Assessment on the Emergency and Disaster Preparedness of Healthcare Professionals in Davao City: Basis on a Proposed Enhancement Program

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ABSTRACT

This study, using the descriptive research design, determined the levels of knowledge, attitude, and practices on emergency and disaster preparedness of healthcare professionals in Davao city. A researcher-made questionnaire (Cronbach's ᾱ=0.941) was used to survey the 63 respondents who were purposively selected for this study. Results revealed that majority of the respondents were 31 to 35 years old (25 of 63 respondents; 40%), female (39 out of 63; 61.9%), Radiologic Technologists (45 out of 63; 71.4%) and between 6 - 10 years in service (28 out of 63; 44%). Additionally, the respondents had an extremely high knowledge on emergency and disaster preparedness (M=3.8), possessed positive attitude towards emergency and disaster preparedness (M=4.1), and, in terms of practices, have been assessed of positively implementing and practicing disaster and emergency preparedness (M=3.87). However, they lacked several of the processes that are required for actual preparedness to provide optimal emergency management and disaster response. Hence, an intervention program for such concern was proposed accordingly.

Keywords*: Health, Emergency and Disaster Preparedness, Healthcare Professionals, Descriptive, Davao City*

INTRODUCTION

Healthcare professionals including pre-hospital care should work in various disasters. From natural disasters to terrorist attacks, everyone must be prepared, morally and ethically for the greater good of the community. This assumes that everyone will risk their overall well – being to do so. But even if this is what a healthcare professional must ethically do, it is not always necessary depending on the professionals that are involved and some lack of confidence and training. As with Sabrija (2020), even the lack of confidence, healthcare professionals will always play an important role in any disaster as they are the frontline of administering emergency care and critical care.

In Canada, the wide-reaching results of disasters have been extensively publicized creating a greater focus on preparing healthcare facilities and communities for emergencies/disasters to prevent widespread morbidity and mortality. Although the causation and nature of these two events differed greatly, they demonstrated that a coordinated response by healthcare facilities and measures to mitigate damages and injury, or lack thereof, greatly affects the outcomes (Pole, Marcozzi, & Hunt, 2015). Example is the recent surge and depletion of COVD-

19 cases in Canada, in early 2020, Canadian government Public Health Agency of Canada. (2021, March 23) released morbidity tabulations between 10,000-22,000 deaths over the whole duration of the pandemic, however, they did not anticipate the surge of the cases due to the health and safety unawareness of the community, therefore resulting the federal minister invoking the quarantine act of 2005, and summoning all healthcare workers to be on high alert to this crisis as with CTV news (2020).

Furthermore, in the Municipality of Columbio, Philippines, some problems were encountered such as inadequate training materials and lack of training among the disaster risk reduction management teams. Despite these challenges, both medical practitioners and staff agreed that any institution was generally compliant. A need was seen to continue the conduct of disaster preparedness training and seminars as well as budget allocation to finance the publication and dissemination of training materials of the program for distribution to institutions (NDRRMC, 2019b). In the month of October of 2019, Southern Mindanao, Philippines experienced a series of devastating earthquakes. A 6.3 magnitude quake struck on October 16th, followed by a 6.6 magnitude earthquake on the 29th and a 6.5 magnitude on the 31st of October. In between those three dates, aftershocks above 5.0 on the magnitude scale occurred. The earthquake on October 16 with 6.3 magnitude affected 3,068 people in regions 11 and 12, leaving 5 dead and 89 injured. October 29 and 31 experienced earthquakes with magnitudes of 6.6 and 6.5, respectively that affected 326,816 people in Davao del Sur alone (NDRRMC, 2019b) as stated by The National Disaster Risk Reduction and Management Council [NDRRMC] (2019c). Three people were reported missing, and in Davao City, an additional 27 were injured and another three fatalities were reported. As reported by [PHIVOLCS] or the Philippine Institute of Volcanology and Seismology on December 15 of the same year, a 6.9 magnitude earthquake, and a series of large aftershocks, nine of which had magnitudes equal or greater than 5.0 was recorded by the Advanced National Seismic System (2019) which affected 242,840 people, injured 210, and killed 12 people in Davao del Sur (NDRRMC, 2019a).

