CHALLENGES OF ESTABLISHING HOSPITAL DISASTER PLAN

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Abstract

Abstrak-Makalah ini dirancang untuk mengetahui tantangan membangun rencana bencana dalam membantu rumah sakit berurusan dengan kesiapsiagaan bencana. Penelitian ini bertujuan untuk membantu perencana untuk menghindari kesulitan umum manajemen bencana, sehingga dapat meningkatkan kinerja selama bencana. Dengan data kualitatif melalui wawancara semi-terstruktur ditargetkan lima personil kunci dan menghasilkan rekomendasi yang dapat diadopsi.Temuan ini menunjukkan bahwa tantangan yang ditemukan dari proses perencanaan, pelaksanaan, pengawasan dan evaluasi yang dapat mempengaruhi respon rumah sakit untuk menangani bencana. Untuk membangun ketahanan rumah sakit terhadap bencana, beberapa pertimbangan penting yang ditemukan yaitu memiliki rencana penanggulangan bencana yang tertulis tidak sama dengan kesiapannya; rencana sederhana dan fleksibel; adanya pengaturan alternatif, memastikan staf rumah sakit yang akrab dengan rencana dan pentingnya meninjau, pelatihan dan pengujian rencana penanggulangan bencana. Banyak rekomendasi diberikan dari literatur untuk mengatasi tantangan-tantangan. Meskipun keterbatasan kecil penelitian, pekerjaan ini dapat membentuk dasar untuk terus dievaluasi rencana bencana yang dikembangkan oleh rumah sakit di Indonesia.

Kata Kunci: *Bencana, rumah sakit, rencana, kesiapsiagaan, kesiapan.*

1. INTRODUCTION

1.1 Background

In the last few years, some of the worst disasters have been in Indonesia resulting in significant loss of life and destruction of property and infrastructure. The catastrophe sometimes occurred inside health institution which affected hospital staff, patients, visitors and the community. Healthcare facilities are expected to respond to these emergencies in a coherent fashion since hospitals definitely play an important role in disaster response due to the hospitals treatment role and are an integral part of the nation's disaster response efforts. As well hospitals are charged with preventing and reducing disease and injury [1.2]. In the event of a disaster, hospitals themselves have two-pronged missions: provide patient care and protect their own staff and facilities [3].

To increase a hospital's resilience to deal with disaster, some literatures mention about the importance of having hospital disaster planning by establishing a predetermined level of operational sustainability that will carry it through a disaster [2]. Thus a hospital can minimize the results of injuries, suffering, and death that accompany a disaster and provide continued quality care to those patients in the hospital. Other literature states that hospital preparedness is an essential requirement in the current atmosphere of man-made and natural disasters [4]. Reference [5] even revealed that major accidents and disasters can only be mastered and controlled by intelligent planning.

Nowadays Indonesian Ministry of Health have regulation about hospital accreditation. One of the clauses in the requirements is hospital should have concern in disaster management and are recommended to have hospital disaster plans [6]. Currently many hospitals have established disaster plan. However, why chaos always happen in hospital during disaster, particularly during the first phase of a disaster? Why having disaster planning

cannot help hospital to avoid hospital overload and decrease of the quality of treatment? This paper will explore the challenge of establishing hospital disaster plan that can influence hospital to deal with disaster.

1.2 Objectives

To find out the challenges of establishing disaster plan in hospital, from process of planning, implementation, monitoring and evaluation and find recommendation from literature to help planners to avoid common disaster management pitfalls thereby can improve performance during a disaster.

1.3 Method

Literature study and interview conducted with key hospitals personnel to explore their view and experiences with hospital disaster plan effectiveness and as health service provider working in disaster period.

2. METHODOLOGY

The methodology that was applied in this paper is a qualitative method to explore the challenge of establishing hospital disaster plan in helping hospitals deal with disaster preparedness. The explanation to select qualitative method is because the key features of qualitative research are to make a distinctive contribution to policy evaluations, particularly because of its ability to explore issues in depth and capture diversity; it is concerned with context, and focus on exploring meanings. This means that it can bring real depth to the understanding of the contexts in which policies operate and their implementation, processes and outcomes [7].

