

SPECIAL ARTICLE

HOSPITAL ALL-RISK EMERGENCY PREPAREDNESS IN GHANA

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SUMMARY

Objective: This paper assessed the emergency preparedness programs of health facilities for all-risks but focused on Road Traffic Accidents, (RTA) resulting in surge demand. It adopted W. H. O checklist covering hospital preparedness, equipment, manpower and surge capacity planning as best practices for the mitigation of public health emergencies.

Method: This is a cross-sectional study of purposively selected health facilities. The method used consisted of site visit, questionnaire survey, literature and internet review. The W. H. O. standard for emergency preparedness of health facilities was used to evaluate and assess the nation's hospitals surge capacity programs. The study was conducted between March-June, 2010. A total of 22 district and regional health facilities including teaching hospitals participated in the study. All 10 regions of the country were covered.

Result: These were: (1) many of the nation's hospitals were not prepared for large RTA's resulting in surge demands, and did not possess general emergency preparedness programs. (2) The hospitals' respective abilities to handle large scale RTA's were compromised by the lack of competent medical and allied health personnel and adequate supplies.

Discussion: The inadequacies of the hospital system in responding to emergencies raise serious public health concerns. The biggest challenge facing the hospitals in their emergency intervention is the lack of pre-emergency and emergency preparedness plans as well as the coordination of the hospitals response mechanisms.

Conclusion: The paper ended with recommendations on how the nation's hospitals and their supervisory agencies could improve emergency preparedness.

Keywords: Ghana, Road-Traffic Accidents, Burns, Surge Capacity Planning, Emergency Preparedness.

INTRODUCTION

Ghana needs a realistic national hospital and medical emergency response program designed on the principle of equitable distribution of appropriate equipment and supplies, and well trained emergency medical personnel. This paper evaluated the basic logistical assets preparedness of 22 Ghana hospitals for emergency intervention in surge situations. The World Health Organization, (2007) Field Manual for Capacity Assessment of Health Facilities in Responding to Emergencies was used in data collection but modified to suit the national situation. The WHO recommends periodic assessment of the capacity of health facilities' response to emergencies. For example, the evaluation of South African hospitals found skills gap in that nation's healthcare system. National authorities have also conducted similar review of the Ghana healthcare system.

They found many gaps in the efficiencies of both equipment and supplies of the nation's healthcare system. Recently, there was the evaluation of the trauma response capabilities of U. S. hospitals that were involved in major incidents such as the 9/11 terrorist attacks in 2001 and Hurricane Katrina in 2005. Those authors concluded that despite the large sums of money spent on preparedness, gaps still existed.¹⁻⁴

Health facilities should be able to perform not only in day-to-day hospital setting, but in handling challenging cases during surge periods.⁴⁻⁶ Surge capacity is a health facility's ability to rapidly expand beyond normal services to meet increased demand for bed space, qualified personnel, medical services and public health programs in the event of a large scale disaster.⁷ Pre-hospital emergency protocols is defined as a hospital's pre-emergency preparedness standards and programs existing as deliberate part of its operational system, which is designed for deployment at the onset of challenges posed by emergencies beyond the mundane or ordinary occurrences.⁸⁻¹¹

A hospital preparedness is a means for a hospital to test and evaluate its capabilities and, or recovering from an event that puts a significant strain on a hospital's patient care and operating systems. The critical areas of hospital emergency preparedness are: (i) pre-hospital emergency preparedness, (ii) in-house emergency response plans, (iii) human capacity and, (iv) the assessment of existing infrastructure in emergency.

