Article

Regional Flexible Surge Capacity—A Flexible Response System

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Abstract: Surge capacity is the ability to manage the increased influx of critically ill or injured patients during a sudden onset crisis. During such an event, all ordinary resources are activated and used in a systematic, structured, and planned way to cope with the situation. There are, however, occasions where conventional healthcare means are insufficient, and additional resources must be summoned. In such an event, the activation of existing capabilities within community resources can increase regional surge capacity in a flexible manner. These additional resources together represent the concept of Flexible Surge Capacity. This study aims to investigate the possibility of establishing a Flexible Surge Capacity response system to emergencies by examining the main components of surge capacity (Staff, Stuff, Structure, System) within facilities of interest present in the Western Region of Sweden. Through a mixed-method and use of (A) questionnaires and (B) semi-structured key-informant interviews, data was collected from potential alternative care facilities to determine capacities and capabilities and barriers and limitations as well as interest to be included in a flexible surge capacity response system. Both interest and ability were found in the investigated primary healthcare centers, veterinary and dental clinics, schools, and sports and hotel facilities to participate in such a system, either by receiving resources and/or drills and exercises. Barriers limiting the potential participation in this response system consisted of a varying lack of space, beds, healthcare materials, and competencies along with a need for clear organizational structure and medical responsibility. These results indicate that the concept of flexible surge capacity is a feasible approach to emergency management. Educational initiatives, drills and exercises, layperson empowerment, organizational and legal changes and sufficient funding are needed to realize the concept.

Keywords: capacity; community; crisis; disaster; flexible; major incident; surge; management

1. Introduction

Adequate preparedness efforts and proper contingency planning can mitigate and minimize the impact of major incidents and disasters (MID) in societies [1]. Contingency plans are the organized and coordinated courses of action that present institutional roles and resources, information processes, and operational arrangements based on scenarios of potential crises and hazard analyses [2]. Strategies for disaster management include establishing command and control, reliable and efficient communication,

information, organization, warning systems, stockpiling of resources, and response plans for the mobilization and management of resources such as personnel, equipment, volunteers, and emergency facilities. The efficiency of the organizational structure is paramount for the outcome of the event [3,4]. Disaster preparedness and contingency planning involve all actors in society. However, in particular, the healthcare sector is designated to respond in a planned and efficient manner to prevent mortality and morbidity, resulting from an increasing number of global and local threats, at the lowest possible cost to society [3–5].

The initial approach to proper management of MID is to increase the management system's capacity, i.e., Surge Capacity (SC). Three broad areas of healthcare demand SC in response to a MID [6]: Firstly, Public health Surge capacity (the ability of the public health system to increase capacity for patient care, epidemiological investigation, laboratory services, mass fatality management, etc.); secondly, Healthcare Facility-Based Surge Capacity (augments the response within the healthcare facility structure, e.g., triage-tent on hospital grounds); and finally, Community-based Surge Capacity (the public effort to support and augment the healthcare system). The four essential elements of SC, i.e., Staff, Stuff, Structure, and System (4S), should rapidly and effectively be surged in the affected areas. Staff refers to available/alternative personnel, Stuff refers to available/alternative equipment, Structures refer to hospitals, clinics and Alternate Care Facilities (ACF), and systems are procedures and guidelines that govern the emergency management process [7,8].

The expansion of MID necessitates a new surge capacity (secondary SC), which underlines the need for increased effort to obtain additional resources still available within the management system [9–11]. A further expansion of incidences demands new approaches, policies, and adjustable preparedness within the community to scale up and down resources in a quick and seamless manner, i.e., "flexible surge capacity" (FSC) [12]. The concept of FSC is concordant with the new paradigm of proactivity in disaster management and emphasizes risk reduction rather than focusing on pure relief operations to reduce vulnerability and increase resilience within communities [13]. Therefore, risk assessment and focus on all four elements of SC is necessary for achieving a FSC. The disaster management cycle should incorporate, recognize, and value the participation of affected communities [14], and it is therefore necessary that adequate infrastructure is in place to ensure access to emergency services [15]. In this perspective, the readiness of community-owned resources is essential and includes alternative facilities to take care of victims or to unburden hospitals [16–18].

