Original contribution

Hospital disaster emergency preparedness: A study of Onandjokwe Lutheran Hospital, Northern Namibia

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ABSTRACT

This study explored disaster emergency preparedness at Onandjokwe Lutheran Hospital in Northern Namibia. It utilized quantitative and qualitative research methods, using a self-administered questionnaire, semi-structured key informant interviews, and a hospital disaster plan checklist. A stratified sample of 120 participants was used with a response rate of 75% and the sample included all staff categorises within the hospital. Five key informants were purposively selected from the management team. In addition, one environmental health officer was selected from non-managerial staff members. The key informants were members of the hospital emergency preparedness committee and command and control unit. The questionnaires were self-administered which enabled the respondents to respond freely and at their convenience. The questionnaire was pre-tested, adjusted and finalised. Face-to-face semi-structured key informant interviews allowed for clarifications and follow-up questions on overall disaster emergency preparedness process. Through the use of open-ended questions the respondents were encouraged to express their opinions and offer more information. The checklist was used to check and determine the components of the hospital's disaster plan against the actual processes in the hospital. Most of the respondents were young females aged between 20 and 30 years. The results indicated a fair knowledge of the principled conduct and abilities to respond to emergencies including disease outbreaks. It was established that positive efforts in disaster preparedness were being effected. However, even though the hospital has a good draft disaster plan, more is to be done on training, revisions, and infrastructure alignments.

Key words: disaster emergency preparedness, hospitals, disaster, disaster management, Namibia

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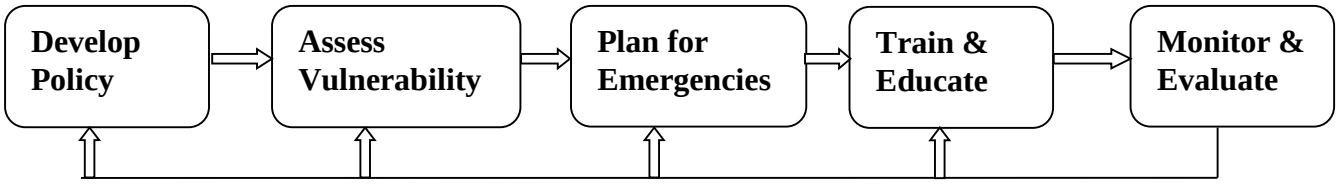
INTRODUCTION

The World Disaster Reduction Campaign of 2008-2009 was dedicated to making hospitals safe from disasters, thus recognizing the importance of the hospitals during disasters (United Nations International Strategy for Disaster Reduction [UNISDR], 2008). The Hyogo Framework for Action 2005-2015 also recognises the importance of healthcare facilities during disasters and calls for the integration of disaster risk reduction planning into the health sector with the goal that hospitals become safe from disasters (UNISDR, 2005). This can be achieved by having disaster emergency preparedness plans in place so as to ensure an effective and efficient disaster response.

Disaster response requires adequate human resources. This includes personnel who are trained in emergency and disaster preparedness and have the necessary management skills. A global survey conducted by the World Health Organization (WHO) found that most countries lacked trained human resources in emergencies and disasters. According to the World Health Organization-Western Pacific Region (WHO-WPR, 2011), the African Region has the lowest density of physicians, nursing and midwifery staff, and pharmaceutical personnel. Namibia has low densities of physicians (3.7 per 10,000 population), nursing and midwifery staff (27.8 per 10,000 population) and pharmaceutical staff (1.8 per 10,000 population). Some countries only had one medical school while some had none. Additionally, many healthcare workers immigrate to countries like the United Kingdom (Naicker, Plange-Rhule, Tutt, & Eastwood, 2009).

Disaster emergency preparedness in the health sector involves a logical process, with a series of activities ranging from the formulation of policies, to continuous monitoring and evaluation. The process is dynamic and requires constant improvement and fine tuning (WHO-WPR, 2006). The steps shown in Figure 1 can be followed in health facility preparedness planning:

Figure 1: Processes involved in health sector disaster emergency preparedness



(Source WHO-WPR, 2006, p. 1)

BACKGROUND

POLICY ISSUES

Policy is "*the formal statement of a course of action*" (WHO, 1999. p. 20). Policy development is an important first step in the emergency preparedness process and establishes long-term goals, assigns responsibilities, recommends work practices, and determines criteria for decision-making (WHO, 1999). The WHO is the lead agency for addressing the health aspects of emergency preparedness and response and its policy is determined by its governing bodies, particularly the World Health Assembly (WHA) (WHO, 2007a, pp.5,12). As a result, one of the main objectives of the WHO is to promote emergency preparedness and response in Member States within the health-for-all strategies for health development (WHO/WPR, 2003). Due to the longstanding concerns that the WHO governing bodies have placed on prevention, mitigation and preparedness for disasters, there have been a number of resolutions passed by the WHA. These resolutions form the basis of the WHO policy on emergency preparedness, and give it the mandate to undertake specific functions related to emergencies.