The stock of infrastructure includes but not limited to ambulances, community transport system and Emergency Medical Service, (EMS) delivery system. They also include intra-organizational mutual aid agreements and inter-hospital and supplier memorandum of understanding. These agreements should emphasize the continuity of supplies in emergencies against future payments and of course the availability of appropriate technological medical devices.^{8,9,12}

The absence of both emergency preparedness programs with surge capacity planning as well as adequate infrastructure can lead to poor outcomes as was demonstrated on the 18th March, 2009.¹³ In the RTA that occurred on the 18th of March, 41 people sustained serious burns when a LPG gas tanker crushed into a commuter bus and ignited at Winneba Junction, Ghana. Twelve of the passengers died on the spot, apparently from burns. Twenty-four were rescued from the inferno and taken to the District Hospital for treatment, but 2 died at the Emergency room. Of the 22 remaining, 15 were placed in the Male Ward and 7 were in the Female Ward. Each group later suffered 2 deaths, and with 1 female death at the Maternity Ward.

An additional 5 separate bundles of burn corpses were delivered to the mortuary. Subsequently, all the 41 burn victims perished, except one.^{13,14} Medical and emergency professionals who understand emergency preparedness are better equipped to respond to hospital emergencies adequately.³ Other studies have evaluated how casualty load affected the level of trauma care in multiple casualty incidents and how to define the surge capacity of the hospital trauma assets. In one of such study, it was found that there is a quantitative relationship between increasing casualty load and gradual degradation of the level of trauma care in multiple casualty incidents.^{15,16}

Similarly, another study concluded that a national computer tracking system of the availability of burns beds, patient triage and transportation improved patient care in multiple casualty burns events.^{16,17} However, other studies found that even in the industrialized nations, hospital mass casualty preparedness efforts were in early stage of development at the time of their survey. These studies also found that the hospitals they

surveyed lacked critical assets for emergency intervention. Disaster planning, coordination, training, and resource capacity were also lacking in those hospitals.^{18,19,21}

Road fatalities in Ghana have risen steadily from 1,578 in 2000 to 1,856 in 2006 with the total number of registered vehicles being 511,063 and 841,314 respectively. Deaths from heavy goods vehicles rose from 235 in 2004 to 270 in 2006, while at the same time, pedestrian casualty were 869 in 2004 and fell to 770 in 2006. Injuries and fatalities from RTA's are significant.¹⁰ This calls for improvements in the national medical emergency preparedness program en mass.

Another concern is the coordination of fire management in emergencies. In RTA's fire is a major risk factor but the Ghana National Fire Service, (GNFS) is often not in the position to offer credible intervention due to funding, personnel and equipment problems. In theory fire alarms are to be broadcast simultaneously to the Fire Service sub-station and area hospitals. In practice, however, there is little or no coordination between them in responding to fire emergencies and setting up on-site treatment post for fire victims.¹³ In the case of ambulance service for either burn victims or victims with non-burn injuries but in RTAs, the limited fleet of ambulance in the nation, carries one bed and one patient at a time.

The citizens often result to Community Emergency Transport system, (CETS) an ad hoc transport network.¹¹ With respect to South Africa's EMS program, for example, it was found that many doctors were poorly prepared to deal with pre-hospital trauma and emergencies and that poorly managed EMS system led to poor outcomes.^{12,15,23} "Emergency preparedness and efficiency constitute a vital aspect of a government's service to its citizens. Government agencies must possess the ability to expand rather than scale back emergency services in times of crisis".²⁰ Some of the hospitals in this study were not able to deliver immediate medical care in road traffic emergencies because the facilities did not have either the expertise such as trauma doctors and nurses, and basic equipment such as oxygen tanks and breathing apparatus to handle many of the cases arising from such events.²¹

Although the increasing rate of mortality cases in general at government hospitals in the country have been attributed "... to bad professionalism on the part of some of the doctors serving within the government hospital system..." the issue is more complicated than that.²²

According to the review of hospitals by the Ghana Integrity Initiative in the Sub-region in 2008-9, the procurement reform in relation to the health care industry² and facilities efficiencies,³

Ghana's medical infrastructure has been made vulnerable by decades of neglect, poor management of financial assets and human capital. There appeared to be outright corruption in the healthcare purchases in spite of the procurement law and regulations.^{22,23} This situation has been exacerbated by systemic under-funding. Often hospitals do not have fully functioning laboratories, X-ray and diagnostic or rehabilitation equipment, good supply-chain for logistics and consumables, as well as adequate graduate medical and support staff. Bed capacity is over-burdened with patients, some of whom sleep on mattresses in the corridors and passage ways. Bedding supplies are not in the best of conditions. Some of the hospitals in this study have neither Intensive Care Unit, "ICU" nor make provisions for surge capacity.²¹⁻²⁷

