Disaster Plans, Preparedness And Response: A Case Study Of The Mutare City Council Clinics And Hospitals In 2020

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Abstract- Objective: To examine the Mutare City Council Clinics and Hospitals’ level of disaster preparedness. This was done by exploring: the availability of disaster plans, frequency of disaster preparedness workshops, trainings and drills, staff knowledge and experience on disaster preparedness and response and the adequacy of material resources needed for disaster response.

Design: The mixed methods approach was used in this research. Both quantitative and qualitative data was collected in this investigation. The descriptive research design was used and the study was based on the positivism philosophy. Setting: The target population were all the 108 healthcare staff working in the City of Mutare Council clinics and hospitals at the time of study. The researcher aimed at collecting data from all the staff in 8 clinics and one hospital. Methods: Questionnaires with closed ended questions and key informant interviews were used to collect data. Data was collected from January to March 2020. The quantitative data was analyzed using the Statistical Package for Social Sciences. Results: Among the clinic/hospital respondents: 99% considered disaster plans as important, 55% indicated that their clinic/hospital had disaster plans; 31% were of the opinion that their clinics and hospitals were fully prepared for emergencies and disasters. Thirty percent had attended disaster preparedness training/workshop; 47% had past disaster response experience, 78% had never participated in disaster preparedness drills organised by Mutare City Council. Seventy-five percent felt that they did not have enough staff and 70% felt that they did not have enough essential material resources for disaster response. Some respondents from the same clinic/hospital indicated that they had disaster plans whilst others indicated that they had no disaster plans. In all clinics/hospitals, no copies of disaster plans were found displayed on the walls, or were easily accessible. Conclusion: The absence of and insufficiency of disaster preparedness trainings, workshops and drills could have been responsible for the City of Mutare clinic and hospital poor state of disaster preparedness.

Index Terms - emergency, disaster, disaster plans, drills.
of deaths and injuries resulting from road traffic accidents are from low-income and middle-income countries. There has been a significant loss of lives and property in Zimbabwe due to poor disaster preparedness (Ministry of Local Government, 2009:120). The City of Mutare has a higher risk of road traffic accidents. This is partly because of the rugged terrain around the Christmas Pass area.

The frequency of road traffic accidents in Zimbabwe increased from 2015 to 2016. The country recorded 45701 accidents in 2015 and 46681 in 2016 (Zimstat, 2017:17). The number of deaths and injuries caused by these accidents also increased (Zimstat, 2017:17). Road traffic accidents among other emergencies call for swift emergency response.

Possible hazards and disasters that could affect the City of Mutare

Both natural and human-made hazards could affect the City of Mutare, which can result in disasters. According to the City of Mutare Rescue Services disaster plan, the City of Mutare was exposed to various hazards, which have differing chances of occurrence (City of Mutare, 2019). The disasters that might occur in the City of Mutare include road traffic accidents, train collisions, floods, industrial accidents, house and forestry fires, structural collapse, earthquakes and epidemics. These possible disasters were listed in the City of Mutare Fire and Rescue Services disaster plan. Clinics and hospitals staff may have to treat victims of such disasters and the staff health institutions themselves may also be affected directly by the same disasters. Seismologists have warned that earthquake disasters are now a real threat to Zimbabwe (Machamire, 2016). Pembere (2017) reported that Zimbabwe experienced an earth tremor in April 2017, which lasted for about one minute. Chikoko et al. (2009) also reported that in 2009, the City of Mutare felt the quake caused by the 7.5 magnitude earthquake, which occurred in northern Mozambique. Although the City of Mutare has not had a serious earthquake disaster, it is prudent to be prepared for such a disaster through trainings, workshops and drills.

