How do we know that it may not strike in the more developed territories?			
EVD Outpacing Control Effects: WHO	As several of us have been discussing (& I have responded to before), this outbreak will be much more difficult to stem than originally thought. Better communication and reassessment of the resources needed must occur quickly!			
EVD Outpacing Control Effects: WHO	First of all, keep GOD out of it - your GOD caused this so don't p'e him off. There is a strong possibility that EVD is a result of experimentation gone wrong - or turning out as intended. NWO and many governments don't hide their pronouncement of having to cull population by several Billion. Our Planet cannot support the unchecked proliferation of our species. This is priority ONE and if it isn't EVD, there will be other even more drastic measures taken. Interestingly enough, we as a whole do much better controlling wild species. Unless EVD has been artificially created outside the realm of natural evolutionary RNA DNA progression so that we cannot naturally develop a positive response, it was programmed to run it's course. There quite likely is already a solution which will be miraculously become available when the cull target is reached. Cruel but likely necessary.			
EVD Outpacing Control Effects: WHO	I believe it is our duty to report on this issue and in the media. Also all industrialised country and citizens should be to send more help financially and manpower. This such a global threat and I do			

	not see any more reports in the news. It seems that 6 months ago this outbreak could have been stopped when the first reports came up. There should be reports on how we can help and who to call			
EVD Outpacing Control Effects: WHO	Read and you can get your. Own conclusion			
EVD Outpacing Control Effects: WHO	Hi, Our Island country Mauritius is actively screening Port and SEAPORT for EVD and any person with fever and other symptoms.Close to Airport a Facility has been set up.WE have accepted this is an Incredible Challenge.There are many Embassies AND High Commissions for Passengers to liase with.Finally we are still a Leading Destination in the region.As a Rotarian I can say we have contacts with Rotary in AFRICA..Thank you all for perusing my comment.			
EVD Outpacing Control Effects: WHO	honestly, since patients are contagious for up to 3 weeks prior to symptoms, is screening for fever really doing anything to prevent the spread?			
EVD Outpacing Control Effects: WHO	We need to know more. The epidemiology of this virus must be worked out as rapidly as possible. Then we will know how to block it's wave of destruction. Incubation periods and infection-under-the-clinical horizon time scales, serotipes, carrier states, possible vectors, viable transmission times after death are but a few of the crucial bits of information to collect. Medical intelligence, intelligence, intelligence !!!			
EVD Outpacing Control Effects: WHO	I was just wondering if anyone has thought of trying therapy using SCALAR ENERGY? It has been know to destroy rna-dna , building blocks of all organisms. It must be used in Africa if they want to save the people. Why has it not been tried? It may be much cheaper than all the things they are paying for, and running out of. Antibodies would probably work in time. They should have been prepaired a long time ago. Also why are people still moving around, all over the world? What is so important?			

Appendix IV: Paired sample T-test to compare the Researcher's Rating with other Coders

Paired Samples Test									
		Paired Differences					t	Df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Intercoder A Main - Intercoder A1	-.125	.537	.110	-.352	.102	-1.141	23	.266
Pair 2	Intercoder B Main - Intercoder B1	-.364	.848	.181	-.739	.012	-2.012	21	.057
Pair 3	Intercoder C Main - Intercoder C1	.091	.811	.173	-.269	.451	.526	21	.605
Pair 4	Intercoder D Main - Intercoder D1	-.182	.795	.169	-.534	.171	-1.073	21	.296
Pair 5	Intercoder E Main - Intercoder E1	.409	.908	.194	.006	.812	2.113	21	.047

Appendix V: EVD newsposts among HCP on the Network

EVDNP I/D	EVD Newsposts	EVD Newsposter	Date of Post	HCP Conversations	No of Conversations
1	West African Nations Scramble to Contain EVD Threat		March 26, 2014	Conversation	2
2	Guinea Says Has Contained EVD Outbreak, Death Toll Rises	Saliou Samb	March 27, 2014	Conversation	2
3	Scale of Guinea's EVD Epidemic Unprecedented: Aid Agency	Saliou Samb	April 1, 2014	Conversation	2
4	Guinea's First EVD Survivors Return to Family, Stigma Remains	Misha Hussain	April 09, 2014	No conversation	0
5	Death Toll From West Africa EVD Hits 337: WHO Update	Reuters Staff	June 19, 2014	No conversation	0
6	Sierra Leone Shuts Borders, Closes Schools to Fight EVD	Reuters Staff	June 12, 2014	No conversation	0
7	Guinea, Sierra Leone See Spike in EVD Cases: WHO	Reuters Staff	June 05, 2014	No conversation	0
8	West Africa EVD Outbreak Still Spreading, 'Situation Serious,' Says WHO	Stephanie Nebehay and Saliou Samb	May 29, 2014	No conversation	0
9	WHO Says West African EVD Outbreak to Last 2-4 Months	Reuters Staff	April 09, 2014	Conversation	1
10	First-Hand Experience From Guinea Offers New EVD Insight	Kate Johnson	May 15, 2014	No conversation	0
11	West African EVD Outbreak Caused by New Strain of Disease: Study	Saliou Samb	April 21, 2014	No conversation	0
12	West African EVD Epidemic 'Out of Control' -- Aid Group	Reuters Staff	June 24, 2014	No conversation	0
13	Drastic Action Needed to Halt World's Worst EVD Outbreak: WHO	Reuters Staff	June 26, 2014	Conversation	2
14	West African Nations Should Be Prepared for EVD: WHO Expert	Reuters Staff	June 30, 2014	No conversation	0
15	Fear, Suspicion Undermine West Africa's Battle Against EVD	Umaru Fofana	July 01, 2014	No conversation	0
16	Red Cross Suspends EVD Operations in Southeast Guinea After Threats	Misha Hussain	July 03, 2014	No conversation	0
17	Test EVD Drugs Should Be Tried in Africa,		July 03, 2014	Conversation	2

	Disease Expert Says				
18	Fifty New EVD Cases and 25 Deaths in West Africa - WHO	Reuters Staff	July 09, 2014	No conversation	0
19	As EVD Stalks West Africa, Medics Fight Mistrust, Hostility	Saliou Samb and Adam Bailes	July 15, 2014	Conversation	1
20	Death Toll From West Africa EVD Outbreak Jumps to 603 – WHO	Reuters Staff	July 16, 2014	Conversation	1
21	Sierra Leone's Chief EVD Doctor Contracts the Virus	Reuters Staff	July 23,2014	Conversation	9
22	Liberia Shuts Border Crossings, Restricts Gatherings to Curb EVD Spreading	Reuters Staff	July 29, 2014	Conversation	2
23	Family of Texas Doctor With EVD Not Showing Signs of Virus	Colleen Jenkins	July 29, 2014	No conversation	0
24	Sierra Leone's Top EVD Doctor Dies From Virus	Umaru Fofana and Adam Bailes	July 29, 2014	Conversation	15
25	Liberia Shuts Schools, Quarantines Communities to Halt EVD	David Lewis and Emma Farge	July 31, 2014	No conversation	0
26	Suspected EVD Cases Sent Home as Liberian Isolation Unit Fills Up	David Lewis	July 31, 2014	No conversation	0
27	Taxis, Planes and Viruses: How Deadly EVD Can Spread	Kate Kelland	July 31, 2014	Conversation	17
28	Two Relief Workers With EVD to Be Evacuated to United States	David Beasley	August 01, 2014	No conversation	0
29	WHO Launching $100 Million Plan to Combat EVD	Reuters Staff	August 1, 2014	Conversation	1
30	WHO Chief Says EVD Out of Control but Can Be Stopped	Saliou Samb	August 04, 2014	Conversation	2
31	EVD Distracts From Worsening Cameroon Cholera Outbreak	Misha Hussain and Tansa Musa	August 04, 2014	No conversation	0
32	Family of Doctor Sick With EVD Call for Prayers for His Colleague	Nil	August 04, 2014	No conversation	0
33	American EVD Patient Improving	Brenda Goodman, MA	August 04, 2014	Conversation	19
34	U.S. FDA Says 'Stands Ready' to Work With Companies Developing EVD Drugs	Julie Steenhuysen	August 05, 2014	Conversation	1
35	Second EVD Patient Headed to US, NY Tests Possible Victim		August 05, 2014	Conversation	1
36	Experimental EVD Serum Grown in Tobacco Leaves	Brenda Goodman, MA	August 05, 2014	Conversation	4
37	Second American Infected With EVD Arrives in US	Brenda Goodman, MA	August 05, 2014	Conversation	3
38	EVD: Are Treatments, Vaccines on the Horizon?	Rita Rubin	August 05, 2014	Conversation	5

39	WHO Urged to Allow Experimental Drugs in 'Dire' EVD Outbreak	Kate Kelland	August 06, 2014	No conversation	0
40	Development Banks, U.S. Increase Support for EVD-Hit Countries	Lesley Wroughton	August 06, 2014	No conversation	0
41	WHO Consulting Ethics Experts on Experimental EVD Drugs	Tom Miles	August 07, 2014	Conversation	4
42	EVD Emergency Turns Spotlight on Experimental Drugs		August 07, 2014	Conversation	1
43	U.S. Allows Use of EVD Test Overseas as Crisis Deepens	Doina Chiacu	August 07, 2014	Conversation	1
44	Ebola Virus: How Contagious?	Kathleen Doheny	August 07, 2014	Conversation	15
45	US Hospitals Capable of Averting EVD Outbreak, CDC Says	Robert Lowes	August 07, 2014	Conversation	25
46	Tekmira EVD Drug Gets Regulator Change for Possible Human Use		August 08, 2014	Conversation	1
47	WHO Declares EVD a Global Public Health Emergency	Megan Brooks	August 08, 2014	Conversation	47
48	Evaluating US Patients for EVD: Guidance for Tennessee Clinicians		August 08, 2014	No conversation	0
49	Fighting Fear, Fatigue on the Front Lines of EVD	Brenda Goodman, MA	August 08, 2014	Conversation	6
50	Reader Poll: Is Your Hospital Prepared for EVD?		August 08, 2014	Conversation	28
51	Clinical Trial to Start Soon on GSK EVD Vaccine	Ben Hirschler	August 12, 2014	No conversation	0
52	U.S. Emergency Labs Ready to Work on EVD Drugs If Asked	Sharon Begley and Toni Clarke	August 12, 2014	No conversation	0
53	On EVD's Front Line, Doctor Finds Grief and Inspiration	Kate Kelland	August 12, 2014	Conversation	1
54	WHO Backs Use of Experimental Treatments for EVD	Megan Brooks	August 12, 2014	Conversation	10
55	Nigeria Races to Halt EVD Spread in Overcrowded Lagos	Tim Cocks	August 13, 2014	No conversation	0
56	Scientists Find How 'Nefarious' EVD Disables Immune Response	Kate Kelland	August 14, 2014	No conversation	0
57	U.S. Government Advances Development of BioCryst's Potential EVD Drug	Reuters Staff	August 14, 2014	Conversation	1
58	Exclusive: NewLink Says EVD Vaccine Trial Could Start in Weeks	Sharon Begley	August 15, 2014	No conversation	0
59	FDA Warns of Fraudulent EVD Drug Claims	Toni Clarke	August 18, 2014	No conversation	0
60	Extreme Medicine: The Search for New Antibiotics	Kate Kelland and Ben Hirschler	August 19, 2014	Conversation	2
61	Liberia Hunts Escaped EVD Victims as WHO Calls for Controls	Claire MacDougall and Stephanie	August 19, 2014	No conversation	0

		Nebehay			
62	Liberian Police Fire Live Bullets to Disperse EVD Protest		August 20, 2014	Conversation	1
63	Experimental EVD Drugs Needed for 'Up to 30,000 People'	Ben Hirschler	August 21, 2014	Conversation	3
64	Tekmira Drug Saves Monkeys With Marburg Fever, EVD's Cousin	Sharon Begley	August 21, 2014	No conversation	0
65	UK and Wellcome Offer $10 Mln for Emergency EVD Research	Reuters Staff	August 21, 2014	No conversation	0
66	Surviving EVD: Africa Cries Out for Healthcare Investment Boost		August 21, 2014	No conversation	0
67	2 U.S. EVD Patients Released From Hospital	Brenda Goodman, MA	August 21, 2014	Conversation	7
68	EVD Therapies and Vaccines Need Priority, Support	Veronica Hackethal, MD	August 22, 2014	No conversation	0
69	EVD: Excessive Precautions in US Hospitals May Be Harmful	Larry Hand	August 22, 2014	Conversation	21
70	WHO Warns of 'Shadow Zones' and Unreported EVD Cases	Stephanie Nebehay, Ben Hirschler, Emma Farge, Joe Bavier and Claire MacDougall	August 25, 2014	No conversation	0
71	Doctors in Developed Nations Need to Know How to Recognize EVD, Too	Megan Brooks	August 26, 2014	Conversation	1
72	Liberian Doctor Who Received Rare EVD Drug ZMapp Dies	Emma Farge	August 26, 2014	No conversation	0
73	Sierra Leone 'Hero' Doctor's Death Exposes Slow EVD Response	Umaru Fofana and Daniel Flynn	August 26, 2014	Conversation	4
74	WHO Pulls Staff After Worker Infected With EVD in Sierra Leone	Umaru Fofana and Media Coulibaly	August 27, 2014	No conversation	0
75	ICAAC to Showcase 'Extraordinary' EVD Efforts	Kate Johnson	August 27, 2014	No conversation	0
76	Canada's Immunovaccine Inc Says Test of EVD Vaccine Promising		August 28, 2014	No conversation	0
77	EVD Causing Huge Damage to W. Africa Economies -- Development Bank	Josephus Olu-Mammah and Umaru Fofana	August 28, 2014	No conversation	0
78	NIH to Begin EVD Vaccine Trial in Humans	Troy Brown, RN	August 28, 2014	Conversation	9
79	West Africa EVD Outbreak Could Infect 20,000 People, WHO Says	Stephanie Nebehay and Tim Cocks	August 29, 2014	No conversation	0
80	Wanted: 60 Volunteers to Test EVD Vaccine in Middle England	Ben Hirschler	August 29, 2014	No conversation	0

81	Gene Studies of EVD in Sierra Leone Show Virus Is Mutating Fast	Julie Steenhuysen	August 29, 2014	Conversation	5
82	BioCryst Expects to Begin EVD Study in Weeks	Reuters Staff	August 29, 2014	No conversation	0
83	Medical Charity MSF Wants U.N. to Take Lead on EVD Epidemic	Marine Pennetier	August 29, 2014	No conversation	0
84	EVD Health Workers Should Get Danger Money, Expert Says	Misha Hussain	August 29, 2014	No conversation	0
85	Liberia Doctors Strike, U.N. Warns of Food Shortages Due to EVD		September 02, 2014	Conversation	3
86	More Resources Needed to Quell EVD, CDC Says	Brenda Goodman, MA	September 02, 2014	Conversation	3
87	Wealthy Countries Must Send Medical Teams to Halt EVD -- Medecins Sans Frontieres	Reuters Staff	September 03, 2014	No conversation	0
88	EVD Outpacing Control Effects: WHO	Megan Brooks	September 03, 2014	Conversation	12
89	Third Patient With EVD Returning to US	Brenda Goodman, MA	September 03, 2014	Conversation	3
90	Chimerix Says Antiviral Shows Promise Against EVD	Reuters Staff	September 04, 2014	Conversation	1
91	U.N. Says USD 600 mln Needed to Tackle EVD as Toll Tops 1,900	Toni Clarke and Saliou Samb	September 04, 2014	Conversation	2
92	Third American With EVD Arrives in Nebraska	Brenda Goodman, MA	September 05, 2014	Conversation	6
93	WHO Urges Drug Companies, Regulators to Speed EVD Work	Stephanie Nebehay	September 05, 2014	No conversation	0
94	WHO Advises EVD Therapies Derived From Survivors' Blood	Megan Brooks	September 05, 2014	Conversation	10
95	UN to Set Up EVD Crisis Center, Aims to Stop Spread in 6-9 Months	Michelle Nichols	September 08, 2014	No conversation	0
96	Physicians, Nurses Desperately Needed in EVD-Hit Areas	Troy Brown, RN	September 08, 2014	Conversation	13
97	Obama: U.S. Must Fight EVD Now or Face Long-Term Risk	Roberta Rampton	September 09, 2014	No conversation	0
98	EVD Outbreak 'Perfect Storm' According to CDC	Kate Johnson	September 09, 2014	Conversation	5
99	EVD Spreads Exponentially in Liberia, Many More Cases Soon – WHO		September 09, 2014	Conversation	1
100	EVD Death Toll Rises to at Least 2,296 – WHO	Tom Miles	September 09, 2014	No conversation	0
101	EVD Likely to Spread Internationally; Modest Risk for US, UK	Larry Hand	September 11, 2014	Conversation	18
102	Experimental Interventions Invited on EVD Frontline	Kate Johnson	September 11, 2014	No conversation	0
103	Lessons on EVD Preparedness From the US and Canada	Kate Johnson	September 11, 2014	Conversation	5
104	Gates Foundations Pledges USD	Kate Johnson	September 11, 2014	No	0

	50 mln to Fight EVD Epidemic			conversation	
105	EVD Highlights Slow Progress in War on Tropical Diseases	en Hirschler	September 12, 2014	Conversation	2
106	Microsoft Co-Founder Allen to Release USD Nine Million for EVD Fight	Sharon Begley	September 12, 2014	No conversation	0
107	US to Lead International Effort to Stop EVD	Brenda Goodman, MA	September 16, 2014	Conversation	2
108	Want to Fight EVD? CDC to Train Health Workers	Brenda Goodman, MA	September 16, 2014	Conversation	65
109	EVD Vaccine Trial Finds 'No Red Flags' U.S. Senate Testimony	Reuters Staff	September 17, 2014	No conversation	0
110	EVD, Marburg DNA Vaccines Prove Safe in Phase 1 Trial	Beth Skwarecki	September 17, 2014	No conversation	0
111	First UK Volunteer Gets Experimental GSK EVD Vaccine in Trial	Kate Kelland	September 18, 2014	Conversation	3
112	Enterovirus-D68 Is Now Coast to Coast	Robert Lowes	September 19, 2014	Conversation	79
113	Scientists See Risk of Mutant Airborne EVD as Remote	Kate Kelland	September 22, 2014	No conversation	0
114	Killings in Guinea Show Mistrust in Africa EVD Fight -- WHO	Stephanie Nebehay	September 22, 2014	No conversation	0
115	U.S., Canada Allow Emergency Use of Tekmira's EVD Treatment	Reuters Staff	September 23, 2014	Conversation	1
116	WHO Experts Advise Against Travel or Trade Bans on EVD-Hit Africa	Reuters Staff	September 23, 2014	Conversation	3
117	EVD Cases Could Rise to 1.4 Million in 4 Months, CDC Says	Larry Hand	September 23, 2014	Conversation	17
118	Liberia Facing Massive Shortage of Foreign Help Against EVD: U.N.	Tom Miles and Stephanie Nebehay	September 24, 2014	No conversation	0
119	EVD Drug Trials to Be Fast-Tracked in West Africa	Kate Kelland	September 24, 2014	No conversation	0
120	Ever-Present Endemic EVD Now Major Concern for Disease Experts	Kate Kelland	September 24, 2014	Conversation	2
121	WHO Revises Up Number of Health Workers Killed by EVD in Sierra Leone	Reuters Staff	September 24, 2014	Conversation	2
122	US Hospitals Unprepared to Handle EVD Waste	Julie Steenhuysen	September 24, 2014	Conversation	2
123	Inovio to Start Human Trials of EVD Vaccine	Reuters Staff	September 25, 2014	No conversation	0
124	Doctor Calls for Blood Donations to Treat Liberian EVD Victims	James Giahyue	September 25, 2014	No conversation	0
125	EVD Toll Nears 3,000, but Spread in Guinea Stabilises	Tom Miles	September 26, 2014	Conversation	1
126	Third EVD Patient Treated in the U.S. Free From Virus -- Doctors	Julie Steenhuysen	September 26, 2014	Conversation	1

127	Canada Says Poor Coordination Bogging Down EVD Vaccine Shipment	Rod Nickel	September 24, 2014	Conversation	2
128	WHO Sees Small-Scale Use of Experimental EVD Vaccines in January		September 24, 2014	No conversation	0
129	Collateral' Death Toll Expected to Soar in Africa's EVD Crisis	Kate Kelland	September 29, 2014	Conversation	1
130	European Agency Collects Data on Experimental EVD Treatments	Reuters Staff	September 29, 2014	No conversation	0
131	Scientists Grapple With Ethics in Rush to Release EVD Vaccines	Kate Kelland	September 29, 2014	Conversation	2
132	Rains Complicate Delivery of EVD Supplies in West Africa	Stella Dawson	September 30, 2014	No conversation	0
133	First EVD Case Diagnosed in US	Megan Brooks	September 30, 2014	Conversation	127
134	Thousands of Children Orphaned, Rejected as EVD Wrecks Families	David Lewis and Stephanie Nebehay	October 01, 2014	Conversation	1
135	UN EVD Mission Head Wants Significant Progress in 60 Days	Matthew Mpoke Bigg	October 01, 2014	No conversation	0
136	U.S. Health Experts in Dallas Reviewing Potential EVD Exposure	Susan Heavy	October 02, 2014	No conversation	0
137	Experts Question Two-Day Delay in Admitting Texas EVD Patient	Julie Steenhuysen and Sharon Begley	October 02, 2014	Conversation	43
138	GlaxoSmithKline, NewLink Working to Bring EVD Vaccines Online: WHO	Stephanie Nebehay	October 02, 2014	No conversation	0
139	Recognizing Ebola Virus Disease for Tennessee Clinicians: Preparedness Is Key		October 02, 2014	No conversation	0
140	Possible Contacts in Dallas EVD Case Grow to 100	Robert Lowes	October 02, 2014	Conversation	99
141	U.S. Nears Solution for Safe Disposal of EVD Waste	Patrick Rucker and Julie Steenhuysen	October 03, 2014	Conversation	4
142	U.S. Nurses Say They Are Unprepared to Handle EVD Patients	Julie Steenhuysen	October 03, 2014	Conversation	587
143	Evaluating Patients for EVD: CDC Recommendations for Clinicians	Centers for Disease Control and Prevention Health Advisory	October 03, 2014	Conversation	149
144	EVD Patient's Travel History Got Buried in Hospital HER	Robert Lowes	October 03, 2014	Conversation	191
145	U.S. Defends EVD Response, About 50 Under Observation		October 03, 2014	Conversation	7
146	EVD Outbreak and Enterovirus in the Limelight at IDWeek	Daniel M. Keller, PhD	October 06, 2014	Conversation	3
147	How Is EVD Transmitted? WHO Offers Guidance	Brenda Goodman	October 06, 2014	Conversation	53

148	Aid Workers Ask Where Was WHO in EVD Outbreak?	Daniel Flynn and Stephanie Nebehay	October 07, 2014	Conversation	2
149	High Risk EVD Could Reach France and UK by End of Oct, Scientists Calculate	Kate Kelland	October 07, 2014	No conversation	0
150	More Cases of EVD Spreading in Europe 'Unavoidable,' WHO Says	Kate Kelland	October 08, 2014	Conversation	2
151	U.S. to Require Tougher EVD Screening at Airports -- Senator	Reuters Staff	October 08, 2014	No conversation	0
152	First Person Diagnosed With EVD in the US Dies	Robert Lowes	October 08, 2014	Conversation	209
153	How One U.S. Hospital Braces for EVD	Jeff Cohen	October 08, 2014	Conversation	1
154	No EHR Flaw After All in EVD Case, Says Hospital	Robert Lowes	October 08, 2014	Conversation	330
155	Dallas Hospital Assesses Second Man for EVD Symptoms	Robert Lowes	October 08, 2014	Conversation	155
156	U.S. Medical Workers Get Crash Course on Treating EVD on Frontlines	Colleen Jenkins	October 09, 2014	Conversation	1
157	Chimerix Drug Used for EVD Shows Promise Against Adenovirus	Reuters Staff	October 09, 2014	No conversation	0
158	Surgeons Face Practical, Ethical Challenges in Trying to Limit EVD 'Collateral Damage'	James E. Barone MD	October 09, 2014	Conversation	9
159	Dallas Hospitals Set Up EVD Wards as City Watches for Spread	Richard Valdmanis	October 09, 2014	No conversation	0
160	Reader Poll: EHR vs Communication in EVD Evaluation		October 09, 2014	Conversation	88
161	Experts Prioritise Two EVD Vaccines, Map Early Trial Plans	Lara C. Pullen, PhD	October 09, 2014	Conversation	2
162	Spanish Nurse Worsens, Madrid Blames Infection on Human Error	Sonya Dowsett	October 10, 2014	Conversation	32
163	Texas Hospital Defends Itself Over Treatment of EVD Patient	Jon Herskovitz	October 10, 2014	Conversation	3
164	EVD Fears Spread as Spanish Nurse Worsens, British Man Tested		October 10, 2014	No conversation	0
165	Group Urges Bypassing Randomized Trials for EVD Therapy	Larry Hand	October 10, 2014	Conversation	7
166	Experts Closest to EVD Outbreak Testify	Daniel M. Keller, PhD	October 10, 2014	Conversation	20
167	Dallas Health Worker Tests Positive for EVD	Robert Lowes	October 12, 2014	Conversation	468
168	Healthcare Crippled as EVD Overwhelms Hospitals in Liberia	James Harding Giahyue and David Lewis	October 13, 2014	No conversation	0
169	Medical Evacuation Services Draw	Carolyn Cohn	October 13, 2014	No	0