Disaster preparedness is important during these circumstances because of its broad concept that describes a set of measures that minimizes the adverse effects of a hazard including loss of life and property and disruption of livelihoods. Emergency Medical Assistance is the most important and immediate post-disaster need, second only to search and rescue operations. Major disasters are not always reported in the media – a disaster that results in death and destruction – a disaster that frequently wipes out years of development programming and sets the slow course of improvement in third world countries further behind. Internationally, according to Disaster Prevention and Mitigation (2016), disasters are defined as an occurrence arising with little or no warning, which causes or threatens serious disruption of life, and perhaps death or injury to large numbers of people and requires therefore, a mobilization of efforts in the current issue that normally provided by the statutory emergency services. Hence, practices and preparedness during emergency and disaster crises are essential for medical staff (Pesiridis, 2015). Emergency and disaster preparedness must be supported by public and private education campaigns, training of response teams and rehearsals of emergency response scenarios. The aim of public awareness and education programs is to promote an informed, alert and self-reliant community, capable of playing its full part in support of and in cooperation with government officials and others

responsible for disaster management activities. An essential part of a disaster preparedness plan is the education of those who may be threatened by a disaster. Although television, radio, and print-based media will never replace the impact of direct instruction, sensitively designed and projected messages can provide a useful supplement to the overall process. (National Federation of Red Cross and Red Crescent Societies, 2017)

The pursuit of this study has come from the researcher's experience of unawareness and hesitation on what to do and prepare during that very moment of emergency and disaster situation. A study conducted by Sabrija(2020) which is entitled Pre Hospital Perspectives in Emergency Management concludes the circumstance of doubt and hesitation of healthcare professionals in terms of emergency and disaster management in a hospital setting, thus provided the researcher enough impetus to conduct a study on the assessment on the emergency and disaster preparedness among healthcare professionals.

However, the study conducted by Gao (2016) which is a pre-designed, structured questionnaire was administered for assessing the current level of disaster preparedness and mitigation. The percentage marks were analyzed and compared for statistically significant differences. The result shows that professionals have little knowledge about disasters, and emergency and disaster preparedness. This can be improved through exposing them in terms of orientation workshops and mock drills and similar practical exercises, which could develop an interest in the topic. It will also create a tremendous amount of relevance since this study will be one of the few types of research that is rectified in this type of phenomenon in its locale.

Despite these supporting claims, there has been no major research that came across of a study that dealt with the assessment on the emergency and disaster preparedness of health care professionals in Davao City as the local setting. It is in this context that the researcher is interested to raise concern to the intended beneficiaries of this study and possibly develop recommendations and action plans to respond to the needs of the respondents that would greatly affect their awareness and preparedness.

Statement of the Problem

This study examined the emergency and disaster crises readiness profile of the healthcare professionals in Davao City. Thus, it will seek to answer the following questions:

1. What is the demographic profile of the medical professional, in terms of:
   1.1 Age,
   1.2 Sex,
   1.3 Medical Profession, and
   1.4 Length of Service?
2. What is the level of emergency and disaster preparedness of the respondents in terms

of: 2.1 Knowledge,

2.2 Practices, and

2.3 Attitude?

3. Based on the findings, what enhancement program may be proposed?

Theoretical framework

This research was based on a study principle of Ogedegbe C. ET. Al. (2012) on health workers and disaster preparedness where he emphasizes the importance of relevant trainings pertaining to disaster and preparedness among healthcare workers. Furthermore, Ogedegbe C. ET. Al. (2012) also stated that the lack skillset on disaster preparedness among healthcare workers may result in a larger catastrophe since they are not prepared to address uncertainty in relation to disaster.