During the International Decade on Natural Disaster Reduction (1990-1999), the WHO further strengthened its efforts in emergency preparedness by passing the WHA resolutions of 1989 (WHA42.16) and 1993 (WHA 46.6. In 1995, the WHA clearly differentiated the role of WHO in emergency preparedness and disaster reduction from its responsibilities in emergency response and humanitarian action by passing resolution WHA48.2, which also recognised that disaster reduction is an integral part of sustainable development and each country bears the primary responsibility for strengthening its capacity (WHO, 2007a; WHO, 2007b). In January 2005 the World Conference on Disaster Reduction adopted the Hyogo Framework for Action (2005-2015) which called for the strengthening of disaster preparedness for effective responses at all levels and the integration of risk reduction planning into the health sector (UNISDR, 2005). As a result of this conference and against the background of the devastating December 2004 tsunami the importance of preparedness was re-endorsed in May 2005 when WHO Member States adopted resolution WHA58.1. This resolution called on the WHO to intensify and improve its efficiency on emergency work, and also emphasised the need to strengthen the ingenuity and resilience of communities, the capacities of local authorities, and the preparedness of health systems (WHO, 2007a; WHO, 2007b; World Health Organization-Health Action Crises [WHO/HAC], 2008).

The resolutions adopted by the WHO emphasised the importance of preparedness in order to reduce the effects of disasters. Governments have the responsibility of protecting public safety and providing relief in emergencies (WHO, 2007a; WHO, 2007b). Governments also have the responsibility to ensure that actions are taken to compliment the efforts by the WHO and carry out activities aimed at disaster risk reduction as proposed by the resolutions. In order to assist governments to carry out these actions, academics are required to conduct research related to the various stages of the disaster continuum so as to come up with recommendations and country specific disaster risk reduction policies.

The WHO in the African Region (WHO-AFRO) notes that it's Member States face key challenges in reducing the negative consequences of emergencies, disasters, conflicts, and other humanitarian crises including responding to the health and nutrition needs of those affected by such events (WHO-AFRO, n.d.). A number of resolutions have been passed by the WHA aimed at improving the capacities of countries and communities in disaster risk reduction and emergency preparedness. In Africa emergency preparedness and response activities are guided by the principles set out in resolution AFR/RC47/7 adopted in May 1997 by the forty-seventh session of the WHO regional committee for Africa (WHO-AFRO, 2008). Resolutions, however, are there to urge countries to take action, but they are not legally binding and hence do not compel countries to take action. They are only there to guide countries and are regarded as policy documents for the WHO and guide its work in risk reduction and emergency preparedness. The WHO African Region notes that despite countries now having a clearer understanding of risk reduction and emergency preparedness, brought about by the various international policies and frameworks, particularly the Hyogo Framework for Action, developing a culture of preparedness remains a challenge for most national authorities.

This is also reflected in resolution AFR/RC60/11 of 2010 adopted by the sixtieth session of the Regional committee for Africa, which lists some issues and challenges in emergency preparedness in the African Region. Most of the countries in the region have not conducted vulnerability assessments, and only 12 of those who had included a health component. This means that most emergency preparedness and response plans developed by countries were not based on assessments of vulnerabilities and capacities, and usually targeted epidemics and pandemics instead of an all hazards approach. Only 11 countries in Africa have emergency preparedness plans reflecting multiple hazards. The countries did not have comprehensive emergency preparedness plans containing minimum WHO recommended elements regarding risk reduction and emergency preparedness. Some countries did not have functional emergency units, and there is understaffing and under resourcing of these units in countries that have them. Most countries do not have emergency funds. There is lack of trained staff in emergency preparedness and response in many countries in the region. Some countries have trained staff but they

are limited in number, while some do not even have staff trained in basic skills of emergency preparedness and response.

Namibia is one of the countries in Africa that has an emergency profile. The Namibia disaster risk management policies highlight the establishment of mechanisms for conducting multi-hazard disaster risk assessments through the establishment of a vulnerability assessment committee (Government of the Republic of Namibia, 2009, p. 25). This is an important move towards disaster risk reduction in Namibia. Policies in Namibia include: National Health Emergency Preparedness and Response Plan of April 2003 (Ministry of Health and Social Services, 2003); The Namibia National Disaster Risk Management Policy (NDRM) of 2009 (Government of the Republic of Namibia, 2009); and The Emergency Preparedness and Response Plan of March 2009 (Ministry of Health and Social Services, 2009).

VULNERABILITY ASSESSMENT

Following policy development, vulnerability assessments should be conducted. A vulnerability assessment identifies and prioritises the potential hazards affecting communities and provides a baseline for recovery strategies (Keim & Giannone, 2006, p. 167). Communities and governments are then able to make informed decisions about prioritising hazards in view of limited resources. This necessitates ranking hazards (Regional District of Nanaimo, 2006). Furthermore, a vulnerability assessment yields information for sustainable development; emergency prevention, mitigation and preparedness; and emergency recovery (WHO, 1999). A health facility's preparedness for disaster emergencies should be based on a sound assessment of vulnerability (WHO-WPR, 2006). This will enable the facility to include the most prevalent hazards in the community when designing a disaster plan. A vulnerability assessment also enables a health facility to effectively identify and modify factors that increase susceptibility and reduce resilience.

Hazards that have been identified by the Oshikoto Regional Council (2009) include floods, drought, wild fires, epidemics (mostly malaria and diarrhoea), and motor vehicle accidents. In its flood contingency plan, for instance, the Oshikoto Regional Council has identified three planning scenarios. Scenario one looks at the best case where the regional resources are adequate for an effective response while scenario three looks at the worst case where the resources are inadequate, and scenario two being a mid-case between one and three. An example of coordination of response is shown in the Oshikoto Regional Council Flood Contingency Plan (2009), which lists the activities required and assigns a lead agency for the particular activity as well as supporting institutions. The Plan further practices community–based disaster preparedness planning.