Flash floods affected the City of Mutare on 17 December 2014, and some people suffered serious injuries (Zimbabwe Red Cross Society, 2014). The flash floods increased the risk of disease outbreaks. The City of Mutare was declared a Malaria zone in February 2017, following a sudden increase in malaria deaths from one in 2016 to thirty-one in 2017 (Mambondiyani, 2018). There has been some persistent problems of bursting sewer pipes in some of the City of Mutare suburbs, which flow into Sakuvba River and its tributaries, which pass through the City of Mutare (Chiketo, 2013:1). Consequently, Sakuvba River water was declared unsafe for domestic, agricultural, recreational and fishing uses (Chiketo, 2013:1). Cases of diarrheal and skin diseases caused by the polluted water have been reported in some of the suburbs in the City of Mutare. Further, there are critical shortages of clean water. This made the City of Mutare vulnerable to cholera outbreak and the state of disaster preparedness of clinics and hospitals was critical. Zimbabwe health institutions were not spared by the severe economic challenges characterised by hyperinflation because some health institutions were failing to buy gloves and basic medicines for patients.

II. METHODS

III. RESEARCH DESIGN OF THE STUDY

The mixed methods approach was used in this research. Mixed methods research methodology advances the planned and logical integration of quantitative and qualitative data within a single investigation (Wisdom and Creswell, 2013). The integration permits a more complete gathering and use of data than when quantitative and qualitative data collection approaches are used separately. Mixed methods can be an ideal technique to analyse issues that cannot be satisfactorily assessed using either a qualitative or a quantitative approach in isolation (Wisdom and Creswell, 2013:3). Both quantitative and qualitative components were executed almost simultaneously and not one after the other. The implementation of the qualitative component did not depend on the results of the data analysis of the quantitative component. Therefore, this was a convergent parallel design, where the quantitative and qualitative strands of the research were performed concurrently but independently, and their results were brought together in the overall interpretation (Schoonenboom and Johnson, 2017). The findings from the quantitative and qualitative approaches reinforce each other.

Target population: The target population were all (108) healthcare workers working in the 8 City of Mutare Council clinics and one hospital at the time of the study. The researcher did a census to collect data since the research was dealing with a small population (Blanche et al, 2006:134). Not all the subjects were readily available in each hospital on one particular visit. Therefore, the researchers had to make several visits to each clinic on different days to issue out questionnaires, collect filled questionnaires and do the key informant interviews. Despite all the effort to reach and interview all the staff working in the City of Mutare clinics and hospitals, some were never reached. Seventy-seven respondents (71%) out of the targeted population participated in the research.

Data Collection Tools: The data collection tools that were used in this research were questionnaires, key informant interviews, participant observation and a hospital disaster preparedness checklist. The researchers participated in a one-day workshop on disaster preparedness with a focus on cholera preparedness and response and were involved in all the workshop activities. Workshop participants were from different City of Mutare Departments and the workshop was organised and facilitated by the City of Mutare Health Services Director. Qualitative data was collected using key informant interviews. These were done with hospital administrators in charge of hospitals and Sisters in Charge of clinics. The mass casualty disaster plan checklist used by the researchers was adapted from the Association for Professionals in Infection Control and Epidemiology (2011). Data was collected from January to March 2020.

Analysis

The Statistical Package for Social Sciences (SPSS) software was used to analyse quantitative data. The researchers aimed to come up with detailed information that would produce tables, charts, figures, texts, narratives and visual displays (Blanche et al. 2006:287). The data analysis was expected to discover patterns,
coherent themes, meaningful categories, and new ideas (Blanche et al. 2006:344). Qualitative data analysis involved organizing, accounting for and explaining the data in order to make sense out of it (Cohen et al. 2011). The outcome of the analysis complemented the quantitative data analysis. The major themes were hospital disaster plans, disaster preparedness trainings, workshops and drills and the clinic or hospital’s general state of disaster preparedness.

IV. RESULTS

Disaster Plans

The clinic and hospital respondents were asked if they had a disaster plan in their particular clinic or hospital. Respondents were expected to know if they had a disaster plan or not and probably, where it was located so that it would be shown to the researchers.