In this paper, data were collected via semi-structured interviews with key hospital personnel and supported by various articles and journals. The numbers in the sample was five and a convenience sample targeting the hospitals that were accessible. Sampling decisions are made for the explicit purpose of obtaining the richest possible source of information to answer the research question. Hence, smaller but focused samples are more often needed than large random samples [8, 9].

The criteria of key personnel inclusion were responsible for disaster and major incident preparedness of the clinical hospital staff and from hospitals in Java with a bed capacity of more than 100 which have hospital disaster plans. In most cases, this was the manager or clinician, or who as a result of their knowledge; previous experience had access to valuable information that could assist in understanding the context of the project, or clarifying particular issues or problems.

For the semi-structured interviews, there was an interview schedule which was classified into four sections; background, planning, implementation, and monitoring and evaluation. One on one interview conducted with key hospitals personnel lasted 45- 60 minutes and explored their view and experiences with hospital disaster plan effectiveness and as health service provider working in disaster period.

3. FINDINGS

To find out the challenge of establishing disaster plan in hospital, from process of planning, implementation, monitoring and evaluation, data were gathered via interview with a key member from each hospital disaster planning team.

3.1 Planning

To establish hospital disaster plans, two hospital involved a multidisciplinary team (Hospital B and C), others started with the Emergency Department (Hospital A and D) and to ensure the process was effective; the final hospital only involved a few staff (Hospital E). The plans were developed through discussions, meetings, articles from the internet, seminars, training, staff suggestions, and disaster plan from another hospital, accreditation guidelines and past experience. Hospital B undertook a disaster risk analysis before developing the plan.

When designing the plans, all hospitals stated that they encountered several challenges. The main challenge was a human resources matter such as limited staffing. Due to the

limited number, staff had many jobs and made it difficult them together to discuss or establish the plans. Besides, since the disaster plan was a new issue, few staff had little skills and expertise in the field. Moreover, as the plans closely related to an emergency response, the idea and initiative for establishing the plan usually come from the Emergency Department. Participant from the Emergency Department (Hospital D) expressed: Our problem is actually how to put our staff together. We made door to door meeting. It meant that participants visited every department and discuss with the chief of every department one by one to collect opinion from every departments.

Another challenge expressed by the participants was the limited budget. According to the literature, preparing disaster plan needs many tools and infrastructures for example communication equipment and decontamination area with hot and cold water supply. Due to budget limitation, the hospitals could not comply with literature guidelines. Then the disaster committee modified the plan such as using intercom rather than radio communication for alternative communication. One participant (Hospital C) stated: I took some adaptation and made modifications. The theory and the practice are very different because of the limitation of the infrastructure. The cost is too high if we want to do exactly the same as in the theory.

Two hospitals (B and C) had a specific focus in their disaster plans. Hospital B was concerned with floods since the hospital is located in an area that was vulnerable to flooding. Hospital C was concerned with fire since they have experienced a fire in the past. Hospital A and D have no specific focus in the disaster plan but hospital D emphasized potential disasters such as floods, landslides and road traffic accidents. Hospital E focus was still on internal disasters i.e. disaster or accident within the facility such as fire, explosion.

All hospitals had made an effort to make the hospital personnel aware of the hospital disaster plan. Usually the hospital disseminated the plan through training such as fire, evacuation and Basic Life Support; and simulation.

Hospital A, B and D used training and simulation to ensure that hospital personnel were familiar with the plans. Hospital E involved the staff by asking them to review previous disaster responses through simulation exercises. Therefore hospital staff had the opportunity to practice and become familiar with disaster plans. Furthermore, staff could identify problems and apply lesson learned from past experienced. Usually before training and simulation, to introduce disaster plan matter, Hospital B, C and E used dissemination method which only discussed specific topics for approximately 2 hours. It is important since disaster plans are still a new issue in Indonesia.