PLANNING FOR DISASTERS

Having developed policies and assessed vulnerability, the next step is to plan for emergencies. Hospitals play a significant role during disasters and need a disaster plan to respond efficiently and effectively. In the United States of America, there is a statutory regulation requiring all hospitals seeking accreditation to have disaster response plans (Mehta, 2006). In Namibia, the National Health Emergency Preparedness and Response Plan (NHEPRP) seeks to establish emergency preparedness plans at all levels of the health sector (Ministry of Health and Social Services, 2003). It is, however, not a statutory requirement that hospitals need to have disaster plans. The preparedness plan should include the identification of possible emergency shelters, evacuation procedures and routes, command and communication procedures, as well as training of personnel responsible for responding to the disaster.

HOSPITAL DISASTER PLAN

A disaster plan is an agreed set of arrangements used to prepare for, respond to, and recover from emergencies. This involves the description of responsibilities, management structures, strategies, and resource and information management with a view to protecting life, property and the environment

(Keim & Giannone, 2006). Keim and Giannone (2006) state that writing a plan is only one part of the disaster planning process which includes an understanding of organisational responsibilities in response and recovery, a strong emergency management network, improved community participation and awareness, effective response and recovery strategies and systems, and a simple and flexible written plan. An effective hospital disaster plan should have activities aimed at mitigation, preparedness, response and recovery. The Government of India-United Nations Development Programme (GOI/UNDP, 2002), recommends that the hospital disaster emergency preparedness planning process be divided into three phases namely: pre-disaster, disaster, and post-disaster phases. This will ensure that all aspects of the disaster continuum are included in the plan.

- Pre-disaster phase: The pre-disaster phase has mitigation and preparedness activities. For hospitals this phase involves most of the planning with the drafting of the emergency plan, as well as staff education and training including disaster drills.
- Disaster phase: This phase can be subdivided into three phases (GOI/UNDP, 2002). (1) Activation phase where the hospital incident commander is appointed. The commander directs all hospital response operations and is not expected to carry out patient care, logistical, security or any other activities. (2) Operational phase where operations for mass casualties are conducted in accordance with the disaster/emergency plan. (3) Deactivation phase when hospital command is satisfied that the flow of victims is not overwhelming.
- Post-disaster phase: In this phase all activities of the previous phases are evaluated and possible action is taken to improve future response.

The Namibian Ministry of Health and Social Services drafted the NHEPRP in 2003 (Ministry of Health and Social Services, 2003) and after the 2008 and 2009 floods drafted the Emergency Preparedness and Response Plan of 2009. The Ministry of Health and Social Services has the mandate to adequately prepare and coordinate all health related emergencies (Ministry of Health and Social Services, 2003). As a result of this mandate, a National Health Emergency Management Committee was established with the main function of coordinating health related emergencies.
The 2003 NHEPRP aimed at reducing the impact of emergencies in Namibia (Ministry of Health and Social Services, 2003). This plan facilitated the formation of Emergency Management Committees at Regional and District level, whose function was to prepare and coordinate emergency management programmes at each level. The plan included the preparedness and response functions of the committees including the responsible officers and their training needs.

TRAINING AND EDUCATION

It is not enough to develop policy, assess vulnerability and draft disaster plans, without training and educating the personnel involved in responding to disasters and affected communities. After planning for emergencies, training and education is the next step. According to WHO (1999), this includes community empowerment as communities participate in developing emergency management strategies, hazard awareness, and informing residents of the appropriate responses for different types of emergencies. Additionally communities should be informed which organisations can assist them, enable emergency management personnel to carry out their tasks, and take appropriate action.

Training and education strategies vary according to audience and purpose, and selection should be based on need, available time, and resources. These strategies may include: workshops, seminars, formal education programmes, conferences, self-directed learning, individual tuition, exercises, pamphlets, videos, media advertisements, newsletters, journals, informal or formal presentations, public displays, or public meetings (WHO, 1999).

MONITORING AND EVALUATION

Having developed policies, done vulnerability assessments, planned for emergencies and conducted training; the monitoring and evaluation process determines how well each of these programmes has

been developed and implemented, and identifies any gaps. The emergency preparedness process is dynamic, which needs monitoring, evaluation and fine-tuning especially after disasters. The methods used for monitoring and evaluating preparedness include project management, operational debriefing, exercises (Keim & Giannone, 2006) and checklists (WHO, 1999).

Hospital statistics published in the Onandjokwe Health District Annual Reports (2008-2009; 2009-2010) show that in the recent past there has been an increase in the number of emergencies attended at Onandjokwe Lutheran Hospital and most of these emergencies have been as a result of motor vehicle accidents. Furthermore, Oshikoto Region has been one the regions which has experienced severe flooding in the past four years, which in 2009 led to the closure of one of the wards at the hospital for two months (Report on the 2009 flood Disaster, July 2009). Despite all this, the hospital's disaster plan is still at the draft stage (Onandjokwe Health District Annual Reports 2008-2009; 2009-2010). Thus, the current study assessed the emergency and disaster preparedness of Onandjokwe Lutheran Hospital.