Nicholls k. ET. Al (2015) on the utility of community health workers in disaster preparedness also believed that enhancing preparedness of our healthcare workers, may it be lay workers or health professionals can create a pivotal role in disaster response efficacy if consistent efforts in training and updating the skillset of every health worker are into practice.

Conceptual Framework

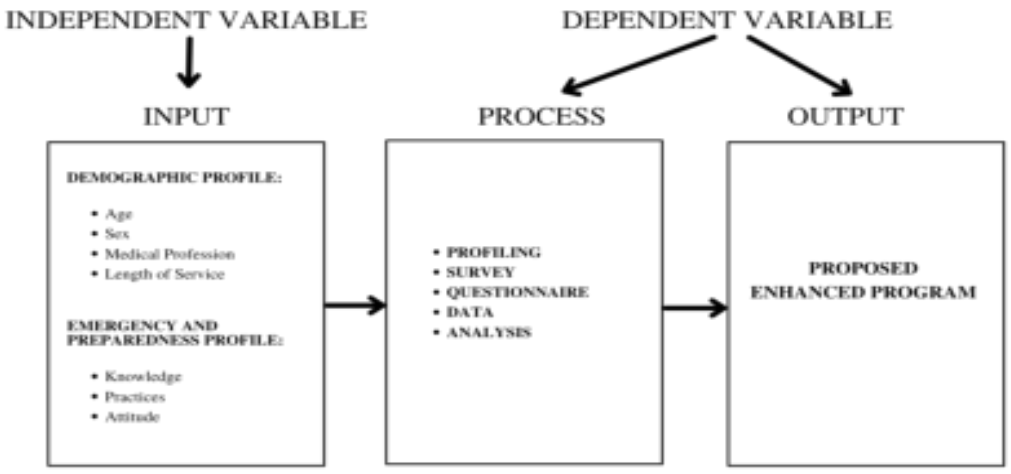

Figure 1. Conceptual Framework of the study

METHOD

Research Design

The researcher used the descriptive research design using the input process-output (IPO) model. It was descriptive because it was suited to determine the emergency and disaster crisis preparedness profile of health care professionals in Davao City. According to Canonizado, I. C. (2021), The IPO model represents the summary of various related articles that explains the processes involved. This directed the researcher in coming-up with a series of action required in the entire duration of the given educational research. It considers the insights of the other researchers, their observations, and their findings about their educational research. This data was processed through profiling and use of survey questionnaires and were consequently handled through data analysis. An enhancement program was proposed based on the data that were gathered in this research study.

Locale

The study was conducted through hospitals located in the heart of Davao City. Recent tabulation according to Nora (2012) Davao city hospitals cater at least 4,000 bed capacity for its constituents, and catering outpatient and in-patient services, radiology, and Ultrasonography, Cancer treatment, and other specialized services. Presented below is the site map of the locale for this study.

Respondents

The study was conducted involving 63 respondents through Convenient Sampling Technique. According to Slovin's formula with the standard formula of "n = N/1+e²" the suggested sample size is 351. But with the rising number of COVID – 19 Cases in the city, convenient sampling was used. They were selected based on the following criteria: Must be at least 22 years old and above for the respondents to formally gain a year or more of experience in the hospital setting, and currently employed in Davao City during the year 2020-2021.

Instruments

The study utilized a researcher - made questionnaire to fit the needs of the respondent. The questionnaire determined the preparedness of the healthcare professionals during emergency and disaster crises which were measured in terms of knowledge, attitude, and practices.

The first part identified the demographic profile of the respondents in terms of their name,

age, gender, profession, and length of service. The rest of the questionnaire contained a total of 29 items that determined the knowledge, attitude, and practices of the respondents on disaster and emergency preparedness. The scores are measured in a 4-Point Likert Scale: 4 – Very High, 3– High, 2 – Low, and 1 – Very Low. The questionnaire has undergone reliability test with a Cronbach's alpha of .941 to ensure that the questions were valid for use.