Focus on all four elements of SC is necessary for achieving a FSC. Staff pools may be needed, and new staff categories should be considered to replace the regular staffing structure. Equipment and devices placed in different parts of a community should be registered and available for use. Buildings of opportunity, i.e., facilities with the capacity to hold a high number of people that can act as an ACF should be identified [4,6,18]. Finally, relevant systems and guidelines should be produced to link all these measures. The focus of this paper, however, is on ACFs at predesignated, strategic buildings. These untapped resources available within a community can be lifesaving and deserve recognition and support from all agencies within the emergency management network [12,16]. A more comprehensive view of the Structure component of SC includes *buildings of opportunity* and *facilities of interest* that can be designated and converted to act as an ACF. Such buildings can consist of, but are not restricted to, outpatient clinics, dental and veterinary clinics, schools, hotels, convention centers, and sports facilities [6,10,12,17,18].

In the Swedish crisis and emergency management system, the responsibility for crisis and disaster management resides at national, regional, and local levels based on the principles of Responsibility, Parity, and Proximity [19]. According to these principles, all actors retain their responsibilities during MID management while the methods and structures should be kept as similar as possible to those used in normal circumstances. The geographical responsibility to manage an event lies with those parties affected at the local level, i.e., close to the incident [19]. The Region Västra Götaland (VGR) in Sweden has about 1.6 million inhabitants in 49 municipalities in its 300 km long and 250 km wide area. VGR is responsible for healthcare, growth, and development within the region and is one of the largest

employers in Sweden with over 50,000 employees. According to current legislation, the preparedness of Swedish healthcare should be formed in close collaboration and cooperation between primary healthcare, hospitals, municipalities, county administrative boards (CAB), ambulance dispatch centers, and medical officers [19].

2. Aim

This study aims to investigate the possibility of implementing a FSC response system to MIDs by examining the feasibility and the potential need for additional resources and barriers in ACFs within VGR of Sweden.

3. Method

This study uses mixed methods, has an explanatory sequential design, and is partitioned into four phases of data collection and analysis [20–22].

3.1. Sample

The potential for FSC planning regarding ACFs was investigated in five VGR cities with a population ranging from 40,000 to over 600,000 inhabitants [23]. The cities were chosen because they all have essential healthcare infrastructure. Due to limited previous research in this field, a pilot study was planned with an approximate sample size of 99 facilities (around 20 facilities in each city) to receive questionnaires and supplementary informant interviews to a point of saturation [22,24]. Sampling was performed mainly using online search engines with map services to identify facilities of interest in each city. Each facility of interest/potential ACF, defined as veterinary and dental clinics, schools, sports clubs, and hotels, was checked for suitability by using information from the actors' websites and by Google Street View© to assess the location, accessibility, size, and proximity to hospitals. The final sample was relatively well distributed across the ACF categories in the investigated cities.

3.2. Questionnaire

The questionnaire (Appendix A) was developed by using the Nominal Group Technique [25]. Three academically skilled experts with extensive experience in instrument development and disaster and emergency management (one physician, one prehospital nurse, and one hospital nurse) developed the tool and tested it for face validity based on logic, relevance, comprehension, legibility, clarity, usability, and consensus. The questionnaires contained a vignette where the facility of interest faces a fictitious scenario of a mass casualty incident and is asked to help the healthcare sector to respond. It included both open-ended and close-ended questions to capture and generate relevant data [26,27]. Questionnaires were sent out January–March 2020 to 99 primary healthcare centers, dental and veterinary clinics, schools, sports facilities, and hotels during the first phase of this study.

3.3. Interviews

Qualitative data collection was performed through semi-structured interviews with 12 key informants [26,27]. The interview framework was constructed from the same general questions as the ones used in the questionnaire, but more in-depth. Before each interview, the actor's previous answers from the questionnaire were reviewed for content. The questionnaire and review notes were brought to the interview to allow for follow-up questions to written answers and comments. The interview framework contained open-ended questions to enable the conversation to capture all content of interest. The interviewees were allowed to diverge from the interview guide and explore other areas related to the subject. No more interviews were held after reaching the point of data saturation [22,26,27].