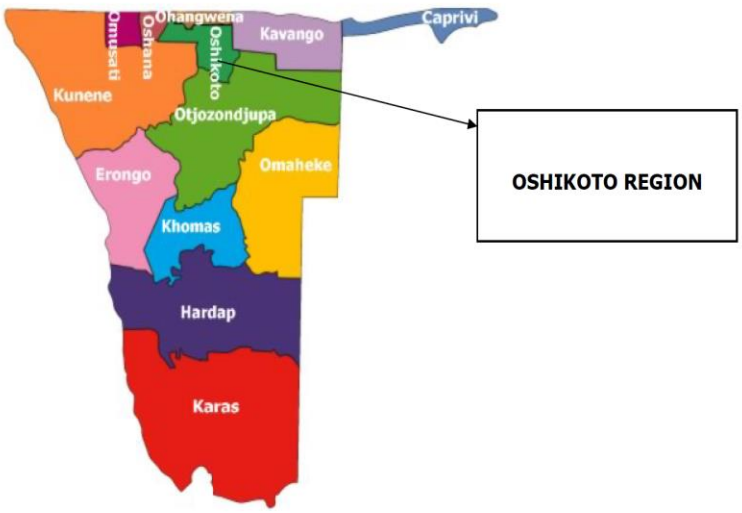
The overall objective of this study was to assess hospital emergency and disaster preparedness at Onandjokwe Lutheran Hospital. The following specific aims were therefore to assess the knowledge, attitudes, and practices of healthcare workers with regards to disaster and emergency preparedness, examine the policies governing disaster and emergency preparedness and to examine the policies that govern, identify and describe the Onandjokwe Lutheran Hospital disaster and emergency preparedness plan. The study explored emergency and disaster preparedness process at Onandjokwe Lutheran Hospital. It explored the policies and plans that govern disaster preparedness at the hospital as well as the knowledge, attitudes and practices of the healthcare workers at the hospital.

METHODS

STUDY AREA

The study was conducted at Onandjokwe Lutheran Hospital, situated in Onandjokwe district, Oshikoto Region of central Northern Namibia (Figure 2). The region is divided into two districts namely Tsumeb and Onandjokwe. The region had a population of 161,007 according to the 2001 census with a projected growth of 2.2% per annum (Oshikoto Regional Council, 2009). The majority of the population (about 91%) is rural.

Figure 2: Map of Namibia (showing location of Oshikoto Region)



(Source: Oshikoto Regional Council, 2007, p.2)

Onandjokwe Lutheran Hospital was established in 1908 by Finnish Missionaries and was the first hospital in the North of Namibia (Lutheran Medical Service, 2008). The hospital has a bed capacity of 470, which is set to increase as it is undergoing renovations in line with its new status of being a referral hospital under the Hospitals and Health Facilities Act of 1994 (Onandjokwe Health District Annual Report, 2008-2009). The hospital has ten wards and six departments namely Internal Medicine, General Surgery, Obstetrics and Gynaecology, Paediatrics, Anaesthesiology and Emergency Medicine (Lutheran Medical Services, 2008). The hospital's catchment area includes four district hospitals (two district hospitals in Oshikoto region, and two in the neighbouring region of Ohangwena), three health centres, seventeen clinics and fifty-nine outreach points that refer patients to the hospital.

In terms of emergency services, the hospital has an accident and emergency department (also called the casualty department) which is operational 24 hours a day and has a resident doctor between 0800hrs and 1700hrs after which doctors on call from different departments are called when there are cases to be attended to (Onandjokwe Health District Annual Report, 2009-2010). The majority of the emergency cases are as a result of motor vehicle accidents and these can cause a sudden surge of patients to be taken care of in the department with the potential of causing a strain on hospital resources.

It is against this background that an assessment of the hospital disaster preparedness was needed. Conducting research in order to identify gaps in risk reduction and emergency preparedness and coming up with recommendations for the Government to act on may be a way of stimulating action. This was a cross sectional study involving healthcare workers at Onandjokwe Lutheran Hospital. The research focussed on collecting and analysing data by mixing both quantitative and qualitative data using self-administered questionnaires with open and closed ended questions, key informant interviews with open ended questions, and a disaster plan checklist (Creswell, 2006). This enabled the researchers to gain insight into the nature of the Onandjokwe Lutheran Hospital emergency preparedness process (Leedy & Omrod, 2001).

The hospital had 717 filled posts and 52 vacant posts (Onandjokwe Health District Annual Report, 2009-2010). Registered and enrolled (student) nurses contributed to more than 50% of the staff complement. A stratified sampling method was used and healthcare workers were divided into eight categories based on their position as follows: medical officers (doctors who were not specialists); specialist doctors; pharmacists; laboratory scientists; administrators (human resources officers, accountants and chief clerk); registered nurses; enrolled nurses (student nurses); and other (clerical staff, pharmacy technicians, radiographers and their assistants, switchboard operators and receptionists). Nurses were divided into groups, because they represented different levels of hierarchy with registered nurses higher than enrolled nurses. Medical officers and specialist doctors were also separated based on qualifications and hierarchy level. Subsequently, 15 medical officers, two pharmacists, five specialist doctors, 10 laboratory scientists, 40 registered nurses, 30 enrolled nurses, 15 others, and three administrators were included in the study.

Purposive sampling was used to select five key informants who were part of the committee formulating polices and plans for the hospital. The informants were able to provide information on the hospital's emergency and disaster preparedness. The informants included the Principal Medical Officer, Hospital Medical Superintendent, Chief Control Officer, Nurse Manager, and Environmental Health Officer.

The questionnaire was divided into four sections namely: demographics; disaster knowledge, awareness and experience; attitude and willingness to report for duty during disasters; and practices. Interviews were guided by using the following questions: general information; disaster preparedness policies; vulnerability assessment; hospital disaster plan; training and education; and monitoring and evaluation. The checklist was used to determine the major components of the hospital's disaster plan. This was followed by a physical check of the hospital for the components listed or discussed in the hospital's disaster plan.