	Line at Flying Out EVD Patients			conversation	
170	EVD Toll Rises to 4,033 - WHO	Reuters Staff	October 13, 2014	No conversation	0
171	U.S. Maker of Experimental EVD Drug ZMapp Seeks to Boost Output		October 13, 2014	Conversation	2
172	New EVD Case Means New Safety Approach, CDC Says	Robert Lowes	October 13, 2014	Conversation	89
173	U.S. CDC Head Criticized for Blaming 'Protocol Breach' as Nurse Gets EVD	Julie Steenhuysen	October 13, 2014	Conversation	6
174	California EVD Researcher Seeks More Money Through Crowdfunding		October 14, 2014	No conversation	0
175	Nurse With EVD Receives Plasma From Survivor	Robert Lowes	October 14, 2014	Conversation	46
176	Have EVD? CDC Will Travel	Robert Lowes	October 14, 2014	Conversation	125
177	Britain Begins EVD Screening at London's Heathrow Airport	Reuters Staff	October 15, 2014	No conversation	0
178	China Military-Linked Firm Eyes Quick Approval of Drug to Cure EVD	Adam Jourdan	October 15, 2014	No conversation	0
179	WHO May Declare Nigeria and Senegal EVD-Free Within Days		October 15, 2014	No conversation	0
180	Second Texas Healthcare Worker Tests Positive for EVD	Robert Lowes	October 15, 2014	Conversation	360
181	Facebook's Zuckerberg to Donate USD 25 mln to Tackle EVD	Reuter Staff	October 15, 2014	Conversation	1
182	Dallas Nurses Say Infection Control Ignored in EVD Care	Troy Brown, RN	October 15, 2014	Conversation	171
183	Scientist Who Discovered EVD Frustrated by Deadly Guinea Outbreak		October 16, 2014	Conversation	6
184	First Dallas Nurse With EVD to Be Transferred to NIH	Troy Brown, RN	October 16, 2014	Conversation	2
185	US Hospitals Unequipped to Deal With EVD, Experts Warn	Larry Hand	October 16, 2014	Conversation	64
186	Emory Anesthesiologists Offer Insight on Bracing for EVD	Caroline Helwick	October 16, 2014	Conversation	9
187	Lawmakers Grill CDC Chief Over EVD Response	Robert Lowes	October 17, 2014	Conversation	17
188	Obama Names Former White House Official Klain EVD 'Czar'		October 17, 2014	Conversation	31
189	World Health Organisation Declares Senegal EVD-Free		October 17, 2014	No conversation	0
190	Fear of EVD Spreading Faster Than Virus in U.S.	Brenda Goodman, MA	October 17, 2014	Conversation	34
191	Texas Health Worker Isolated on Cruise Ship Over Possible EVD Contact		October 17, 2014	Conversation	2
192	Pentagon to Create Medical Support Team for U.S. EVD Response		October 20, 2014	Conversation	2
193	Healthcare Workers in the Firing Line of EVD Crisis	Liam Davenport	October 20, 2014	Conversation	17

194	EVD, the Asthma Epidemic, and the Microbiome at CHEST 2014	Kate Johnson	October 20, 2014	No conversation	0
195	New CDC Guidance for EVD PPE Calls for No Skin in the Game	Robert Lowes	October 20, 2014	Conversation	141
196	Flu Drug Aimed at EVD May Also Fight Norovirus, Study Finds		October 21, 2014	No conversation	0
197	Home Care Kits Highlight Gaps in West Africa's EVD Response	David Lewis and James Harding Giahyue	October 21, 2014	No conversation	0
198	U.S. Restricts Entrants From EVD-Hit Nations to Five Airports		October 21, 2014	Conversation	14
199	California Nurses' Union Pulls EVD Into Contract Talks	April Dembosky	October 22, 2014	Conversation	2
200	Ebola Virus Disease (EVD) Preparation in New Hampshire		October 22, 2014	No conversation	0
201	U.S. CDC Announces New EVD Monitoring Steps for Travelers		October 22, 2014	No conversation	0
202	Hospitals' Struggles to Beat Back Infections Began Before EVD Arrived	Jordan Rau	October 22, 2014	Conversation	2
203	Klain a Good Pick for EVD Czar, Experts Say	Robert Lowes	October 22, 2014	Conversation	49
204	Routine ICU Care May Effectively Treat Even Severe EVD	Laurie Barclay, MD	October 22, 2014	Conversation	2
205	A Turning Point for EVD? Possible Reinfection?	Larry Hand	October 23, 2014	Conversation	64
206	Could Survivors' Blood Stop EVD?	Brenda Goodman, MA	October 23, 2014	Conversation	14
207	U.S. Setting Up Network of Hospitals for EVD Care – Officials		October 23, 2014	No conversation	0
208	Ebola Virus Is Undetectable in Amber Vinson, Family Says	Robert Lowes	October 23, 2014	Conversation	11
209	Experts to Test If Survivors' Serum Can Help EVD Patients	Reuters Staff	October 23, 2014	Conversation	3
210	Physician in New York Tests Positive for EVD	Robert Lowes	October 23, 2014	Conversation	342
211	Current Scale-up of Aid Unlikely to Contain EVD in Liberia	Veronica Hackethal, MD	October 24, 2014	Conversation	2
212	Microsoft Co-founder Allen Commits USD 100 mln to EVD Fight	Reuters Staff	October 24, 2014	No conversation	0
213	Stalled Surgeon General Confirmation Weakens EVD Efforts	Bridget M. Kuehn	October 24, 2014	Conversation	17
214	Doctor With EVD in New York Stable; Nurse Is Virus-Free		October 24, 2014	Conversation	3
215	NY, NJ to Quarantine Returning Clinicians With EVD Contacts	Robert Lowes	October 24, 2014	Conversation	250
216	WHO Expects Around 200,000	Stephanie	October 27, 2014	No	0

	EVD Vaccine Doses by Mid-2015	Nebehay and Kate Kelland		conversation	
217	Only 6% of Hospitals Well Prepared for EVD, Poll Finds	Robert Lowes	October 27, 2014	Conversation	1
218	Experts Oppose Quarantine for Returning EVD Care Workers	Robert Lowes	October 27, 2014	Conversation	15
219	CDC Suggests Quarantine-Lite for Some EVD Clinicians	Robert Lowes	October 27, 2014	Conversation	247
220	Restrictions Imposed by U.S. States in Response to EVD		October 28, 2014	No conversation	0
221	Common Sense EVD Measures Save Lives in Africa, Teach US	Jim Kling	October 28, 2014	Conversation	1
222	U.S. Isolates Troops, Australia Imposes Visa Ban on EVD-Hit West Africa States		October 28, 2014	Conversation	1
223	U.S. FDA Issues Emergency Authorization for Two New EVD Tests	Yasmeen Abutaleb	October 28, 2014	No conversation	0
224	Edges of EVD Outbreak Expanding in West Africa	Troy Brown, RN	October 28, 2014	Conversation	1
225	Obama Defends No-Quarantine Policy for Returning EVD Workers	Robert Lowes	October 28, 2014	Conversation	69
226	Isolating Most Severe EVD Patients May Stop Epidemic	Lara C. Pullen, PhD	October 29, 2014	Conversation	15
227	Emergency Departments Train for EVD	Kathleen Louden	October 29, 2014	Conversation	6
228	Amid Outcry, DeSalvo to Remain National Health IT Coordinator	Ken Terry	October 29, 2014	Conversation	2
229	EVD Fatality Rate 74% in Sierra Leone; Bleeding Is Rare	Laurie Barclay, MD	October 30, 2014	Conversation	3
230	Australian EVD 'Tsar' Questions Government's West Africa Visa Ban		October 30, 2014	No conversation	0
231	U.S. Nurse Fights Maine Quarantine Over EVD Fears		October 30, 2014	Conversation	189
232	In U.S. EVD Fight, No Two Quarantines Are Quite the Same		October 30, 2014	Conversation	3
233	Clinicians Back Quarantine, Travel Bans in Medscape EVD Survey	Robert Lowes	October 31, 2014	Conversation	200
234	Reader Poll: Is Quarantine Necessary for Returning Healthcare Workers?		October 31, 2014	Conversation	82
235	Why Do Health Workers in Protective Suits Catch EVD?		October 31, 2014	Conversation	6
236	U.S. Quarantines 'Chilling' EVD Fight in West Africa: MSF		October 31, 2014	Conversation	4
237	Judge Lifts Tight Quarantine Restrictions on Maine Nurse	Larry Hand	October 31, 2014	Conversation	5
238	CDC Issues Guidelines for Possible EVD Cases in ED	Robert Lowes	October 31, 2014	Conversation	4
239	Nigeria Violence Pushes Refugees and Cholera Across Borders	Misha Hussain	November 03, 2014	No conversation	0
240	U.S. Nurse Who Treated EVD Patients, Maine Reach Deal on Monitoring		November 03, 2014	Conversation	15

241	WHO Guidance on PPE for EVD Stresses Individual Choice	Robert Lowes	November 03, 2014	No conversation	0
242	US EVD Research Priorities: Training, Training, Training	Larry Hand	November 04, 2014	Conversation	2
243	U.S. Scientists Say Uncertainties Loom About EVD's Transmission, Other Key Facts		November 04, 2014	Conversation	5
244	US Nurses Plan Embarking on Global Strike Over Lack of EVD Prep	Troy Brown, RN	November 04, 2014	Conversation	108
245	Kidney Week Takes New Paths in Science and Medicine	Daniel M. Keller, PhD	November 04, 2014	No conversation	0
246	With Good Hospital Practices, Emory Rises to EVD Challenge	Jim Burress	November 04, 2014	Conversation	1
247	Texas Ready to Clear All Contacts of Three EVD Cases	Megan Brooks	November 06, 2014	Conversation	9
248	EVD Virus Disease Preparation in New Hampshire: Update #1		November 07, 2014	No conversation	0
249	CDC Stockpiling EVD Protective Gear for Hospitals	Megan Brooks	November 07, 2014	Conversation	8
250	West Africa's EVD Epidemic Leads to US Protective Gear Backlog	Yasmeen Abutaleb	November 10, 2014	Conversation	3
251	NYC Physician Who Had EVD Will Be Discharged Tomorrow	Robert Lowes	November 10, 2014	Conversation	38
252	New York Doctor Now Free of EVD Discharged From Hospital		November 11, 2014	Conversation	9
253	EVD: Aggressive Hydration Key to Effective Treatment in US	Laurie Barclay, MD	November 13, 2014	Conversation	7
254	Sierra Leone Doctor With EVD May Be Coming to US for Care	Robert Lowes	November 14, 2014	Conversation	63
255	Sierra Leone Surgeon in US Dies of EVD	Robert Lowes	November 17, 2014	Conversation	103
256	Frail System Raised EVD Risk for Liberian Health Workers	Diedtra Henderson	November 18, 2014	No conversation	0
257	EVD: Liberia Cases Declining, Remote Clusters Appearing	Larry Hand	November 18, 2014	No conversation	0
258	EVD Preparation in New Hampshire: Update #2		November 18, 2014	No conversation	0
259	WHO Seeks Swifter EVD Test to Help Stamp Out Epidemic	Reuters Staff	November 19, 2014	Conversation	2
260	Disconnect Between Workers Fighting EVD and Those at Risk	Caroline Helwick	November 26, 2014	Conversation	1
261	EVD Discoverer Piot Sees Long, Bumpy Road to Ending Epidemic	Kate Kelland	December 01, 2014	No conversation	0
262	New 15-Minute Test for EVD to Undergo Trials in West Africa	Reuters Staff	December 01, 2014	Conversation	4
263	Management and Transport of Persons Under Investigation (PUIs) for Ebola Virus Disease (EVD): Alert for Utah Clinicians		December 01, 2014	No conversation	0
264	Healthcare Workers Still	Caroline	December 02, 2014	Conversation	1

	Vulnerable to 'Splash and Splatter'	Helwick			
265	US Designates 35 EVD Treatment Centers	Megan Brooks	December 02, 2014	Conversation	3
266	EVD Waste Disposal: Nebraska's Strategy	Larry Hand	December 04, 2014	Conversation	1
267	EVD: FDA Staff Argue for Randomized Clinical Trials	Larry Hand	December 04, 2014	No conversation	0
268	EVD Preparation in New Hampshire: Update #3		December 05, 2014	No conversation	0
269	Simple Intravenous Fluid Could Save Many EVD Patients, Specialists Say	Reuters Staff	December 08, 2014	Conversation	4
270	EVD Patient's ED Doc Calls Care 'Appropriate' Based on Data	Robert Lowes	December 08, 2014	Conversation	16
271	U.N. Declares 2014 a Devastating Year for Millions of Children	Reuters Staff	December 09, 2014	Conversation	4
272	EVD Airport Screening Finding Few Suspected Cases in US	Larry Hand	December 09, 2014	Conversation	4
273	EVD Survivors Crucial to Containing the Epidemic: Experts		December 10, 2014	Conversation	1
274	Doctors' Testimony Crucial as Border Children Seek Asylum	Jenny Gold	December 11, 2014	No conversation	0
275	EVD Vaccine Trial Halted Temporarily After Joint Pains: Geneva Hospital		December 11, 2014	No conversation	0
276	Vivek Murthy, MD, Confirmed as Surgeon General	Robert Lowes	December 15, 2014	Conversation	182
277	EVD Cases Up Dramatically in Last 4 Weeks, CDC Reports	Larry Hand	December 16, 2014	Conversation	3
278	Screening Organ Donors Can Prevent Transmission of Ebola Virus	Will Boggs MD	December 17, 2014	No conversation	0
279	Jury Still Out on Potential EVD Treatments, EMA Says	Megan Brooks	December 17, 2014	No conversation	0
280	Go Beyond Infectious Disease of the Month, Says Report	Robert Lowes	December 18, 2014	No conversation	0
281	EVD Remains a 'Long, Hard Fight,' CDC Chief Says	Robert Lowes	December 23, 2014	Conversation	3
282	Ebola Virus 2014: Timeline of the World's Largest Outbreak	Emily Lea Berry	December 23, 2014	Conversation	3
283	Experimental Drug May Stop Vascular Leak in EVD	Veronica Hackethal, MD	December 24, 2014	Conversation	4
284	CDC Worker Monitored for Possible EVD Exposure in Lab Error	Steve Gorman	December 26, 2014	Conversation	13
285	EVD Fears in Pregnant Women Reducing Healthcare Use	Laurie Barclay, MD	December 31, 2014	No conversation	0
286	EVD: When to Intervene in Life-Threatening Events, Guidance	Larry Hand	January 02, 2015	Conversation	8
287	Ebola Virus Disease Preparation in New Hampshire: Update #4		January 08, 2015	No conversation	0

288	Obama Endorses Genomic Research in State of Union Speech	Robert Lowes	January 20, 2015	Conversation	53
289	Scientists Ask if EVD Immunizes as Well as Kills	Kate Kelland and Emma Farge	January 28, 2015	Conversation	5
290	FDA to Simplify 'Compassionate Use' Drug Applications	Robert Lowes	February 04, 2015	Conversation	3
291	Next-Generation HIV and Hep C Treatment Plans Ahead at CROI	Marcia Frellick	February 12, 2015	Conversation	8
292	WHO Clears 15-Minute, Easy-to-Use Test for EVD	Megan Brooks	February 20, 2015	Conversation	15
293	Public Health Specialists Warn EVD May Still Surprise	Lara C. Pullen, PhD	February 23, 2015	Conversation	3
294	Low Viral Load EVD May Be Helped by Experimental Drug	Jim Kling	February 24, 2015	Conversation	2
295	Craig Spencer's Fight With EVD and Political Expedience	Jenni Laidman	February 25, 2015	Conversation	14
296	Texas EVD Nurse Says Hospital Failed Her and Her Colleagues	Jon Herskovitz and Lisa Maria Garza	March 02, 2015	Conversation	172
297	Preparation and Foresight Key to Treating EVD Safely	Fran Lowry	March 03, 2015	No conversation	0
298	Physician Safe After EVD Needlestick, Experimental Vaccine	Lara C. Pullen, PhD	March 05, 2015	Conversation	3
299	EVD Crisis Leaves West Africa Vulnerable to Measles	Marcia Frellick	March 12, 2015	No conversation	0
300	US EVD Response Fed Fear, Presidential Commission Says	Laura Putre	March 12, 2015	Conversation	30
301	US Healthcare Worker With EVD Arrives at NIH in Bethesda	Robert Lowes	March 12, 2015	Conversation	31
302	U.S. EVD Patient Now in Critical Condition: NIH		March 17, 2015	No conversation	0
303	FDA Panel to Discuss EVD Vaccine Development in May	Reuter Staff	March 19, 2015	No conversation	0
304	Merck, NewLink EVD Vaccine Appears Safe, Effective In New Studies	Sharon Begley	April 02, 2015	No conversation	0
305	Five U.S. Health Workers Released After EVD Monitoring in Nebraska		April 02, 2015	No conversation	0
306	EVD Vaccine Safe, Immunogenic in Phase I Trials	Janis C. Kelly	April 03, 2015	Conversation	6
307	Reader Poll: Did the US Make the EVD Response Worse?		April 20, 2015	Conversation	8
308	Rapid Tests Needed Quickly to Improve EVD Screening	Marcia Frellick	April 27, 2015	Conversation	1
309	Possible Sexual Transmission of EVD Reported	Diana Swift	May 01, 2015	Conversation	6
310	Ebola Virus Persists in Eyes Months After Clearing Blood	Diana Swift	May 07, 2015	Conversation	9
311	Can the EVD Outbreak Strengthen	Marcia Frellick	May 07, 2015	Conversation	1

	Global Health Security?				
312	WHO Issues Interim Advice on Sexual Transmission of EVD	Diana Swift	May 12, 2015	Conversation	7
313	FDA Panel Considers Best Approval Process for EVD Vaccines	Troy Brown, RN	May 13, 2015	No conversation	0
314	Nurses With Tablets and Bikers With Smartphones Join EVD Fight	Joseph D'Urso	May 18, 2015	Conversation	1
315	Skin, Clothes Contaminated After Protective Gear Removed	Fran Lowry	May 20, 2015	Conversation	17
316	CDC's EVD Risk Communication Strategy Found Lacking	Megan Brooks	May 26, 2015	Conversation	1
317	Ill Travellers Returning From West Africa Most Likely to Have Malaria	Will Boggs MD	June 03, 2015	Conversation	1
318	EVD Drug Development Slowed by Lack of Patients	Nancy A. Melville	June 05, 2015	No conversation	0
319	Global Health Leaders Ask G7 for Post-EVD Rapid Response Unit	Kate Kelland	June 08, 2015	Conversation	2
320	EVD Could Hit Again and We Would Hardly Do Better -MSF	Emma Farge	June 16, 2015	Conversation	4
321	Liberia Finds 2 EVD Cases Weeks After Being Declared Free of It		July 01, 2015	Conversation	4
322	Tests Show EVD Probably Remained Latent in Liberia	Emma Farge and Tom Miles	July 13, 2015	Conversation	1
323	Drug Stops Marburg Viruses in Monkeys, Appears Safe in Humans	Janis C. Kelly	July 27, 2015	Conversation	1
324	Thousands of EVD Survivors Face Severe Pain, Possible Blindness	Kate Kelland	August 10, 2015	Conversation	3
325	Antivirals May Work Against EVD	Beth Skwarecki	August 27, 2015	Conversation	1
326	ICAAC and ICC Join Forces to Fight Infection	Kate Johnson	September 11, 2015	No conversation	0
327	EVD Survivor Will Kick off IDWeek With Intimate Insight	Marcia Frellick	September 28, 2015	No conversation	0
328	Physician EVD Survivor Describes Lasting Effects	Marcia Frellick	October 08, 2015	Conversation	22
329	EVD Sexual Transmission 6 Months After Illness Confirmed	Janis C. Kelly	October 14, 2015	Conversation	9
330	UK Nurse With EVD Critically Ill Again	Tim Locke	October 14, 2015	Conversation	80
331	New Flu Pandemic Plan Will Sidestep Past Mistakes	Marcia Frellick	October 15, 2015	Conversation	4
332	Scottish EVD Nurse 'Recovering'		October 23, 2015	Conversation	4
333	U.K. Nurse Who Had EVD Relapse Now Free of Virus	WebMD News from HealthDay	November 12, 2015	No conversation	0
334	Disaster Medicine: Dealing With the Paris Terror Attacks	Jean-Bernard Gervais	December 10, 2015	Conversation	2
335	Symptoms Persist Despite Recovery From Ebola Virus	Jennifer Garcia	December 16, 2015	Conversation	6

336	US Complacent on Infectious Disease Threats, Report Shows	Megan Brooks	December 17, 2015	No conversation	0
337	WHO Sets Priority for Emerging Diseases Research	Janis C. Kelly	December 22, 2015	Conversation	4
338	Infectious Disease News in 2015: How Much Do You Remember?		December 22, 2015	No conversation	0
339	Syria to South Sudan: Aid Groups List Their Top Humanitarian Concerns for 2016	Tom Esslemont	December 29, 2015	No conversation	0
340	Malaria Drugs May Make a Difference in EVD Outcomes	Lara C. Pullen, PhD	January 07, 2016	No conversation	0
341	1st Zika Virus Case in Continental United States Confirmed in Texas	Janis C. Kelly	January 11, 2016	Conversation	51
342	After EVD, Two Other Tropical Diseases Pose New Threats	Kate Kelland	January 13, 2016	Conversation	2
343	EVD Outbreak Over as Liberia Gets All Clear, WHO Says	Megan Brooks	January 14, 2016	Conversation	8
344	Dozens Feared Exposed as Sierra Leone Confirms New EVD Case	Umaru Fofana	January 15, 2016	Conversation	3
345	Zika Linked Birth Defects a Global Health Emergency, WHO Says	Robert Lowes	February 01, 2016	Conversation	36
346	Sanofi Launches Hunt for Zika Vaccine as Disease Fears Grow	Dominique Vidalon and Ben Hirschler	February 03, 2016	No conversation	0
347	Vaginal Ring Trial Results a Big Draw at HIV Meetings	Marcia Frellick	February 12, 2016	Conversation	8
348	HHS Official: No Evidence of Larvicide Link to Microcephaly	Alicia Ault	February 18, 2016	Conversation	34
349	Growing Evidence of Zika Link With Microcephaly, WHO Says	Stephanie Nebehay	February 22, 2016	No conversation	0
350	Nurse With EVD, Pauline Cafferkey, Back in Hospital	Peter Russell	February 23, 2016	Conversation	33
351	CDC Will Soon Have One Million Zika Virus Tests Available	Alicia Ault	February 25, 2016	Conversation	3
352	Persistent Neurologic Symptoms Common in EVD Survivors	Megan Brooks	March 16, 2016	No conversation	0
353	Health Workers Rush to Contain Fresh EVD Outbreak in Guinea	Kieran Guilbert	March 22, 2016	No conversation	0
354	Experts Warn Complacency on EVD May Leave Vaccine Work Unfinished	Kate Kelland	April 01, 2016	No conversation	0
355	What's Hot at AAN 2016?	Susan Jeffrey	April 14, 2016	No conversation	0
356	White House Urges Congress to Move on Zika Funding	Timothy Gardner	April 28, 2016	No conversation	0
357	Antibiotic Trials for COPD in Spotlight at Thoracic Meeting	Damian McNamara	May 05, 2016	No conversation	0
358	Yellow Fever Concerns Grow as WHO Urged to Set Up Emergency Panel	Janis C. Kelly	May 11, 2016	Conversation	12