3.2 Implementation

Each hospital had experienced a disaster and/or mass casualty situation. However, all of them stated that they encountered challenges when using their own disaster plans. The first challenge was a limited budget. Second was the limited competency of hospital personnel about disaster planning topics. The participant from hospital A revealed: Human resource and budgeting are two problems that occur. This is in parallel with another participant: Our problem is clear. It concerns budgeting and human resources. Human resources are the factors which limit the implementation. Our human resources are incapable of learning new knowledge because we do not have the expertise to teach them (Hospital B.) The third challenge identified was an ineffective command control system. The key personnel from hospital D said: The system hasn't run yet. I always argued in order to make system, but so far there is no response about it. Furthermore, another participant (Hospital E) said that all parts of the previous plans did not run well: If we talk about time to implement...e...our old hospital disaster plan and nothing's worked....that's our experience on the previous earthquake...no system worked... everything gets messed up. It is interesting that the participant from Hospital E also said that they followed accreditation guidance from Indonesian Ministry of Health but then the system could not work at all.

Regarding the challenges, most of the hospitals were trying to deal with them by increasing human resources capacity in disaster

and emergency response, regular training of staff in Basic Life Support and evacuation so that the staff will be ready to cope with disasters. Since hospital E found through disaster response simulation that command control system did not work in previous disaster plan, disaster plan committee revised the system to be simpler and applicable. On the other hand, the participant from hospital C stated that they had not addressed the challenges as the person who was in charge of the disaster plan implementation was occupied with other jobs.

Each hospital had different risks to anticipate as well as disaster plan implementation. One participant (Hospital A) considered that they had limited medical equipment and thus the hospital cannot handle the patients which were in need of sophisticated equipment and in these cases the patients would need referral to another hospital which has better facilities. Participants (Hospital B and C) were concerned about low human resources capacity issues and thus the hospitals needed to engage in a process of staff capacity building. Another (Hospital D) identified the risk of ineffective coordination with the government field coordination unit and also within hospital. Hospital E have concerned on the command control system and revised the system before to prevent the system cannot work on disaster situation.

3.3 Monitoring and Implementation

The five participants agreed that a measurement system is needed to measure quality hospital service. However, none of the hospitals had implemented a comprehensive hospital disaster preparedness measurement system. The reasons for not doing so were that there was no indicator or measurement tool and there was no department/division that had responsibility to do the monitoring.

All the participants agreed that measuring the plan was important to test the hospital system as a whole. Hospital E has no tools to measure quality hospital service as well, but they tried to anticipate the challenges of the implementation of an outcome measurable system. They revised the plan based on findings that were collected during reviews of previous disaster responses which involved many staff. The participant said: It will be another simulation to review...where we find weaknesses, that system will be repaired.

Since disaster plans are never a fixed document, Hospital need to review their plan to improve it over time. Four hospitals have reviewed their plan except hospital A because the plan was newly created at 2008. In their disaster plan document, hospital A mentioned that they will review the plan every three years.

Participants from most hospitals (Hospital A, C, D and E) held disaster plan simulations to call on their own experience and relate it to their own practice thus can prepare hospital staff to cope with the real scenario. However sometime the simulation did not have fix schedule, only hospital A have fire simulation regularly. Each hospital has different training program. Hospital B has Basic Life Support, fire extinguisher, evacuation (same with hospital D) and flood preparedness training. In hospital E, only the Emergency Department had regular training. Unfortunately, the participant from hospital A said that training in the hospital A was poor because they did not have competence staff to train hospital staff internally.

To establish hospital preparedness towards disaster, hospital should establish operational sustainability that will carry it through disaster. Therefore hospital can reduce number of injuries, suffering and death during disaster and provide continued quality of care. All the participants agreed that disaster plan can improve the hospital's capacity to deal with disasters. Using disaster plans, help hospital staff know what to do, when and how to do it, who they should help first and make coordination; and where is they should go. Moreover, the plans also give guidance to hospital what to do before and after disasters happen thus emergency response become more prepare, more organized and faster.