The research was approved by the Ministry of Health and Social Services of Namibia. Eight participants took part in a pilot study after which the self-administered questionnaire was amended accordingly. The purpose of the research was explained to the participants and an informed consent was obtained. Information gathered from the respondents was confidential and the questionnaires were anonymous. Participation in the study was voluntary.

Quantitative data from the questionnaire was coded and then analysed using descriptive statistics using Microsoft Excel and a Statistical Package for the Social Sciences (SPSS Version 21.0, 2012). Qualitative data from key informant interviews was organised into themes and summaries of the views of the respondents were made based on the themes. The data was organised into five subtopics: policies, hospital disaster plans, vulnerability assessments, training and education, and monitoring and evaluation.

RESULTS

The sample included 120 respondents with a response rate of 75%. Respondents' demographic data, job title and education level is shown in Table 1. Three of the five key informants took part in the face –to- face interviews. Most respondents were female (73.6%) and in the 20-30 years age group (35%). Respondents' perception of disaster management and planning is given in Table 2. Most respondents (42.9%) rated their knowledge regarding the management of a sudden influx of a large number of patients due to a disaster as fair.

Table 1: Respondents' demographic data, job title, and education level (n=90)

		Frequency	**Percent**
Gender	Male	24	26.4
	Female	66	73.6
Age (years)	<20	0	0
	20-30	32	35
	31-40	19	21
	41-50	23	26
	51-60	16	18
	>60	0	0
Job title	Registered Nurse	35	38.9
	Enrolled Nurse	25	27.8
	Other	12	13.3
	Medical Officer	9	10
	Laboratory scientist	7	7.8
	Pharmacist	2	2.2
Education	Diploma	28	30.8
	Certificate	25	27.5
	Post-graduate degree	18	19.8
	Secondary school	12	13.2
	Under-graduate degree	8	8.8

Table 2: Respondents' perception of disaster management and planning

Question	Response	Percentage
Awareness of disaster within past five years.	Yes	78
The hospital is unlikely to be affected by disaster.	Agree	18.7
	Not sure	4.4
	Disagree	76.9
The hospital is adequately prepared to manage any type of disaster or emergency in which there is a large influx of patients.	Agree	19.8
	Not sure	56.0
	Disagree	24.2
The hospital has an adequate staff compliment to deal with a sudden large influx of patients during disasters or emergencies.	Agree	38.5
	Not sure	39.6
	Disagree	22.0
Are you aware of the role of hospitals during disasters/emergencies?	Yes	61.5
Does your hospital have a disaster plan?	Yes	28.6
	No	7.7
	Do not know	63.7
Are you aware of the major components/issues that must be included in a hospital disaster plan?	Yes	29.7
Have you participated in developing or reviewing the hospital disaster plan?	Yes	5.5
How would you rate your current knowledge regarding the management of situations in which there is a sudden influx of a large number of patients at the hospital due to an emergency or disaster?	Excellent	3.3
	Good	34.1
	Fair	42.9
	Poor	19.8

Respondents' perceptions and willingness to report for duty during an infectious disease outbreak is given in Table 3. Even though most (97.8%) accepted their duty to take care of patients during disease outbreaks, 14.3% said that they would not come to work for fear of falling ill. More females (73.6%) than males (26.4%) were willing to report for duty during an infectious disease outbreak. Percentage of respondents attending workshops or training related to disasters is given in Table 4. All administrators (14.3% of the respondents) had undergone some form of disaster related training.

Table 3: Perceptions and willingness to report for duty during an infectious disease outbreak

Question	Percentage
I am willing to work even if am at risk of contracting the disease	54.9
If you were not on duty and were asked to come to work because the hospital had a large number of casualties to take care of as a result of a disaster, would you be willing to do so?	95.6
I accept that risk is part of my job	69.2
I am confident that the hospital will offer me adequate protective measures to reduce the risk of contracting the disease	60.4
I am confident that the hospital management will take care of my medical needs if I contract the disease	45.1
I accept that as a healthcare worker it is my duty to take care of patients	97.8
I am afraid that if I do not come to work I will lose my job	62.2
I will not come to work because I am afraid of falling ill	14.3
I will not report for duty because am afraid of spreading the disease to my family and friends	8.8

Table 4: Percentage of respondents attending workshops or training related to disasters

Position	Percentage
Medical Officer (n=15)	22.2
Registered Nurse (n=40)	17.1
Pharmacist (n=2)	0
Laboratory scientist (n=10)	0
Enrolled Nurse (n=30)	4.0
Administrator (n=3)	100.0
Other (n=15)	25.0
Total (n=115)	**14.3%**

DISCUSSION

Onandjokwe Lutheran Hospital has a staff shortage. The 2009-2010 Onandjokwe Health District report noted that there were 6.8% vacant posts and that even if they were filled there would still be a staff shortage. Almost forty percent (38.5%) of the respondents thought that the hospital did not have adequate staff to manage a mass casualty incident, while 39.6% were not sure. The informants were of the opinion that no extra staff was needed to manage an emergency or disaster situation. A shortage of staff, however, means that those available are already overwhelmed by work and if an emergency or disaster occurs more burden is put on them with a potentially negative impact on their response. Incorporation of staff from other departments of the hospital could create a gap in those departments also hampering disaster response and compromising routine patient care.