Procedures

In conducting research, certain procedures were observed. The method of data collection included online interactive interviews since COVID 19 situation has been arising and so was the community quarantine. To facilitate the collection of data, the researcher first wrote a letter to the Program Chair of Master of Science in Radiologic Technology of Davao Doctors College, Inc. to ask for permission to conduct the study. Then, the researcher presented the questionnaire to two (2) experts in the field for validation. Upon all panelists having validated the research instrument, a letter of permission to conduct the study will be sent to the principal authority for approval. After the permission was granted, a pilot study was conducted to test for the reliability of the researcher – made questionnaire. The results of the pilot study underwent Cronbach's alpha reliability testing. Once the reliability testing was done, the researcher then commenced with the actual date gathering. The researcher secured a written permission from the hospital. Lastly, the researcher secured an online consent from each respondent. The researcher administered the questionnaire through online or any phone call process. Furthermore, the researcher retrieved all the questionnaires on the same day they are administered to ensure the data gathering will be obtained accordingly. After the collection, the interpretation of data was done. The length of the survey was between 10-15 minutes. The online survey starts immediately after the respondents are instructed. After answering, online data was gathered and collected by the researcher who served as the facilitator of the process. Respondents were assured of the confidentiality of the survey and that it will be protected and will stay anonymous, thus, not to be disseminated for public use. All information gathered and collected by the researcher were kept in the highest level of protection and will remain in a safe cabinet that only the researcher will have access to. Information collected and stored in a storage device was protected and that researcher will keep it safe. The data were then collated, analyzed, and interpreted afterwards. Based on the findings that were generated, an intervention program was formulated.

Statistical Tools

The following statistical tools were utilized for the study.

Frequency and Percentage. This was used to determine the demographic profile of healthcare professionals in terms of age, sex, medical profession, and length of service.

Mean. This was used to identify the level of preparedness of knowledge, attitude, and practices during emergency and disaster crises.

Ethical Considerations

Ethical considerations in this study were observed. All information acquired from the respondents was treated with the utmost confidentiality to protect and maintain their privacy and anonymity. The form was used to communicate that participation in the study was based upon the discretion and judgment of the respondents. Likewise, they were informed that they have the right to withdraw from participating in the study at any time, whether during or after data collection.

RESULTS AND DISCUSSIONS

Demographic Profile of Healthcare Professionals.

Shown in Table 1 below is the demographic profile of the respondents. In terms of age, gender, medical profession, and length of service. In terms of age, this indicated that with a total population of 63, between ages 31-35 years old (25 out of 63; 40%) are most respondents who participated in the study. These results suggest that the respondents were in their tenured years and are confident to partake in this type of study according to the Emotional Management in the workplace: Age and Experience is the key by Graham Cole (2015). Opposite to the result, the lowest percentage based on the data were professionals that are 51 years old and above (1 out of 63; 2%) for the reason being those professionals were about to retire. In addition, younger professionals were also not confident to partake for the reason being unable to gain further training after taking the licensure exam and practicing straight away with their respective profession. In terms of sex, the second row expressed that out of 63, there are 24 males (38.1%) and 39 females (61.9%) who are involved. In terms of the medical profession, the third row of the table emphasized that out of 63, there are 45 radiologic technologists (71.4%) who took part of this study. In contrary, the lowest percentage are the medical Doctors that out of 63, only 3 (4.8%) have participated. Based on the article of Torrey (2020) Doctors do not spend much time in the hospitals or clinic for the sake of saving time considering they are paid for the procedure and consultation, and not by the hours of work. In terms of length of service, the last row in the table shows most of the respondents are between 6 – 10 years (28 out of 63; 44%). Contradictory to the result, the lowest frequency in the length of service are 21 years old and above (3 out of 63; 5%). According to Verschoor (2018), tenured workers tend to be more unbothered with their career development due to the years of routine experience that they have and be in the habit of being carefree.