359	U.S. Health Official Says Zika Not a Reason to Cancel Olympics	Bill Berkrot	May 27, 2016	No conversation	0
360	EVD Survivors Pose Little Risk to Care Providers Six Weeks After Viremia Clearance	Reuters Staff	June 06, 2016	No conversation	0
361	EVD Virus RNA Evident in Semen for a Year or Longer	Troy Brown, RN	September 01, 2016	No conversation	0
362	CDC Deploys New Rapid Response Teams to Fight Zika	Virginia Anderson	September 15, 2016	No conversation	0
363	Texas Hospital Reaches Settlement With Nurse Infected With EVD	Jon Herskovitz	October 25, 2016	Conversation	32
364	One Fourth of Patients Infected by EVD May Be Asymptomatic	Lara C. Pullen, PhD	November 15, 2016	No conversation	0
365	Public Health Crises: United States Often Caught Off Guard, Report Shows	Megan Brooks	December 20, 2016	Conversation	4
366	EVD Vaccine 100% Effective in Clinical Trial	Beth Skwarecki	December 23, 2016	No conversation	0
367	Bill Gates Warns World 'Vulnerable' to Deadly Epidemic in Next Decade	Emma Batha	January 03, 2017	No conversation	0
368	CDC's MD, Tom Frieden, Looks Back on the Work of Saving Lives	Robert Lowes	January 06, 2017	Conversation	17
369	Multivariable Score Predicts Ebola Virus Disease Severity	Will Boggs MD	February 13, 2017	No conversation	0
370	Liberia Investigates Death Of Celebrated EVD Fighter Amid Stigma Fears	Kieran Guilbert	March 02, 2017	Conversation	5
371	Person Dies of Ebola Virus in Congo in New Outbreak	Aaron Ross	May 12, 2017	Conversation	2
372	Ebola Virus RNA Can Persist in Semen Years After Infection	Will Boggs MD	August 14, 2017	No conversation	0
373	From EVD to Mudslides, Sierra Leone Learns Painful Disaster Lessons	Inna Lazareva	September 06, 2017	No conversation	0
374	After Deadly Mudslide, Sierra Leone Vaccinates Against Cholera	Inna Lazareva	September 08, 2017	No conversation	0
375	US Invests $170 Million in Late-Stage EVD Vaccines, Drugs	Julie Steenhuysen	October 02, 2017	No conversation	0
376	EVD Survivors Affected by Variety of Neurologic Symptoms	Daniel M. Keller, PhD	October 04, 2017	No conversation	0
377	After EVD, West Africa Must Brace for More Deadly Fevers – Study	Kieran Guilbert	October 13, 2017	No conversation	0
378	Uganda Confirms One Death From Ebola Virus-like Marburg Virus	Elias Biryabarema	October 20, 2017	No conversation	0
379	Motorbikes, Trust and Pepper Soup - EVD Tips to Tackle Deadly Diseases	Inna Lazareva	October 20, 2017	No conversation	0
380	EVD Ring Vaccination Strategy	Joan Stephenson	October 23, 2017	No	0

	May Stymie Rural Outbreaks			conversation	
381	Want to Know When EVD Will Strike Next? Look to the Forest	Nellie Peyton	October 31, 2017	No conversation	0
382	U.S. Needs to Improve Oversight of Labs Handling Dangerous Pathogens – Report	Julie Steenhuysen	November 01, 2017	No conversation	0
383	Certain Biomarkers May Distinguish EVD Fatalities From Survivors	Marilynn Larkin	November 28, 2017	No conversation	0
384	EVD Victims Sue Sierra Leone Government Over Mismanaged Funds	Reuters Staff	December 18, 2017	No conversation	0
385	Ebola virus Antibodies Present in Populations With No History of Outbreaks	Will Boggs MD	January 29, 2018	No conversation	0
386	Vodafone's Mobile Data to Be Deployed to Fight Epidemics in Ghana	Reuters Staff	February 27, 2018	No conversation	0
387	UK Responds to Lassa Fever Outbreak in Nigeria	Peter Russell	March 06, 2018	No conversation	0
388	WHO Adds 'Disease X' to List of Potential Pandemic Killers	Marcia Frellick	March 12, 2018	Conversation	17
389	Zika Infection Risk From Semen Low, Short-lived, Study Finds	Janis C. Kelly	April 12, 2018	No conversation	0
390	Antibody Response to Single-dose EVD Vaccine Stable at Two Years	Anne Harding	April 24, 2018	No conversation	0
391	Paul Farmer, Wins National Academy of Sciences' Top Honor	Megan Brooks	April 27, 2018	Conversation	5

Appendix VI: Mapping of responded EVD newsposts/topics into themes

S/No	EVD News Topics	Date of Post	Major themes	Minor themes	Sub-themes
1	West African Nations Scramble to Contain EVD Threat	March 26, 2014	EVD Outbreak Management	EVD Management	Regional Management
2	Guinea Says Has Contained EVD Outbreak, Death Toll Rises	March 27, 2014	EVD Outbreak Management	EVD Management	Local Management
3	Scale of Guinea's EVD Epidemic Unprecedented: Aid Agency	April 1, 2014	EVD Outbreak Management	EVD Management	Local Management
4	WHO Says West African EVD Outbreak to Last 2-4 Months	April 09, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Positive Alert
5	Drastic Action Needed to Halt World's Worst EVD Outbreak: WHO	June 26, 2014	EVD Outbreak Management	EVD Intervention	Medical Intervention
6	Test EVD Drugs Should Be Tried in Africa, Disease Expert Says	July 03, 2014	EVD Treatment	EVD Treatment	
7	As EVD Stalks West Africa, Medics Fight Mistrust, Hostility	July 15, 2014	EVD Risk	EVD Threats	
8	Death Toll From West Africa EVD Outbreak Jumps to 603 -- WHO	July 16, 2014	EVD Transmission	EVD Spread	
9	Sierra Leone's Chief EVD Doctor Contracts the Virus	July 23,2014	EVD Transmission	EVD Spread	
10	Liberia Shuts Border Crossings, Restricts Gatherings to Curb EVD Spreading	July 29, 2014	EVD Outbreak Management	EVD Management	Local Management
11	Sierra Leone's Top EVD Doctor Dies From Virus	July 29, 2014	EVD Risk	EVD Casualties	
12	Taxis, Planes and Viruses: How Deadly EVD Can Spread	July 31, 2014	EVD Resource/ Education	EVD Help	
13	WHO Launching $100 Million Plan to Combat EVD	August 1, 2014	EVD Outbreak Management	EVD Intervention	Medical Intervention
14	WHO Chief Says EVD Out of Control but Can Be Stopped	August 04, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Positive Alert
15	American EVD Patient Improving	August 04, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Positive Alert
16	U.S. FDA Says 'Stands Ready' to Work With Companies Developing EVD Drugs	August 05, 2014	EVD Treatment	EVD Treatment	
17	Second EVD Patient Headed to US, NY Tests Possible Victim	August 05, 2014	EVD Risk	EVD Casualties	

18	Experimental EVD Serum Grown in Tobacco Leaves	August 05, 2014	EVD Treatment	EVD Treatment	
19	Second American Infected With EVD Arrives in US	August 05, 2014	EVD Risk	EVD Casualties	
20	EVD: Are Treatments, Vaccines on the Horizon?	August 05, 2014	EVD Resource/ Education	EVD Help	
21	WHO Consulting Ethics Experts on Experimental EVD Drugs	August 07, 2014	EVD Outbreak Management	EVD Interventio n	Medical Interventi on
22	EVD Emergency Turns Spotlight on Experimental Drugs	August 07, 2014	EVD Outbreak Management	EVD Sensitisatio n/ Alert	Positive Alert
23	U.S. Allows Use of EVD Test Overseas as Crisis Deepens	August 07, 2014	EVD Outbreak Management	EVD Preventive measures	
24	Ebola Virus: How Contagious?	August 07, 2014	EVD Resource/ Education	EVD Help	
25	US Hospitals Capable of Averting EVD Outbreak, CDC Says	August 07, 2014	EVD Outbreak Management	EVD Sensitisatio n/ Alert	Positive Alert
26	Tekmira EVD Drug Gets Regulator Change for Possible Human Use	August 08, 2014	EVD Treatment	EVD Treatment	
27	WHO Declares EVD a Global Public Health Emergency	August 08, 2014	EVD Outbreak Management	EVD Sensitisatio n/ Alert	Positive Alert
28	Fighting Fear, Fatigue on the Front Lines of EVD	August 08, 2014	EVD Resource/ Education	EVD Help	
29	Reader Poll: Is Your Hospital Prepared for EVD?	August 08, 2014	EVD Resource/ Education	EVD Help	
30	On EVD's Front Line, Doctor Finds Grief and Inspiration	August 12, 2014	EVD Outbreak Management	EVD Interventio n	Medical Interventi on
31	WHO Backs Use of Experimental Treatments for EVD	August 12, 2014	EVD Outbreak Management	EVD Interventio n	Medical Interventi on
32	U.S. Government Intervention Advances Development of BioCryst's Potential EVD Drug	August 14, 2014	EVD Outbreak Management	EVD Interventio n	Governme nt Interventi on
33	Extreme Medicine: The Search for New Antibiotics	August 19, 2014	EVD Outbreak Management	EVD Manageme nt	Local Managem ent
34	Liberian Police Fire Live Bullets to Disperse EVD Protest	August 20, 2014	EVD Outbreak Management	EVD Interventio n	Governme nt Interventi

					on
35	Experimental EVD Drugs Needed for 'Up to 30,000 People'	August 21, 2014	EVD Treatment	EVD Treatment	
36	2 U.S. EVD Patients Released From Hospital	August 21, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Positive Alert
37	EVD: Excessive Precautions in US Hospitals May Be Harmful	August 22, 2014	EVD Outbreak Management	EVD Preventive measures	
38	Doctors in Developed Nations Need to Know How to Recognize EVD, Too	August 26, 2014	EVD Resource/ Education	EVD Help	
39	Sierra Leone 'Hero' Doctor's Death Exposes Slow EVD Response	August 26, 2014	EVD Risk	EVD Threats	
40	NIH to Begin EVD Vaccine Trial in Humans	August 28, 2014	EVD Treatment	EVD Treatment	
41	Gene Studies of EVD in Sierra Leone Show Virus Is Mutating Fast	August 29, 2014	EVD Resource/ Education	EVD Research	
42	Liberia Doctors Strike, U.N. Warns of Food Shortages Due to EVD	September 02, 2014	EVD Risk	EVD Threats	
43	More Resources Needed to Quell EVD, CDC Says	September 02, 2014	EVD Outbreak Management	EVD Intervention	Medical Intervention
44	EVD Outpacing Control Effects: WHO	September 03, 2014	EVD Risk	EVD Threats	
45	Third Patient With EVD Returning to US	September 03, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Positive Alert
46	Chimerix Says Antiviral Shows Promise Against EVD	September 04, 2014	EVD Treatment	EVD Treatment	
47	U.N. Says USD 600 mln Needed to Tackle EVD as Toll Tops 1,900	September 04, 2014	EVD Outbreak Management	EVD Intervention	Government Intervention
48	Third American With EVD Arrives in Nebraska	September 05, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Positive Alert
49	WHO Advises EVD Therapies Derived From Survivors' Blood	September 05, 2014	EVD Treatment	EVD Treatment	
50	Physicians, Nurses Desperately Needed in EVD-Hit Areas	September 08, 2014	EVD Outbreak Management	EVD Intervention	Medical Intervention
51	EVD Outbreak 'Perfect Storm' According to CDC	September 09, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Negative Alert
52	EVD Spreads Exponentially in Liberia,	September 09, 2014	EVD Outbreak	EVD	Negative

	Many More Cases Soon -- WHO		Management	Sensitisation/ Alert	Alert
53	EVD Likely to Spread Internationally; Modest Risk for US, UK	September 11, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Negative Alert
54	Lessons on EVD Preparedness From the US and Canada	September 11, 2014	EVD Outbreak Management	EVD Preventive measures	
55	EVD Highlights Slow Progress in War on Tropical Diseases	September 12, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Negative Alert
56	US to Lead International Effort to Stop EVD	September 16, 2014	EVD Outbreak Management	EVD Intervention	Government Intervention
57	Want to Fight EVD? CDC to Train Health Workers	September 16, 2014	EVD Outbreak Management	EVD Intervention	Medical Intervention
58	First UK Volunteer Gets Experimental GSK EVD Vaccine in Trial	September 18, 2014	EVD Treatment	EVD Treatment	
59	Enterovirus-D68 Is Now Coast to Coast	September 19, 2014	Out of Scope		
60	U.S., Canada Allow Emergency Use of Tekmira's EVD Treatment	September 23, 2014	EVD Treatment	EVD Treatment	
61	WHO Experts Advise Against Travel or Trade Bans on EVD-Hit Africa	September 23, 2014	EVD Outbreak Management	EVD Preventive measures	
62	EVD Cases Could Rise to 1.4 Million in 4 Months, CDC Says	September 23, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Negative Alert
63	Ever-Present Endemic EVD Now Major Concern for Disease Experts	September 24, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Negative Alert
64	WHO Revises Up Number of Health Workers Killed by EVD in Sierra Leone	September 24, 2014	EVD Risk	EVD Casualties	
65	US Hospitals Unprepared to Handle EVD Waste	September 24, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Negative Alert
66	EVD Toll Nears 3,000, but Spread in Guinea Stabilises	September 26, 2014	EVD Transmission	EVD Spread	
67	Third EVD Patient Treated in the U.S. Free From Virus -- Doctors	September 26, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Positive Alert
68	Canada Says Poor Coordination Bogging Down EVD Vaccine Shipment	September 24, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Negative Alert

69	Collateral' Death Toll Expected to Soar in Africa's EVD Crisis	September 29, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Negative Alert
70	Scientists Grapple With Ethics in Rush to Release EVD Vaccines	September 29, 2014	EVD Treatment	EVD Treatment	
71	First EVD Case Diagnosed in US	September 30, 2014	EVD Transmission	EVD Spread	
72	Thousands of Children Orphaned, Rejected as EVD Wrecks Families	October 01, 2014	EVD Risk	EVD Threats	
73	Experts Question Two-Day Delay in Admitting Texas EVD Patient	October 02, 2014	EVD Resource/ Education	EVD Help	
74	Possible Contacts in Dallas EVD Case Grow to 100	October 02, 2014	EVD Transmission	EVD Spread	
75	U.S. Nears Solution for Safe Disposal of EVD Waste	October 03, 2014	EVD Outbreak Management	EVD Management	Regional Management
76	U.S. Nurses Say They Are Unprepared to Handle EVD Patients	October 03, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Negative Alert
77	Evaluating Patients for EVD: CDC Recommendations for Clinicians	October 03, 2014	EVD Resource/ Education	EVD Help	
78	EVD Patient's Travel History Got Buried in Hospital HER	October 03, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Negative Alert
79	U.S. Defends EVD Response, About 50 Under Observation	October 03, 2014	EVD Outbreak Management	EVD Management	Regional Management
80	EVD Outbreak and Enterovirus in the Limelight at ID Week	October 06, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Negative Alert
81	How Is EVD Transmitted? WHO Offers Guidance	October 06, 2014	EVD Resource/ Education	EVD Help	
82	Aid Workers Ask Where Was WHO in EVD Outbreak?	October 07, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Negative Alert
83	More Cases of EVD Spreading in Europe 'Unavoidable,' WHO Says	October 08, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Negative Alert
84	First Person Diagnosed With EVD in the US Dies	October 08, 2014	EVD Risk	EVD Casualties	
85	How One U.S. Hospital Braces for EVD	October 08, 2014	EVD Outbreak Management	EVD Intervention	Medical Intervention
86	No EHR Flaw After All in EVD Case, Says Hospital	October 08, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Negative Alert

87	Dallas Hospital Assesses Second Man for EVD Symptoms	October 08, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Negative Alert
88	U.S. Medical Workers Get Crash Course on Treating EVD on Frontlines	October 09, 2014	EVD Outbreak Management	EVD Intervention	Medical Intervention
89	Surgeons Face Practical, Ethical Challenges in Trying to Limit EVD 'Collateral Damage'	October 09, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Negative Alert
90	Reader Poll: EHR vs Communication in EVD Evaluation	October 09, 2014	EVD Resource/ Education	EVD Help	
91	Experts Prioritise Two EVD Vaccines, Map Early Trial Plans	October 09, 2014	EVD Treatment	EVD Treatment	
92	Spanish Nurse Worsens, Madrid Blames Infection on Human Error	October 10, 2014	EVD Transmission	EVD Spread	
93	Texas Hospital Defends Itself Over Treatment of EVD Patient	October 10, 2014	EVD Treatment	EVD Treatment	
94	Group Urges Bypassing Randomized Trials for EVD Therapy	October 10, 2014	EVD Treatment	EVD Treatment	
95	Experts Closest to EVD Outbreak Testify	October 10, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Positive Alert
96	Dallas Health Worker Tests Positive for EVD	October 12, 2014	EVD Transmission	EVD Spread	
97	U.S. Maker of Experimental EVD Drug ZMapp Seeks to Boost Output	October 13, 2014	EVD Treatment	EVD Treatment	
98	New EVD Case Means New Safety Approach, CDC Says	October 13, 2014	EVD Outbreak Management	EVD Preventive measures	
99	U.S. CDC Head Criticized for Blaming 'Protocol Breach' as Nurse Gets EVD	October 13, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Negative Alert
100	Nurse With EVD Receives Plasma From Survivor	October 14, 2014	EVD Treatment	EVD Treatment	
101	Have EVD? CDC Will Travel	October 14, 2014	EVD Resource/ Education	EVD Help	
102	Second Texas Healthcare Worker Tests Positive for EVD	October 15, 2014	EVD Transmission	EVD Spread	
103	Facebook's Zuckerberg to Donate USD 25 mln to Tackle EVD	October 15, 2014	EVD Outbreak Management	EVD Intervention	Non-Governmental Intervention
104	Dallas Nurses Say Infection Control Ignored in EVD Care	October 15, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Negative Alert

105	Scientist Who Discovered EVD Frustrated by Deadly Guinea Outbreak	October 16, 2014	EVD Resource/ Education	EVD Research	
106	First Dallas Nurse With EVD to Be Transferred to NIH	October 16, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Positive Alert
107	US Hospitals Unequipped to Deal With EVD, Experts Warn	October 16, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Negative Alert
108	Emory Anesthesiologists Offer Insight on Bracing for EVD	October 16, 2014	EVD Resource/ Education	EVD Help	
109	Lawmakers Grill CDC Chief Over EVD Response	October 17, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Negative Alert
110	Obama Names Former White House Official Klain EVD 'Czar'	October 17, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Negative Alert
111	Fear of EVD Spreading Faster Than Virus in U.S.	October 17, 2014	EVD Risk	EVD Threats	
112	Texas Health Worker Isolated on Cruise Ship Over Possible EVD Contact	October 17, 2014	EVD Risk	EVD Threats	
113	Pentagon to Create Medical Support Team for U.S. EVD Response	October 20, 2014	EVD Outbreak Management	EVD Intervention	Medical Intervention
114	Healthcare Workers in the Firing Line of EVD Crisis	October 20, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Negative Alert
115	New CDC Guidance for EVD PPE Calls for No Skin in the Game	October 20, 2014	EVD Outbreak Management	EVD Preventive measures	
116	U.S. Restricts Entrants From EVD-Hit Nations to Five Airports	October 21, 2014	EVD Outbreak Management	EVD Preventive measures	
117	California Nurses' Union Pulls EVD Into Contract Talks	October 22, 2014	EVD Outbreak Management	EVD Preventive measures	
118	Hospitals' Struggles to Beat Back Infections Began Before EVD Arrived	October 22, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Negative Alert
119	Klain a Good Pick for EVD Czar, Experts Say	October 22, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Negative Alert
120	Routine ICU Care May Effectively Treat Even Severe EVD	October 22, 2014	EVD Treatment	EVD Treatment	
121	A Turning Point for EVD? Possible Reinfection?	October 23, 2014	EVD Resource/	EVD Help	

			Education		
122	Could Survivors' Blood Stop EVD?	October 23, 2014	EVD Resource/ Education	EVD Help	
123	Ebola Virus Is Undetectable in Amber Vinson, Family Says	October 23, 2014	EVD Risk	EVD Threats	
124	Experts to Test If Survivors' Serum Can Help EVD Patients	October 23, 2014	EVD Treatment	EVD Treatment	
125	Physician in New York Tests Positive for EVD	October 23, 2014	EVD Transmission	EVD Spread	
126	Current Scale-up of Aid Unlikely to Contain EVD in Liberia	October 24, 2014	EVD Outbreak Management	EVD Management	Local Management
127	Stalled Surgeon General Confirmation Weakens EVD Efforts	October 24, 2014	EVD Risk	EVD Threats	
128	Doctor With EVD in New York Stable; Nurse Is Virus-Free	October 24, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Positive Alert
129	NY, NJ to Quarantine Returning Clinicians With EVD Contacts	October 24, 2014	EVD Risk	EVD Threats	
130	Only 6% of Hospitals Well Prepared for EVD, Poll Finds	October 27, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Positive Alert
131	Experts Oppose Quarantine for Returning EVD Care Workers	October 27, 2014	EVD Risk	EVD Threats	
132	CDC Suggests Quarantine-Lite for Some EVD Clinicians	October 27, 2014	EVD Risk	EVD Threats	
133	Common Sense EVD Measures Save Lives in Africa, Teach US	October 28, 2014	EVD Resource/ Education	EVD Help	
134	U.S. Isolates Troops, Australia Imposes Visa Ban on EVD-Hit West Africa States	October 28, 2014	EVD Outbreak Management	EVD Preventive measures	
135	Edges of EVD Outbreak Expanding in West Africa	October 28, 2014	EVD Transmission	EVD Spread	
136	Obama Defends No-Quarantine Policy for Returning EVD Workers	October 28, 2014	EVD Risk	EVD Threats	
137	Isolating Most Severe EVD Patients May Stop Epidemic	October 29, 2014	EVD Outbreak Management	EVD Preventive measures	
138	Emergency Departments Train for EVD	October 29, 2014	EVD Outbreak Management	EVD Preventive measures	
139	Amid Outcry, DeSalvo to Remain National Health IT Coordinator	October 29, 2014	Out of Scope		

140	EVD Fatality Rate 74% in Sierra Leone; Bleeding Is Rare	October 30, 2014	EVD Transmission	EVD Spread	
141	U.S. Nurse Fights Maine Quarantine Over EVD Fears	October 30, 2014	EVD Risk	EVD Threats	
142	In U.S. EVD Fight, No Two Quarantines Are Quite the Same	October 30, 2014	EVD Outbreak Management	EVD Preventive measures	
143	Clinicians Back Quarantine, Travel Bans in Medscape EVD Survey	October 31, 2014	EVD Risk	EVD Threats	
144	Reader Poll: Is Quarantine Necessary for Returning Healthcare Workers?	October 31, 2014	EVD Resource/ Education	EVD Help	
145	Why Do Health Workers in Protective Suits Catch EVD?	October 31, 2014	EVD Resource/ Education	EVD Help	
146	U.S. Quarantines 'Chilling' EVD Fight in West Africa: MSF	October 31, 2014	EVD Risk	EVD Threats	
147	Judge Lifts Tight Quarantine Restrictions on Maine Nurse	October 31, 2014	Out of Scope		
148	CDC Issues Guidelines for Possible EVD Cases in ED	October 31, 2014	EVD Resource/ Education	EVD Help	
149	U.S. Nurse Who Treated EVD Patients, Maine Reach Deal on Monitoring	November 03, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Positive Alert
150	US EVD Research Priorities: Training, Training, Training	November 04, 2014	EVD Resource/ Education	EVD Research	
151	U.S. Scientists Say Uncertainties Loom About EVD's Transmission, Other Key Facts	November 04, 2014	EVD Resource/ Education	EVD Research	
152	US Nurses Plan Embarking on Global Strike Over Lack of EVD Prep	November 04, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Positive Alert
153	With Good Hospital Practices, Emory Rises to EVD Challenge	November 04, 2014	EVD Outbreak Management	EVD Preventive measures	
154	Texas Ready to Clear All Contacts of Three EVD Cases	November 06, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Government Intervention
155	CDC Stockpiling EVD Protective Gear for Hospitals	November 07, 2014	EVD Outbreak Management	EVD Preventive measures	
156	West Africa's EVD Epidemic Leads to US Protective Gear Backlog	November 10, 2014	EVD Outbreak Management	EVD Preventive measures	

157	NYC Physician Who Had EVD Will Be Discharged Tomorrow	November 10, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Positive Alert
158	New York Doctor Now Free of EVD Discharged From Hospital	November 11, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Positive Alert
159	EVD: Aggressive Hydration Key to Effective Treatment in US	November 13, 2014	EVD Treatment	EVD Treatment	
160	Sierra Leone Doctor With EVD May Be Coming to US for Care	November 14, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Positive Alert
161	Sierra Leone Surgeon in US Dies of EVD	November 17, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Negative Alert
162	WHO Seeks Swifter EVD Test to Help Stamp Out Epidemic	November 19, 2014	EVD Outbreak Management	EVD Intervention	Medical Intervention
163	Disconnect Between Workers Fighting EVD and Those at Risk	November 26, 2014	EVD Risk	EVD Threats	
164	New 15-Minute Test for EVD to Undergo Trials in West Africa	December 01, 2014	EVD Treatment	EVD Treatment	
165	Healthcare Workers Still Vulnerable to 'Splash and Splatter'	December 02, 2014	Out of Scope		
166	US Designates 35 EVD Treatment Centers	December 02, 2014	EVD Outbreak Management	EVD Intervention	Government Intervention
167	EVD Waste Disposal: Nebraska's Strategy	December 04, 2014	EVD Outbreak Management	EVD Management	Local Management
168	Simple Intravenous Fluid Could Save Many EVD Patients, Specialists Say	December 08, 2014	EVD Treatment	EVD Treatment	
169	EVD Patient's ED Doc Calls Care 'Appropriate' Based on Data	December 08, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Positive Alert
170	U.N. Declares 2014 a Devastating Year for Millions of Children	December 09, 2014	Out of Scope		
171	EVD Airport Screening Finding Few Suspected Cases in US	December 09, 2014	EVD Transmission	EVD Spread	
172	EVD Survivors Crucial to Containing the Epidemic: Experts	December 10, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Positive Alert
173	Vivek Murthy, MD, Confirmed as Surgeon General	December 15, 2014	Out of Scope		
174	EVD Cases Up Dramatically in Last 4 Weeks, CDC Reports	December 16, 2014	EVD Transmission	EVD Spread	