There should be both in-hospital and out-hospital triage regimes in place for use by all hospitals. Triage is the sorting out of work protocols at impact site and standardization of front-office emergency room, in-hospital admission and treatment procedures based on medical emergency acuity, availability of trained staff, appropriate medical facility, supplies and proper patient distribution in an emergency. Triage also presumes a surge or convergence of patients who are "severely wounded", "walking wounded", 'cuts and bruises', 'worried well', 'information seekers', and the preservation, tagging and storage of the dead, at an hospital from the 1st hour to the 24th, 48th, 70th hour and beyond.

Treatment presumes availability of trained trauma medical and emergency staff, appropriate hospitals with Mutual-Aid Agreements and supplies. Transportation presumes qualified Emergency Medical Services, (EMS) equipment and crew, Emergent Groups or Volunteers with basic knowledge of preparedness. The system designed by the Ghana Health Service does not take into consideration some of the essential areas.^{11; 21; 22, 26}

The objective of this paper is to (1) assess the assets of hospitals for emergency preparedness, including equipment, manpower and surge capacity planning consistent with W.H.O. standards and recommended best practices; (2) Evaluate and assess the nation's hospitals surge capacity programs with respect to interventions for RTAs.

METHOD

This is a cross-sectional study of purposively selected health facilities. The method used consisted of site visit, questionnaire survey, literature and Internet review. The study was conducted between March-June, 2010. A total of 22 district and regional health facilities including teaching hospitals participated in the study. All 10 regions of the country were covered. The following data collection techniques were used.

Field visits

Field visits were paid to the Winneba District Hospital, which was used as a case study for the handling and treatment of burns victims from the point of ignition to the ward. The Principal Investigator conducted a face-to-face interview with key informants. The PI was given a tour of the wards and other facilities in the hospital. The goal of this field visit was to interview personnel on duty to find out their roles in the 18th March road traffic event. The study wanted to help understand the triage program in place for mitigating fire related road traffic emergency, and the general preparedness of that hospital for the treatment of burns.

Survey Tool

The World Health Organization's Field Manual for Capacity Assessment of Health Facilities in Responding to Emergencies of 2007 was modified and administered to the participating hospitals. In the health facilities, interviews were conducted with key medical officers and, or other identified key informants.

Analysis

The completed questionnaires were translated into simple matrix checklist with the respective responses assembled for easy comparison.

Desktop Review

Systematic literature and Internet reviews of Hospital Emergency Preparedness and Surge Capacity Planning were undertaken. The literature review covered various national strategies, laws and policies on hospital emergency preparedness, surge planning, and triage protocols in place for burns victims in RTAs in Ghana and elsewhere. Some of these were accessed on the World Wide Web and from journals and national newspapers.

The aim of the study was to document some of the difficulties faced by health facilities, their emergency preparedness and the unique challenges they face in emergency mitigation and how best to address such difficulties. This was compared with international best practices using the WHO hospital evaluation questionnaire as a tool.³¹

Ethical Issues

Permission was sought from all the in-charges of the select health facilities in the study. The in-charges and interviewees were assured of confidentiality of their data. Data safety and usage were purposely for academic work. There were no risks of using the data and the benefits of using the data were immense, such as publishing the findings to guide policy. Furthermore, there was no conflict of interests.

RESULTS

Hospital Facilities Emergency Preparedness for intervention in burns cases

Table 1 covers the emergency operating procedures for interventions in RTA burns cases within the 22 health facilities evaluated. We used the following descriptors to indicate whether facilities were average, above average, below average or unacceptable below average thus: A is 50%=Average, AA is 50%+ = Above Average, BA is 10-49% = Below Average, AU is <10%=Unacceptable below Average.