Figure 1: Clinic and hospital respondents’ responses on whether they had a disaster plan or not

As shown in Figure 1, the majority of the respondents (55%) indicated that they had a disaster plan. Those who said had no disaster plan were 27%. Other respondents (9 %) did not know if they had a disaster plan or not and another 9% did not indicate their opinions on this question. During the key informant interviews with the Sisters in Charge or their representatives, they were asked for a hard copy if they had one, but the disaster plans were not displayed and could not be easily located in any of the clinics and hospitals. Therefore, it was difficult to confirm if the clinic or hospital had a disaster plan.

When the responses from the question whether a clinic or hospital had a disaster plan was further analysed according to the individual clinics or hospital, it was also realised that some respondents from the same institution indicated that they had a disaster plan whilst others indicated that they had no disaster plan. Therefore, some of the respondents did not have the correct basic knowledge, whether the institution had a disaster plan or not. There was some consistency in responses in only one institution out of all institutions (n=7) where all respondents indicated that they had a disaster plan, but again the researcher was not shown a copy of the disaster plan. What the researcher observed in the clinics and hospitals were the cholera disaster preparedness plans, which were epidemic-specific sub-plans, which could have been part of the master or overall disaster plan covering all possible emergencies. The fact that hard copies of disaster plans or soft copies were not found could have meant that the clinics and hospitals did not have the disaster plans or if they had them, they could have been misplaced and could not be retrieved.

If disaster preparedness trainings, workshops and drills were being done in the different clinics and hospitals, the respondents could have had more and correct information on the existence of their clinic or hospital disaster plan. This is because the disaster plan is used during the disaster preparedness drills. Therefore, if the clinic or hospital staff members had not had disaster preparedness drills, they might not have been fully prepared to respond to emergencies because they might not have known where to retrieve their disaster plan from and how to use it as a tool to facilitate the disaster response.

The responses on whether there was a disaster plan in a clinic or hospital had a lot in common with findings from a research by Duong (2009:p.88) on Disaster education and training of emergency nurses in South Australia, in which although 87% of all respondents knew where their disaster plan was located, 42% had not read their departmental disaster plan. It is also interesting to note that Duong (2009:p.88) added that, it was possible that the majority of participants indicated that they had read their departmental disaster plan since they thought it was the appropriate and expected answer.

Almost all the respondents (99%) indicated that disaster plans were essential. Some considered them very important (88%) whilst others considered them important (11%). Acknowledging the pivotal role of disaster plans in disaster preparedness and response is an important starting point.

Chi-square test to determine whether the respondents’ views on the importance of disaster plans was dependent on the presence of a disaster plan in their institution showed that the two variables were not dependent. The P-value was 0.105. Therefore, even if the clinic or hospital did not have a disaster plan, many respondents from the same institution indicated that disaster plans were either important or very important.

V. DRILLS

More than half (52%) of the respondents did not do hospital disaster prepared drills during their years of training or as students. Those who had done hospital disaster preparedness drills during their years of training or as students constituted 46% and 2% did not indicate if they had done any drills. Disaster preparedness drills are very important in the preparation for emergencies and disasters. However, this important topic could have been left out of the curriculum at the time of training of 52% of the respondents or might not have been adequately covered.

The findings that disaster preparedness drills might not have been included as part of nurse training was in consonance with findings from a research on: Disaster content in Australian tertiary postgraduate emergency nursing courses: A survey, where of all the topics that were supposed to be covered such as types of disasters, hospital response, nursing role in disaster, disaster
triage, pre-hospital response, disaster plans, health effects of disasters, and practical disaster exercises, the only topic not done by any of the training institutions was practical disaster exercises (Ranse, 2013:p.61). Disaster preparedness drills or practical disaster exercises were not done by most of the respondents during their training and yet they are very crucial in equipping healthcare staff with disaster response skills.