175	EVD Remains a 'Long, Hard Fight,' CDC Chief Says	December 23, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Negative Alert
176	Ebola Virus 2014: Timeline of the World's Largest Outbreak	December 23, 2014	EVD Outbreak Management	EVD Sensitisation/ Alert	Negative Alert
177	Experimental Drug May Stop Vascular Leak in EVD	December 24, 2014	EVD Treatment	EVD Treatment	
178	CDC Worker Monitored for Possible EVD Exposure in Lab Error	December 26, 2014	EVD Outbreak Management	EVD Preventive measures	
179	EVD: When to Intervene in Life-Threatening Events, Guidance	January 02, 2015	EVD Resource/ Education	EVD Help	
180	Obama Endorses Genomic Research in State of Union Speech	January 20, 2015	Out of Scope		
181	Scientists Ask if EVD Immunizes as Well as Kills	January 28, 2015	EVD Resource/ Education	EVD Help	
182	FDA to Simplify 'Compassionate Use' Drug Applications	February 04, 2015	EVD Resource/ Education	EVD Help	
183	Next-Generation HIV and Hep C Treatment Plans Ahead at CROI	February 12, 2015	EVD Resource/ Education	EVD Help	
184	WHO Clears 15-Minute, Easy-to-Use Test for EVD	February 20, 2015	EVD Outbreak Management	EVD Preventive measures	
185	Public Health Specialists Warn EVD May Still Surprise	February 23, 2015	EVD Outbreak Management	EVD Sensitisation/ Alert	Positive Alert
186	Low Viral Load EVD May Be Helped by Experimental Drug	February 24, 2015	EVD Treatment	EVD Treatment	
187	Craig Spencer's Fight With EVD and Political Expedience	February 25, 2015	EVD Outbreak Management	EVD Intervention	Non - Governmental Intervention
188	Texas EVD Nurse Says Hospital Failed Her and Her Colleagues	March 02, 2015	EVD Risk	EVD Threats	
189	Physician Safe After EVD Needlestick, Experimental Vaccine	March 05, 2015	EVD Outbreak Management	EVD Sensitisation/ Alert	Positive Alert
190	US EVD Response Fed Fear, Presidential Commission Says	March 12, 2015	EVD Risk	EVD Threats	
191	US Healthcare Worker With EVD Arrives at NIH in Bethesda	March 12, 2015	EVD Transmission	EVD Spread	

192	EVD Vaccine Safe, Immunogenic in Phase I Trials	April 03, 2015	EVD Treatment	EVD Treatment	
193	Reader Poll: Did the US Make the EVD Response Worse?	April 20, 2015	EVD Resource/ Education	EVD Help	
194	Rapid Tests Needed Quickly to Improve EVD Screening	April 27, 2015	EVD Outbreak Management	EVD Preventive measures	
195	Possible Sexual Transmission of EVD Reported	May 01, 2015	EVD Transmission	EVD Causes	
196	Ebola Virus Persists in Eyes Months After Clearing Blood	May 07, 2015	EVD Risk	EVD Effect	
197	Can the EVD Outbreak Strengthen Global Health Security?	May 07, 2015	EVD Resource/ Education	EVD Help	
198	WHO Issues Interim Advice on Sexual Transmission of EVD	May 12, 2015	EVD Resource/ Education	EVD Help	
199	Nurses With Tablets and Bikers With Smartphones Join EVD Fight	May 18, 2015	EVD Outbreak Management	EVD Intervention	Medical Intervention
200	Skin, Clothes Contaminated After Protective Gear Removed	May 20, 2015	EVD Outbreak Management	EVD Preventive measures	
201	CDC's EVD Risk Communication Strategy Found Lacking	May 26, 2015	EVD Outbreak Management	EVD Sensitisation/ Alert	Negative Alert
202	Ill Travellers Returning From West Africa Most Likely to Have Malaria	June 03, 2015	Out of Scope		
203	Global Health Leaders Ask G7 for Post-EVD Rapid Response Unit	June 08, 2015	EVD Outbreak Management	EVD Intervention	Medical Intervention
204	EVD Could Hit Again and We Would Hardly Do Better -MSF	June 16, 2015	EVD Transmission	EVD Spread	
205	Liberia Finds 2 EVD Cases Weeks After Being Declared Free of It	July 01, 2015	EVD Transmission	EVD Spread	
206	Tests Show EVD Probably Remained Latent in Liberia	July 13, 2015	EVD Transmission	EVD Spread	
207	Drug Stops Marburg Viruses in Monkeys, Appears Safe in Humans	July 27, 2015	Out of Scope		
208	Thousands of EVD Survivors Face Severe Pain, Possible Blindness	August 10, 2015	EVD Risk	EVD Effect	
209	Antivirals May Work Against EVD	August 27, 2015	EVD Treatment	EVD Treatment	
210	Physician EVD Survivor Describes Lasting Effects	October 08, 2015	EVD Risk	EVD Effect	

211	EVD Sexual Transmission 6 Months After Illness Confirmed	October 14, 2015	EVD Transmission	EVD Causes	
212	UK Nurse With EVD Critically Ill Again	October 14, 2015	EVD Risk	EVD Effect	
213	New Flu Pandemic Plan Will Sidestep Past Mistakes	October 15, 2015	Out of Scope		
214	Scottish EVD Nurse 'Recovering'	October 23, 2015	EVD Outbreak Management	EVD Sensitisation/ Alert	Positive Alert
215	Disaster Medicine: Dealing With the Paris Terror Attacks	December 10, 2015	Out of Scope		
216	Symptoms Persist Despite Recovery From Ebola Virus	December 16, 2015	EVD Risk	EVD Effect	
217	WHO Sets Priority for Emerging Diseases Research	December 22, 2015	Out of Scope		
218	1st Zika Virus Case in Continental United States Confirmed in Texas	January 11, 2016	Out of Scope		
219	After EVD, Two Other Tropical Diseases Pose New Threats	January 13, 2016	EVD Risk	EVD Threats	
220	EVD Outbreak Over as Liberia Gets All Clear, WHO Says	January 14, 2016	EVD Outbreak Management	EVD Sensitisation/ Alert	Positive Alert
221	Dozens Feared Exposed as Sierra Leone Confirms New EVD Case	January 15, 2016	EVD Risk	EVD Threats	
222	Zika Linked Birth Defects a Global Health Emergency, WHO Says	February 01, 2016	Out of Scope		
223	Vaginal Ring Trial Results a Big Draw at HIV Meetings	February 12, 2016	Out of Scope		
224	HHS Official: No Evidence of Larvicide Link to Microcephaly	February 18, 2016	Out of Scope		
225	Nurse With EVD, Pauline Cafferkey, Back in Hospital	February 23, 2016	EVD Risk	EVD Effect	
226	CDC Will Soon Have One Million Zika Virus Tests Available	February 25, 2016	Out of Scope		
227	Yellow Fever Concerns Grow as WHO Urged to Set Up Emergency Panel	May 11, 2016	Out of Scope		
228	Texas Hospital Reaches Settlement With Nurse Infected With EVD	October 25, 2016	EVD Outbreak Management	EVD Intervention	Medical Intervention
229	Public Health Crises: United States Often Caught Off Guard, Report Shows	December 20, 2016	Out of Scope		
230	CDC's MD, Tom Frieden, Looks Back on the Work of Saving Lives	January 06, 2017	Out of Scope		

231	Liberia Investigates Death Of Celebrated EVD Fighter Amid Stigma Fears	March 02, 2017	EVD Outbreak Management	EVD Sensitisation/ Alert	Negative Alert
232	Person Dies of Ebola Virus in Congo in New Outbreak	May 12, 2017	EVD Risk	EVD Casualties	
233	WHO Adds 'Disease X' to List of Potential Pandemic Killers	March 12, 2018	Out of Scope		
234	Paul Farmer, Wins National Academy of Sciences' Top Honor	April 27, 2018	Out of Scope		

Appendix VII: Mapping of EVD conversation into themes

Date of Conversation	Conversations of Participants	Major theme	Minor theme	Sub theme
March 27, 2014	We have not yet identify any case of Ebola in Liberia. We are still observing those cases reported at the border of Guinea with Liberia	EVD Outbreak Management	EVD Management	Local Management
March 30, 2014	Senegal is closing the borders with Guinee to prevent further spreading of the virus. Does anyone know what is the expected time of the borders being closed? How is going to be determined when the borders can be open again?	EVD Outbreak Management	EVD Management	Local Management
March 31, 2014	Unfortunately all this ébola break came and back and the world authorities stay happy when the break stop, and not run after break stop	EVD Outbreak Management	EVD Management	Global Management
January 21, 2015	We are grateful to all International Agencies and all countries, around the world, in particular United Kingdom, America and France, who have helped West Africa, in particular, Guinea, Sierra Leone and Liberia, to fight the battle against this deadly epidemic. As the number of deaths from these three countries continue to dwindle, we hope and pray that these countries be declared Ebola free by end of February and will never again return to any other country in the world.	EVD Outbreak Management	EVD Management	Global Management
April 15, 2014	THIS VIRUS IS OLDER THAN HUMAN KIND AND THE LIMITED NUMBER OF EPIDEMICS WAS ALL OF THEM SELF LIMITED CONCERNING A RESTRICTED AREA. THE POINT IS TO SEARCH THE RESERVOIR AND TO CARACTERIZE THE ANTIGENS COMMON TO ALL OF THEM AND THE SPECIFIC ANTIGEN MAKING THE DIFFERENCE IN AGRESSIVITY SO GREATLY APPART BETWEEN THIS ONE AND THE SPECIMEN FROM TAI FOREST IN IVOIRY COAST. WE NEED AVOIDING TO BE HISTERIC. MOST DANGEROUS IS THE MALARIA PLASMODIUM THE SERIAL KILLER	EVD Outbreak Management	EVD Sensitisation/ Alert	Positive Alert
July 25, 2018	Medecins Sans Frontieres (MSF) is known in the U.S. as Doctors Without Borders, http://www.doctorswithoutborders.org/	EVD Resource/ Education	EVD Help	
April 18, 2014	Hmmmm,i hope it doesn't get to Nigeria	EVD Transmission	EVD Spread	

June 27, 2014	Not only is this Ebola epidemic different in scope and quality than any that have occurred before, but in Liberia and the other countries we seem to be witnessing beginning of a breakdown in basic health care systems. The worst example of this occurred last week in Liberia when the medical staff of Redemption Hospital in New Krutown, Monrovia walked out after the death of a nurse because of their fear of Ebola, (http://allafrica.com/stories/201406200896.html). This case also highlights the fact that it is the frontline healthcare workers who place themselves in the greatest risk and in fact we know that many health care workers have succumbed to the disease in Guinea, Sierra Leone and Liberia.Perhaps the standard techniques of case identification, strict isolation, contact tracing and monitoring will ultimately prevail in overcoming this epidemic, nevertheless this looks like a highly fluid emergency that appears capable of unraveling quite rapidly. Given these circumstances there is clear need for a vaccine right now to immunize health care workers and probably also asymptomatic contacts. In my opinion, even an experimental vaccine that has shown efficacy and safety in animal studies should be considered and held in ready.I ask the vaccine research community, are there vaccines in the pipeline available in sufficient quantity that might be usefully applied to this emergency? If so, could we agree that this is an idea with merit that should be vigorously discussed, proposed, and promoted to the various response coordinators working with ebola on the ground in Africa and elsewhere, (like the CDC, NIH, and the WHO)? Thanks John M Berestecky University of HawaiiUniversity of Liberiajohnb@hawaii.edu	EVD Risk	EVD Threats	
June 29, 2014	For the most part I would say no. But if there were a group of physicians that I have felt this way in the past about I would say surgeons	EVD Risk	EVD Threats	
July 5, 2014	What will it take to get those drugs or vaccines to Liberia and what are the drugs	EVD Treatment	EVD Experimental Treatment	
July 13, 2014	Jeremy Farrar is outstanding!	Out of Scope	Out of Scope	

July 15, 2014	This may be a foolish comment, but those that survive, do they have some sort of protection even if more temporary from the virus, and could present to these native areas with less "scary' looking quarantine apparel? And if so, certainly would need decontaminated thoroughly , but at least that may be a start. If someone showed up in HAZMAT and I saw people dying, I would certainly stay away if I were them. But someone with immunity can maybe approach them, it might be better. Just a thought. Maybe that's not the disease process, but	EVD Outbreak Management	EVD Preventive measures	
July 23, 2014	Les pesanteurs socio culturels dans le contexte africain ne facilitent pas l'accès aux patients contaminés par le virus EBOLA, mais nous pouvons y arriver en introduisant une campagne de promotion des mesures d'hygiène dans les communautés suspectées en mettant l'accès sur l'hygiène des mains, en insistant sur les avantages de ces mesures pour limiter la propagation de EBOLA dans notre contexte. Je pense que ceci pourrait être une porte d'entrée qui pourrait faciliter l'accès aux patients infectés. C'est ambitieux nous ne perdons rien en l'essayant.	Out of Scope	Out of Scope	
July 26, 2014	Sorry for our coleague, we hope and pray he to win the butle with ebola.	EVD Outbreak Management	EVD Intervention	Medical
July 26, 2014	Very sad. Can only hope he will be one of the few to get better. A true soldier to stand when most will run.	EVD Outbreak Management	EVD Intervention	Medical
July 28, 2014	The Infection Prevention & Control policy, strategy, paln and implementation status of the health care facilities of all the three countries as well as Nigeria should be reviewed immediately	EVD Outbreak Management	EVD Intervention	Medical
July 29, 2014	I am sad to read such news but, as every front liner be it a policeman,priest,health inspector,nurse and any work that there is contact with a disease be it, viral or bacterial for which we have no medication or viral immunity at present, such as Ebola, terrifies us because we do not know if we and our loved ones will contract it and succumb to it. That's why we should never take off our guard from prevention such as physical protection and in such cases I think the best way is to quarantine whole towns where outbreaks occur.	EVD Outbreak Management	EVD Sensitisation/ Alert	Positive Alert
July 29, 2014	I worked with Dr Kahn and had the priviledge to teach him He was very passionate about his work with Viral Haemorrhagic fevers.A fund must be set up in his honour to promote work across the subregion.He will be sorely missed	EVD Risk	EVD Casualties	

July 30, 2014	This is very sad news. I pray that he makes it and that the outbreak dies down. As challenging and difficult and anxiety provoking as it might be for families and loved ones, I also feel that to contain it, no one should be allowed in or out of the country, period. Not just the towns, but the whole country. Too many visit, are exposed unknowingly and take it back to other countries. A modern day plague with such a death rate should not be allowed to spread. We know how to prevent the spread; we need to exercise what we know.	EVD Outbreak Management	EVD Management	Local Management
July 31, 2014	I respect the efforts of dr. sheikh umar khan.he is the hero of people mashaAllah and the one who lives for people,the world sustains for him	EVD Risk	EVD Casualties	
August 3, 2014	Hope he will come out of this ordeal.....	EVD Risk	EVD Casualties	
August 4, 2014	In Sha Allah !!!	EVD Outbreak Management	EVD Intervention	Individual
July 29, 2014	How will the POTUS FY 2015 45 mil impact on the actual epidemic? What are the immediate and long term priorities?	EVD Resource/ Education	EVD Help	
July 29, 2014	Same vector! Contingency plan?	EVD Resource/ Education	EVD Help	
July 30, 2014	This is not H1N1, SARS, or bird flu. This is a highly infectious virus with a very high mortality rate and no treatment. The CDC and State Department should ban all travel to the United States from west Africa and Nigeria for a period of 90 days. There will only be one chance to curtail the spread of this virus and I'm afraid our elected officials are going to blow it.	EVD Outbreak Management	EVD Sensitisation/ Alert	Positive Alert
August 1, 2014	Is this the doctor who was treating his sister or other relative and did not realise it was ebola? A tragedy to lose people like this. RIP	EVD Risk	EVD Casualties	
August 1, 2014	Dr. SP, this is not spread through the air. It is blood and body-fluids borne. And, unlike chicken pox, the flu, etc, it is not contagious in the days preceding symptoms. So the chances of it spreading uncontrolled in a country where basic rules of hygiene are the norm are MUCH lower than the other illnesses you named. Medical professionals should be reassuring the public, not becoming alarmist.	EVD Outbreak Management	EVD Sensitisation/ Alert	Positive Alert
August 1, 2014	Its sad may his soul rest in peace	EVD Risk	EVD Effect	
August 1, 2014	It is such a tragedy to lose even one of these trained professionals who is willing to lay down his life. Please support this effort with any political clout, prayer, and disposable income you may be able to spare.	EVD Risk	EVD Effect	
August 2, 2014	Agree with Dr S P	EVD Risk	EVD Effect	

August 5, 2014	So very sad, may God rest his soul very close to Him in Heaven	EVD Risk	EVD Effect	
August 5, 2014	Sadness and respect from France	EVD Risk	EVD Effect	
August 5, 2014	My heart goes to his family. This doctor died because of the love and care he had for his people and country. Like Jesus who died for our sins.	EVD Risk	EVD Effect	
August 5, 2014	From the bottom of my heart may his soul rest in peace in Heaven.He died because of his love to people. Western Australia	EVD Risk	EVD Effect	
August 6, 2014	Research posted here, http://TinyURL.com/StopEbola, done by the US Department of Defense and declassified in 2009 shows clearly that Nano Silver 10 PPM (which is NOT colloidal or ionic silver) inactivates Ebola virus. Nano Silver is a non-toxic substance which every member of the community can safely take. For my Protocol on its use enter email at www.NaturalSolutionsFoundation.com. Dr. Rima	EVD Resource/ Education	EVD Research	
August 6, 2014	Its so unfortunate ...may his soul rest in peace	EVD Risk	EVD Effect	
August 6, 2014	May his soul rest in peace	EVD Risk	EVD Effect	
August 6, 2014	I do not believe we should bring Ebola patients to the US. There is a risk in doing so. Respectively, Joy Hamer	EVD Risk	EVD Threats	
August 10, 2014	How many Dr.Sheik Omar Khan can be found now?I really admire the few who are still around.	EVD Outbreak Management	EVD Sensitisation/ Alert	Positive Alert
August 1, 2014	Gatherer noted that while Ebola doesn't spread through the air. . ."? May I ask how the 5 other people in the communal taxi then did contract Ebola from the index patient? I doubt all 5 or even most of the 5 were sitting next to her. If she appeared ill, would they not have kept their distance? It has been documented to be airborne transmitted between piglets and non-human primates: http://www.nature.com/srep/2012/121115/srep00811/full/srep00811.html	EVD Resource/ Education	EVD Help	
August 1, 2014	One good sneeze (or cough) is all it would take!	EVD Transmission	EVD Spread	
August 1, 2014	In Liberia's communal taxis, people are squished together very tightly - 2 people in the front bucket seat, for example, 4 in the back seat of what we would call a compact car, and often numerous market bags and even live animals. So the other passengers would have no choice but to sit very close to her, close enough to share her sweat and potentially other bodily fluids.	EVD Risk	EVD Threats	
August 1, 2014	What about TB there was a lesson forgotten and recovered for AIDS treatment : TRITHERAPY. Infectious diseases needing antibiotherapy are all leading to resistance without the principle of TRITHERAPY.As soon as you use an antibiotic for an infection, this antibiotic is bound to create a resistance somhow somewhere and sometime, and this is happening right now	EVD Outbreak Management	EVD Sensitisation/ Alert	Positive Alert

	everywhere antibiotics are used, one by one, and would not happen if TRITHERAPY would be uses every time. OF course, this has a cost. But what is the actual cost now that we face multiple resistance for multiple antibiotics? The epidemiologic principles apply here with Ebola. It will spread if we do not have the extreme approach to it.			
August 1, 2014	Why take the chance?	EVD Outbreak Management	EVD Sensitisation/ Alert	Positive Alert
August 1, 2014	Is anyone else concerned that they are allowing two people infected with Ebola to come into the USA. Reportedly in conjunction with the CDC.	EVD Outbreak Management	EVD Intervention	Medical
August 2, 2014	The newspaper article I read today about bringing two ebola patients to the US, said the transmission is blood to blood. This article seems to refute that.	EVD Outbreak Management	EVD Sensitisation/ Alert	Negative Alert
August 2, 2014	What is the life of the ebola virus? Does it survive on any structures; as in countertops,cars, etc.	EVD Resource/ Education	EVD Help	
August 2, 2014	Please l'età us nave more news about tris infestino in the nera future thanks	EVD Resource/ Education	EVD Help	
August 3, 2014	Are there any survivors from Ebola outbreaks? If there are, do these survivors have immunity?	EVD Resource/ Education	EVD Help	
August 4, 2014	That's important	EVD Resource/ Education	EVD Help	
August 5, 2014	If it's not airborne, how did the 5 other people in the taxi contract the virus? One would assume that her fellow taxi passengers would not have had any direct contact with her bodily fluids. I feel like we're not getting the whole story here, and that's a little frightening.	EVD Outbreak Management	EVD Sensitisation/ Alert	Negative Alert
02-Jan-15	Thank you Dr.Halpern and Dr. Caplan. I have considered these issues over the past year. Fomite contamination and disease transferance regarding Ebola and other similar viruses is largely ignored due to ignorance and additional factors. I recall destroying entire brain biopsy instrument sets years ago when "mad Cow" prions were initially warned about . I am an OR registered nurse and would welcome additional information regarding transmission of viral and prion diseases - I an adamant about research and educating medical workers who put their lives on the line every single operation. Thank you. Veronica Muller RN	EVD Risk	EVD Effect	
03-Jan-15	It seems to be the better of a bad situation. You have to consider the savable patient and rigid guides often lose who might have been kept in the effort to keep who can't be. I think this will evolve too as treatments broaden the intervention window and treatment expectations factor into judgement calls.	EVD Risk	EVD Effect	

04-Jan-15	Ebola continues to claim the lives of Health Care Workers (HCW) in the affected areas. Having standard guidelines developed to use as default guidance in providing resuscitative intervention for Ebola patients is necessary, to protect the (HCW). I welcome the idea.	EVD Risk	EVD Effect	
04-Jan-15	This may be a difficult discussion to have but is such a very important one. Of course we want to save our patients, but we do need to be clear to HCWs, patients and patients families as to what treatment will be given and what won't be, and why. There will be gray areas that we should try to identify and consider.	EVD Risk	EVD Effect	
04-Jan-15	Irrespective need for urgent CPR,staff must ensure normal strict precautios to protecttheir exposure	EVD Risk	EVD Effect	
04-Jan-15	Great policy! Just do CPR on an Eola victim with heart arrest. Chance of survival 0. Change of infection to the provider 100%	EVD Risk	EVD Effect	
04-Jan-15	This letter, published in the 1st Dec issue of Lancet, gives some important clues on the subject of the critical care of patients with Ebola: http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(14)62250-9/fulltext?rss=yes	EVD Risk	EVD Effect	
07-Jan-15	These topics have to be aired. Definitely the patient is important but the most important patient is the next one! Doing a useless intubation and renal dialysis when that patient is going to die anyway simply increases the risk of another transmission, another potential death. A lesson hopefully already learnt in Texas. This discussion might even open up the debate into other areas of hi tech expensive and uncomfortable procedures being done to people who are going to die anyway. Who do we really put first: the patient or our desire to be seen to "do something'?	EVD Risk	EVD Effect	
21-Jan-15	During Obama's administration, "23andme" offered, for just $99 a full gene analysis with lots of health data, like the BRCA genes, etc, with appropriate disclaimers about which parts are still just research, and some of it not being fully worked out yet, but they were, and still are, prohibited by the Feds from giving out any of that info any more. How can he possibly say he is in favor of advancing use of genomics? Does that mean he wants it only if it is fully controlled and provided within government programs at a hugely inflated price? Like what he is doing with the rest of medicine?	Out of Scope	Out of Scope	
21-Jan-15	Dr. HAROLD KORNYLAK I agree that 23andMe did a lot of good research with the vast genetic database they accumulated. The complaints against them were spurious and lacked merit, and should have been dismissed based on the fact that the patients involved all clearly violated the rules of 23andMe.	Out of Scope	Out of Scope	
21-Jan-15	Ten million gained coverage? Is that right?	Out of Scope	Out of Scope	