Off-duty personnel can be called upon to assist during disasters. Most of the respondents (95.6%) were willing to be called to assist. This is beneficial in events that would not produce further casualties after 24 hours. In such events, the hospital's functions are only disrupted for a few hours and staff may be able to rest after the incident. However, the calling of additional staff may have little benefit in events lasting more than 24 hours, consequently leading to exhaustion of the entire workforce (Welzel, Koenig, Bey, & Visser, 2010).

COMPETENCIES OF THE RESPONDENTS TO RESPOND TO EMERGENCIES

Effective and efficient response requires qualified and competent healthcare workers who are available and willing to respond to an emergency or disaster (Mehta, 2006). According to Slepski (2007) competencies are the knowledge, skills, abilities and behaviours needed to carry out a job. This study determined the knowledge of the healthcare workers in relation to emergencies and disasters. Although 78% of the respondents were knowledgeable about past disasters in their area and the role of hospitals during disasters, only 29.7% indicated that they were aware of what should be included in a hospital disaster plan. The majority (63.7%) of the respondents did not know about the hospital disaster plan. This shows that respondents had poor knowledge on emergency and disaster preparedness. Many respondents perceived their knowledge on managing mass casualty incidents as being fair (42.9%) or poor (19.8%). This can be compared to Moabi (2009) who found that South African hospital management's attitudes towards disaster preparedness planning and drills were largely positive, though their practice of disaster management preparedness was lacking and there was room for improvement with regard to training, performance of drills and the frequency of reviewing of the plans. This poor knowledge shows the need for training and education of healthcare workers in the management of emergencies and disasters.

ATTITUDES AND WILLINGNESS TO REPORT FOR DUTY

There have been concerns that healthcare worker absenteeism during emergencies and disasters can act as barriers to response. The unwillingness or inability of healthcare workers to respond can be the reason for the absenteeism. In this study, most of the healthcare workers (95.6%) were willing to be called for

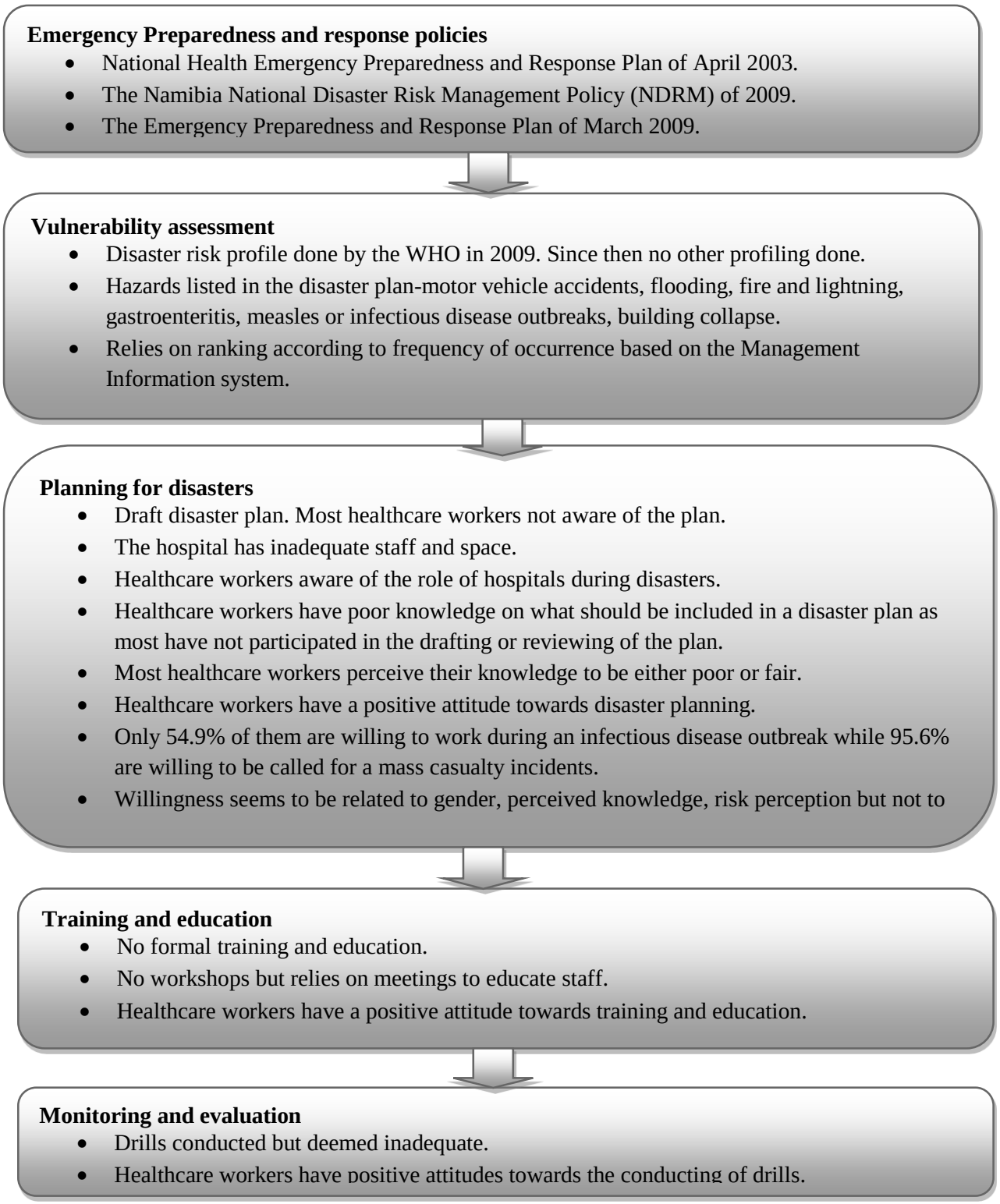
a mass casualty incident, while only 54.9% were willing to respond during an infectious disease outbreak. This resonates with findings by Qureshi et al. (2005) who reported that most healthcare workers were willing to respond to a snow storm event (80%), mass casualty incident (86%), or environmental disaster (84%), but less willing to respond to a severe respiratory syndrome (SARS) outbreak (48%).