Disaster plan can influence in daily practice as well. When hospital staff accustomed to handle many victims in disaster situation, in daily situation they will more organize and can give rapid but appropriate treatment. However, the participant from hospital B said that disaster plan still have limited influence in

daily practice since staff's attitude which were reluctant to apply the plan.

Even though there were challenges in designing and implementing the plans, participants from hospital A and D said that their disaster plans were accepted by hospital staff. Staff in hospital B and C did not refuse the disaster plan but they were reluctant to apply the plan. The reason was because they thought disaster was rarely happen thus the implementation of the plan was not necessary. In hospital E, the plan was especially accepted by the staff that had experience in dealing with disasters. Executor level staff was sometimes reluctant to accept the plan since they thought why should prepare to disaster that seldom to happen. They felt overloaded when they should make extra preparation for equipments, medicine and linen and maintain it at minimum stock. However, even disaster plan is non profit issue even need money; managers, administrators and clinician from all hospital have commitment to apply hospital disaster plan due to patient and staff safety.

4. DISCUSSION, RECOMMENDATION, CONCLUSION

The results of this project are discussed in this section, comparing and contrasting the results with the relevant literature, and making conclusion. In addition, recommendations are made based upon the objectives of the paper will follow the discussion of the semi-structured interviews. Furthermore this section includes the limitations of the research.

4.1 Planning

When establishing hospital disaster plans the involvement of a multidisciplinary team is required [10] thus disaster planning committees should have multidisciplinary members including administrative staff [11]. The participant from hospital E emphasized that disaster plans to be effective need collaboration and integration from all departments and cannot only be established by Emergency departments. The participant from hospital B mentioned that the hospital had commitment to create and implement a disaster plan but that it was not sophisticated because they believed a simple plan could be fulfilled in practice.

All participants made the plan by themselves. However, according to reference [12], the requirements should be decided locally on the basis of hazard analysis and proper disaster planning. In the case of these, it may be effective if Health Department can facilitate hospitals to meet and discuss about disaster plans so that there is congruence and sharing of resources.

For the hospital that has limited staff numbers (Hospital B), HICS could be applied accordingly since HICs is a flexible system which can be expanded or scaled back to meet the particular needs of a specific crisis [13].

The participant from Hospital C said that the hospital had a limited budget when establishing the disaster plan and they should modify the plan with additional resources. Reference [14] recommends that financial resources for emergencies should be budgeted and guaranteed and that the hospital can verify that they have a specific budget for use in disaster situations.

One out of the hospitals mentioned about the competence of staff. The ways to enhance human resources capacity are through regular training of personnel. Training must be compatible with, and give support to disaster plans. The responsibility for training must be clearly outlined [10, 12].

All participants said that some hospital personnel knew about hospital disaster plans through training and simulations. Training for disaster management requirements needs is uncomplicated and an expensive exercise requiring specialized facilities and equipment. As an adjunct to this training, the services and the organizations themselves need periodic practice and evaluation sessions as a coordinated response, usually in the form of combined exercises [12].

However, the mere existence of a disaster plan does not assure that health institutions are actually prepared; [15, 16]. Reference [17] argued that the "paper plan syndrome" creates an illusion of preparedness because : the assumptions underlying such a plan may not be

valid, the plan was probably not created from an inter organizational perspective, insufficient resources may have been allocated to carry the plan out and end users were probably not involved in the planning process. The disaster plan should keep everyone in the department on their toes and deal with problems that consistently happen at reported disasters in their own areas as well as elsewhere [1].

Moreover, there should be a clear understanding at the planning level that almost any part of the plan may fall through, and contingency plans should also exist [4]. No one should rely too much or exclusively on high-tech facilities in extraordinary situations. For example hospital personnel cannot rely on telephone, cellular phone or paging to communicate with each other since communication overload or those which are unserviceable during disasters. In addition, generators are expected to operate automatically when the regular power fails however since many of generator are located in the basement, these machine are vulnerable to flooding and cannot operate efficiently. Therefore hospitals should provide for alternative arrangements [18].