Table 1. Demographic Profile of the Respondents

Demographic Profile	Frequency	Percentage
Age:		
22 – 25 Years old	2	3
26 – 30 Years old	22	35
31 – 35 Years old	**25**	**40**
36 – 40 Years old	10	17
41 – 45 Years old	1	2
46 – 50 Years old	2	3
51 Years old and above	1	2
TOTAL:	**63**	**100**
Gender:		
Male	24	38.1
Female	**39**	**61.9**
TOTAL:	**63**	**100**
Medical Profession:		
Radiologic Technologist	**45**	**71.4**
Registered Nurse	15	23.8
Medical Doctor	3	4.8
TOTAL:	**63**	**100**
Length of Service:		
1 – 5 Years	19	30
6 – 10 Years	**28**	**44**
11 – 15 Years	7	11
16 – 20 Years	6	10
21 Years and above	3	5
TOTAL:	**63**	**100**

Level of Knowledge on Emergency and Disaster Preparedness. Table 2 shows the level of knowledge in emergency and disaster preparedness. In terms of knowledge, the statement, *"I am knowledgeable about disaster preparedness"* scored the highest average of 4.0 or High, which indicated that the level of knowledge of health care professionals during an emergency and disaster crisis was evident. Cited in the article of IFRC (2020) this could include supporting and preparing their respective institutions in their everyday efforts in reducing risks and preparing own local response mechanisms to address emergency and disaster situations; Enhancing activities that are useful to address everyday risks that communities face and to respond to disaster situation. For example, first aid, health, or disaster drills and programs that have components

useful for disaster reduction and response (IFRC, 2000, as cited in IFRC, 2020). In contrary, the statements, "I know when to give first aid during disaster", gained the lowest means of 3.61 which still meant that the level of knowledge of respondents during emergency and disaster crisis is high. In the study of Oflaz (2017) and Vatan et al. (2010, as cited in Özpulat & Kabasakal, (2018), healthcare professionals' disaster preparedness is important as they are members of a health care team that should work systematically in all conditions. In many countries, disaster education is rarely provided to students to the same degree as fundamental nursing education, there are few models and drafts related to the process of understanding disaster care to guide healthcare professionals (Kalanlar et al., 2015, as cited in Özpulat & Kabasakal, 2018).

Overall, it gained an overall score of 3.88 indicating that the level of knowledge of the respondents during the emergency and disaster crisis was High and evident. This includes the knowledge about disaster plans, mitigation, and preparedness. According to Physicians Position Statement. (2021b) having this knowledge and specialty can minimize potential loss of life and physical damage.

Table 2. Level of Knowledge on Emergency and Disaster Preparedness of the Respondents

Indicator	Mean	Descriptive Level
Knowledge		
Disaster Management Training	3.9	High
Disasters	4.0	High
Disaster Plan	3.9	High
Source of Plan	3.8	High
Disaster Drills	3.9	High
Disaster Function During Drills	3.8	High
Disaster Preparedness	**4.0**	**High**
When to Administer First Aid During Disaster	**3.6**	**High**
Who Gives First Aid During Disaster	3.8	High
TOTAL:	**3.8**	**High**

Legend: 4.2 – 5.0 (Very high); 3.4 – 4.19 (High); 2.6 – 3.39 (Fairly High); 1.8 – 2.59 (Fairly Low); 1.0 – 1.79 (Very Low).