3.4. Data Processing

The data was analyzed for results, discussion, and conclusion. Sequential analysis was performed [21,27] to determine what the qualitative data added to the questionnaire data. The qualitative analysis consisted of coding for thematic content to identify capabilities, barriers, and interest to partake in a FSC-response system.

3.5. Statistical Analysis

Cronbach's alpha was measured on the finalized tool and showed internal consistency of 0.739 [28].

4. Results

The results are presented in four sections. All conclusions about capabilities and barriers that pertain to a specific category of facilities of interest are presented in Section 4.4.

4.1. Central Measurements, Phase One

Roughly 42% of respondents answered the questionnaire (41/97). The response rate was higher in a smaller city than in a larger city (86% vs. 34%, respectively). Reliability analysis was performed on the 14 items of questionnaire data. The value for Cronbach's alpha was acceptable at 0.739 [28], and the questionnaire could be deemed a valid instrument. All returned questionnaires had comments and notes written on them. About half of the respondents answered several questions in the comment section. Some respondents did not answer all the items in the questionnaire. Two questionnaires, both belonging to sports facilities, were not returned due to absent mailboxes.

4.2. Central Measurements, Phase Two

Several interviews had to be rescheduled due to the social distancing strategy implemented to counter the COVID-19 outbreak. Three face-to-face interviews were conducted with one Primary Health Care Center (PHCC) physician, two school nurses (from one school), and one chief veterinary surgeon from a major veterinary clinic. Nine more interviews were conducted via telephone: with one PHCC physician, three chief dentists, one manager for dental care development in the regional council for dental care, two more chief veterinary surgeons, one school nurse, one sports facility administrator, and two hotel managers. The average duration of an interview was approximately 28 min. The face-to-face interviews were notably longer than telephone interviews. They were more beneficial to this study because the meetings took place at the potential ACFs, allowing for visual inspection of facilities.

4.3. General Results

The majority of interview respondents from investigated facilities of interest indicated that their workplace could be converted into an ACF to care for affected persons from a MID. Some could also accept patients not affected by the emergency to alleviate pressure on the nearest hospitals. Many respondents had materials in limited amounts for minor surgery, while some facilities only had small first aid kits. Many respondents indicated that additional resources were needed for a further developed capacity and preparedness. The most common materials missing for an increased capability were suture kits and first aid packages (basic and advanced). Many potential ACFs would accept a package or cache with more advanced medical equipment (e.g., tracheal tube, thoracic drainage system, etc.) if proper education was provided and the FSC-response system managed maintenance of the cache. Many respondents and interviewees expressed enthusiasm for the ACF concept; however, they also mentioned a need for an overarching organization governing the planning processes for the FSC response system and a need for educational exercises and drills to further develop their capabilities as well as a clear legal definition of the role they may have during a MID response [29]. The suggested educational initiatives were CPR, first aid, advanced first aid, basic trauma care, ATLS-based courses, disaster management, scene management and task-specific training (e.g., cast appliances, intubation

techniques). Most respondents indicated a need for financial support and reimbursement for any invested time and effort into the FSC-response system.

4.4. ACF Specific Results

The following section presents a summary of ACF-specific results. The triage colors mentioned in the text are standard triage models used in MID and are widely used in many countries. The colors define the type of injury and the acuity of medical management. Red stands for immediate management (life-threatening injuries), yellow for delayed management (non-life-threatening injuries) and green for minimal supervision (minor injuries) [30].

4.4.1. Primary Healthcare Centers (PHCCs)

Eight out of 11 sampled PHCCs answered the questionnaire, and two key informant physicians were interviewed before the point of saturation. One interview was conducted in person and another over telephone. All eight clinics indicated an interest in taking part in a FSC-response system, and various levels of involvement were suggested in both questionnaire comments and notes and interviews. All clinics reported capability to receive green patients, and one clinic indicated the ability to stabilize yellow patients before transport to a major hospital. Three clinics stated that they could receive patients from a hospital, unrelated to the type of MID, to alleviate emergency departments. Half of the PHCCs could offer psychosocial support to people affected by a major incident.