The assessment of institutional support for training and education of staff for RTA burns victims revealed that 86.4% of the facilities were AA or above average. The facilities also obtained AA status for the following areas: (a) availability of protocol for the management of burns and, (b) free treatment of victims in disasters and emergencies. When it came to whether or not the facilities had documented emergency preparedness plans, only 27.3% of them did, which translated into BA or below average score. Although 46% (BA) had available preparedness plans these were not documented. In terms of financial support for emergency program at the facilities, 36.4% (BA) reported having financial support for operating procedures for RTA burns victims. In terms of the availability of special wards for the management of burns cases, only 31.8% (BA) of the facilities reported having one (Table 1).

Although the majority of the facilities could not confirm the existence of an emergency plan, 86.4% reported that their “institutions support the training and education for their emergency personnel including facilities that reported that

- (a) They had no plan in place and
- (b) Those facilities that did not respond to the question at all.

In emergency cases brought to the hospitals, 54.5% (AB) of the facilities said they provided “free treatment of patients during disaster situations” although the National Health Insurance Scheme provides for all hospitals to treat emergency cases whether the patient is a registered member or not.

General Emergency preparedness and response to simulation exercise

In assessing the general emergency preparedness programs of the facilities surveyed (Table 2), we discovered the following: 68.2% (AA) of the facilities reported having emergency preparedness plan staff directory. Another 50% (A) of them reported the existence of emergency planning group and the same figure reported pre-assigned victims reception areas. The facilities’ response capability to external disaster such as RTA was only 22.7% (BA) and, with just 27.3% (BA) of the facilities having on-site disaster response team. With respect to organizational charts, about 32% (BA) had disaster organizational charts, with 36.4% having incident disaster organizational charts that were recommended by their respective Incident Command Structures. Of those facilities assessed, only 32% of them conducted regular drills or simulation exercises.

Table 1Percentage distribution of emergency operating procedures for RTA burns victims

Procedures	Hospital (n=18)	Health Center (n=2)	Polyclinic/ Clinic (n=2)	Total (n=22)
Availability of emergency preparedness plan	36.4	4.5	4.5	45.5
Documented emergency plan	22.7	-	4.5	27.3
Institutional support, training & education	77.3	-	9.1	86.4
Financial support	36.4	-	-	36.4
Free disaster treatment victims	45.5	9.1	-	54.5
Availability of RTA management protocol	36.4	4.5	4.5	45.5
Paid disaster treatment victim	22.7	-	4.5	27.3
Availability of protocol for management of burns	50.0	4.5	-	54.5
Availability of special ward for management of burns	31.8	-	-	31.8

Triage and Surge Capacity planning

The study found that the triage standards designed by the Ghana Health Service, (GHS) and distributed to all Government Hospitals is flawed because it did not provide for field or on-site care management as reported in Table 2, but only covered minimally in-hospital ER operations. Since our review was not on in-house emergency protocol, we did not evaluate the GHS’s triage for on-site interventions.

We assumed also that the two private facilities not under the control of the GHS that were involved in this assessment might have the same kind of triage in place, though theirs could be different. This assumption was based on the rationale articulated by Reason (2000) that in any given industry, practices tend to be similar even within dissimilar structures.¹⁸

In Table 3, 50% of the facilities reported not having extra beds and respirators. Only 9.1% of the facilities had MRI machine. Encouraging reports were made about the facilities capacities for carrying suitable water storage with 81.8% having such a capacity and 72.7% having blood storage capacity. In terms of emergency services provisions such as surgery, (Table 4), 86.4% of the facilities reported providing surgery, but only 13.6% said they had personnel who were in fact surgeons.

The facilities scored below average marks in terms of the availability of paediatric personnel, 45.5%, anaesthesiologists, 27.3%, ENT specialists, 40.9%, Orthopaedics, 36.4%, Urology, 31.8%. Optimism was revealed by the report that the facilities had 100% capacity for laboratories personnel.