Level of Attitude towards Emergency and Disaster Preparedness. Table 3 shows the attitude towards emergency and disaster preparedness. In terms of attitude, statements, *"disaster plans need to be updated regularly"* scored the highest mean average of 4.76 or High (Very Positive), which indicated that the level of attitude of health care professionals during emergency and disaster crises was very evident. According to R. Kaple et al., (2020), unprepared hospitals can be overwhelmed and unable to respond to patient needs in the event of an emergency, and

natural disasters such as hurricanes show the unfortunate reality that medical facilities can become drastically overwhelmed without much or any warning. In contrary, the statement*, "Disaster Management training only necessary for Disaster Management service staff"* gained the lowest means of 3.38 which still meant that the level of attitude of respondents during emergency and disaster crisis High (Positive). The attitude of healthcare professionals also associates with the actual preparedness during emergency and disaster crises. As healthcare professionals, whenever a disaster happens, and all healthcare personnel are involved, particularly nurses, emergency medical services (EMS) practitioners have a vital role to play in crisis recovery, delivering emergency treatment during all phases of a disaster. Healthcare professionals must have sufficient management skills, experience, and leadership to fulfill their role in an acceptable manner. Several health care workers need to be familiar with disaster and disaster recovery processes as disaster hits without warning, based on the journal of Role of Emergency Medical Services in Disaster Response - National Association of EMS Physicians Position Statement (2021b).Overall, the respondents gained a total mean score of 4.17 indicating that the level of knowledge of the respondents during the emergency and disaster crisis was High (Positive). According to Balogun et al., (2016), Healthcare workers with positive attitude will promote quick response to emergencies and in times of surges or disaster.

Table 3. Attitude Towards Emergency and Disaster Preparedness

Indicator	Mean	Descriptive Level
Attitude		
I need to know something about disaster plans.	4.4	Very Positive
Management should be adequately prepared when a disaster occurs.	4.6	Very Positive
Disaster planning is for selected people only in the hospital.	3.4	Positive
Potential hazards are likely to cause disaster and that should be identified and dealt with as soon as possible.	4.4	Very Positive
Disaster Management training is only necessary for Disaster management staff.	3.3	Positive
Disaster management training is necessary for all employees and first responders.	4.4	Very Positive
I think it is necessary to have a disaster plan.	4.5	Very Positive
Disaster plans should be updated regularly.	**4.7**	**Very Positive**
Disasters are unlikely to happen in our country.	**3.2**	**Fairly Positive**
Drills should be often conducted in our hospital.	4.3	Very Positive
TOTAL:	**4.1**	**Positive**

Legend: 4.2 – 5.0 (Very High/Very Positive); 3.4 – 4.19 (High/Positive); 2.6 – 3.39 (Fairly High/Fairly Positive); 1.8 – 2.59 (Fairly Low/Fairly Negative); 1.0 – 1.79 (Low/Negative)

Level of Practices during Emergency and Disaster Crisis. Table 4 shows the practice of healthcare workers during emergency and disaster crisis. The statement *"I believe they have sufficient practice for emergency and disaster preparedness", "The implementation of drills is done frequently in this hospital",* and *"Emergency scenario drills are done in this hospital"* scored the highest mean average of 4.0 or High (Positive), which indicated that the level of practices of health care professionals during emergency and disaster crisis was evident. According to Adenekan et al., (2017) If healthcare workers believe they have sufficient training and practice, it is likely to develop confidence in dealing with uncertain scenarios which needs quick and tough decisions. In contrary, the statements I am currently working with the disaster management team gained the lowest mean of 3.33 which still meant that the level of practices of respondents during the emergency and disaster crisis was High (Positive). Disaster preparedness is one of the main measures of emergency management. Simply, preparedness is planning for an emergency before it happens. (Glow et al., 2013, as cited in Alrazeeni, 2015). Moreover, a disaster which has a successful response is dependent on the availability of disaster preparedness at all phases, resources, and levels. Moreover, EMS and healthcare professionals must take effective action in emergencies and disasters (Alkhalaileh et al., 2011, as cited in Alrazeeni, 2015). On the other hand, Langan and James (2005, as cited in Alrazeeni, 2015) indicated that people of diverse disciplines, particularly in service and healthcare organizations, should receive disaster preparedness education properly. For instance, directly, EMS professionals are involved in disaster management to be well prepared. Overall, the respondents gained a mean score of 3.87 indicating that the level of practices of the respondents during emergency and disaster crisis was High (Positive). Based on the study of Adenekan et al., (2017) positive output in the preparedness of emergency and disaster response will likely initiate the first step in responding to an emergency, and that will create an excellent impact to the institution because of the readiness of the individuals that are involved.