21-Jan-15	Dr. Lawrence Dickinson --- With the US population at 320,199,318 by the counting clock ... 10 million is but a drop in the bucket, for this "wonderful" coverage. There are about 50 million persons on Medicare, so, that can't be counted towards the Affordable Care Act, either. Just taking those 2 numbers, where are the other 260 million plus persons, who don't seem to be accounted for???!!!	Out of Scope	Out of Scope	
21-Jan-15	Ernst speaks with forked tongue!!	Out of Scope	Out of Scope	
21-Jan-15	I am so happy that we have a President that supports our scientists and the hard work they do every day to keep our country and its people healthy. It disappoints me to hear nothing but negative criticism from the extreme right of the Republican party.	Out of Scope	Out of Scope	
05-Feb-15	Norma Price The only way in which Obama has 'supported our scientists' is to illustrate the physics of gravity with all of the golf balls hit. What goes up must come DOWN.	Out of Scope	Out of Scope	
21-Jan-15	THIS EDITORIAL MIGHT JUST AS WELL BEEN WRITTEN BY THE PRESIDENT'S PRESS SECRETARY. IT WAS FILLED WITH POLITICAL FLUFF. I VOTED FOR OBAMA BECAUSE I BELIEVED HIM AND NOW I DO NOT. OBAMACARE WAS PUSHED THROUGH IN SECRET SESSIONS AND PASSED BY A DEMOCRATIC CONGRESS BEFORE VIRTUALLY ANYONE COULD HAVE A CHANCE TO READ IT LET ALONE UNDERSTAND IT. HE AGAIN HAS MADE VERY ATTRACTIVE PROMISES BUT I STRONGLY DOUBT HIS COMPETENCE TO CARRY THEM OUT. HE PLEDGED UNPRECEDENTED HONESTY AND OPENESS BUT HAS CONTINUOUSLY GIVEN US THE OPPOSITE.	Out of Scope	Out of Scope	
21-Jan-15	Well said on both sides.No one address entitlements and bureaucratic red tape, liability night mare instead of focusing on personal responsibility. Instead give Basic health care and not so called Obama care. let people pay for Cadillac care. Medical provides miss used and unnecessary care for some compared to inadequate care for elderly on Medicare not able to afford the same care..	Out of Scope	Out of Scope	
21-Jan-15	Viva Obama! How refreshing to have a President unafraid of facts, science & progress	Out of Scope	Out of Scope	
21-Jan-15	As always , I am pleased with president Obama speech & his action plans. What pleases me is that it always includes middle class families needs & his interest in medical research. The economy is prosperous, gas prices are very low, mortgage rates are very low, lots of jobs are created with his multi level energy production agenda. So opponents have nothing to say against his administration, but bring the high rates of insurance premiums criticism, that also not completely true ,as 10millions have been able to grab it at affordable rate.	Out of Scope	Out of Scope	

21-Jan-15	Dr. Rekha Patwardhan I appreciate your remark. The only thing I feel compelled to discuss is the idea that our economy is in better shape. 90% of all economic gains have gone to the 1% while childhood poverty and malnutrition accurately reflect the decline in the fortunes of the majority of Americans. Unemployment is lower, but all of the lost, middle-class manufacturing jobs have been replaced by minimum wage jobs.	Out of Scope	Out of Scope	
21-Jan-15	Dr. Frances Hogan @Dr. Rekha Patwardhan Way to go Dr Hogan , accentuate the negative!! Whine whine whine, you must be a disadvantaged individual	Out of Scope	Out of Scope	
22-Jan-15	Spare me. Jobs created in the service industry at 15 dollars an hour and under.	Out of Scope	Out of Scope	
21-Jan-15	All I know if that I am seeing less middle and lower middle class patients insured. Less budget items and less money for physician education. Cost of medications and availability are rising. In the trenches we are advancing in medicine as quickly in medicine with the changes I have in the last few years. We may have newer and better medications but only for those who can afford them. The middle and lower classes are often restricted to outdated formularies. A huge amount of time and energy that is not reimbursed is being demanded of clinicians to try to get the treatment their patients need, often meeting deaf ears from medically untrained reviewers whose approval is required. It is getting more difficult to practice medicine but things can change for the better. I am a believer in Jesus. For this reason I still feel called to serve. I and so many continue caring about individual patients and their needs. Less government interference would help. This is not the direction we are going currently under this administration's leadership.	Out of Scope	Out of Scope	
21-Jan-15	Just as I expected.	Out of Scope	Out of Scope	
21-Jan-15	My take on his speech, and the entire field and study of Genomics, has a hidden dark side that keeps nagging at the periphery of my conscious and the burning sensation just keeps intensifying. When the government, especially the present one, wants to further research and development in an area, that has so far reaching implications and possible misconduct possibilities, I cringe. Though the pluses open to OZ the negatives open to a frightening scenario in the wrong hands. Similar to Pandora's box. This has far reaching implications I really think we will come to regret in hindsight, mark my word.	Out of Scope	Out of Scope	
21-Jan-15	Go Genomics! Germ & somatic profiling helps pick a better chemo and drug plan for ovarian cancer, otherwise --clinicians guess--lower PFS & OS. Never seen the Bible thumpers commenting here ever---why do they always seem to show up around Obama or Democratic speeches to talk negative?	Out of Scope	Out of Scope	

21-Jan-15	I admire President Obama for all the good he has tried to do for this country. It's so sad that the Republicans won't help to accomplish what is best for the country.	Out of Scope	Out of Scope	
12-Jan-16	I give to "nothing but nets" which gives moskito(sp) nets to Africa.could this help in Texas	Out of Scope	Out of Scope	
12-Jan-16	David Jones Pt caught virus most likely in El Salvador; nets in TX won't help. Travel moratorium? Won't help either…	Out of Scope	Out of Scope	
12-Jan-16	Dr. Andrew McIntosh @David Jones Obviously we need a huge net across the Rio Grande - and make the Mexicans pay for it, of course!	Out of Scope	Out of Scope	
12-Jan-16	Bringing in virus not important? Texas brings all sorts of challenges. El Salvador brings many gifts to us. Cutting costs to healthcare is usual topic this article is welcome.	Out of Scope	Out of Scope	
12-Jan-16	What is your point? Texas if it was its own state would have the worlds 11th largest economy. El Salavador is a problematic state sadly.	Out of Scope	Out of Scope	
12-Jan-16	Many healthcare challenges!	Out of Scope	Out of Scope	
12-Jan-16	excellent article , good timing and most informative	Out of Scope	Out of Scope	
12-Jan-16	Removing tires and flower pots is just plain silly. We have drainage ditches, ponds and bayous all over the Houston greater metro area as well as in most of south Texas where is rains more than in Seattle. Spraying for mosquitoes is expensive, infrequently done and probably not very effective without also killing the beneficial insects needed for pollination. If this is a real public health problem, why aren't we working on a vaccine?	Out of Scope	Out of Scope	
12-Jan-16	That's the purpose of creating the problem, $$$ and yet another highly profitable vaccine. Wait 10 minutes. There will be one and Texas can go right on being the pit it seemingly must.	Out of Scope	Out of Scope	
18-Jan-16	Dr. Karl Buchanan "General Practice"? As in general psilocybe practice? What so-superior-to-Texas state is your medical license from? I surely can't find it.	Out of Scope	Out of Scope	
12-Jan-16	Predictable	Out of Scope	Out of Scope	
06-Jan-17	what about the mortality and morbidity associated with Tick Born Diseases, Tom... get over your self .. The CDC with its posse of special interest groups look like the Three Stooges ... and that's your legacy .. we never looked ..	Out of Scope	Out of Scope	
06-Jan-17	As a public health nurse for the last 28 years I want to offer my sincere appreciation to Dr. Frieden for his leadership through our communicable disease outbreaks and for always keeping the local health impacts in mind.	Out of Scope	Out of Scope	

Appendix VIII: Isolated EVD newsposts

S/No	EVD News Title	EVD News Poster	Date of Post	Type of Isolates	Nature of Isolates	Status of posters of Isolates
1	Guinea's First EVD Survivors Return to Family, Stigma Remains	Misha Hussain	April 09, 2014	Pendant	EVD context	Unrecognized
2	Death Toll From West Africa EVD Hits 337: WHO Update	Reuters Staff	June 19, 2014	Pendant	EVD context	Recognized
3	Sierra Leone Shuts Borders, Closes Schools to Fight EVD	Reuters Staff	June 12, 2014	Pendant	EVD context	Recognized
4	Guinea, Sierra Leone See Spike in EVD Cases: WHO	Reuters Staff	June 05, 2014	Pendant	EVD context	Recognized
5	West Africa EVD Outbreak Still Spreading, 'Situation Serious,' Says WHO	Stephanie Nebehay and Saliou Samb	May 29, 2014	Pendant	EVD context	Recognized
6	First-Hand Experience From Guinea Offers New EVD Insight	Kate Johnson	May 15, 2014	Pendant	EVD context	Recognized
7	West African EVD Outbreak Caused by New Strain of Disease: Study	Saliou Samb	April 21, 2014	Pendant	EVD context	Unrecognized
8	West African EVD Epidemic 'Out of Control' -- Aid Group	Reuters Staff	June 24, 2014	Pendant	EVD context	Recognized
9	West African Nations Should Be Prepared for EVD: WHO Expert	Reuters Staff	June 30, 2014	Pendant	EVD context	Recognized
10	Fear, Suspicion Undermine West Africa's Battle Against EVD	Umaru Fofana	July 01, 2014	Pendant	EVD context	Unrecognized
11	Red Cross Suspends EVD Operations in Southeast Guinea After Threats	Misha Hussain	July 03, 2014	Pendant	EVD context	Unrecognized
12	Fifty New EVD Cases and 25 Deaths in West Africa – WHO	Reuters Staff	July 09, 2014	Pendant	EVD context	Recognized
13	Family of Texas Doctor With EVD Not Showing Signs of Virus	Colleen Jenkins	July 29, 2014	Pendant	EVD context	Unrecognized
14	Liberia Shuts Schools, Quarantines Communities to Halt EVD	David Lewis and Emma Farge	July 31, 2014	Pendant	EVD context	Unrecognized
15	Suspected EVD Cases Sent Home as Liberian Isolation Unit Fills Up	David Lewis	July 31, 2014	Pendant	EVD context	Unrecognized
16	Two Relief Workers With EVD to Be Evacuated to United States	David Beasley	August 01, 2014	Pendant	EVD context	Unrecognized
17	EVD Distracts From Worsening Cameroon Cholera Outbreak	Misha Hussain and Tansa Musa	August 04, 2014	Pendant	EVD context	Unrecognized
18	Family of Doctor Sick With EVD Call for Prayers for His Colleague	Reuters Staff	August 04, 2014	Pendant	EVD context	Recognized
19	WHO Urged to Allow Experimental Drugs in 'Dire' EVD Outbreak	Kate Kelland	August 06, 2014	Pendant	EVD context	Unrecognized
20	Development Banks, U.S. Increase Support for EVD-Hit Countries	Lesley Wroughton	August 06, 2014	Pendant	EVD context	Unrecognized

21	Evaluating US Patients for EVD: Guidance for Tennessee Clinicians	Reuters Staff	August 08, 2014	Pendant	EVD context	Recognized
22	Clinical Trial to Start Soon on GSK EVD Vaccine	Ben Hirschler	August 12, 2014	Pendant	EVD context	Unrecognized
23	U.S. Emergency Labs Ready to Work on EVD Drugs If Asked	Sharon Begley and Toni Clarke	August 12, 2014	Pendant	EVD context	Unrecognized
24	Nigeria Races to Halt EVD Spread in Overcrowded Lagos	Tim Cocks	August 13, 2014	Pendant	EVD context	Unrecognized
25	Scientists Find How 'Nefarious' EVD Disables Immune Response	Kate Kelland	August 14, 2014	Pendant	EVD context	Unrecognized
26	Exclusive: NewLink Says EVD Vaccine Trial Could Start in Weeks	Sharon Begley	August 15, 2014	Pendant	EVD context	Unrecognized
27	FDA Warns of Fraudulent EVD Drug Claims	Toni Clarke	August 18, 2014	Pendant	EVD context	Unrecognized
28	Liberia Hunts Escaped EVD Victims as WHO Calls for Controls	Claire MacDougall and Stephanie Nebehay	August 19, 2014	Pendant	EVD context	Unrecognized
29	Tekmira Drug Saves Monkeys With Marburg Fever, EVD's Cousin	Sharon Begley	August 21, 2014	Pendant	EVD context	Unrecognized
30	UK and Wellcome Offer $10 Mln for Emergency EVD Research	Reuters Staff	August 21, 2014	Pendant	EVD context	Recognized
31	Surviving EVD: Africa Cries Out for Healthcare Investment Boost		August 21, 2014	Pendant	EVD context	Unrecognized
32	EVD Therapies and Vaccines Need Priority, Support	Veronica Hackethal, MD	August 22, 2014	Pendant	EVD context	Unrecognized
33	WHO Warns of 'Shadow Zones' and Unreported EVD Cases	Stephanie Nebehay, Ben Hirschler, Emma Farge, Joe Bavier and Claire MacDougall	August 25, 2014	Pendant	EVD context	Unrecognized
34	Liberian Doctor Who Received Rare EVD Drug ZMapp Dies	Emma Farge	August 26, 2014	Pendant	EVD context	Unrecognized
35	WHO Pulls Staff After Worker Infected With EVD in Sierra Leone	Umaru Fofana and Media Coulibaly	August 27, 2014	Pendant	EVD context	Unrecognized
36	ICAAC to Showcase 'Extraordinary' EVD Efforts	Kate Johnson	August 27, 2014	Pendant	EVD context	Unrecognized
37	Canada's Immunovaccine Inc Says Test of EVD Vaccine Promising		August 28, 2014	Pendant	EVD context	Unrecognized
38	EVD Causing Huge Damage to W. Africa Economies -- Development Bank	Josephus Olu-Mammah	August 28, 2014	Pendant	EVD context	Unrecognized

		and Umaru Fofana				
39	West Africa EVD Outbreak Could Infect 20,000 People, WHO Says	Stephanie Nebehay and Tim Cocks	August 29, 2014	Pendant	EVD context	Unrecognized
40	Wanted: 60 Volunteers to Test EVD Vaccine in Middle England	Ben Hirschler	August 29, 2014	Pendant	EVD context	Unrecognized
41	BioCryst Expects to Begin EVD Study in Weeks	Reuters Staff	August 29, 2014	Pendant	EVD context	Recognized
42	Medical Charity MSF Wants U.N. to Take Lead on EVD Epidemic	Marine Pennetier	August 29, 2014	Pendant	EVD context	Unrecognized
43	EVD Health Workers Should Get Danger Money, Expert Says	Misha Hussain	August 29, 2014	Pendant	EVD context	Unrecognized
44	Wealthy Countries Must Send Medical Teams to Halt EVD -- Medecins Sans Frontieres	Reuters Staff	September 03, 2014	Pendant	EVD context	Recognized
45	WHO Urges Drug Companies, Regulators to Speed EVD Work	Stephanie Nebehay	September 05, 2014	Pendant	EVD context	Unrecognized
46	UN to Set Up EVD Crisis Center, Aims to Stop Spread in 6-9 Months	Michelle Nichols	September 08, 2014	Pendant	EVD context	Unrecognized
47	Obama: U.S. Must Fight EVD Now or Face Long-Term Risk	Roberta Rampton	September 09, 2014	Pendant	EVD context	Unrecognized
48	EVD Death Toll Rises to at Least 2,296 – WHO	Tom Miles	September 09, 2014	Pendant	EVD context	Unrecognized
49	Experimental Interventions Invited on EVD Frontline	Kate Johnson	September 11, 2014	Pendant	EVD context	Unrecognized
50	Gates Foundations Pledges USD 50 mln to Fight EVD Epidemic	Kate Johnson	September 11, 2014	Pendant	EVD context	Unrecognized
51	Microsoft Co-Founder Allen to Release USD Nine Million for EVD Fight	Sharon Begley	September 12, 2014	Pendant	EVD context	Unrecognized
52	EVD Vaccine Trial Finds 'No Red Flags' U.S. Senate Testimony	Reuters Staff	September 17, 2014	Pendant	EVD context	Recognized
53	EVD, Marburg DNA Vaccines Prove Safe in Phase 1 Trial	Beth Skwarecki	September 17, 2014	Pendant	EVD context	Unrecognized
54	Scientists See Risk of Mutant Airborne EVD as Remote	Kate Kelland	September 22, 2014	Pendant	EVD context	Unrecognized
55	Killings in Guinea Show Mistrust in Africa EVD Fight -- WHO	Stephanie Nebehay	September 22, 2014	Pendant	EVD context	Unrecognized
56	Liberia Facing Massive Shortage of Foreign Help Against EVD: U.N.	Tom Miles and Stephanie Nebehay	September 24, 2014	Pendant	EVD context	Unrecognized
57	EVD Drug Trials to Be Fast-Tracked in West Africa	Kate Kelland	September 24, 2014	Pendant	EVD context	Unrecognized
58	Inovio to Start Human Trials of EVD Vaccine	Reuters Staff	September 25, 2014	Pendant	EVD context	Recognized
59	Doctor Calls for Blood Donations to Treat Liberian EVD Victims	James Giahyue	September 25, 2014	Pendant	EVD context	Unrecognized
60	WHO Sees Small-Scale Use of Experimental EVD		September 24, 2014	Pendant	EVD	Unrecognized

	Vaccines in January				context	
61	European Agency Collects Data on Experimental EVD Treatments	Reuters Staff	September 29, 2014	Pendant	EVD context	Recognized
62	Rains Complicate Delivery of EVD Supplies in West Africa	Stella Dawson	September 30, 2014	Pendant	EVD context	Unrecognized
63	UN EVD Mission Head Wants Significant Progress in 60 Days	Matthew Mpoke Bigg	October 01, 2014	Pendant	EVD context	Unrecognized
64	U.S. Health Experts in Dallas Reviewing Potential EVD Exposure	Susan Heavy	October 02, 2014	Pendant	EVD context	Unrecognized
65	GlaxoSmithKline, NewLink Working to Bring EVD Vaccines Online: WHO	Stephanie Nebehay	October 02, 2014	Pendant	EVD context	Unrecognized
66	Recognizing Ebola Virus Disease for Tennessee Clinicians: Preparedness Is Key		October 02, 2014	Pendant	EVD context	Unrecognized
67	High Risk EVD Could Reach France and UK by End of Oct, Scientists Calculate	Kate Kelland	October 07, 2014	Pendant	EVD context	Unrecognized
68	U.S. to Require Tougher EVD Screening at Airports – Senator	Reuters Staff	October 08, 2014	Pendant	EVD context	Recognized
69	Chimerix Drug Used for EVD Shows Promise Against Adenovirus	Reuters Staff	October 09, 2014	Pendant	EVD context	Recognized
70	Dallas Hospitals Set Up EVD Wards as City Watches for Spread	Richard Valdmanis	October 09, 2014	Pendant	EVD context	Unrecognized
71	EVD Fears Spread as Spanish Nurse Worsens, British Man Tested		October 10, 2014	Pendant	EVD context	Unrecognized
72	Healthcare Crippled as EVD Overwhelms Hospitals in Liberia	James Harding Giahyue and David Lewis	October 13, 2014	Pendant	EVD context	Unrecognized
73	Medical Evacuation Services Draw Line at Flying Out EVD Patients	Carolyn Cohn	October 13, 2014	Pendant	EVD context	Unrecognized
74	EVD Toll Rises to 4,033 - WHO	Reuters Staff	October 13, 2014	Pendant	EVD context	Recognized
75	California EVD Researcher Seeks More Money Through Crowdfunding		October 14, 2014	Pendant	EVD context	Unrecognized
76	Britain Begins EVD Screening at London's Heathrow Airport	Reuters Staff	October 15, 2014	Pendant	EVD context	Recognized
77	China Military-Linked Firm Eyes Quick Approval of Drug to Cure EVD	Adam Jourdan	October 15, 2014	Pendant	EVD context	Unrecognized
78	WHO May Declare Nigeria and Senegal EVD-Free Within Days		October 15, 2014	Pendant	EVD context	Unrecognized
79	World Health Organisation Declares Senegal EVD-Free		October 17, 2014	Pendant	EVD context	Unrecognized
80	EVD, the Asthma Epidemic, and the Microbiome at CHEST 2014	Kate Johnson	October 20, 2014	Pendant	EVD context	Unrecognized
81	Flu Drug Aimed at EVD May Also Fight Norovirus, Study Finds		October 21, 2014	Pendant	EVD context	Unrecognized
82	Home Care Kits Highlight Gaps in West Africa's EVD Response	David Lewis and James	October 21, 2014	Pendant	EVD context	Unrecognized

		Harding Giahyue				
83	Ebola Virus Disease (EVD) Preparation in New Hampshire		October 22, 2014	Pendant	EVD context	Unrecognized
84	U.S. CDC Announces New EVD Monitoring Steps for Travelers		October 22, 2014	Pendant	EVD context	Unrecognized
85	U.S. Setting Up Network of Hospitals for EVD Care – Officials		October 23, 2014	Pendant	EVD context	Unrecognized
86	Microsoft Co-founder Allen Commits USD 100 mln to EVD Fight	Reuters Staff	October 24, 2014	Pendant	EVD context	Recognized
87	WHO Expects Around 200,000 EVD Vaccine Doses by Mid-2015	Stephanie Nebehay and Kate Kelland	October 27, 2014	Pendant	EVD context	Unrecognized
88	Restrictions Imposed by U.S. States in Response to EVD		October 28, 2014	Pendant	EVD context	Unrecognized
89	U.S. FDA Issues Emergency Authorization for Two New EVD Tests	Yasmeen Abutaleb	October 28, 2014	Pendant	EVD context	Unrecognized
90	Australian EVD 'Tsar' Questions Government's West Africa Visa Ban		October 30, 2014	Pendant	EVD context	Unrecognized
91	Nigeria Violence Pushes Refugees and Cholera Across Borders	Misha Hussain	November 03, 2014	Broadcast	EVD context	Out of Scope
92	WHO Guidance on PPE for EVD Stresses Individual Choice	Robert Lowes	November 03, 2014	Pendant	EVD context	Unrecognized
93	Kidney Week Takes New Paths in Science and Medicine	Daniel M. Keller, PhD	November 04, 2014	Broadcast	EVD context	Out of Scope
94	Ebola Virus Disease Preparation in New Hampshire: Update #1		November 07, 2014	Pendant	EVD context	Unrecognized
95	Frail System Raised EVD Risk for Liberian Health Workers	Diedtra Henderson	November 18, 2014	Pendant	EVD context	Unrecognized
96	EVD: Liberia Cases Declining, Remote Clusters Appearing	Larry Hand	November 18, 2014	Pendant	EVD context	Unrecognized
97	EVD Preparation in New Hampshire: Update #2		November 18, 2014	Pendant	EVD context	Unrecognized
98	EVD Discoverer Piot Sees Long, Bumpy Road to Ending Epidemic	Kate Kelland	December 01, 2014	Pendant	EVD context	Unrecognized
99	Management and Transport of Persons Under Investigation (PUIs) for Ebola Virus Disease (EVD): Alert for Utah Clinicians		December 01, 2014	Pendant	EVD context	Unrecognized
100	EVD: FDA Staff Argue for Randomized Clinical Trials	Larry Hand	December 04, 2014	Pendant	EVD context	Unrecognized
101	EVD Preparation in New Hampshire: Update #3		December 05, 2014	Pendant	EVD context	Unrecognized
102	Doctors' Testimony Crucial as Border Children Seek Asylum	Jenny Gold	December 11, 2014	Broadcast	EVD context	Out of Scope
103	EVD Vaccine Trial Halted Temporarily After Joint Pains: Geneva Hospital		December 11, 2014	Pendant	EVD context	Unrecognized
104	Screening Organ Donors Can Prevent Transmission of Ebola	Will Boggs MD	December 17, 2014	Pendant	EVD context	Unrecognized