Table 2 Percentage distribution of emergency preparedness response to simulation exercise

Preparedness issues	Hospital (n=18)	Health centre (n=2)	Polyclinic /clinic (n=2)	Total (n=22)
External disaster experience	18.2	-	4.5	22.7
Emergency preparedness plan staff directory	54.5	9.1	4.5	68.2
Emergency planning group	40.9	4.5	4.5	50.0
Disaster organizational chart	27.3	-	4.5	31.8
HEICS recommended organizational chart	31.8	-	4.5	36.4
On-site disaster response team	22.7	4.5	-	27.3
Pre-assigned victims reception area	50.0	-	-	50.0
Staff assigned to security & crowd control	40.9	4.5	-	45.5
Regular drills	31.8	-	-	31.8

Human capacity in Emergency medicine and Hospitals Mutual-Aid Agreements, (MAA)

In the analysis of the survey instrument, it was found that the estimated percentage distribution of true resident trauma doctors in the facilities may be less than 22.7%. It was also found that amongst the medical personnel responding to the Winneba Junction Gas tanker explosion, a day or so later, were doctors from the public hospitals in the capital.

The distance between Accra, the capital and Winneba municipality is about 56-58 kilometres, depending on the start point of travel. This distance can be covered in a reasonable driving time. The private hospitals did not send any team and it was not clear whether any request was made for their involvement. This could be due in part to the fact that some of the same doctors working in government hospitals, in fact do locums in private clinics. The study also found that there were no hospital Mutual Aid Agreements, (MAA) between the chain of government hospitals and the private hospitals on one hand or even amongst the hospitals under the umbrella of the Ministry of Health and the GHS on the other hand.

Table 3 Percentage distribution of equipment and supplies

Equipment/Supplies	Hospitals (n=18)	Health Centre (n=2)	Polyclinic /Clinic (n=2)	Total (n=22)
Emergency kits	59.1	9.1	4.5	72.7
Electric generator	54.5	-	4.5	59.1
X-ray equipment	54.5	4.5	4.5	63.6
Hydrotherapy pool	18.2	-	-	18.2
Respirators	45.5	-	4.5	50.0
Anaesthesia machine	40.9	-	4.5	45.5
MRI machine	9.1	-	-	9.1
Extra beds	40.9	4.5	4.5	50.0
Blood storage facility	68.2	-	4.5	72.7
Suitable water storage facility	63.6	9.1	9.1	81.8

Ambulance Services, community transport system and EMS delivery system

The goal of a good pedestrian public health program in emergency response is to provide wide and evenly distributed patients to medical facilities across the nation. Ghana as at the end of April 2009 had 26 ambulances for the entire nation which were distributed to the regions.³⁵ The Ghana National Fire Service which could have augmented the work of the EMS team has neither its own fleet of ambulances nor are ambulances at-

tached to Fire Stations. They do not routinely provide first aid to victims at fire sites, not for want of skill but for the lack of equipment and supplies.^{28,29,30}

At the time of visit to the health facilities in this study in 2010, none of them had a dedicated ambulance to transport referral cases or respond to emergencies outside of the parameters of the hospitals. This shortcoming is filled by what we call Community Emergency Transport System, (CETS) where private citizens use their private cars or hire commercial vehicles to transport the sick, injured or acute cases in need of immediate medical emergency assistance.

In CETS vehicles, the skills of volunteers fall short of what is expected from an EMS crew. In cases of burns victims transport, the lack of national hospital emergency preparedness is particularly severe.

Table 4 Percentage distribution of essential emergency personnel

Personnel	Hospitals (n=18)	Health Centres (n=2)	Polyclinic /Clinic (n=2)	Total (n=22)
Emergency medicine	50.0	-	9.1	59.1
Surgery	72.7	9.1	4.5	86.4
Obstetrics and Gynaecology	40.9	4.5	9.1	54.5
Internal medicine	50.0	4.5	9.1	63.6
Paediatrics	40.9	-	4.5	45.5
Anaesthesiologists	22.7	-	4.5	27.3
ENT specialist	36.4	-	4.5	40.9
Ophthalmologists	50.0	4.5	9.1	63.6
Orthopaedics	36.4	-	-	36.4
Urology	27.3	-	4.5	31.8
Laboratories	81.8	9.1	9.1	100.0

DISCUSSION

The inadequacies of the hospital system in Ghana in responding to RTAs and other emergencies raise serious public health concerns. The biggest challenge facing the hospitals in their emergency intervention is the lack of pre-emergency and emergency preparedness plans as well as the coordination of the hospitals response mechanisms.