4.4.2. Dental Clinics

Ten out of 12 questionnaires were returned with answers outlining capabilities useful to SC planning. Two interviews were conducted with chief dental officers at two clinics before the point of saturation was reached. All responding dental clinics reported both interest and a type of ability to participate in a FSC-response system. Nonetheless, some significant barriers were also reported regarding missing competence to care for injuries other than dental. Three clinics indicated that they could care for green patients from a major incident to alleviate hospital emergency wards. One clinic did not want to fully answer the questionnaire because it was perceived to obligate competency that was absent at the clinic and instead referred the issue to the regional level. At the regional level, one key informant was identified and interviewed. This key informant confirmed the data from both questionnaires and interviews but also shed new light on possible implementation procedures to involve the public dental care resources in a FSC-response system. The results from the interview with the regional informant contextualized and corroborated findings from both phases one and two of this study that pertain to all components of SC.

4.4.3. Veterinary Clinics

All responding veterinary clinics reported interest in participating to some extent in a FSC-response system. All clinics offered to make equipment and facilities available to the FSC-response system, and five out of six indicated capability to receive green patients from a MID. Two clinics also reported the ability to receive yellow patients and other patients from hospitals, unrelated to the type of emergency. Most clinics indicated the ability to treat minor surgical injuries, clean and suture wounds, administer intravenous fluids, and diagnose acute conditions. Many clinics reported to house diagnostic resources that can be useful during a disaster or major incident, such as ultrasonography and radiology, and capabilities to monitor patients for respiratory distress or other somatic deterioration. One clinic indicated that they could not provide healthcare to humans without having to close their veterinary operations. Barriers for veterinary clinics to partake in a FSC-response include the lack of competence to care for humans, legal hindrances for providing healthcare to humans, and the degree of difference between human and veterinary medicine in terms of beds, materials, and equipment. Some veterinarians had different views on how they can be involved in a FSC-response system. One interviewee expressed the belief that similar anatomy amongst all mammals makes trauma surgery similar for both human and veterinary medicine.

Another veterinarian expressed his concerns about the legal aspects and emphasized the need for clear and transparent legislation to enable their participation in a FSC-response system.

4.4.4. Schools

Nine out of 14 questionnaires were returned answered by a school dean, principal, or nurse. All responding schools reported capabilities and interests to be included in a FSC-response system, and all but one school indicated the ability to receive green patients from a MID. Some schools reported limited healthcare resources as school nurses have many students to care for during often limited office hours. One school reported hesitance to receive injured persons for care and treatment and preferred to distribute food and water and administer psychosocial support exclusively. One interviewee questioned having injured persons at the school at all. The reported barriers to partaking in a FSC-response system included the lack of personnel and medical expertise, lack of beds and healthcare materials, and the priority of keeping the school open.

4.4.5. Hotels

Five out of the ten questionnaires were returned answered, and all respondents indicated interest and ability to partake in a FSC-response system. One hotel reported the capacity to receive green patients from a major incident, and the remaining four reported the ability to prepare food, water, and shelter for over 40 persons. All responding hotels indicated that they could house evacuees or injured for treatment by healthcare professionals. Both interviewees expressed an enthusiastic interest in partaking in the proposed FSC-response system. A lack of competency and material were reported as barriers.

4.4.6. Sports Facilities

It was difficult to establish contact with sports facilities. From the twelve distributed questionnaires, two envelopes were returned due to missing mailboxes and only three questionnaires were answered. Two sports facilities indicated a capacity to participate in a FSC-response system. One facility did not answer the questions in the questionnaire but informed that they have no beds, no material, and no regular staff to contribute. Another informant responded that they could help, but they were limited in terms of what they could do. Multiple sites were contacted for interviews, but neither the owners nor managers were available for discussion or interested in being interviewed because nobody could answer for the whole facility. One sports facility administrator was briefly interviewed via telephone. The sports facilities that did report a capability to be included in a FSC-response system indicated that they could provide shelter and water for many people and distribute food. An important caveat regarding the mapping of sports facilities' capabilities is that they are often owned by the public and are managed by a municipal sport and association board. The power of decision making over daily operations often lies in municipal political councils that are disconnected from the day-to-day work at the facility.

5. Discussion

The study's results emphasize the importance of inter-organizational collaboration and the willingness of other stakeholders to participate in the management of MIDs. These findings also demonstrate the feasibility of the FSC-concept and enable all contingency planners to approach this concept fairly. A FSC-plan may offer the crisis management system another tier of resources, resulting in a regionally increased capacity to safely treat many victims. However, before any attempts to retrofit facilities of interest into functional ACFs are undertaken, a range of issues must be considered carefully. The following sections discuss the proposed FSC-concept concerning the four main components of surge capacity.