	Virus					
105	Jury Still Out on Potential EVD Treatments, EMA Says	Megan Brooks	December 17, 2014	Pendant	EVD context	Unrecognized
106	Go Beyond Infectious Disease of the Month, Says Report	Robert Lowes	December 18, 2014	Broadcast	EVD context	Out of Scope
107	EVD Fears in Pregnant Women Reducing Healthcare Use	Laurie Barclay, MD	December 31, 2014	Pendant	EVD context	Unrecognized
108	Ebola Virus Disease Preparation in New Hampshire: Update #4		January 08, 2015	Pendant	EVD context	Unrecognized
109	Preparation and Foresight Key to Treating EVD Safely	Fran Lowry	March 03, 2015	Pendant	EVD context	Unrecognized
110	EVD Crisis Leaves West Africa Vulnerable to Measles	Marcia Frellick	March 12, 2015	Pendant	EVD context	Unrecognized
111	U.S. EVD Patient Now in Critical Condition: NIH		March 17, 2015	Pendant	EVD context	Unrecognized
112	FDA Panel to Discuss EVD Vaccine Development in May	Reuters Staff	March 19, 2015	Pendant	EVD context	Recognized
113	Merck, NewLink EVD Vaccine Appears Safe, Effective In New Studies	Sharon Begley	April 02, 2015	Pendant	EVD context	Unrecognized
114	Five U.S. Health Workers Released After EVD Monitoring in Nebraska		April 02, 2015	Pendant	EVD context	Unrecognized
115	FDA Panel Considers Best Approval Process for EVD Vaccines	Troy Brown, RN	May 13, 2015	Pendant	EVD context	Unrecognized
116	EVD Drug Development Slowed by Lack of Patients	Nancy A. Melville	June 05, 2015	Pendant	EVD context	Unrecognized
117	ICAAC and ICC Join Forces to Fight Infection	Kate Johnson	September 11, 2015	Broadcast	Out of Scope	Out of Scope
118	EVD Survivor Will Kick off IDWeek With Intimate Insight	Marcia Frellick	September 28, 2015	Pendant	EVD context	Unrecognized
119	U.K. Nurse Who Had EVD Relapse Now Free of Virus	WebMD News from HealthDay	November 12, 2015	Pendant	EVD context	Unrecognized
120	US Complacent on Infectious Disease Threats, Report Shows	Megan Brooks	December 17, 2015	Broadcast	Out of Scope	Out of Scope
121	Infectious Disease News in 2015: How Much Do You Remember?		December 22, 2015	Broadcast	Out of Scope	Out of Scope
122	Syria to South Sudan: Aid Groups List Their Top Humanitarian Concerns for 2016	Tom Esslemont	December 29, 2015	Broadcast	Out of Scope	Out of Scope
123	Malaria Drugs May Make a Difference in EVD Outcomes	Lara C. Pullen, PhD	January 07, 2016	Pendant	EVD context	Unrecognized
124	Sanofi Launches Hunt for Zika Vaccine as Disease Fears Grow	Dominique Vidalon and Ben Hirschler	February 03, 2016	Broadcast	Out of Scope	Out of Scope
125	Growing Evidence of Zika Link With Microcephaly, WHO Says	Stephanie Nebehay	February 22, 2016	Broadcast	Out of Scope	Out of Scope
126	Persistent Neurologic Symptoms	Megan	March 16, 2016	Pendant	EVD	Unrecognized

	Common in EVD Survivors	Brooks			context	
127	Health Workers Rush to Contain Fresh EVD Outbreak in Guinea	Kieran Guilbert	March 22, 2016	Pendant	EVD context	Unrecognized
128	Experts Warn Complacency on EVD May Leave Vaccine Work Unfinished	Kate Kelland	April 01, 2016	Pendant	EVD context	Unrecognized
129	What's Hot at AAN 2016?	Susan Jeffrey	April 14, 2016	Broadcast	Out of Scope	Out of Scope
130	White House Urges Congress to Move on Zika Funding	Timothy Gardner	April 28, 2016	Broadcast	Out of Scope	Out of Scope
131	Antibiotic Trials for COPD in Spotlight at Thoracic Meeting	Damian McNamara	May 05, 2016	Broadcast	Out of Scope	Out of Scope
132	U.S. Health Official Says Zika Not a Reason to Cancel Olympics	Bill Berkrot	May 27, 2016	Broadcast	Out of Scope	Out of Scope
133	EVD Survivors Pose Little Risk to Care Providers Six Weeks After Viremia Clearance	Reuters Staff	June 06, 2016	Pendant	EVD context	Recognized
134	Ebola Virus RNA Evident in Semen for a Year or Longer	Troy Brown, RN	September 01, 2016	Pendant	EVD context	Unrecognized
135	CDC Deploys New Rapid Response Teams to Fight Zika	Virginia Anderson	September 15, 2016	Broadcast	Out of Scope	Out of Scope
136	One Fourth of Patients Infected by EVD May Be Asymptomatic	Lara C. Pullen, PhD	November 15, 2016	Pendant	EVD context	Unrecognized
137	EVD Vaccine 100% Effective in Clinical Trial	Beth Skwarecki	December 23, 2016	Pendant	EVD context	Unrecognized
138	Bill Gates Warns World 'Vulnerable' to Deadly Epidemic in Next Decade	Emma Batha	January 03, 2017	Broadcast	Out of Scope	Out of Scope
139	Multivariable Score Predicts Ebola Virus Disease Severity	Will Boggs MD	February 13, 2017	Pendant	EVD context	Unrecognized
140	Ebola Virus RNA Can Persist in Semen Years After Infection	Will Boggs MD	August 14, 2017	Pendant	EVD context	Unrecognized
141	From EVD to Mudslides, Sierra Leone Learns Painful Disaster Lessons	Inna Lazareva	September 06, 2017	Pendant	EVD context	Unrecognized
142	After Deadly Mudslide, Sierra Leone Vaccinates Against Cholera	Inna Lazareva	September 08, 2017	Broadcast	Out of Scope	Out of Scope
143	US Invests $170 Million in Late-Stage EVD Vaccines, Drugs	Julie Steenhuysen	October 02, 2017	Pendant	EVD context	Unrecognized
144	EVD Survivors Affected by Variety of Neurologic Symptoms	Daniel M. Keller, PhD	October 04, 2017	Pendant	EVD context	Unrecognized
145	After EVD, West Africa Must Brace for More Deadly Fevers - Study	Kieran Guilbert	October 13, 2017	Pendant	EVD context	Unrecognized
146	Uganda Confirms One Death From Ebola Virus-like Marburg Virus	Elias Biryabarema	October 20, 2017	Pendant	EVD context	Unrecognized
147	Motorbikes, Trust and Pepper Soup - EVD Tips to Tackle Deadly Diseases	Inna Lazareva	October 20, 2017	Pendant	EVD context	Unrecognized
148	EVD Ring Vaccination Strategy May Stymie Rural Outbreaks	Joan Stephenson	October 23, 2017	Pendant	EVD context	Unrecognized

149	Want to Know When EVD Will Strike Next? Look to the Forest	Nellie Peyton	October 31, 2017	Pendant	EVD context	Unrecognized
150	U.S. Needs to Improve Oversight of Labs Handling Dangerous Pathogens - Report	Julie Steenhuysen	November 01, 2017	Broadcast	Out of Scope	Out of Scope
151	Certain Biomarkers May Distinguish EVD Fatalities From Survivors	Marilynn Larkin	November 28, 2017	Pendant	EVD context	Unrecognized
152	EVD Victims Sue Sierra Leone Government Over Mismanaged Funds	Reuters Staff	December 18, 2017	Pendant	EVD context	Recognized
153	Ebola virus Antibodies Present in Populations With No History of Outbreaks	Will Boggs MD	January 29, 2018	Pendant	EVD context	Unrecognized
154	Vodafone's Mobile Data to Be Deployed to Fight Epidemics in Ghana	Reuters Staff	February 27, 2018	Broadcast	Out of Scope	Out of Scope
155	UK Responds to Lassa Fever Outbreak in Nigeria	Peter Russell	March 06, 2018	Broadcast	Out of Scope	Out of Scope
156	Zika Infection Risk From Semen Low, Short-lived, Study Finds	Janis C. Kelly	April 12, 2018	Broadcast	Out of Scope	Out of Scope
157	Antibody Response to Single-dose EVD Vaccine Stable at Two Years	Anne Harding	April 24, 2018	Pendant	EVD context	Unrecognized

Appendix IX: Frequency table of number of conversations on each EVD newspost

S/No	EVD newsposts	Number of Responses per post
1	West African Nations Scramble to Contain EVD Threat	2
2	Guinea Says Has Contained EVD Outbreak, Death Toll Rises	2
3	Scale of Guinea's EVD Epidemic Unprecedented: Aid Agency	2
4	WHO Says West African EVD Outbreak to Last 2-4 Months	1
5	Drastic Action Needed to Halt World's Worst EVD Outbreak: WHO	2
6	Test EVD Drugs Should Be Tried in Africa, Disease Expert Says	2
7	As EVD Stalks West Africa, Medics Fight Mistrust, Hostility	1
8	Death Toll From West Africa EVD Outbreak Jumps to 603 – WHO	1
9	Sierra Leone's Chief EVD Doctor Contracts the Virus	9
10	Liberia Shuts Border Crossings, Restricts Gatherings to Curb EVD Spreading	2
11	Sierra Leone's Top EVD Doctor Dies From Virus	15
12	Taxis, Planes and Viruses: How Deadly EVD Can Spread	17
13	WHO Launching $100 Million Plan to Combat EVD	1
14	WHO Chief Says EVD Out of Control but Can Be Stopped	2
15	American EVD Patient Improving	19
16	U.S. FDA Says 'Stands Ready' to Work With Companies Developing EVD Drugs	1
17	Second EVD Patient Headed to US, NY Tests Possible Victim	1
18	Experimental EVD Serum Grown in Tobacco Leaves	4
19	Second American Infected With EVD Arrives in US	3
20	EVD: Are Treatments, Vaccines on the Horizon?	5
21	WHO Consulting Ethics Experts on Experimental EVD Drugs	4
22	EVD Emergency Turns Spotlight on Experimental Drugs	1
23	U.S. Allows Use of EVD Test Overseas as Crisis Deepens	1
24	Ebola Virus: How Contagious?	15
25	US Hospitals Capable of Averting EVD Outbreak, CDC Says	25
26	Tekmira EVD Drug Gets Regulator Change for Possible Human Use	1
27	WHO Declares EVD a Global Public Health Emergency	47
28	Fighting Fear, Fatigue on the Front Lines of EVD	6
29	Reader Poll: Is Your Hospital Prepared for EVD?	28
30	On EVD's Front Line, Doctor Finds Grief and Inspiration	1
31	WHO Backs Use of Experimental Treatments for EVD	10
32	U.S. Government Intervention Advances Development of BioCryst's Potential EVD Drug	1
33	Extreme Medicine: The Search for New Antibiotics	2
34	Liberian Police Fire Live Bullets to Disperse EVD Protest	1
35	Experimental EVD Drugs Needed for 'Up to 30,000 People'	3
36	2 U.S. EVD Patients Released From Hospital	7

37	EVD: Excessive Precautions in US Hospitals May Be Harmful	21
38	Doctors in Developed Nations Need to Know How to Recognize EVD, Too	1
39	Sierra Leone 'Hero' Doctor's Death Exposes Slow EVD Response	4
40	NIH to Begin EVD Vaccine Trial in Humans	9
41	Gene Studies of EVD in Sierra Leone Show Virus Is Mutating Fast	5
42	Liberia Doctors Strike, U.N. Warns of Food Shortages Due to EVD	3
43	More Resources Needed to Quell EVD, CDC Says	3
44	EVD Outpacing Control Effects: WHO	12
45	Third Patient With EVD Returning to US	3
46	Chimerix Says Antiviral Shows Promise Against EVD	1
47	U.N. Says USD 600 mln Needed to Tackle EVD as Toll Tops 1,900	2
48	Third American With EVD Arrives in Nebraska	6
49	WHO Advises EVD Therapies Derived From Survivors' Blood	10
50	Physicians, Nurses Desperately Needed in EVD-Hit Areas	13
51	EVD Outbreak 'Perfect Storm' According to CDC	5
52	EVD Spreads Exponentially in Liberia, Many More Cases Soon – WHO	1
53	EVD Likely to Spread Internationally; Modest Risk for US, UK	18
54	Lessons on EVD Preparedness From the US and Canada	5
55	EVD Highlights Slow Progress in War on Tropical Diseases	2
56	US to Lead International Effort to Stop EVD	2
57	Want to Fight EVD? CDC to Train Health Workers	65
58	First UK Volunteer Gets Experimental GSK EVD Vaccine in Trial	3
59	Enterovirus-D68 Is Now Coast to Coast	79
60	U.S., Canada Allow Emergency Use of Tekmira's EVD Treatment	1
61	WHO Experts Advise Against Travel or Trade Bans on EVD-Hit Africa	3
62	EVD Cases Could Rise to 1.4 Million in 4 Months, CDC Says	17
63	Ever-Present Endemic EVD Now Major Concern for Disease Experts	2
64	WHO Revises Up Number of Health Workers Killed by EVD in Sierra Leone	2
65	US Hospitals Unprepared to Handle EVD Waste	2
66	EVD Toll Nears 3,000, but Spread in Guinea Stabilises	1
67	Third EVD Patient Treated in the U.S. Free From Virus – Doctors	1
68	Canada Says Poor Coordination Bogging Down EVD Vaccine Shipment	2
69	Collateral' Death Toll Expected to Soar in Africa's EVD Crisis	1
70	Scientists Grapple With Ethics in Rush to Release EVD Vaccines	2
71	First EVD Case Diagnosed in US	127
72	Thousands of Children Orphaned, Rejected as EVD Wrecks Families	1
73	Experts Question Two-Day Delay in Admitting Texas EVD Patient	43
74	Possible Contacts in Dallas EVD Case Grow to 100	99
75	U.S. Nears Solution for Safe Disposal of EVD Waste	4
76	U.S. Nurses Say They Are Unprepared to Handle EVD Patients	587
77	Evaluating Patients for EVD: CDC Recommendations for Clinicians	149

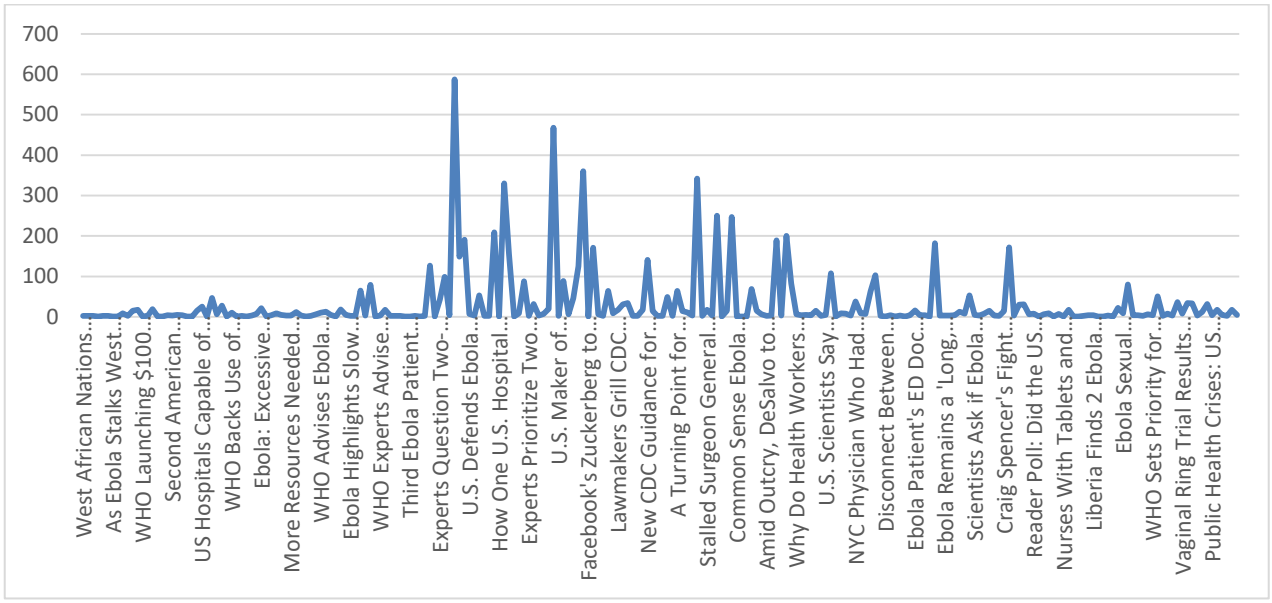
78	EVD Patient's Travel History Got Buried in Hospital HER	191
79	U.S. Defends EVD Response, About 50 Under Observation	7
80	EVD Outbreak and Enterovirus in the Limelight at ID Week	3
81	How Is EVD Transmitted? WHO Offers Guidance	53
82	Aid Workers Ask Where Was WHO in EVD Outbreak?	2
83	More Cases of EVD Spreading in Europe 'Unavoidable,' WHO Says	2
84	First Person Diagnosed With EVD in the US Dies	209
85	How One U.S. Hospital Braces for EVD	1
86	No EHR Flaw After All in EVD Case, Says Hospital	330
87	Dallas Hospital Assesses Second Man for EVD Symptoms	155
88	U.S. Medical Workers Get Crash Course on Treating EVD on Frontlines	1
89	Surgeons Face Practical, Ethical Challenges in Trying to Limit EVD 'Collateral Damage'	9
90	Reader Poll: EHR vs Communication in EVD Evaluation	88
91	Experts Prioritise Two EVD Vaccines, Map Early Trial Plans	2
92	Spanish Nurse Worsens, Madrid Blames Infection on Human Error	32
93	Texas Hospital Defends Itself Over Treatment of EVD Patient	3
94	Group Urges Bypassing Randomized Trials for EVD Therapy	7
95	Experts Closest to EVD Outbreak Testify	20
96	Dallas Health Worker Tests Positive for EVD	468
97	U.S. Maker of Experimental EVD Drug ZMapp Seeks to Boost Output	2
98	New EVD Case Means New Safety Approach, CDC Says	89
99	U.S. CDC Head Criticized for Blaming 'Protocol Breach' as Nurse Gets EVD	6
100	Nurse With EVD Receives Plasma From Survivor	46
101	Have EVD? CDC Will Travel	125
102	Second Texas Healthcare Worker Tests Positive for EVD	360
103	Facebook's Zuckerberg to Donate USD 25 mln to Tackle EVD	1
104	Dallas Nurses Say Infection Control Ignored in EVD Care	171
105	Scientist Who Discovered EVD Frustrated by Deadly Guinea Outbreak	6
106	First Dallas Nurse With EVD to Be Transferred to NIH	2
107	US Hospitals Unequipped to Deal With EVD, Experts Warn	64
108	Emory Anesthesiologists Offer Insight on Bracing for EVD	9
109	Lawmakers Grill CDC Chief Over EVD Response	17
110	Obama Names Former White House Official Klain EVD 'Czar'	31
111	Fear of EVD Spreading Faster Than Virus in U.S.	34
112	Texas Health Worker Isolated on Cruise Ship Over Possible EVD Contact	2
113	Pentagon to Create Medical Support Team for U.S. EVD Response	2
114	Healthcare Workers in the Firing Line of EVD Crisis	17
115	New CDC Guidance for EVD PPE Calls for No Skin in the Game	141
116	U.S. Restricts Entrants From EVD-Hit Nations to Five Airports	14
117	California Nurses' Union Pulls EVD Into Contract Talks	2
118	Hospitals' Struggles to Beat Back Infections Began Before EVD Arrived	2

119	Klain a Good Pick for EVD Czar, Experts Say	49
120	Routine ICU Care May Effectively Treat Even Severe EVD	2
121	A Turning Point for EVD? Possible Reinfection?	64
122	Could Survivors' Blood Stop EVD?	14
123	Ebola Virus Is Undetectable in Amber Vinson, Family Says	11
124	Experts to Test If Survivors' Serum Can Help EVD Patients	3
125	Physician in New York Tests Positive for EVD	342
126	Current Scale-up of Aid Unlikely to Contain EVD in Liberia	2
127	Stalled Surgeon General Confirmation Weakens EVD Efforts	17
128	Doctor With EVD in New York Stable; Nurse Is Virus-Free	3
129	NY, NJ to Quarantine Returning Clinicians With EVD Contacts	250
130	Only 6% of Hospitals Well Prepared for EVD, Poll Finds	1
131	Experts Oppose Quarantine for Returning EVD Care Workers	15
132	CDC Suggests Quarantine-Lite for Some EVD Clinicians	247
133	Common Sense EVD Measures Save Lives in Africa, Teach US	1
134	U.S. Isolates Troops, Australia Imposes Visa Ban on EVD-Hit West Africa States	1
135	Edges of EVD Outbreak Expanding in West Africa	1
136	Obama Defends No-Quarantine Policy for Returning EVD Workers	69
137	Isolating Most Severe EVD Patients May Stop Epidemic	15
138	Emergency Departments Train for EVD	6
139	Amid Outcry, DeSalvo to Remain National Health IT Coordinator	2
140	EVD Fatality Rate 74% in Sierra Leone; Bleeding Is Rare	3
141	U.S. Nurse Fights Maine Quarantine Over EVD Fears	189
142	In U.S. EVD Fight, No Two Quarantines Are Quite the Same	3
143	Clinicians Back Quarantine, Travel Bans in Medscape EVD Survey	200
144	Reader Poll: Is Quarantine Necessary for Returning Healthcare Workers?	82
145	Why Do Health Workers in Protective Suits Catch EVD?	6
146	U.S. Quarantines 'Chilling' EVD Fight in West Africa: MSF	4
147	Judge Lifts Tight Quarantine Restrictions on Maine Nurse	5
148	CDC Issues Guidelines for Possible EVD Cases in ED	4
149	U.S. Nurse Who Treated EVD Patients, Maine Reach Deal on Monitoring	15
150	US EVD Research Priorities: Training, Training, Training	2
151	U.S. Scientists Say Uncertainties Loom About EVD's Transmission, Other Key Facts	5
152	US Nurses Plan Embarking on Global Strike Over Lack of EVD Prep	108
153	With Good Hospital Practices, Emory Rises to EVD Challenge	1
154	Texas Ready to Clear All Contacts of Three EVD Cases	9
155	CDC Stockpiling EVD Protective Gear for Hospitals	8
156	West Africa's EVD Epidemic Leads to US Protective Gear Backlog	3
157	NYC Physician Who Had EVD Will Be Discharged Tomorrow	38
158	New York Doctor Now Free of EVD Discharged From Hospital	9
159	EVD: Aggressive Hydration Key to Effective Treatment in US	7

160	Sierra Leone Doctor With EVD May Be Coming to US for Care	63
161	Sierra Leone Surgeon in US Dies of EVD	103
162	WHO Seeks Swifter EVD Test to Help Stamp Out Epidemic	2
163	Disconnect Between Workers Fighting EVD and Those at Risk	1
164	New 15-Minute Test for EVD to Undergo Trials in West Africa	4
165	Healthcare Workers Still Vulnerable to 'Splash and Splatter'	1
166	US Designates 35 EVD Treatment Centers	3
167	EVD Waste Disposal: Nebraska's Strategy	1
168	Simple Intravenous Fluid Could Save Many EVD Patients, Specialists Say	4
169	EVD Patient's ED Doc Calls Care 'Appropriate' Based on Data	16
170	U.N. Declares 2014 a Devastating Year for Millions of Children	4
171	EVD Airport Screening Finding Few Suspected Cases in US	4
172	EVD Survivors Crucial to Containing the Epidemic: Experts	1
173	Vivek Murthy, MD, Confirmed as Surgeon General	182
174	EVD Cases Up Dramatically in Last 4 Weeks, CDC Reports	3
175	EVD Remains a 'Long, Hard Fight,' CDC Chief Says	3
176	Ebola Virus 2014: Timeline of the World's Largest Outbreak	3
177	Experimental Drug May Stop Vascular Leak in EVD	4
178	CDC Worker Monitored for Possible EVD Exposure in Lab Error	13
179	EVD: When to Intervene in Life-Threatening Events, Guidance	8
180	Obama Endorses Genomic Research in State of Union Speech	53
181	Scientists Ask if EVD Immunizes as Well as Kills	5
182	FDA to Simplify 'Compassionate Use' Drug Applications	3
183	Next-Generation HIV and Hep C Treatment Plans Ahead at CROI	8
184	WHO Clears 15-Minute, Easy-to-Use Test for EVD	15
185	Public Health Specialists Warn EVD May Still Surprise	3
186	Low Viral Load EVD May Be Helped by Experimental Drug	2
187	Craig Spencer's Fight With EVD and Political Expedience	14
188	Texas EVD Nurse Says Hospital Failed Her and Her Colleagues	172
189	Physician Safe After EVD Needlestick, Experimental Vaccine	3
190	US EVD Response Fed Fear, Presidential Commission Says	30
191	US Healthcare Worker With EVD Arrives at NIH in Bethesda	31
192	EVD Vaccine Safe, Immunogenic in Phase I Trials	6
193	Reader Poll: Did the US Make the EVD Response Worse?	8
194	Rapid Tests Needed Quickly to Improve EVD Screening	1
195	Possible Sexual Transmission of EVD Reported	6
196	Ebola Virus Persists in Eyes Months After Clearing Blood	9
197	Can the EVD Outbreak Strengthen Global Health Security?	1
198	WHO Issues Interim Advice on Sexual Transmission of EVD	7
199	Nurses With Tablets and Bikers With Smartphones Join EVD Fight	1
200	Skin, Clothes Contaminated After Protective Gear Removed	17