More than three quarters (78%) of the respondents indicated that they had never been involved in any disaster preparedness drills organised by the City of Mutare clinic or hospital or the clinics or hospitals they had worked in before. Only 20% had been involved in some disaster preparedness drills, some of which could have been done before the respondent joined City of Mutare. Therefore, there was a great need for disaster preparedness drills since 52% of the respondents never did disaster preparedness drills during training. Further, 78% of the respondents never did disaster preparedness drills from the time they started working in the clinics and hospitals.

Out of the 20% of the clinic and hospital respondents who had done some disaster preparedness drills, 16% did the drills within the previous 2 years, 1% did the drills 2 to 4 years ago, 3% did the drills 4 to 6 years ago, and 4% did the drills 6 to 8 years ago. This showed that only a small proportion of the staff (16%) had been involved in disaster preparedness drills within the previous two years.

Figure 2: Years in which the clinic or hospital did/ did not do disaster preparedness drills

For each of the years from 2008 to 2018, at least 90% of the respondents were either certain that no disaster preparedness drills were done or were not sure whether disaster preparedness drills were done or not. At most 7% of the respondents or even less indicated that some disaster preparedness drills were done in each of the years from 2008 to 2018. Some respondents might not have joined the clinic or hospital in some of the years indicated. It was established that 46% of the respondents had been in the clinic or hospital for at least six years or more. Therefore, these respondents could have been able to remember if any disaster preparedness drills were done as from 2012 up to 2018. All this, points to the fact that most of the respondents had not been involved in disaster preparedness drills.

Disaster preparedness training and workshops

Participation in disaster preparedness trainings or workshops is also very important in addition to participating in disaster preparedness drills. The trainings and workshops go a long way in giving knowledge and skills that are very useful in responding to various emergencies and disasters. Only 30% of the respondents from clinics and hospitals had participated in some disaster preparedness training or workshop and 69% had never participated in any training or workshop on disaster preparedness or any related subject.

The frequency of disaster preparedness workshops, trainings and drills was low as compared to what some developed countries would do. For example in the study by Duong (2009:p.88) on, Disaster education and training of emergency nurses in South Australia, more than half (56%) did disaster training or disaster preparedness drills every 2 years or less, while 21% never did any or were unsure how often disaster training was done. Doing frequent disaster preparedness trainings and drills seem to be a problem for many clinics, hospitals and training schools, even in more developed countries.

The low frequency of disaster trainings, workshops, and drills was similar to the findings from the research by Hammad, Arbon and Gebbie (2010:p.90) on, Emergency nurses and disaster response: An exploration of South Australian emergency nurses’ knowledge and perceptions of their roles in disaster response, where 42% of the nurses reported that they had not received any disaster training for one year or more, while 18% had not received any disaster training at all. Therefore, the City of Mutare Council clinics and hospitals’ failure to do frequent disaster preparedness trainings, workshops and drills was a common problem in other health institutions in other countries.

Topics covered in disaster preparedness trainings and workshops

There are some topics that could have been covered in trainings and workshops, which could have helped the respondents to have some basic understanding of various aspects of disaster preparedness. The respondents were asked to tick the topics, which they had been taught in any disaster preparedness or related training or workshop. Figure 3 below shows the percentage of respondents who were taught and not taught the various possible disaster preparedness topics. The topics were presented in the graph in descending order of the percentage number of people taught.
An institution can have a schedule of disaster preparedness trainings, workshops and drills. There should be an agreed schedule of disaster preparedness drills in clinics and hospitals. Eighty-six percent of the respondents from clinics and hospitals agreed that clinics and hospitals were expected to have some disaster preparedness drills at least once every year. Only 3% did not agree and 8% were not sure. This affirmed that even though the respondents did not do disaster preparedness drills, they knew very well that they were supposed to do them frequently.