The willingness to respond to infectious disease seems to be related to perceived knowledge. All of those who perceived their knowledge to be excellent were willing to respond to an infectious disease outbreak, while only 55.6% with good knowledge, 54.8 % with fair knowledge, and 51.3% with poor knowledge were willing to respond. This decrease in the willingness to respond correlated with a decrease in perceived knowledge. Similarly a study by Rokach et al. (2010) on the effect of knowledge on the willingness to treat anthrax infected patients found a relationship between knowledge and willingness to respond. Thus, the reluctance to report for duty may have been due to lack of knowledge about the hazard.

Demographic characteristics such as age, gender, occupation and years of experience can also be factors in willingness to respond for duty. In this study a higher proportion of females (73.6%) than males (26.4%) were willing to report for duty during an infectious disease outbreak, while there were no differences in willingness across other demographic characteristics. Rokach et al. (2010) found that willingness to report for duty was not impacted on by demographic characteristics. Bar-Dayan et al. (2011), however, found that younger females were less willing to report for duty during an H1N1 outbreak in Israel.

This study determined respondents' concerns regarding reporting for duty during an infectious disease outbreak. Few respondents (14.3%) were concerned about falling ill, while 8.3% were concerned about spreading the disease to family and friends. Qureshi et al. (2005) and Nickell et al. (2004) also found that fear and concern over self, family and personal health problems made respondents unwilling to report for duty. Risk perception is of concern during infectious disease outbreaks. Most of the respondents (69.2%) accepted the risk of infection as part of their job. Medical Officers and the men seemed to accept the risk more than other groups. Koh et al. (2005) found that most respondents accepted risk as part of their job with doctors being more prepared to accept the risk than other healthcare workers. The acceptance of risk influences the willingness to report for duty during an infectious disease outbreak. It was pleasing to note that most of the respondents in this study accepted that it was their duty to take care of patients. The processes involved in emergency preparedness at Onandjokwe Lutheran Hospital are summarised in Figure 3.

Figure 3: Processes involved in emergency preparedness at Onandjokwe Lutheran Hospital



LACK OF PREPAREDNESS PLANNING IN THE HOSPITAL

Namibia has health emergency preparedness and response plans (2003; 2009). Thus, there is a commitment by the Namibia Government to reduce effects of health related emergencies and mortalities. Even though the main focus areas are disease surveillance and epidemics, the plan can be

adapted for other health emergencies. These emergencies need to be incorporated into the plan as recommended by the "all hazards, whole health" approach of the WHO (2007). The 2009 Emergency Preparedness and Response Plan focuses on one hazard only, and contains information on the health care system preparedness and response to floods (NHEPRP, 2009). This plan states that "Namibia is not prone to natural hazards", however, Namibia's hazard profile (Government of the Republic of Namibia, 2009, p. 14-17) shows that there were severe droughts in 1992/93, 1994/95, 1997/98, 2002/03, 2006/7. Other hazards listed in the profile include floods, epidemics, environmental degradation, livestock epidemics, forest and veldt fires, and road and rail accidents. A notable omission in these plans is also how hospitals and other health care centres can prepare for and respond to mass casualty events. The hazards listed above, especially road and rail accidents have the potential of producing mass casualties requiring medical attention.

HAZARD IDENTIFICATION AND PROFILING

In the United States of America, the Joint Commission on Accreditation of Healthcare Organizations requires hospitals to conduct vulnerability assessments and have a formal document, the Hazard Vulnerability Analysis (Hoyle, 2010). In Namibia, the NHEPRP of April 2003 calls for vulnerability assessments to be conducted in epidemic prone areas. The plan states the need for multi-hazard assessments to be conducted by hospitals. The disaster risk profile of Oshikoto region shows exposure to floods, drought, veldt fires and epidemics. The hospital's disaster risk profile has plans for motor vehicle accidents, flooding, fire and lightning, gastroenteritis food poisoning, measles or infectious disease outbreaks, and building collapse. Motor vehicle accidents are listed as the most frequent and likeliest hazard.

There are differences between hazards listed in the disaster risk profile of Oshikoto region and that of Onandjokwe Lutheran Hospital. The region lists drought while the hospital does not. The hospital lists motor vehicle accidents and building collapse while the region does not. The hospital should be prepared for the hazards in the region. It is not clear whether there is a vulnerability assessment committee, which should incorporate the community, hospital, and Oshikoto regional councils. Furthermore, the risk profiles have not shown what factors contribute to community vulnerability and the possible impacts of these hazards.

No tools have been developed for the assessment of vulnerability and disaster risk in the health sector. The hospital relies on an assessment done by the WHO in 2009 (WHO, 2009) and on information regarding the number of cases recorded in their management information systems. This information only lists the most frequent hazards, but does not show the vulnerability of the hospital or the community to the hazard. This is a process of hazard identification and not necessarily vulnerability assessment. In this study, respondents were aware of previous disasters in their area, and understood that the hospital could be affected by disasters. They could thus assist the hospital in planning for disasters, thus incorporating opinions of healthcare workers who understand and are aware of disasters affecting the area.