Recommendation:

1. It is recommended hospital follow Hospital Emergency Incident Command (HICS) system thus only staff that have a role in disaster plans will be involved in the structure of the Disaster Response Team [13].
2. Hospitals should make an effort to make the hospital personnel aware of the hospital disaster plan through training and simulation.
3. Reference [2] stated that disaster preparedness is not simply the existence of plans or even the periodic testing of those plans. Disaster plan must be reviewed continually in order to validate them in the face of changing needs then validated the readiness and effectiveness through studying of new information, conducting drills, and implementing lessons learned from real emergency situations.
4. Hospital should involve hospital staff to the review previous disaster responses through simulation or exercises which can make staff familiar with the plan and enrich disaster planning documents [12].
5. Hospital plans should deal with problems that consistently happen (lessons learned) at reported disasters in their own areas as well as elsewhere and this includes planning for what is likely as opposed to the worst-case scenario.
6. The plans must be simple and flexible since disasters never go according to the plan and it is crucial that the plan should be made by the people who are going to execute them [3].

4.2 Implementation

Hospital B mentioned that the hospital had implemented training to ensure that the staff became familiar with the plan but still it was not effective. The personnel still have difficulty in applying the plan. To anticipate it, training should focus on familiarizing and simulating the plan. The ways to increase human resources capacity in disaster and emergency response are through regular training of personnel. Thus the hospitals needed to engage in a process of staff capacity building [12].

Reference [10] suggested that health workers should be trained in Basic Life Support and Cardio-pulmonary Resuscitation, Standard First Aid, Emergency Room medical staff trained in Advance Cardiac Life Support and Paediatric Advance Cardiac Life Support. Hospital responders should be trained in Emergency Medical Technician Course, Incident Command System (ICS), Mass Casualty Incident (MCI) and Hospital managers trained in Hospital Incident Command System (HICS). Therefore, the staff's knowledge and skill will improve and during the disaster phase the treatment the patients will be enhanced.

ICS training emphasize on controlling staff numbers when dealing with disasters such as determining how many staff should be called in, how many staff should be relieved in every stages of the emergency, while HICS emphasizes on roles and functions of the disaster response team. This is the component that tells responding personnel "what they are going to do; when they are going to do it; and, who they will report it to after they have done it.".

Thus hospital staff provides effective response for the survivors in ways to prevent poor care.

Two hospitals experienced ineffective command control systems which made their disaster response sub-optimum. They found that disaster roles and responsibilities assigned in terms of individuals rather than positions did not work in previous disaster situations (based on Hospital D and E experienced). Participant from Hospital E told that they had followed accreditation requirements from health department guidelines however during implementation the guidelines did not meet the reality of the disaster situation. All parts of the previous plan did not run well. Then the disaster planning committee decided to continuously review the plan to ensure that it can be implemented effectively in disaster situations and to revise the system to be simpler and more applicable.

Reference [14] stated that the wrong administrative and organizational procedures can increase this type of vulnerability; recommendations are made on how to prevent or modify them. Few systematic researches show that a rigid, bureaucratic command and control approach to emergency management generally leads to an ineffective emergency response. Reference [19] commented that previous studies and their own research suggested that flexible, malleable, loosely coupled, organizational configurations can create a more effective disaster response.

Hospital with limited medical equipments should built network and cooperate with other health institutions so they can access others equipments or refer their patients to other institutions.

Disasters do create the need for coordination between all participating agencies. To avoid ineffective coordination, hospital must provide a personnel who is familiar with the nature of other agencies to better liaise between agencies [12]. Recommendation:

1. When dealing with limited resources need to be cost-effective and focus on priority issues, consequently, rather than doing everything possible to save an individual patient, it will be necessary to allocate limited resources in a modified manner to save as many lives as possible [20].
2. Based on reference [12] recommendations, to deal with the low competence of hospital staff, hospitals should regularly provide education to enhance the capacity of staff.
3. Hospital should assign disaster team roles and responsibilities in terms of position rather than individuals.