Part of the solution in developing good practices for pre-hospital emergency management, is to provide both long-term and short-term approaches.^{2,26} The development of Hospital Emergency Plans for the hospital system of Ghana in the short-term can be achieved at little or no cost to either the individual hospitals or the Government.

Developing emergency plan and teams as well as incident command structures do not cost money as well. Executing triage standards to be applied nationally does not involve a great deal of money but the political will of the supervisory ministry or agency of the hospital system in Ghana. The plan should provide for partial or complete evacuation of the facility including Intensive Care Unit (ICU), prenatal and antenatal units in case of fire, explosion, accidental release of gaseous material, flooding or water mains burst or collapsed roof structure or criminal invasion of the facility. Evacuation of a facility such as a hospital, presumes a safe haven or resettlement of the patients to a secondary facility or a different location, which could be achieved through Mutual Aid Agreements (MAA).^{24,26}

MAAs are based on areas of specialization and staff, proximity and existing regulatory bodies, legislation and medical malpractice requirements, vis-à-vis immunity provisions. Due to competition within government hospitals and between private hospitals and doctors, cooperation can negatively affect emergency response capabilities of a district. Some experts believe that in severe emergencies, all hospitals and doctors pull together to address the exigency despite competition.²⁰ In the case of the Winneba Gas Tanker explosion, the outcome of the medical emergency response clearly affirmed the position that without a well-articulated hospital MAAs, response capability could be undermined.

There is no clearly articulated position of the Ghana Medical and Dental Council on MAAs or that of the Hospitals or Ministry of Health or Ghana Health Services on MAAs. The position of the law and the insurance industry on MAAs in terms of apportionment of professional responsibility and cost is also not clear, which stems from the fact that there is no national policy on MAAs to begin with. The national facilities do not routinely conduct systems wide simulation exercises. Simulation exercises are a good way for facilities to identify bottlenecks in a facility's internal preparedness plans as well as in routine emergency standards at emergency room (ER) and in-hospital triage.

Though simulation exercises are costly to execute depending on the complexities involved and the size of the facility, simulation exercises can enhance operating systems if they are incorporated into the routine operations of the facility with the means to assess and evaluate their efficiencies.

As reported, only 68.2% (AA) of the facilities reported having emergency preparedness plan staff directory.

Another 50% (A) of them reported the existence of emergency planning group and the same figure was reported for pre-assigned victims' reception areas.

The evaluation of the facilities' response capabilities to external disasters outside the hospitals' ER and wards such as in RTAs was only 22.7% (BA). This outcome is low and does not augur well with a good institutional readiness. Although preparing organizational charts as a short-term measure does not require a lot of money, only 31.8% (BA) had disaster organizational charts, with 36.4% having incident disaster organizational charts that were recommended by their respective Incident Command Structures. Of those facilities assessed, only 31.8% of them conducted regular drills or simulation exercises to sharpen their emergency intervention skills, knowledge and abilities.

Even without the aid of cross tabulation of the responses, it is clear to see that the national hospital emergency preparedness program does not really exist as an integral part of the hospital system. If a facility has a designated emergency preparedness plan staff directory that facility should also have emergency planning group as well as disaster organizational charts in order to assign the staff whose names are in the emergency responses directory to specific duties. All of such activities would have to emanate from the emergency plan, if one existed.