5.1. Staff

The required staffing of a FSC-response system is crucial. Those who are supposed to operate the ACFs must have both the necessary competencies and be readily available when the need arises. Some facilities of interest, such as PHCCs and veterinary clinics, have the capacity and ability to care for a few patients with minor injuries from a MID. Nonetheless, if they are to care for a group of patients or to deliver a higher level of care, they must be reinforced with additional staff. Other facilities, such as dental and veterinary clinics, lack competent staff to care for injured patients. Hotels and sports arenas may not have staff resources that are appropriately trained to care for even patients with minor injuries [12]. Establishing a dynamic personnel base between competencies and across disciplines could solve some issues of staffing. Staff can, to some extent, be reassigned from ambulatory or home-service care and from hospital wards not under severe pressure from the MID. Emergency staff, including physicians, will likely have a prominent role in managing the care at ACFs, as their competency is required at the center of all responses to MIDs [31]. Volunteers with appropriate skills and competencies (e.g., from the Red Cross or other volunteer civil defense organizations) can also report to an established ACF and help healthcare professionals to deliver appropriate care. There have been exciting developments regarding the use of immediate responders and initiatives such as CITIZENAID and Stop the bleed that educate the public in simple and lifesaving techniques that can be used in a MID [32]. A recent publication from Sweden indicated a high willingness among civilians to participate in the management of MIDs [32]. Civilian defense conscription can be activated by the government without declaring heightened alert and can potentially contribute (at least in part) to staffing ACFs [33–36].

5.2. Stuff (Healthcare Equipment and Materials)

Ensuring the adequate distribution of sufficient critical equipment is a significant task for the proposed FSC-response system. Many respondents indicated that the amount of material and equipment present at their facilities are among the most constricting factors on their capability and capacity. Distributing a material cache to potential ACFs appears to be an efficient and viable way of stocking and equipping a functional FSC response system [18]. The content of the proposed material cache should be adapted to the size and assigned task. Stockpiling used to be a convenient method to secure the provision of essential goods, but the contemporary strategy is generally built on "just-in-time delivery" and access to international markets and imports [34,35]. Altogether, the purveyance of healthcare goods and materials to countries such as Sweden has become more vulnerable than previously recognized [34–37]. To compensate for resource scarcity, many county administrative boards have developed and should develop creative solutions for supplemental reinforcement, including networking with other committees for shared resource pools and infrastructure for improved response.

5.3. Structure

Many of the investigated facilities (PHCC, veterinary, and dental clinics) are suitable for utilization in a FSC-response system. Some are operational presently, while others require a retrofitting effort such as preparing bed space, ensuring utilities and wraparound services, and clearing the facility from other operations. Hotels and sports arenas demand a more extensive retrofitting process to ensure adequate operational facility standards for healthcare provision. Countries such as Sweden have historically had little experience of domestic healthcare provision in nonconventional or standardized facilities. Nonetheless, as part of the response to the COVID-19 pandemic, several areas have been explored to increase the capacity of Swedish healthcare [35,37]. In line with the total defense structure, civilian-military collaboration has also increased, and military field hospitals have been deployed to house additional beds outside of major hospitals. The transportation of critical patients has been performed with military helicopters. However, to avoid misunderstanding and to smooth the pace of collaboration, these efforts should be planned and trained [35].

5.4. System

The responsibility for and management of the proposed FSC-concept must be carefully considered before implementation into a crisis management system. To rapidly deploy and operate ACFs, the logistics and transportation of material, equipment, and patients must be swift and well-coordinated. The efficiency of communication structures and the distribution of resources are of paramount importance. The command and control of the FSC is one of the most critical factors in achieving a successful response. In any context, leadership and decision-making are two critical factors that determine an event's outcome. Besides having a central coordinator, such as a public health agency, the ACF should be operating locally, close to the incident scene, with regional operational guidance and possible material reinforcement distributed from the regional and/or national levels and related agencies [12,19].