PERCEPTIONS AND PRACTICES ON DISASTER PREPAREDNESS AND PLANNING FOR EMERGENCIES AND DISASTERS

A vulnerability assessment generates important information for planning processes. Current threats likely to be faced by a community and those that the hospital should plan for are shown. Hospitals need to be prepared because threats are unpredictable and will almost certainly occur. When they occur there is widespread destruction, loss of lives, and victims will require medical attention. Despite knowing that victims will seek care at hospitals, many hospitals continue to prepare for disasters as though they will never happen (Chaffee & Oster, 2006). This has seen hospital disaster planning relegated to low priority and considered an unnecessary chore (Hoyle, 2010).

In this study, most respondents did not think that the hospital was well prepared for mass casualty events. Management, however, differed and viewed the hospital as being well prepared. Management stated that previous events were managed and no gaps were perceived. Even though the hospital had a draft disaster plan, many of the respondents were not aware of it and had not participated in its drafting or review. Having a disaster plan does not equal preparedness, but is part of the preparedness process. A disaster plan is essential in ensuring that the hospital is well prepared. In this regard, Onandjokwe Lutheran Hospital is not well prepared, but is a hospital in the process of preparing for emergencies and disasters.

Respondents relied on informal and formal presentations for training on management of disasters and emergencies, few had attended training sessions and none had attended workshops. The workshop training had a maximum duration of one week training workshops; respondents did not list the topics covered in these workshops. Some of the respondents learnt about disaster and emergencies in their training at nursing or medical school. Thus, the staff at Onandjokwe Lutheran Hospital need more training in disaster management.

LACK OF DRILLS AND SIMULATION

The preparedness process needs a system of monitoring and evaluation. Monitoring and evaluation enables healthcare institutions to determine how well the preparedness programmes are being developed and implemented and what needs to be done to improve the process (WHO, 1999).
The Onandjokwe Lutheran Hospital draft disaster plan has provisions for conducting simulations as a way of monitoring and evaluation (WHO/HAC, 2008). Currently the hospital relies on exercises conducted by the Namibia Airports Company. These exercises have not led to any feedback and have not adequately tested the preparedness of the hospital. Most respondents were not aware of the simulation exercises. The few who knew were based in the casualty department. Respondents had a positive attitude towards conducting drills and were aware that hospitals should conduct them. The hospital had not conducted its own simulation exercises as these were deemed expensive and may 'annoy' the community.

The main key findings of the study are as follows:

- There was general poor knowledge on emergency and disaster preparedness and therefore need for training and education.
- There are staff shortages which may be worsened by the advent of an emergency or a disaster.
- There is a lack of training in Onandjokwe Lutheran Hospital; the hospital relies mainly on informal and formal presentations as ways of training and educating staff and has not conducted any workshops involving the management of disasters and emergencies.
- Simulations and drills are lacking in the hospital despite the fact that the draft plan has provisions for conducting simulations as a way of monitoring and evaluation. Currently the hospital relies on exercises conducted by the Namibia Airports Company (NAC). Hence there is lack of preparedness.
- Despite predicted rates of absenteeism, it is pleasing to note that most of the respondents who participated in the study accept that as healthcare workers it is their duty to take care of patients. However, despite demonstrated commitment to moral and ethical duty, would it be fair for them to be heroic and work in a system in which they are not protected and are at risk of contracting an infection?
- There is lack of knowledge on the disaster management planning since though most of the respondents were quite knowledgeable about the disasters that can occur in their area and the role of hospitals during disasters, a significant proportion had poor knowledge about what should be included in a hospital disaster plan

RECOMMENDATIONS

Onandjokwe Lutheran Hospital should conduct hazard analysis and vulnerability assessments that involve the Oshikoto Regional council as well as the local community. The vulnerability assessment should include structural and functional vulnerability of the hospital. A continuous assessment of the preparedness for emergencies and disasters should be done. The hospital has a draft disaster plan that was presented to some doctors and nurse managers. The plan needs to be circulated to other staff members. While the plan included the major components for disaster response it should also include: response to internal disasters, an evacuation plan, pre-accreditation of volunteers who can be used during emergencies and disasters, and written memoranda of understanding with governmental and private healthcare institutions should be drawn up in consultation with the Ministry of Health and Social Services and the Office of the Prime Minister.

The hospital should conduct training and education to rectify the lack of knowledge about the disaster plan and what should be included in the plan. Related training is necessary for those workers who are afraid to report for duty during infectious disease outbreaks. There are short courses available in South Africa for healthcare personnel that can be useful for enhancing the knowledge of staff. Selected personnel can be sent for training and in turn share their knowledge and skills. Large scale simulation exercises can be conducted so that the hospital disaster plan is tested and any gaps identified are resolved. Small scale exercises can also be done in which certain elements of the plan are tested.

CONCLUSION

Though we might not have the power to prevent tragedies from occurring, we certainly have the ability to protect ourselves by anticipating, mitigating, preparing for, responding to, and recovering from disasters. Hospitals are some of the most important institutions in disaster response and need to be prepared. The Onandjokwe Lutheran Hospital disaster emergency preparedness process is still in its infancy. The efforts being made by the hospital's disaster committee towards emergency and disaster preparedness are commendable although more needs to be done. The hospital still has a draft disaster plan. However, having a plan is not equal to preparedness, but a plan is one of the end results of the disaster planning process. The process should include policies, vulnerability assessment, disaster plan, training and education, and monitoring and evaluation.

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