201	CDC's EVD Risk Communication Strategy Found Lacking	1
202	Ill Travellers Returning From West Africa Most Likely to Have Malaria	1
203	Global Health Leaders Ask G7 for Post-EVD Rapid Response Unit	2
204	EVD Could Hit Again and We Would Hardly Do Better -MSF	4
205	Liberia Finds 2 EVD Cases Weeks After Being Declared Free of It	4
206	Tests Show EVD Probably Remained Latent in Liberia	1
207	Drug Stops Marburg Viruses in Monkeys, Appears Safe in Humans	1
208	Thousands of EVD Survivors Face Severe Pain, Possible Blindness	3
209	Antivirals May Work Against EVD	1
210	Physician EVD Survivor Describes Lasting Effects	22
211	EVD Sexual Transmission 6 Months After Illness Confirmed	9
212	UK Nurse With EVD Critically Ill Again	80
213	New Flu Pandemic Plan Will Sidestep Past Mistakes	4
214	Scottish EVD Nurse 'Recovering'	4
215	Disaster Medicine: Dealing With the Paris Terror Attacks	2
216	Symptoms Persist Despite Recovery From Ebola Virus	6
217	WHO Sets Priority for Emerging Diseases Research	4
218	1st Zika Virus Case in Continental United States Confirmed in Texas	51
219	After EVD, Two Other Tropical Diseases Pose New Threats	2
220	EVD Outbreak Over as Liberia Gets All Clear, WHO Says	8
221	Dozens Feared Exposed as Sierra Leone Confirms New EVD Case	3
222	Zika Linked Birth Defects a Global Health Emergency, WHO Says	36
223	Vaginal Ring Trial Results a Big Draw at HIV Meetings	8
224	HHS Official: No Evidence of Larvicide Link to Microcephaly	34
225	Nurse With EVD, Pauline Cafferkey, Back in Hospital	33
226	CDC Will Soon Have One Million Zika Virus Tests Available	3
227	Yellow Fever Concerns Grow as WHO Urged to Set Up Emergency Panel	12
228	Texas Hospital Reaches Settlement With Nurse Infected With EVD	32
229	Public Health Crises: United States Often Caught Off Guard, Report Shows	4
230	CDC's MD, Tom Frieden, Looks Back on the Work of Saving Lives	17
231	Liberia Investigates Death Of Celebrated EVD Fighter Amid Stigma Fears	5
232	Person Dies of Ebola Virus in Congo in New Outbreak	2
233	WHO Adds 'Disease X' to List of Potential Pandemic Killers	17
234	Paul Farmer, Wins National Academy of Sciences' Top Honor	5

Appendix X: Distribution of the conversations of Healthcare Practitioners on EVD newsposts



Appendix XI: Word cloud for thematic analysis of conversation made on newsposts across the timelines based on major themes, minor themes and sub-themes


evdintervention
evdpreventivemeasures
evdresearch
evdthreats
evdeffect
evdsensitizationalert
evdhelp
evdspread
evdtreatment
evdmanagement


evdtransmission
outofscope
evdresourceeducation
evdrisk
evdoutbreakmanagement
evdtreatment


individualintervention
negativealert
nongovernmentalintervention
localmanagement
positivealert
governmentintervention
globalmanagement
religionintervention
regionalmanagement
medicalintervention


evdtransmission
evdtreatment
evdoutbreakmanagement
evdrisk
evdresourceeducation
outofscope


positivealert
individualintervention


evdsensitizationalert
evdspread
evdintervention
evdhelp
evdresearch
evdeffect
evdthreats


evdtransmission
outofscope
evdresourceeducation
evdrisk
evdoutbreakmanagement


negativealert
medicalintervention
positivealert
individualintervention
localmanagement


evdmanagement
evdintervention
evdhelp
evdeffect
evdresearch
evdsensitizationalert
evdspread
evdthreats
evdpreventivemeasures


outofscope
evdoutbreakmanagement
evdresourceeducation
evdrisk
evdtransmission


regionalmanagement
medicalintervention
negativealert
positivealert
individualintervention
globalmanagement
religionintervention


evdpreventivemeasures
evdtreatment
evdcasualties
evdthreats
evdhelp
evdexperimentaltreatment
evdeffect
evdsensitizationalert
evdintervention
evdspread
evdmanagement
evdresearch


evdoutbreakmanagement
evdtreatment
evdtransmission
evdrisk
outofscope
evdresourceeducation


localmanagement
religionintervention
regionalmanagement
positivealert
negativealert
globalmanagement
medicalintervention
governmentintervention
individualintervention

Appendix XII: Profession and Area(s) of Specialty of HCP on the network

S/no	EVD Newsposts	Area of Specialty	Profession
1	West African Nations Scramble to Contain EVD Threat	Nurse/Advanced Practice Nurse	Nurse
2	West African Nations Scramble to Contain EVD Threat	Nurse/Advanced Practice Nurse	Nurse
3	Guinea Says Has Contained EVD Outbreak, Death Toll Rises	Infectious Diseases	Doctor
4	Guinea Says Has Contained EVD Outbreak, Death Toll Rises	Physician Assistant	Doctor
5	Scale of Guinea's EVD Epidemic Unprecedented: Aid Agency	Internal Medicine	Doctor
6	Scale of Guinea's EVD Epidemic Unprecedented: Aid Agency	Emergency Medicine	Doctor
7	WHO Says West African EVD Outbreak to Last 2-4 Months	Dermatology, Cosmetic	Doctor
8	Drastic Action Needed to Halt World's Worst EVD Outbreak: WHO	Other Healthcare Provider	Others
9	Drastic Action Needed to Halt World's Worst EVD Outbreak: WHO	Nurse/Advanced Practice Nurse	Nurse
10	Test EVD Drugs Should Be Tried in Africa, Disease Expert Says	Other Healthcare Provider	Others
11	Test EVD Drugs Should Be Tried in Africa, Disease Expert Says	Infectious Diseases	Doctor
12	As EVD Stalks West Africa, Medics Fight Mistrust, Hostility	Licensed Practical Nurse	Nurse
13	Death Toll From West Africa EVD Outbreak Jumps to 603 – WHO	Other Healthcare Provider	Others
14	Sierra Leone's Chief EVD Doctor Contracts the Virus	Infectious Diseases	Doctor
15	Sierra Leone's Chief EVD Doctor Contracts the Virus	Family Medicine	Doctor
16	Sierra Leone's Chief EVD Doctor Contracts the Virus	Infectious Diseases	Doctor
17	Sierra Leone's Chief EVD Doctor Contracts the Virus	Other Healthcare Provider	Others
18	Sierra Leone's Chief EVD Doctor Contracts the Virus	Neurology	Doctor

19	Sierra Leone's Chief EVD Doctor Contracts the Virus	Other Healthcare Provider	Others
20	Sierra Leone's Chief EVD Doctor Contracts the Virus		Doctor
21	Sierra Leone's Chief EVD Doctor Contracts the Virus	Pediatrics, General	Doctor
22	Sierra Leone's Chief EVD Doctor Contracts the Virus	Medical Student	Medical Student
23	Liberia Shuts Border Crossings, Restricts Gatherings to Curb EVD Spreading	Endocrinology, Metabolism	Doctor
24	Liberia Shuts Border Crossings, Restricts Gatherings to Curb EVD Spreading	Endocrinology, Metabolism	Doctor
25	Sierra Leone's Top EVD Doctor Dies From Virus	Infectious Diseases	Doctor
26	Sierra Leone's Top EVD Doctor Dies From Virus	Legal Nurse Consultant	Nurse
27	Sierra Leone's Top EVD Doctor Dies From Virus	Nurse/Advanced Practice Nurse	Nurse
28	Sierra Leone's Top EVD Doctor Dies From Virus	Physician Assistant	Doctor
29	Sierra Leone's Top EVD Doctor Dies From Virus	Family Medicine	Doctor
30	Sierra Leone's Top EVD Doctor Dies From Virus	Nurse/Advanced Practice Nurse	Nurse
31	Sierra Leone's Top EVD Doctor Dies From Virus	Nurse/Advanced Practice Nurse	Nurse
32	Sierra Leone's Top EVD Doctor Dies From Virus	Anesthesiology	Doctor
33	Sierra Leone's Top EVD Doctor Dies From Virus	Health Business/Admin	Health Business/Admin
34	Sierra Leone's Top EVD Doctor Dies From Virus	Public/Community Health	Doctor
35	Sierra Leone's Top EVD Doctor Dies From Virus	Nutrition	Doctor
36	Sierra Leone's Top EVD Doctor Dies From Virus		Doctor
37	Sierra Leone's Top EVD Doctor Dies From Virus	Ob/Gyn & Women's Health	Doctor
38	Sierra Leone's Top EVD Doctor Dies From Virus	Nurse/Advanced Practice Nurse	Nurse
39	Sierra Leone's Top EVD Doctor Dies From Virus	General Practice	Doctor
40	Taxis, Planes and Viruses: How Deadly EVD Can Spread	Family Medicine	Doctor
41	Taxis, Planes and Viruses: How Deadly EVD Can Spread	Pharmacist	Pharmacist

42	Taxis, Planes and Viruses: How Deadly EVD Can Spread	Health Business/Admin	Health Business/Admin
43	Taxis, Planes and Viruses: How Deadly EVD Can Spread	General Practice	Doctor
44	Taxis, Planes and Viruses: How Deadly EVD Can Spread	Registered Nurse (RN)	Nurse
45	Taxis, Planes and Viruses: How Deadly EVD Can Spread	Physician Assistant	Doctor
46	Taxis, Planes and Viruses: How Deadly EVD Can Spread	Other Healthcare Provider	Others
47	Taxis, Planes and Viruses: How Deadly EVD Can Spread	Other Healthcare Provider	Others
48	Taxis, Planes and Viruses: How Deadly EVD Can Spread	Gastroenterology	Doctor
49	Taxis, Planes and Viruses: How Deadly EVD Can Spread	Optometrist	Doctor
50	Taxis, Planes and Viruses: How Deadly EVD Can Spread	Gastroenterology	Doctor
51	Taxis, Planes and Viruses: How Deadly EVD Can Spread	Other Healthcare Provider	Others
52	EVD: When to Intervene in Life-Threatening Events, Guidance	Registered Nurse (RN)	Nurse
53	EVD: When to Intervene in Life-Threatening Events, Guidance	General Practice	Doctor
54	EVD: When to Intervene in Life-Threatening Events, Guidance	Family Medicine	Doctor
55	EVD: When to Intervene in Life-Threatening Events, Guidance	Registered Nurse (RN)	Nurse
56	EVD: When to Intervene in Life-Threatening Events, Guidance	Critical Care/Intensive Care	Doctor
57	EVD: When to Intervene in Life-Threatening Events, Guidance	Ob/Gyn & Women's Health	Doctor
58	EVD: When to Intervene in Life-Threatening Events, Guidance	Family Medicine	Doctor
59	EVD: When to Intervene in Life-Threatening Events, Guidance	General Practice	Doctor
60	Obama Endorses Genomic Research in State of Union Speech		Doctor

61	Obama Endorses Genomic Research in State of Union Speech	Internal Medicine	Doctor
62	Obama Endorses Genomic Research in State of Union Speech	Neurosurgery	Doctor
63	Obama Endorses Genomic Research in State of Union Speech	Other Healthcare Provider	Others
64	Obama Endorses Genomic Research in State of Union Speech	Registered Nurse (RN)	Nurse
65	Obama Endorses Genomic Research in State of Union Speech	Psychologist	Psychologists
66	Obama Endorses Genomic Research in State of Union Speech	Clinical Nurse Specialist	Nurse
67	Obama Endorses Genomic Research in State of Union Speech	Internal Medicine	Doctor
68	Obama Endorses Genomic Research in State of Union Speech	Surgery, General	Doctor
69	Obama Endorses Genomic Research in State of Union Speech	Psychiatry/Mental Health	Doctor
70	Obama Endorses Genomic Research in State of Union Speech	Family Medicine	Doctor
71	Obama Endorses Genomic Research in State of Union Speech	Psychiatry/Mental Health	Doctor
72	Obama Endorses Genomic Research in State of Union Speech	Family Medicine	Doctor
73	Obama Endorses Genomic Research in State of Union Speech	Medical Student	Medical Student
74	Obama Endorses Genomic Research in State of Union Speech	Pediatrics, General	Doctor
75	Obama Endorses Genomic Research in State of Union Speech	Family Medicine	Doctor
76	Obama Endorses Genomic Research in State of Union Speech	Registered Nurse (RN)	Nurse
77	Obama Endorses Genomic Research in State of Union Speech	Other Healthcare Provider	Others
78	Obama Endorses Genomic Research in State of Union Speech	Emergency Medicine	Doctor
79	1st Zika Virus Case in Continental United States Confirmed in Texas	Physician Assistant	Doctor
80	1st Zika Virus Case in Continental United States Confirmed in Texas	Family Medicine	Doctor

81	1st Zika Virus Case in Continental United States Confirmed in Texas	Family Medicine	Doctor
82	1st Zika Virus Case in Continental United States Confirmed in Texas	Registered Nurse (RN)	Nurse
83	1st Zika Virus Case in Continental United States Confirmed in Texas	Nursing Student	Nursing Student
84	1st Zika Virus Case in Continental United States Confirmed in Texas	Registered Nurse (RN)	Nurse
85	1st Zika Virus Case in Continental United States Confirmed in Texas	General Practice	Doctor
86	1st Zika Virus Case in Continental United States Confirmed in Texas	Family Medicine	Doctor
87	1st Zika Virus Case in Continental United States Confirmed in Texas	General Practice	Doctor
88	1st Zika Virus Case in Continental United States Confirmed in Texas	Anesthesiology	Doctor
89	1st Zika Virus Case in Continental United States Confirmed in Texas	General Practice	Doctor
90	CDC's MD, Tom Frieden, Looks Back on the Work of Saving Lives	Nurse Practitioner (NP)	Nurse
91	CDC's MD, Tom Frieden, Looks Back on the Work of Saving Lives	Registered Nurse (RN)	Nurse

Appendix XIII: Active and Influential HCPs on the network

User's ID	Name	Profession	Total No of Post Originated	Total No of Post Responded to	Total No of Conversation	Actual Post
Ua33	Dr. Karl Buchanan	Doctor	5	33	102	T59, T60, T62, T68, T69, T71, T74, T79, T90, T94, T103, T121, T127, T136, T143, T155, T159, T161, T175, T177, T179, T192, T210, T213, T218, T222, T227, T87, T96, T101, T102, T125, T129
Ua24	Dr. sudhakar kamat	Doctor	7	24	23	T44, T49, T61, T94, T97, T109, T111, T126, T127, T131, T137, T140, T160, T171, T175, T177, T178, T179,T191, T230, T71, T96, T107, T129
Ua22	Douglas Greer	Others	1	22	176	T78, T81, T84, T96,T98, T101, T102, T104, T108, T109, T114, T115, T119, T121, T125, T129, T131, T132, T136, T137, T143, T144
Ub22	Dr. GEORGE RITTER	Doctor	1	21	22	T25, T98, T99, T100, T101, T107, T114, T157, T205, T210, T211, T220, T224, T225, T96, T77, T84, T102, T125, T129, T132
Ua21	Rene Neville	Nurse	3	22	72	T58, T74, T78, T86, T104, T110, T119, T143, T144, T146, T152, T171, T178, T180, T181, T190, T191, T200, T210, T211, T212, T218
Ua20	Janine Largent	Nurse	2	20	52	T71, T77, T78, T81, T84, T86, T87, T92, T96, T100, T102, T111, T115, T121, T132, T181, T191, T212, T213, T220
Ua16	Anita wright	Nurse		16	42	T87, T191, T37, T71,

						T74, T76, T77, T80, T84, T96, T98, T100, T101, T102, T104, T107
Ua14	Dr. James Bond	Doctor	1	14	16	T24, T29, T44, T81, T116, T138, T145, T152, T59, T74, T86, T102, T96, T98
Ua13	p robbins	Others	1	13	50	T157, T76, T96, T104, T101, T102,T107, T114, T115, T125, T132, T144, T152
Ua12	Christine Hageman	Nurse		12	27	T50, T57, T61, T62, T71, T81, T102, T125, T141, T160, T180, T212
Ub12	Dr. Jeffery Morissette	Doctor		12	30	T98, T104, T115, T119, T123, T125, T127, T128, T129, T132, T142, T115
Uc12	Joann Peterson	Nurse	3	12	34	T77, T80, T96, T98, T151, T164, T208, T212, T222, T224, T225, T226
Ud12	Marcelle Praetorius	Nurse	1	12	13	T74, T76, T87, T101, T102, T125, T132, T143, T160, T50, T71, T111
Ue12	Patricia Yeargin	Nurse		12	30	T86, T107, T143, T191, T78, T96, T121, T211, T212, T225, T228, T76
Ua11	Anna Lucas	Nurse		11	22	T25, T57, T74, T86, T104, T109, T228, T71, T152, T171, T76
Ub11	Bill Baker	Nurse		11	18	T74, T75, T76, T77, T78, T79, T81, T84, T90, T102, T104
Uc11	Dr. Robert Rosenbaum	Doctor		11	24	T84, T93, T98, T132, T187, T191, T77, T78, T87, T102, T143
Ua10	Dr. D S	Doctor		10	23	T59, T74, T84, T86, T87, T102, T115, T129, T132, T144
Ub10	Dr. Lloyd Lautner	Doctor	1	10	30	T77, T84, T101, T119, T122, T125, T143, T98, T132, T136
Uc10	Dr. robert courtney	Doctor		10	19	T45, T50, T53, T57, T84, T98, T119, T77, T96, T125
Ud10	S L	Nurse	1	10	10	T12, T76, T110, T119, T127, T136, T173,

						T175, T180, T191
Ua9	bonnie davis	Nurse	1	9	22	T87, T96, T104, T109, T121, T125, T173, T188, T212
Ub9	cheryl saracen	Nurse		9	20	T86, T121, T136, T141, T143, T149, T152, T188, T92
Uc9	Dr. James Vesce	Doctor		9	9	T110, T180, T201, T202, T203, T204, T212, T191, T216,
Ud9	Dr. karen milliorn	Doctor		9	28	T98, T125, T127, T160, T188, T191, T101, T129, T173
Ue9	Karen Turner	Nurse		9	22	T74, T84, T87, T104, T132, T137, T161, T71, T131
Uf9	Ramanat Neelakantan	Pharmacist		9	12	T84, T101, T110, T125, T129, T137, T152, T161, T210
Ua8	Calinica Caudilla	Nurse		8	11	T50, T57, T71, T74, T76, T117, T180, T123
Ub8	Dr. Belinda Brewster	Doctor		8	8	T59, T77, T96, T102, T122, T129, T180, T191
Uc8	Dr. gioacchino aj patuto MD	Doctor		8	8	T59, T74, T77, T145, T160, T161, T184, T125
Ud8	Dr. Rima Laibow	Doctor	1	8	8	T11, T14, T15, T27, T115, T161, T20, T25
Ue8	Dr. Steven Engen	Doctor		8	11	T71, T84, T96, T102, T125, T136, T143, T191
Uf8	Jo Puntil	Others		8	19	T74, T76, T96, T102, T111, T125, T129, T132
Ug8	kenny keller	Others	1	8	10	T37, T54, T81, T98, T101, T115, T137, T102
Uh8	Louisa Hayward	Health Business/Administration		8	21	T102, T111, T125, T143, T154, T180, T188, T204
Ui8	Sherry Hartley	Nurse		8	9	T225, T74, T77, T81, T86, T115, T169, T87
Ua7	david feller	Nurse		7	9	T76, T188, T81, T102, T104, T107, T223
Ub7	Dr. James Marzolf	Doctor	3	7	9	T87, T96, T101, T136, T180, T226, T144
Uc7	Dr. Keith Raymond	Doctor	1	7	7	T15, T50, T62, T139, T157, T231, T96
Ud7	Dr. Thomas Morrow	Doctor		7	15	T99, T101, T110, T96, T98, T102, T125
Ue7	Dr. Vitalis Tasi	Doctor		7	8	T59, T84, T101, T102, T129, T132, T173

Uf7	Jody Justice	Others	2	7	10	T42, T53, T59, T110, T119, T122, T132
Ug7	R M Roof	Health Business/Administration		7	8	T78, T95, T107, T125, T144, T189, T193
Uh7	Stephanie Kelly	Nurse		7	9	T76, T141, T143, T104, T110, T125, T152
Ui7	Sue Skoda	Nurse		7	11	T78, T125, T71, T76, T141, T143, T188
Ua6	C B	Rehab Specialist		6	7	T78, T86, T96, T102, T143, T212
Ub6	cynthia caulkins	Nurse		6	9	T99, T102, T104, T115, T125, T119
Uc6	Daniella Bostonian	Nurse		6	7	T98, T104, T131, T144, T220, T100
Ud6	Dr. Arthur Pomerantz	Doctor	1	6	11	T78, T84, T86, T90, T96, T139
Ue6	Dr. John Foster	Doctor		6	9	T218, T223, T86, T87, T205, T77
Uf6	Dr. K	Others		6	26	T82, T107, T110, T191, T84, T96
Ug6	Dr. Peter Goldman	Doctor	2	6	7	T86, T106, T110, T111, T115, T129
Uh6	Fern Dielentheis	Nurse		6	12	T57, T76, T86, T102, T104, T212
Ui6	J H	Athletic/School Coach	1	6	7	T25, T74, T77, T90, T189, T223
Uj6	Kelida James	Nurse		6	7	T76, T86, T92, T119, T141, T225
Uk6	L F	Pharmacist	1	6	7	T130, T131, T132, T136, T137, T147
Ul6	Maggie Boleyn	Nurse	2	6	6	T86, T100, T125, T212, T214, T57
Um6	Nancy Bragg	Nurse		6	10	T24, T53, T57, T96, T141, T102
Un6	Scott Cooper	Nurse		6	12	T59, T76, T90, T92, T212, T225
Uo6	Terry Lynch	Others		6	16	T77, T87, T96, T180, T224, T226
Ua5	Barbara Christian	Nurse		5	7	T90, T98, T136, T143, T160
Ub5	beverlyhowe howebev	Nurse		5	12	T76, T78, T101, T104, T125
Uc5	Charles Nagel	Doctor		5	5	T24, T25, T74, T84, T143
Ud5	Daniel Gasparro	Others		5	5	T77, T90, T94, T95, T180
Ue5	daniel lewis	Nurse		5	6	T16, T25, T71, T81, T233
Uf5	Debbie Robertson	Nurse		5	7	T74, T87, T122, T218, T76

Ug5	Don Eidman			5	19	T76, T86, T96, T115, T141
Uh5	Dr. Bella Gentry	Doctor		5	7	T59, T62, T11, T71, T96
Ui5	Dr. Billy Weinstein	Doctor		5	15	T87, T101, T102, T132, T98
Uj5	Dr. Chagai Dubrawsky	Doctor		5	6	T59, T107, T132, T218, T222
Uk5	Dr. Cynthia Bush	Doctor		5	7	T44, T78, T96, T100, T129
Ul5	Dr. David Keller	Doctor		5	17	T95, T96, T102, T119, T180
Um5	Dr. Eric Mims	Doctor		5	9	T81, T210, T87, T98, T125
Un5	Dr. harshad patel	Doctor		5	5	T74, T71, T86, T129, T96
Uo5	Dr. James Ransom	Doctor		5	8	T119, T125, T132, T157, T96
Up5	Dr. Jeffrey Sharp	Doctor		5	9	T15, T24, T25, T84, T111
Uq5	Dr. Leslie Huszar	Doctor		5	16	T125, T129, T132, T87, T173
Ur5	Dr. melissa franckowiak	Doctor	2	5	34	T84, T87, T96, T101, T102
Us5	Dr. nimmie sehgal	Doctor		6	9	T74, T99, T101, T104, T149
Ut5	Dr. Ralph Campbell	Doctor		5	5	T160, T218, T96, T101, T107
Uu5	Dr. Rekha Patwardhan	Doctor	3	5	5	T71, T39, T134, T180, T173
Uv5	Dr. Robert Durr	Doctor	1	5	16	T98, T101, T160, T102, T161
Uw5	e m	Others		5	8	T74, T87, T125, T132, T173
Ux5	G G	Nurse		5	8	T84, T96, T102, T125, T129
Uy5	j o	Dentist		5	9	T73, T76, T104, T188, T74
Uz5	Katherine Hinshaw	Optometrist		5	5	T86, T119, T138, T71, T115
Uaa5	Kathy Lowe	Nurse		5	7	T188, T193, T115, T132, T104
Uab5	Martha Certa	Nurse		5	9	T37, T76, T96, T188, T15
Uac5	Patricia Crain	Nurse		5	15	T86, T102, T104, T132, T121
Uad5	Randa Sperling	Nurse		5	5	T76, T104, T74, T77, T132
Uae5	Ruth Phinney	Others		5	7	T31, T136, T137, T196, T227