4.3 Monitoring and Evaluation

All the participants agreed that a hospital disaster plan can improve the hospital's capacity to deal with a period of disaster. However, even though they believed that a measurement system is needed to measure the quality of the hospital services; all hospital has not measured their plans because they had no indicators or measurement tools to evaluate the disaster plan. Reference [21] stated that hospital disaster simulations can serve a dual purpose, functioning simultaneously as training interventions and as an opportunity for individual and institutional performance evaluation. Systematic evaluation of every hospital disaster simulation would allow determination of overall training effectiveness as well as enable identification of specific response components requiring further attention.

Reference [21] suggestions were applied by Hospital E which had no tools to measure quality hospital service as well, but they revised the plan based on findings that were collected during reviews of previous disaster responses which involved many staff. Reference [10] recommended that hospitals establish tools and method for monitoring and evaluating disaster planning. Thus hospital can check whether there is deviation from the original design and whether the plan will ensure the security and accessible of hospital's service at all times for all disaster victims.

Reference [22] mentioned that without structured and objective evaluations of the responses to and the measures taken to prevent or mitigate the effects of events resulting in disasters, it is not possible to learn from experiences obtained by others to optimize the absorbing capacity of a society and the responses to such disasters. Evaluations and research are designed to enhance the effectiveness, efficiency, and/or benefits of

such activities and should be viewed as efforts at continuous quality improvement and are not directed at exposure or punishment. Reference [10] suggested that evaluation of emergency simulation exercises or drill is held at least one a year.

Hospital disaster plan that are written are never a complete document since resources, technology and personnel change as time progresses. Disaster plan should be considered as a planning process rather than the end product [16]. Experience may reveal better response strategies as well. Therefore a counter disaster planner should be initially prepared to provide for reviewing, amending and maintaining the plan. Reviewing the plan at regular intervals or following testing or activation of the plan where improvements can be made or deficiencies are found [12]. Only Hospital A has not reviewed their plan since they established it in 2008. Regarding reference [16] opinions, hospital should emphasize on what needs to be created are not documents, but an accepted series of ways of approaching the problem, be it mitigation, preparedness, response or recovery.

Regarding training, some hospitals had interesting opinions. Hospital A said that the training program in their hospital was poor because of the lack of competent staff thus they could not train hospital staff effectively. The participant from hospital B said that training stands alone; it has not been integrated into all departments. This was similar with Hospital E that only the emergency room had regular training. Hospital D had interesting regulations regarding training the community. After the disaster response, usually the hospital will train members of the community. Hospital A gave training for community, police, security, army, Boy Scouts, and pedicab drivers because the hospital wished to establish an image in the community that hospital was safe, and had high quality professional service. The participant said that when the hospital gave training to the many stake holders, it was expected that the stake holders would always remember the hospital. Then when they need treatment, they will come to that hospital (marketing reason). In addition, by training external personnel these people may be utilized during a disaster. Hospital A supplied accident data to police as well thus police can make evaluation on traffic regulations.

Reference [20, 23] mentioned that disaster exercises have several goal such as they allowed hospital employees to become familiar with disaster procedures and made new hospital staff aware of procedures during a disaster response; allowed identification of problems in the different components of response (e.g., incident command, communications, triage, patient flow, materials and resources, and security); provided the opportunity to apply lessons learned to disaster response and to validate the readiness and effectiveness of the hospital disaster plan. This point also has been mentioned by reference [20]. The strength of evidence of other training methods is insufficient to draw valid recommendations.

The first step in preparing any exercise is to analyze the need and give thought as to who would benefit by being involved as a participant. On completion of any exercise a debriefing must occur and a report prepared and distributed to participants and any organizations with a particular interest in the scenario. The report will provide a platform for the review of plans and procedures which should now be carried out together with any necessary remedial staff training [12].

Fundamental change will occur in hospitals when emergency planning and response are considered not isolated events but, rather, day-to-day planning that has been integrated in the fabric of hospital operations. The challenge for senior management teams in hospitals is balancing the need for a comprehensive plan with the realities involved in securing resources for emergency preparedness. All participants mentioned the investment and commitment from managers, administrators, and clinicians to have a disaster plan.