According to the findings from the disaster preparedness checklist, disaster training and education was not included in the clinic or hospital disaster plan. Schedules of formal disaster training or workshops were not considered as part of the disaster plan. There was no indication of a plan on how staff would be familiarised with their roles during a disaster. Consequently, staff responding to disasters were likely to attend to disasters without adequate training and familiarisation.

All the administrators and Sisters in Charge or their representatives of clinics and hospitals were of the opinion that their institutions were not fully prepared to deal with all emergencies and disasters. It emerged that the major reasons were limited financial resources, shortage of staff, poor and outdated equipment, inadequate trainings, workshops and drills. They also pointed out that most healthcare staff felt vulnerable, when they were expected to respond to emergencies without adequate essential resources.

The researcher made valuable observations during a cholera disaster preparedness workshop organised by the City of Mutare Health Department. An interesting observation was that during the self-introductions, all workshop participants from various departments were asked to introduce themselves and explain what they knew or thought was their role in responding to a cholera outbreak disaster. The different explanations on how each person was involved in responding to a cholera disaster was an elaboration of the fact that disaster preparedness and response is multifaceted. Therefore, the chairperson concluded that the City of Mutare was supposed to have a cholera disaster preparedness plan to avoid being taken by surprise by an unexpected outbreak. At that stage, the researchers observed that, although the City of Mutare Health Services department in collaboration with other departments had responded to cholera outbreaks in the past, they had no overall disaster preparedness plan. This observation was confirmed by the workshop objectives, which were given as: To identify issues around cholera, identify who does what during a cholera outbreak, come up with a cholera disaster preparedness plan, find out how prepared the City of Mutare is for a cholera outbreak, identify gaps and what has to be done, identify the legal issues around cholera, come up with an action plan and eliminate cholera in line with the global objective. Objective number 3 aimed to come up with a cholera disaster preparedness plan, which was an indication that there was no existing plan. Objectives 4 and 5 aimed at finding out how prepared the City of Mutare is for a cholera outbreak as well as to identify gaps and what has to be done. This pointed to the fact that there was a great concern that the City of Mutare was not fully prepared for a cholera outbreak disaster.

Relationship between disaster preparedness trainings, workshops, drills, and the state of disaster preparedness.
Unsurprisingly, only 31% of respondents were of the view that their clinics or hospitals were fully prepared to deal with different hazards and emergencies. Therefore, the low frequency of disaster preparedness drills, workshops and trainings could have affected the clinics and hospitals’ state of disaster preparedness. Doing disaster preparedness drills during training, as a student and the respondents’ opinion on whether their clinic or hospital was fully prepared for emergencies were dependent as evidenced by a P-value of 0.004. Involvement in any disaster preparedness drills organised by the respondent’s clinic or hospital and the respondent’s opinion on the clinic or hospital’s state of disaster preparedness were also dependent as evidenced by the P-value of 0.008. Respondent’s participation in any disaster preparedness training or workshop and the respondent’s opinion on the state of their clinic or hospital’s state of disaster preparedness were dependent too, as shown by a P-value of zero. If the individual healthcare worker within a clinic or hospital was ill prepared for emergencies, it would be unlikely that they would see their clinic or hospital as fully prepared to respond to emergencies.

Disaster preparedness trainings, workshops and drills need financing. Given the harsh economic conditions in Zimbabwe at the time of the study and for the previous two decades, many health institutions were struggling to buy basic needs such as gloves and food for patients. However, investing in disaster preparedness saves lives and money. During the study, two major disasters occurred, Cyclone Idai in Chipinge and the Covid-19 pandemic, which forced or motivated many healthcare institutions and stakeholders to serious focus on matters of disaster preparedness.