The importance of correct and efficient triage during a MID cannot be stressed enough, and selection of the patients for treatment at an ACF is crucial. Over-triage could lead to an unnecessary overflow of patients to hospitals, which could result in the depletion of precious resources, and under-triage may endanger the lives of the victims [30]. Readiness and competence to conduct simple and vital maneuvers, including ventilating a patient until transport to the definitive care, should be presented, and necessary materials must be available. Triage should also give particular concern to vulnerable populations.

Exercises are crucial to create a coherent system that allows for practicing in a FSC and efficient deployment and operation of ACFs. Broad collaborative exercises involving all actors in the crisis management system should be held regularly to streamline efforts from all parties. Appropriate educational initiatives can increase the motivation to help. Educational initiatives should be adapted to the level of care in the assigned task and existing competencies at the facilities of interest [38]. Further studies should determine the content of educational initiatives suitable for professionals and civilians involved in MID management. Findings from a recent study in Sweden indicate a need for new public education initiatives to enable nonprofessionals to become immediate responders [32,36]. There is also the potential to incorporate volunteer resources in some of the ACF operations. All MIDs are likely to affect the mental health of victims, which must be considered and treated alongside their physical injuries and trauma. Mental health preparedness has been deemed insufficient in most countries and must improve [39].

Preserving a network of concurrent material provision and maintenance with education, training, and exercise initiatives continuously running requires significant financial resource allocation, which must be prioritized. Without necessary resources a FSC-response system is toothless. Insufficient program duration has been identified as an essential factor that explains the considerable ineffectiveness of many community-based health and safety programs. Having a long-term program view, active planning against conflicting missions, and mobilizing sufficient resources are necessary to establish, deliver, and sustain the system over time [7].

6. Implications and Recommendations

Integrated participatory and sustainable planning can increase resilience and is closely related to some of the World Health Organization's (WHO) sustainable development goals [40]. If optimally implemented, the FSC-concept can lead to a safer and more resilient society by encouraging increased civil engagement and educational initiatives [12,32]. However, a successful implementation of FSC depends on some essential factors:

1. Mapping capabilities, resources, and networks in the community as part of contingency planning. While decentralizing forces and resources can benefit the independence of communities, they still need support from higher levels. Smaller cities had a higher response rate in this study, which might reflect a higher willingness to engage in their community.

2.   Empowering communities, nonprofessionals, and professional individuals to create pools of resources to utilize ACFs, as shown in recent studies and projects.

3.   Changing legal and organizational rules and norms necessary to implement the concept into any crisis management system.

4.   Financial investment from municipalities, regions, and, ultimately, the state, which might prompt policy and budget changes.

5.   Avoiding political interference in public health-related issues to limit crippling the healthcare apparatus more than necessary. The simplicity of disaster plans should be maintained and no excessive changes to the organization, staffing, or supply-chains should occur during a MID.

6.   Ethical, safety, and security aspects of using ACFs in response to MIDs should also be considered as the system is implemented.

7.   Regulation regarding monitoring and evaluating the initiative is also crucial for the improvement of the response system. Once implemented in policy, the involved parties must exercise and train the FSC-concept in real life for the response system to be efficient and effective.

8.   Further research is needed to explore possible use of ACFs and the FSC-concept. FSC can be a reasonable way to increase regional surge capacity, not only within the fields of trauma and surgery but also in other medical emergencies, e.g., CBRNE (Chemical, Biological, Radiological, Nuclear, Explosive)-related events.

7. Limitations and Strengths

The small number of investigated facilities, especially sports facilities, did not allow any statistical analysis of the results. However, the descriptive results confirm that the FSC-concept can be applied in more contexts than the Swedish one and has transferability to other settings in Europe and possibly to other regions as well [41].

The lack of previous studies in this field did not allow any comparison of results with other publications.

8. Conclusions

Management of MID is a multi-professional approach in a chain of reactions. A chain is not stronger than its weakest link. The flexible surge capacity concept is a feasible approach to emergency management that involves all stakeholders within the community. Educational initiatives, drills and exercises, nonprofessionals' empowerment, professional alternatives, organizational and legal changes, and sufficient funding are needed to realize the concept. This response system can also increase societal resilience through community participation and may advance nations' fulfillment of some of the WHO's Sustainable Development Goals. Components that explore possibilities of an attainable increased regional flexible preparedness are novel to the Swedish as well as other contexts. They could lead to a change in the crisis management system. The mobilization of sufficient resources to establish, deliver, and sustain programs over time will be essential to effective implementation of the FSC-concept. This study has found ample will residing in civil society to help the healthcare sector respond to MIDs. It is now up to the crisis management system to channel this will to help in a smart, safe, and efficient way.