EMS in Ghana is a medical-transport vehicle. Few have Basic Life Support, (BLS) teams. Fewer still have Advance Cardiac Life Support, (ACSL). Basic Life Support (BLS) Services is pre-hospital and inter-hospital emergency care and non-emergency medical care that includes airway management, cardiopulmonary resuscitation (CPR), control of shock and bleeding, and splinting of fractures.^{19,20,24,25,26} Advance Life Support (ALS) Services is an advanced level of pre-hospital and inter-hospital emergency care and non-emergency medical care that includes basic life-support care, cardiac monitoring, cardiac defibrillation, electrocardiography, intravenous therapy, administration of medications, drugs and solutions, use of adjunctive medical devices, trauma care and other authorized techniques and procedures.^{24,26}

In the nation's EMS/CETS vehicles and in the case of burns, many of the district hospitals have practical logistical difficulties in effectively managing such cases during transportation of patients to the more resourced facilities in the urban centres. In addition to the problem of lack of appropriate EMS vehicles, they also lacked appropriate equipment and supplies and, in some cases, personnel. They are faced with the problem of monitoring body temperature to determine the

onset of hypothermia, impairment of oxygen consumption and to establish the degree of injury. Hypothermia at pre-hospital treatment of burn patients is a common risk factor associated with morbidity. When the transport vehicles are not equipped with the appropriate equipment, it is difficult to determine the role of hypothermia in the patho-physiology, the type of treatment and epidemiology of the victims.¹²

In emergency cases brought to the hospitals, 54.5% (AB) of the facilities said they provided "free treatment of patients during disaster situations", which may suggest that they do not always care for emergency RTA cases. The National Health Insurance Scheme provides for hospitals to treat emergency cases whether the patient is a registered member or not. This is inconsistent with the National Health Insurance Regulations, (NHIR) 2004 (L. I. 1809), Schedule II, Part I: Regulation 19(1): Minimum Healthcare Benefits, Section 6 (a), (b), (e), and (f). The difficulty is how to determine what a national, regional or district emergency is or when it is declared.

The guideline for such a determination is informed by the internationally recognized standard that, the offer of free medical services should be in situations where there is a national or regional and district wide official emergency declaration consistent with local or national legislation. In the case of Ghana, Articles 31 to 33 of the 1992 Constitution provide the rubric. In the case of RTA and other medical emergencies listed in L. I 1809 of the NHIR, exceptional circumstances have been carved out of the law, making it possible for healthcare services to be provided without the formal declaration of a state of emergency.

Therefore, Schedule II, Part I, sub-section 6 of L. I. 1809 appears to be an exception to the standard rule, the non-compliance of which may result in prima facie case of negligence. The hospital system in Ghana is in need of reparation for both routine healthcare delivery and for emergency situations. It needs to be mended for the nation to meet the broader objectives of the Millennium Development Goals by 2015.

CONCLUSION

We make the following conclusions to this paper based upon the outcome of the research reported that:

- a) The national response to emergencies as well as RTAs is disorganized and often undertaken by emergent groups. This situation calls for improvements in emergency preparedness en mass, together with improvements in physician skills for injury management.
- b) The hospitals' respective abilities to handle large scale RTA's were compromised by the lack of

competent medical and allied health personnel and adequate supplies.

- c) Many of the nation's hospitals were not prepared for large RTA's resulting in surge demands, and did not possess general emergency preparedness programs, let alone surge capacity planning.

RECOMMENDATIONS

- a) The Ministry of Health with the Ghana Health Service needs to develop a system for resourcing the hospitals and health facilities under its care and to ensure that all other health facilities are likewise resourced. This would, hopefully, create the synergy for building a resilient healthcare system that is capable of handling emergencies of all kinds; consistent with W. H. O standards and best practices.
- b) Both MOH and GHS need to provide a system for managing the efficient distribution and treatment of RTA and burn victims among its chain of hospitals and clinics as well as enter into Mutual Aid Agreements with private facilities for a coordinated response to RTAs.
- c) It is highly recommended that GHS and MOH would develop the template for hospital emergency planning, surge capacity planning and provide the needed funds for personnel training for disasters risk reduction and mitigation.

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