VI. RESOURCES

Three quarters (75%) of the respondents were of the view that their clinics and hospitals were not adequately staffed to deal with any sudden influx of patients from disasters. The majority (70%) of the respondents were of the feeling that, clinics and hospitals did not have enough resources needed when responding to emergencies and disasters. However, in a research carried out in Nairobi County, Kenya, in 32 hospitals, 43.4% of the respondents were of the opinion that the hospitals did not have adequate resources for disaster preparedness and response (Simiyu, Odhiambo-Otieno and Okero, 2014). The hospitals in Kenya could have been better prepared for emergencies and disasters. The inadequacy of resources in Mutare City Council clinics and hospitals was further exposed during the onset of the Covid-19 pandemic.

One of the first hospitals that was designated an isolation centre for handling all Covid-19 cases in Manicaland province was one of the hospitals under this study. The hospital had already been operating as an Infectious Diseases Hospital. Data collected during this study from the hospital using the Clinic and hospital disaster preparedness checklist, key informant interviews and questionnaires showed that the hospital was least prepared for emergencies and disasters. There was no disaster plan and no functional disaster preparedness committee at the time. There was no ambulance designated specifically for the Infectious Disease Hospital, as a hospital handling infectious patients. The hospital shared ambulances with other hospitals and clinics under Mutare City Council.

The general infrastructure and hospital environment were also in a very bad state. The Covid-19 outbreak started as the researchers were still collecting data. Some staff expressed great worry and concern although the pandemic had not reached alarming levels in Manicaland. They felt very vulnerable and unprepared to face the catastrophic disaster, which was wreaking havoc in developed countries, which had much better facilities and seemed to be more prepared for emergencies and disasters.

Soon after Mutare Infectious Disease Hospital was designated as a Covid-19 isolation centre, the state of unpreparedness that the researchers had discovered was confirmed immediately. The Infectious Disease Hospital had no capacity to do such a task because it was not prepared for such a disaster. The City of Mutare Mayor made an appeal to the international community and the business world to assist in raising funds to upgrade the hospital to meet the expected standards for a Covid-19 isolation centre (New Zimbabwe, 2020). Therefore, the Mutare Business community immediately raised more than ZW $1.6 million to kick start the rehabilitation of the intensive care unit (Zinyuke, 2020a). It was also reported that USD$2.4 million was needed to rehabilitate the whole hospital although the immediate focus was on the intensive care unit (New Zimbabwe, 2020). The rehabilitation process was a race against time because the disaster had already struck. Mutare City Council released ZW$1.5 million towards the rehabilitation of the intensive care unit and the government through Ministry of Health and Child Care released ZW$1.4 million towards the procurement of appropriate equipment needed for the Covid 19 patients (Zunyuke, 2020c). Further, the government continued to release more funds towards the upgrading of the Mutare Infectious Disease Hospital (New Zimbabwe, 2020b). Therefore, this was some evidence that the Infectious Disease Hospital was not prepared for a disease epidemic disaster of a respiratory and infectious type. The desperate and concerted effort from various stakeholders to upgrade the Mutare Infectious Diseases Hospital in response to the Covid 19 pandemic was a clear indication that its state of disaster preparedness was poor.

VII. CONCLUSION

Most of the City of Mutare clinic and hospital staff did not do disaster preparedness drills during their professional training and were not well prepared to respond to emergencies and disasters. The majority of the City of Mutare clinic and hospital staff had not participated in disaster preparedness trainings and workshops, and were not fully prepared to respond to different types of emergencies. Therefore, it could have been very helpful if training programs for all healthcare staff involved some disaster preparedness courses and drills. This might have helped to make disaster preparedness a key component of their competencies.

Disaster preparedness trainings and workshops in the workplace or on the job could have helped healthcare staff and their institutions to be more confident and prepared to respond to different emergencies and disasters. The insufficient financial resources, staff, equipment, trainings, workshops and drills call for more investment in the City of Mutare Health Services Department. Disaster preparedness and response programs and activities ought to be budgeted for. Disaster plans need continuous
updating and continuous improvements to cater for emerging hazards. Embark on staff mindset transformation towards disaster preparedness issues and activities. There is need for Mutare City Council to be always proactive than reactive.

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