Appendix A

Information Sheet, Questionnaire and interview guide (English Translation for review only)

Flexible Surge Capacity Questionnaire

All resources within a community need to be used to combat a major incident or disaster. This puts high demands on a healthcare system in close collaboration with other partners and authorities. Such collaboration requires both knowledge, planning and practice and must be based on mutual understanding and respect for areas of activity and related responsibilities. In the event of many injured persons needing urgent care, can the need for resources exceed the capacity of the hospitals near your centre/clinic/working place. We would like to investigate how different healthcare players/institutions/organizations can work together in specific events (scenario). Below are several questions that could provide guidance on how such collaboration can be built up in a given scenario. After reading the scenario carefully, please mark the answers that corresponds to the ability of your centre/clinic/working place. It is possible to select several options on the same question.

Participation in this study is voluntary, data would be handled confidentially and the answers will be de-identified. We hope you take the short time needed to answer our questions. This study is part of a PhD program at the University of Gothenburg/Sweden and Mahidol University/Thailand.

On behalf of the research group
Name: xxxxxxxxxxxxxxxxxxxxxx, Date: xxxxxx

Scenario
After an accident near your centre, there are 120 injured at the site. A sum of 40 severely injured victims require all emergency resources at the major hospital's surgery and intensive care units. Another 40 people are at immediate risk of inhalation injuries and must be under observation with intubation readiness (creating free airways by inserting a tube through the mouth and then into the airway) for the next few hours. Some people also have burn and splinter injuries. The last 40 patients have minor injuries and can be treated either at a hospital or at another unit.

A. Primary care/Health
If your centre is staffed adequately when the event occurs, how can you help?
You can receive the less injured from the incident.
You can receive serious injured from the event for physiological stabilization pending further transport to major hospitals.
You can relieve the hospital emergency departments by receiving other emergency cases, not related to the incident.
Your health care staff can connect to the hospital for reinforcement.
You can can offer resources, e.g., space, instrument, material.
Your centre can handle minor surgical procedures, suture wound injuries, plaster uncomplicated fractures, etc.
Your centre can handle medical patients.
Your centre can offer psychosocial support to patients and staff.
Your centre can coordinate transport for patients to the home.
Your centre cannot help.
Other?
Prerequisites for Healthcare to be able to help.
Equipment/Material:
You have sufficient equipment and materials for the desired ability to assist in special events.
You lack equipment/materials for increased ability. For increased ability, you need _____.
Other?
Local Supply:
You have adequate facilities for the desired ability to assist in specific events
You do not have adequate facilities for the desired ability to assist in specific events. For increased ability, you need?
Other?
Staffing:
What kind of resource or knowledge your staff need to increase their ability in to take care of injured people?

Other?

Competences:

Do you have the skills required for what you would like to do in the event of a major incident when the needs exceed the available resources?

Yes, absolutely.

Yes, but we need more training/practice.

No, but we can after a directed training/exercise. Suggestion?

Other comments and extensions?

B. Veterinary Clinic

If your centre is staffed adequately when the event occurs, how can you help?

You can receive the less injured from the incident.

You can receive seriously injured from the event for physiological stabilization pending further transport to major hospitals.

You can relieve the hospital emergency departments by receiving other emergency cases not related to the incident.

Your health care staff can connect to the hospital for reinforcement.

You can can offer resources, e.g., space, instrument, material.

Your centre can handle minor surgical procedures, suture wound injuries, plaster uncomplicated fractures, etc.

Your centre can handle medical patients.

Your centre can offer psychosocial support to patients and staff.

Your centre can coordinate transport for patients to the home.

Your centre cannot help.

Other?

Prerequisites for Healthcare to be able to help.

Equipment/Material:

You have sufficient equipment and materials for the desired ability to assist in special events.

You lack equipment/materials for increased ability. For increased ability, you need?