Table 4. Practices During Emergency and Disaster Crisis

Indicator	Mean	Descriptive Level
Practices		
Emergency scenario drills are done in this hospital.	**4.0**	**High**
The implementation of drills is done frequently in this hospital.	**4.0**	**High**
There is an annual disaster management drill in this hospital.	3.8	High
There are incident command drills in this hospital.	3.9	High
The disaster plan is regularly updated by the hospital.	4.0	High
There are implemented and existing plans.	3.8	High
I have already faced a disaster crisis.	3.9	High
I am currently working with a disaster management team.	3.3	Fairly High
I have an idea about the latest disaster crisis which the hospital was involved in.	3.7	High

I believe that they have sufficient practice for emergency and disaster preparedness.	**4.0**	**High**
TOTAL:	**3.8**	**High**

Legend: 4.2 – 5.0 (Very High/Very Positive); 3.4 – 4.19 (High/Positive); 2.6 – 3.39 (Fairly High/Fairly Positive); 1.8 – 2.59 (Fairly Low/Fairly Negative); 1.0 – 1.79 (Low/Negative)

CONCLUSIONS

Based on the findings, it was concluded that:

1. Majority of the respondents are 31 – 35 years old, female, Radiologic Technologists, and serving at least 6 – 10 years in their profession.

2. The respondents had a high level of knowledge, attitude, and practices during the emergency and disaster crisis. However, they had lacked some of the processes required actual preparedness to provide optimal emergency management and disaster response.

3. The health care professionals reported weak to moderate levels of actual disaster preparedness, enclosing inadequacy of their abilities to participate in disastrous events, which necessitates exceptional knowledge and skill to provide healthcare in a primitive or aggressive environment and capability to systematize disaster response.

4. Disaster education and training may boost the level of emergency and disaster actual preparedness and help to make healthcare professionals confident in their abilities to respond effectively in such devastating events. However, regular education and training has limited the focus of the preparation of healthcare professionals regarding emergencies and disasters.

Proposed Intervention Program

Activity 1: Annual Asian Emergency Medical Services Convention

Objectives: To educate healthcare providers and professionals with the latest trends and to provide latest news in emergency and disaster management and preparedness.

Time Frame: Annually, 1st or 2nd week of June
Budget Allocation: 200,000 – 300,000 Philippine Pesos
Persons Involved: Local Government Units, Government and Private Hospitals, Search and Rescue groups, and other front liners.

The researcher deems that the provision of participating in the convention is necessary as

it will address the information needs of all healthcare professionals and providers, particularly those who are practicing the profession and working in a hospital setting. This will give the respondents a concrete idea about emergency and disaster preparedness and mitigation and will equip them with new perception on how to address any disaster crises, mentally, physically, and psychologically.

Activity 2. Annual Citywide Shake - out Drill

Objectives: To improve preparedness during calamities, such as earthquake and any natural disasters.

Time Frame: Annually, 3rd or 4th week of July

Budget Allocation: 300,000 – 350,000 Philippine Pesos

Persons Involved: Local Government Units, Barangay Government Units, Public and Private Hospitals, City Disaster and Risk Management Office, Private companies. Drills such as Shake – out Drills are one of the opportunities not just for healthcare workers but for all industries to practice what are the things to do during disaster crisis. These drills are scenario – based calamities that are dependent to the area if where it might take place. Respondents will be taught different styles and methods to improve awareness and preparedness during the occurrence of any disaster.

Guide for the Intervention Programs:

This part presents an example of a Gantt Chart, to illustrate the timeline of the proposed intervention programs:

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