Since disasters often bring unexpected circumstances, clinicians and staff are required to respond to situations they have not faced before. Disasters overwhelm the existing coping mechanism of the system, thereby creating enormous stresses on the organization, potentially causing some or all operational and functional elements to function below regular levels or fail altogether [17].

Recommendation:

1. Every hospital should have a measurement system used to measure the quality of the hospital services. Hospital should establish tools and method for monitoring and evaluating disaster plan [10]
2. The primary goal of disaster planning is increasing a hospital's resilience by establishing a predetermined level of operational sustainability that will carry it through a disaster. Reference [2] suggested that to create resilience, a hospital should integrate preparedness in its daily operations, fund it in its budget, implement it with standard operating procedures, and measure it through drills and performance evaluations.
3. To be effective, plans must be practical, acceptable by all users, inter organizational, and based on valid resource information. To be the most effective, a written plan should be considered a work-in-progress requiring ongoing review and revision training and drilling that provides opportunities for staff to practice and become familiar with disaster plans, identify problems in different components of the response and provide the opportunity to apply lessons learned to disaster response [2].
4. Management should not focus on production of a written document since what needed to be created are not only documents.

4.4 Limitation of the Study

Although the study yielded a vast amount of valuable data, it is only relevant to the five hospitals and thus cannot be generalized to others hospital in Indonesia.

The interviews should have taken place following the disaster plan audit and instead of a semi-structured interview, an unstructured interview be employed to gain further in-depth information about development of the plans, Information such as why some materials was included and if the omissions discovered in the audit were considered for inclusion, are they done but were not recorded in the plans and if in the future they may consider incorporating them in future plans.

4.5 Conclusion

Confusion and chaos are generally experienced by the hospital at the onset of a medical response. Through effective disaster plan, chaos situations can be reduced and patients can be managed quickly. Therefore the negative effects of disaster such as death, and worsened conditions can be minimized.

The challenges found during designing the plan were collaboration and integration of multidisciplinary team not only rely on emergency department staff, concerning that the planning should be decided locally on the basis of hazard analysis, limited staffing, limited staff competency about disaster plan and restricted budget. It may be worthwhile to consider the establishment of a Disaster Planning Committee to develop the plans; this will promote consistency, facilitate sharing and enhance the expertise of the hospital staff.

It is important to understand that having a written disaster plan does not assure that health institutions are actually prepared since disaster plan must be reviewed continually in order to validate them in the face of changing needs. Thus the plans must be simple and flexible since disasters never go according to the plan and it is crucial that the plan should be made by the people who are going to execute them. Besides, hospitals should provide for alternative arrangements as well since no one should rely too much or exclusively on high-tech facilities in extraordinary situations

During implementation process, the challenges were limited budget, less capacity of human resources and ineffective command control systems. For anticipating the risk related to disaster plan implementation, all hospital had made an effort to cope with the risk as well. When dealing with limited resources need to be cost-effective and focus on priority issues.

Regarding the interview process, all participants agreed that hospital disaster plans is effective to prepare hospitals to deal with disasters. However, since there is no measurement system to measure the quality of hospital service, they cannot prove how effective hospital disaster plan would be. Therefore, this paper found that all of them still have a problem

in monitoring and evaluating the plan especially evaluating the plan since all hospital have no tools or indicators which can use for evaluation.

This paper emphasize that disaster planning is a dynamic process, therefore hospitals should review, train and test their disaster plan to ensure hospital resilience not only to fulfil the accreditation requirements. As a disaster response needs more than routine emergency procedures, hospital workers should be familiar with the plan.

Major accidents and disasters can only be mastered and controlled by intelligent planning. Therefore, this paper gave the author an insight into the hospital disaster planning and despite the minor limitations of the study this work may form the bases for ongoing evaluation of disaster plans developed by hospitals in Indonesia especially in the light of the disasters that have occurred in recent years.

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