Uaf5	Sara Johnson	Nurse		5	6	T57, T76, T188, T84, T173
Uag5	Sileen Pringle	Nurse		5	15	T132, T78, T90, T111, T125
Uah5	Stephanie Hastings	Nurse		5	18	T157, T102, T107, T132, T187
Uai5	Terry Northey	Nurse		5	5	T86, T104, T111, T138, T152

Appendix XIV: Centrality Measurements of Nodes of HCPs (ordered by Coreness)

s/no	Active HCP	OutDegree	nDegree	Betweeness	nBetweenness	out FreCloseness	Coreness
1	Ua22	277	0.327	1.153	0.013	0.839	0.368
2	Ua33	247	0.292	0	0	0.922	0.328
3	Ua20	218	0.258	2.893	0.033	0.752	0.289
4	Ua21	217	0.257	1.927	0.022	0.752	0.288
5	Ua16	211	0.249	2.692	0.031	0.712	0.28
6	Ua13	175	0.207	3.408	0.039	0.653	0.232
7	Ub22	157	0.186	1.651	0.019	0.752	0.208
8	Ud12	156	0.184	5.264	0.06	0.577	0.207
9	Ua14	124	0.147	2.332	0.027	0.648	0.165
10	Ua24	120	0.142	0.225	0.003	0.752	0.159
11	Ua10	113	0.134	11.762	0.135	0.487	0.15
12	Ub12	111	0.131	3.972	0.045	0.573	0.147
13	Ub11	108	0.128	10.115	0.116	0.5	0.143
14	Ua12	107	0.126	3.349	0.038	0.587	0.142
15	Uc11	102	0.121	10.313	0.118	0.482	0.135
16	Ue12	101	0.119	7.961	0.091	0.514	0.134
17	Ub10	100	0.118	10.799	0.124	0.461	0.133
18	Uf8	91	0.108	31.042	0.355	0.356	0.121
19	Ua11	87	0.103	6.454	0.074	0.482	0.115
20	Uc10	85	0.1	12.595	0.144	0.454	0.113
21	Ua9	84	0.099	18.717	0.214	0.431	0.112
22	Ue9	73	0.086	14.245	0.163	0.393	0.097
23	Ue8	72	0.085	37.061	0.424	0.352	0.096
24	Ub8	68	0.08	23.017	0.263	0.366	0.09
25	Uc12	61	0.072	3.342	0.038	0.492	0.081
26	Ud9	61	0.072	14.631	0.167	0.37	0.081
27	Ud10	58	0.069	12.359	0.141	0.416	0.077
28	Ud7	57	0.067	40.139	0.459	0.306	0.076
29	Uf9	56	0.066	25.584	0.293	0.364	0.074
30	Ua7	47	0.056	27.974	0.32	0.305	0.062
31	Uh8	46	0.054	22.99	0.263	0.322	0.061
32	Ub9	45	0.053	6.391	0.073	0.367	0.06
33	Ua8	45	0.053	12.634	0.145	0.362	0.06
34	Ui8	45	0.053	23.787	0.272	0.314	0.06
35	Ue7	44	0.052	25.048	0.287	0.294	0.058
36	Uh7	44	0.052	30.99	0.354	0.285	0.058
37	Ui7	44	0.052	29.246	0.335	0.282	0.058

38	Ua6	44	0.052	41.23	0.472	0.278	0.058
39	Ub7	42	0.05	40.08	0.458	0.309	0.056
40	Ug8	41	0.048	27.08	0.31	0.326	0.054
41	Uc8	40	0.047	19.735	0.226	0.349	0.053
42	Ud6	38	0.045	37.647	0.431	0.266	0.05
43	Uh6	37	0.044	38.843	0.444	0.246	0.049
44	Ub6	35	0.041	30.599	0.35	0.257	0.046
45	Ug7	30	0.035	12.779	0.146	0.283	0.04
46	Ub5	26	0.031	28.316	0.324	0.218	0.035
47	Ui5	25	0.03	29.509	0.338	0.206	0.033
48	Uc7	24	0.028	8.134	0.093	0.29	0.032
49	Uf7	24	0.028	11.78	0.135	0.278	0.032
50	Uc9	23	0.027	3.205	0.037	0.356	0.031
51	Ue6	23	0.027	12.006	0.137	0.252	0.031
52	Uj6	23	0.027	16.204	0.185	0.239	0.031
53	Uo5	23	0.027	30.867	0.353	0.196	0.031
54	Ug6	22	0.026	24.898	0.285	0.24	0.029
55	Uf6	21	0.025	16.491	0.189	0.244	0.028
56	Um6	21	0.025	40.703	0.466	0.227	0.028
57	Uo6	21	0.025	24.193	0.277	0.218	0.028
58	Uq5	21	0.025	23.439	0.268	0.194	0.028
59	Ul6	19	0.022	26.103	0.299	0.237	0.025
60	Ui6	18	0.021	20.73	0.237	0.234	0.024
61	Uf5	18	0.021	26.652	0.305	0.213	0.024
62	Ug5	18	0.021	37.498	0.429	0.208	0.024
63	Ud8	17	0.02	4.023	0.046	0.308	0.023
64	Uc6	17	0.02	16.442	0.188	0.244	0.023
65	Ul5	17	0.02	24.428	0.279	0.199	0.023
66	Un5	17	0.02	48.64	0.556	0.198	0.023
67	Uk5	16	0.019	9.798	0.112	0.2	0.021
68	Uk6	15	0.018	9.354	0.107	0.221	0.02
69	Un6	14	0.017	34.552	0.395	0.228	0.019
70	Uc5	14	0.017	45.027	0.515	0.216	0.019
71	Uj5	14	0.017	9.949	0.114	0.197	0.019
72	Um5	13	0.015	8.369	0.096	0.195	0.017
73	Ue5	12	0.014	13.836	0.158	0.208	0.016
74	Uh5	12	0.014	20.855	0.239	0.204	0.016
75	Us5	12	0.014	11.825	0.135	0.187	0.016
76	Ua5	11	0.013	43.992	0.503	0.22	0.015
77	Ur5	11	0.013	38.349	0.439	0.188	0.015
78	Uy5	11	0.013	6.934	0.079	0.179	0.015

79	Uw5	10	0.012	27.797	0.318	0.182	0.013
80	Uaa5	9	0.011	14.563	0.167	0.178	0.012
81	Ud5	7	0.008	8.232	0.094	0.197	0.009
82	Up5	7	0.008	7.174	0.082	0.188	0.009
83	Uac5	7	0.008	14.731	0.169	0.174	0.009
84	Uu5	6	0.007	6.842	0.078	0.185	0.008
85	Ux5	5	0.006	16.513	0.189	0.177	0.007
86	Ut5	4	0.005	5.942	0.068	0.179	0.005
87	Uz5	4	0.005	8.404	0.096	0.178	0.005
88	Uad5	4	0.005	16.201	0.185	0.173	0.005
89	Uv5	3	0.004	9.086	0.104	0.178	0.004
90	Uab5	3	0.004	8.732	0.1	0.173	0.004
91	Uag5	2	0.002	8.623	0.099	0.17	0.003
92	Uae5	0	0	0	0	0.167	0
93	Uaf5	0	0	0	0	0.167	0
94	Uah5	0	0	0	0	0.167	0
95	Uai5	0	0	0	0	0.167	0

Appendix XV: Degree of Activeness (Degree Centrality)

S/No	Participants	Outdegree	Indegree	nOutdegree	nIndegree
1	Ua22	277	13	0.327	0.015
2	Ua33	247	0	0.292	0
3	Ua20	218	30	0.258	0.035
4	Ua21	217	20	0.257	0.024
5	Ua16	211	35	0.249	0.041
6	Ua13	175	39	0.207	0.046
7	Ub22	157	12	0.186	0.014
8	Ud12	156	47	0.184	0.056
9	Ua14	124	24	0.147	0.028
10	Ua24	120	8	0.142	0.009
11	Ua10	113	55	0.134	0.065
12	Ub12	111	38	0.131	0.045
13	Ub11	108	44	0.128	0.052
14	Ua12	107	24	0.126	0.028
15	Uc11	102	51	0.121	0.06
16	Ue12	101	42	0.119	0.05
17	Ub10	100	52	0.118	0.061
18	Uf8	91	83	0.108	0.098
19	Ua11	87	34	0.103	0.04
20	Uc10	85	49	0.1	0.058
21	Ua9	84	45	0.099	0.053
22	Ue9	73	53	0.086	0.063
23	Ue8	72	82	0.085	0.097
24	Ub8	68	58	0.08	0.069
25	Uc12	61	24	0.072	0.028
26	Ud9	61	52	0.072	0.061
27	Ud10	58	29	0.069	0.034
28	Ud7	57	78	0.067	0.092
29	Uf9	56	52	0.066	0.061
30	Ua7	47	51	0.056	0.06
31	Uh8	46	54	0.054	0.064
32	Ub9	45	29	0.053	0.034
33	Ua8	45	35	0.053	0.041
34	Ui8	45	53	0.053	0.063
35	Ue7	44	72	0.052	0.085
36	Uh7	44	62	0.052	0.073
37	Ui7	44	66	0.052	0.078
38	Ua6	44	73	0.052	0.086
39	Ub7	42	52	0.05	0.061

40	Ug8	41	50	0.048	0.059
41	Uc8	40	43	0.047	0.051
42	Ud6	38	53	0.045	0.063
43	Uh6	37	71	0.044	0.084
44	Ub6	35	69	0.041	0.082
45	Ug7	30	34	0.035	0.04
46	Ub5	26	74	0.031	0.087
47	Ui5	25	79	0.03	0.093
48	Uc7	24	25	0.028	0.03
49	Uf7	24	32	0.028	0.038
50	Uc9	23	18	0.027	0.021
51	Ue6	23	35	0.027	0.041
52	Uj6	23	44	0.027	0.052
53	Uo5	23	81	0.027	0.096
54	Ug6	22	44	0.026	0.052
55	Uf6	21	59	0.025	0.07
56	Um6	21	58	0.025	0.069
57	Uo6	21	57	0.025	0.067
58	Uq5	21	75	0.025	0.089
59	Ul6	19	53	0.022	0.063
60	Ui6	18	35	0.021	0.041
61	Uf5	18	49	0.021	0.058
62	Ug5	18	71	0.021	0.084
63	Ud8	17	12	0.02	0.014
64	Uc6	17	38	0.02	0.045
65	Ul5	17	72	0.02	0.085
66	Un5	17	85	0.02	0.1
67	Uk5	16	55	0.019	0.065
68	Uk6	15	29	0.018	0.034
69	Un6	14	43	0.017	0.051
70	Uc5	14	50	0.017	0.059
71	Uj5	14	38	0.017	0.045
72	Um5	13	65	0.015	0.077
73	Ue5	12	25	0.014	0.03
74	Uh5	12	47	0.014	0.056
75	Us5	12	52	0.014	0.061
76	Ua5	11	44	0.013	0.052
77	Ur5	11	103	0.013	0.122
78	Uy5	11	59	0.013	0.07
79	Uw5	10	85	0.012	0.1
80	Uaa5	9	56	0.011	0.066

81	Ud5	7	32	0.008	0.038
82	Up5	7	34	0.008	0.04
83	Uac5	7	91	0.008	0.108
84	Uu5	6	30	0.007	0.035
85	Ux5	5	119	0.006	0.141
86	Ut5	4	67	0.005	0.079
87	Uz5	4	55	0.005	0.065
88	Uad5	4	95	0.005	0.112
89	Uv5	3	74	0.004	0.087
90	Uab5	3	66	0.004	0.078
91	Uag5	2	76	0.002	0.09
92	Uae5	0	16	0	0.019
93	Uaf5	0	63	0	0.074
94	Uah5	0	68	0	0.08
95	Uai5	0	55	0	0.065

Appendix XVI: Level of Interaction (Betweenness Centrality)

S/no	Participants	Betweenness	nBetweenness
1	Un5	48.64	0.556
2	Uc5	45.027	0.515
3	Ua5	43.992	0.503
4	Ua6	41.23	0.472
5	Um6	40.703	0.466
6	Ud7	40.139	0.459
7	Ub7	40.08	0.458
8	Uh6	38.843	0.444
9	Ur5	38.349	0.439
10	Ud6	37.647	0.431
11	Ug5	37.498	0.429
12	Ue8	37.061	0.424
13	Un6	34.552	0.395
14	Uf8	31.042	0.355
15	Uh7	30.99	0.354
16	Uo5	30.867	0.353
17	Ub6	30.599	0.35
18	Ui5	29.509	0.338
19	Ui7	29.246	0.335
20	Ub5	28.316	0.324
21	Ua7	27.974	0.32
22	Uw5	27.797	0.318
23	Ug8	27.08	0.31
24	Uf5	26.652	0.305
25	Ul6	26.103	0.299
26	Uf9	25.584	0.293
27	Ue7	25.048	0.287
28	Ug6	24.898	0.285
29	Ul5	24.428	0.279
30	Uo6	24.193	0.277
31	Ui8	23.787	0.272
32	Uq5	23.439	0.268
33	Ub8	23.017	0.263
34	Uh8	22.99	0.263
35	Uh5	20.855	0.239
36	Ui6	20.73	0.237
37	Uc8	19.735	0.226
38	Ua9	18.717	0.214
39	Ux5	16.513	0.189

40	Uf6	16.491	0.189
41	Uc6	16.442	0.188
42	Uj6	16.204	0.185
43	Uad5	16.201	0.185
44	Uac5	14.731	0.169
45	Ud9	14.631	0.167
46	Uaa5	14.563	0.167
47	Ue9	14.245	0.163
48	Ue5	13.836	0.158
49	Ug7	12.779	0.146
50	Ua8	12.634	0.145
51	Uc10	12.595	0.144
52	Ud10	12.359	0.141
53	Ue6	12.006	0.137
54	Us5	11.825	0.135
55	Uf7	11.78	0.135
56	Ua10	11.762	0.135
57	Ub10	10.799	0.124
58	Uc11	10.313	0.118
59	Ub11	10.115	0.116
60	Uj5	9.949	0.114
61	Uk5	9.798	0.112
62	Uk6	9.354	0.107
63	Uv5	9.086	0.104
64	Uab5	8.732	0.1
65	Uag5	8.623	0.099
66	Uz5	8.404	0.096
67	Um5	8.369	0.096
68	Ud5	8.232	0.094
69	Uc7	8.134	0.093
70	Ue12	7.961	0.091
71	Up5	7.174	0.082
72	Uy5	6.934	0.079
73	Uu5	6.842	0.078
74	Ua11	6.454	0.074
75	Ub9	6.391	0.073
76	Ut5	5.942	0.068
77	Ud12	5.264	0.06
78	Ud8	4.023	0.046
79	Ub12	3.972	0.045
80	Ua13	3.408	0.039

81	Ua12	3.349	0.038
82	Uc12	3.342	0.038
83	Uc9	3.205	0.037
84	Ua20	2.893	0.033
85	Ua16	2.692	0.031
86	Ua14	2.332	0.027
87	Ua21	1.927	0.022
88	Ub22	1.651	0.019
89	Ua22	1.153	0.013
90	Ua24	0.225	0.003
91	Uai5	0	0
92	Uah5	0	0
93	Uaf5	0	0
94	Uae5	0	0
95	Ua33	0	0

Appendix XVII: Degree of Accessibility (Closeness Centrality)

S/No	Participants	OutFr	InFre	OutVa	InVal	OutRe	InRec
1	Ua33	0.922	0.167	0.999	0	0.957	0
2	Ua22	0.839	0.17	0.978	0.021	0.936	0.021
3	Ua24	0.752	0.168	0.986	0.011	0.851	0.011
4	Ub22	0.752	0.171	0.966	0.032	0.883	0.032
5	Ua21	0.752	0.173	0.956	0.043	0.899	0.043
6	Ua20	0.752	0.174	0.946	0.053	0.915	0.053
7	Ua16	0.712	0.176	0.935	0.064	0.894	0.064
8	Ua13	0.653	0.179	0.914	0.085	0.862	0.085
9	Ua14	0.648	0.178	0.924	0.074	0.84	0.074
10	Ua12	0.587	0.181	0.902	0.096	0.793	0.096
11	Ud12	0.577	0.185	0.871	0.117	0.824	0.117
12	Ub12	0.573	0.183	0.891	0.106	0.787	0.106
13	Ue12	0.514	0.188	0.859	0.138	0.734	0.138
14	Ub11	0.5	0.192	0.838	0.159	0.739	0.154
15	Uc12	0.492	0.185	0.868	0.117	0.676	0.117
16	Ua10	0.487	0.196	0.818	0.181	0.745	0.176
17	Ua11	0.482	0.19	0.848	0.149	0.686	0.144
18	Uc11	0.482	0.194	0.827	0.17	0.718	0.165
19	Ub10	0.461	0.197	0.806	0.191	0.702	0.181
20	Uc10	0.454	0.2	0.796	0.202	0.702	0.202
21	Ua9	0.431	0.205	0.774	0.223	0.676	0.223
22	Ud10	0.416	0.201	0.784	0.212	0.617	0.191
23	Ue9	0.393	0.206	0.732	0.234	0.628	0.218
24	Ud9	0.37	0.211	0.72	0.255	0.564	0.245
25	Ub9	0.367	0.204	0.73	0.233	0.537	0.197
26	Ub8	0.366	0.22	0.7	0.298	0.58	0.282
27	Uf9	0.364	0.216	0.71	0.276	0.559	0.266
28	Ua8	0.362	0.209	0.709	0.255	0.548	0.223
29	Uc9	0.356	0.202	0.739	0.233	0.479	0.17
30	Uf8	0.356	0.229	0.658	0.33	0.606	0.319
31	Ue8	0.352	0.227	0.668	0.319	0.574	0.319
32	Uc8	0.349	0.222	0.688	0.308	0.532	0.287
33	Ug8	0.326	0.23	0.646	0.35	0.495	0.303
34	Uh8	0.322	0.236	0.625	0.361	0.505	0.34
35	Ui8	0.314	0.235	0.624	0.361	0.472	0.33
36	Ub7	0.309	0.242	0.604	0.382	0.477	0.356
37	Ud8	0.308	0.217	0.654	0.317	0.402	0.218
38	Ud7	0.306	0.251	0.583	0.414	0.489	0.383
39	Ua7	0.305	0.24	0.593	0.382	0.472	0.346

40	Ue7	0.294	0.251	0.561	0.424	0.456	0.372
41	Uc7	0.29	0.237	0.591	0.392	0.394	0.303
42	Uh7	0.285	0.26	0.54	0.456	0.434	0.397
43	Ug7	0.283	0.249	0.55	0.424	0.408	0.355
44	Ui7	0.282	0.263	0.53	0.467	0.434	0.401
45	Uf7	0.278	0.247	0.549	0.434	0.391	0.332
46	Ua6	0.278	0.27	0.519	0.478	0.424	0.431
47	Ud6	0.266	0.269	0.477	0.488	0.404	0.413
48	Ub6	0.257	0.275	0.466	0.488	0.362	0.447
49	Ue6	0.252	0.267	0.455	0.497	0.333	0.381
50	Uh6	0.246	0.298	0.424	0.552	0.337	0.495
51	Uc6	0.244	0.269	0.443	0.498	0.294	0.388
52	Uf6	0.244	0.276	0.443	0.499	0.31	0.436
53	Ug6	0.24	0.284	0.432	0.53	0.291	0.441
54	Uj6	0.239	0.294	0.412	0.561	0.294	0.452
55	Ul6	0.237	0.305	0.402	0.573	0.289	0.5
56	Ui6	0.234	0.269	0.391	0.508	0.277	0.389
57	Un6	0.228	0.306	0.37	0.593	0.252	0.477
58	Um6	0.227	0.309	0.349	0.583	0.266	0.505
59	Uk6	0.221	0.266	0.358	0.507	0.234	0.367
60	Ua5	0.22	0.311	0.348	0.614	0.215	0.48
61	Uo6	0.218	0.312	0.307	0.604	0.245	0.496
62	Ub5	0.218	0.319	0.297	0.605	0.261	0.525
63	Uc5	0.216	0.324	0.317	0.635	0.215	0.504
64	Uf5	0.213	0.337	0.286	0.667	0.223	0.514
65	Ue5	0.208	0.303	0.275	0.643	0.186	0.421
66	Ug5	0.208	0.357	0.254	0.679	0.207	0.591
67	Ui5	0.206	0.353	0.244	0.678	0.207	0.564
68	Uh5	0.204	0.351	0.243	0.698	0.181	0.536
69	Uk5	0.2	0.357	0.222	0.709	0.165	0.556
70	Ul5	0.199	0.397	0.212	0.742	0.165	0.626
71	Un5	0.198	0.41	0.202	0.753	0.176	0.652
72	Ud5	0.197	0.319	0.221	0.645	0.138	0.465
73	Uj5	0.197	0.36	0.201	0.719	0.16	0.527
74	Uo5	0.196	0.439	0.191	0.785	0.165	0.681
75	Um5	0.195	0.366	0.201	0.7	0.138	0.58
76	Uq5	0.194	0.429	0.18	0.795	0.149	0.642
77	Up5	0.188	0.324	0.158	0.656	0.113	0.479
78	Ur5	0.188	0.463	0.148	0.816	0.117	0.691
79	Us5	0.187	0.439	0.138	0.825	0.112	0.617
80	Uu5	0.185	0.402	0.137	0.803	0.089	0.546

81	Uw5	0.182	0.492	0.106	0.848	0.096	0.707
82	Ut5	0.179	0.47	0.095	0.837	0.067	0.676
83	Uy5	0.179	0.461	0.085	0.857	0.074	0.629
84	Uv5	0.178	0.48	0.085	0.858	0.059	0.665
85	Uz5	0.178	0.435	0.085	0.815	0.059	0.626
86	Uaa5	0.178	0.492	0.074	0.878	0.074	0.667
87	Ux5	0.177	0.55	0.074	0.881	0.064	0.766
88	Uac5	0.174	0.595	0.053	0.922	0.048	0.771
89	Uab5	0.173	0.58	0.053	0.922	0.037	0.754
90	Uad5	0.173	0.618	0.043	0.943	0.043	0.771
91	Uag5	0.17	0.623	0.021	0.953	0.021	0.761
92	Uae5	0.167	0.287	0	0.621	0	0.363
93	Uaf5	0.167	0.606	0	0.953	0	0.739
94	Uah5	0.167	0.618	0	0.963	0	0.739
95	Uai5	0.167	0.587	0	0.962	0	0.7

Appendix XVIII: Level of Influence (Coreness)

S/No	Participants	Coreness
1	Ua22	0.368
2	Ua33	0.328
3	Ua20	0.289
4	Ua21	0.288
5	Ua16	0.28
6	Ua13	0.232
7	Ub22	0.208
8	Ud12	0.207
9	Ua14	0.165
10	Ua24	0.159
11	Ua10	0.15
12	Ub12	0.147
13	Ub11	0.143
14	Ua12	0.142
15	Uc11	0.135
16	Ue12	0.134
17	Ub10	0.133
18	Uf8	0.121
19	Ua11	0.115
20	Uc10	0.113
21	Ua9	0.112
22	Ue9	0.097
23	Ue8	0.096
24	Ub8	0.09
25	Uc12	0.081
26	Ud9	0.081
27	Ud10	0.077
28	Ud7	0.076
29	Uf9	0.074
30	Ua7	0.062
31	Uh8	0.061
32	Ub9	0.06
33	Ua8	0.06
34	Ui8	0.06
35	Ue7	0.058
36	Uh7	0.058
37	Ui7	0.058
38	Ua6	0.058
39	Ub7	0.056

40	Ug8	0.054
41	Uc8	0.053
42	Ud6	0.05
43	Uh6	0.049
44	Ub6	0.046
45	Ug7	0.04
46	Ub5	0.035
47	Ui5	0.033
48	Uc7	0.032
49	Uf7	0.032
50	Uc9	0.031
51	Ue6	0.031
52	Uj6	0.031
53	Uo5	0.031
54	Ug6	0.029
55	Uf6	0.028
56	Um6	0.028
57	Uo6	0.028
58	Uq5	0.028
59	Ul6	0.025
60	Ui6	0.024
61	Uf5	0.024
62	Ug5	0.024
63	Ud8	0.023
64	Uc6	0.023
65	Ul5	0.023
66	Un5	0.023
67	Uk5	0.021
68	Uk6	0.02
69	Un6	0.019
70	Uc5	0.019
71	Uj5	0.019
72	Um5	0.017
73	Ue5	0.016
74	Uh5	0.016
75	Us5	0.016
76	Ua5	0.015
77	Ur5	0.015
78	Uy5	0.015
79	Uw5	0.013
80	Uaa5	0.012

81	Ud5	0.009
82	Up5	0.009
83	Uac5	0.009
84	Uu5	0.008
85	Ux5	0.007
86	Ut5	0.005
87	Uz5	0.005
88	Uad5	0.005
89	Uv5	0.004
90	Uab5	0.004
91	Uag5	0.003
92	Uae5	0
93	Uaf5	0
94	Uah5	0
95	Uai5	0