Other?

Local Supply:

You have adequate facilities for the desired ability to assist in specific events

You do not have adequate facilities for the desired ability to assist in specific events. For increased ability, you need?

Other?

Supply of competence:

Do your veterinary clinic have the skills required for what you would like to do in the event of greatly increased care needs?

Yes, absolutely.

Yes, but we need more training/practice.

No, but we can after a directed training/exercise. Suggestions?

Other comments and extensions?

C. Dentistry

If your centre is staffed adequately when the event occurs, how can you help?

You can receive the less injured from the incident.

You can receive seriously injured from the event for physiological stabilization pending further transport to major hospitals.

You can relieve the hospital emergency departments by receiving other emergency cases, not related to the incident.

Your health care staff can connect to the hospital for reinforcement.

You can can offer resources, e.g,. space, instrument, material.

Your centre can handle minor surgical procedures, suture wound injuries, plaster uncomplicated fractures, etc.

Your centre can handle medical patients.

Your centre can offer psychosocial support to patients and staff.

Your centre can coordinate transport for patients to the home.

Your centre cannot help.

Other?

Prerequisites for Healthcare to be able to help.
Equipment/Material:
You have sufficient equipment and materials for the desired ability to assist in special events.
You lack equipment/materials for increased ability. For increased ability, you need?
Other?
Local Supply:
You have adequate facilities for the desired ability to assist in specific events
You do not have adequate facilities for the desired ability to assist in specific events. For increased ability, we need?
Other?
Supply of competence:
Do you have the skills required for what you would like to do in the event of a significant increase care needs?
Yes, absolutely.
Yes, but we need more training/practice. Suggestions?
No, but we can after a directed training/exercise. We suggest?
Other comments and extensions?

D. Schools

How can you help in the urgent care of those affected?
We can stop bleeding, repair wounds, and administer cardiac resuscitation and other emergency procedures.
We can receive the minor injured from the incident.
We can receive shocked people and administer psychosocial support.
We can prepare sleeping accommodation for homeless, evacuated or otherwise afflicted people.
We can prepare food and water for the needy.
We can take care of children so that parents can help elsewhere.
We can send staff to help other authorities.
No, we can't help.
Other?

Do you have the skills for what you would like to do?
Yes, absolutely.
Yes, but we need more education. Suggestions?
No, but we can after a targeted education. Suggestions?
Other?

Prerequisites for your reception to help.
Equipment/Material:
We have enough equipment and materials for the desired ability to help in special cases events.
We lack equipment/materials for increased ability. For increased ability, we need?
Other?
Local Supply:
We have adequate facilities for the desired ability to assist in specific events
We do not have adequate facilities for the desired ability to assist in specific events. For increased ability, we need?
Other?
Supply of competence:
Do you have the skills required for what you would like to do in the event of a significant increase care needs?
Yes, absolutely.
Yes, but we need more training/practice. Suggestions
No, but we can after a directed training/exercise. We suggest?
Other comments and free text?

E. Gym /Sports clubs / Hotel
How can you help in the urgent care of those affected?
We can stop bleeding, repair wounds, and administer cardiac resuscitation and other emergency procedures.
We can receive the minor injured from the incident.
We can receive shocked people and administer psychosocial support.
We can prepare sleeping accommodation for homeless, evacuated or otherwise afflicted people.

We can prepare food and water for the needy.

We can take care of children so that parents can help elsewhere.

We can send staff to help other authorities.

No, we can't help.

Other?

Do you have the skills for what you would like to do?

Yes, absolutely.

Yes, but we need more education. Suggestions?

No, but we can after a targeted education. Suggestions?

Other?

Prerequisites for your reception to help.

Equipment/Material:

We have enough equipment and materials for the desired ability to help in special cases events.

We lack equipment/materials for increased ability. For increased ability, we need?

Other?

Local Supply:

We have adequate facilities for the desired ability to assist in specific events

We do not have adequate facilities for the desired ability to assist in specific events. For increased ability, we need?

Other?

Supply of competence:

Do you have the skills required for what you would like to do in the event of a significant increase care needs?

Yes, absolutely.

Yes, but we need more training/practice. Suggestions

No, but we can after a directed training/exercise. Suggestions

Other comments and free text?

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