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Amb. John O. Kakonge,
President, AFICS-Kenya

AFICS-Kenya

c/o United Nations Office at Nairobi, Gigiri,
Central Area, Main Lobby;
P. O. Box 47074-00100, Nairobi, Kenya
Email: afics.kenya@un.org
Phone: +254 20 76 23531
www.afics-kenya.org/consultancy
www.afics-kenya.org

Linking Disaster Medicine to the Kenyan Health Care System: A Briefing Note*

KEY MESSAGES

- Health care institutions and personnel should be involved in preparing medical disaster and response plans for each health care institution in the country. The broad involvement of institutions and personnel would better facilitate efficient coordination and encourage swift and effective management of medical disasters.
- Increased investment is required in the health care sector to strengthen medical disaster management as an integral part of the health care system.
- Well-trained medical disaster response teams should be evenly distributed throughout the country.
- Multi-sectoral and multi-disciplinary approaches should be implemented to improve medical disaster response.
- Community engagement and participation in health disaster management programmes are vital.
- Essential medical supplies should be stockpiled and be available in strategic areas countrywide.

1. Introduction

The objective of this brief is to highlight and review the importance of disaster medicine in the overall healthcare system. The brief highlights examples of medical disaster response and draws some lessons useful to African countries such as Kenya.

A medical disaster occurs when the destructive effects of natural or human-induced forces overwhelm the ability of a given area or community to meet the demand for health care. It is created by an imbalance between the number of casualties and the number of resources available to treat them (Smith, 2012). Not all disaster victims succumb immediately after injury. Survivors' lives can be saved if proper medical attention is given quickly; but when a disaster strikes, medical aid may not be available to victims. It is imperative to have a team of medical specialists at hand who can attend to disaster victims promptly.

Disaster medicine is a medical specialty which provides health care to disaster survivors and provides leadership in medically-related disaster **preparedness, planning, response and recovery**. It is an inter-disciplinary specialization, which provides medical interventions

aimed at responding swiftly to incidents of disease, injury or death in the wake of a disastrous event. Disaster medicine specialists make pre-disaster preparations, oversee treatment at the disaster scenes and ensure the transport of victims to hospitals for further treatment. They also guide emergency management professionals, health care facilities, communities and governments on all matters concerning medical disaster management.

2. Background

Despite the regular threat of disease epidemics such as cholera, typhoid, yellow fever and, currently, the Ebola virus at Kenya's borders, health workers in East Africa have to date been ill-equipped to face disasters. Their medical training does not teach doctors to be disaster prepared. Important discussions on creating field hospitals, identifying deceased victims, dealing with logistical challenges, handling mass emergencies, and the concept of "incident command" have never really formed part of discussions at medical colleges and corporate hospitals. In this context, it is worth noting that the *Incident Command System (ICS)* is a standardized approach to the command, control, and coordination of emergency response, providing a common hierarchy within which responders from multiple agencies can be effective.)

"Temporary re-settlements create problems of overcrowding, sanitation and the spread of air-borne Infections" (Fernandes, 2017). "In Kenya, emergency services still remain largely underdeveloped and ill prepared. This has led to increased morbidity and mortality of victims of major incidents in the country. Lack of specific training of emergency services personnel to respond to major incidents, poor coordination of major incident management activities, and a lack of standard operational procedures and emergency operation plans have all been shown to expose victims to increased morbidity and mortality" (Wachira and Smith, 2013).

Although generally in Africa, disaster medicine specialists are still few and far between, South Africa is at the forefront of disaster medical response (Ivanov et al., 2015). This specialization is applicable in all disasters where humans are injured. In Kenya, it is applicable in all disaster incidences such as terrorist attacks and mass casualty incidents (for example, road and boat accidents, fires, floods, etc.).

3. Perpetual medical disaster challenges

The following challenges are pervasive in many African countries, including Kenya.

1. Inherently weak health systems in the region present major challenges in ensuring an effective response to mass casualties such as the West African Ebola outbreak;
2. Lack of preparedness by hospitals for mass casualty incidents due to insufficient equipment and inadequate space to ensure that mass casualties are properly dealt with;
3. Lack of coordination among medical professionals, hospitals, administrators and government officials resulting in a delayed response. The response to an emergency must be shared between all stakeholders in a coordinated manner. For example, delays in the clearance of foreign military aircraft to land in the Democratic Republic of the Congo during the Ebola outbreak resulted in the delayed delivery of medical aid and a slow response;
4. Insufficient training of medical personnel in medical disaster response;
5. Poor infrastructure (e.g., roads, medical facilities) that impedes access to disaster victims;
6. Poor community engagement and participation in health disaster risk management and disaster risk reduction: this is a critical challenge as evidenced by poor community participation in the response to emergencies such as the West African Ebola Virus outbreak (Olu, et al, 2016);
7. Inadequate political will and commitment;

8. Lack of public awareness and emergency preparedness education which results in incidents such as the fuel tanker explosion in Sange, Democratic Republic of the Congo, in July 2010, where many people died in the process of trying to syphon off fuel that was spilling from the tanker (Fox News, 2010). Lack of awareness of the danger led to many fatalities. Disaster education could prevent such disasters as people learn how to respond to such situations;
9. Lack of communication in rural areas in many parts of Africa. During the fuel tanker explosion in Sange in 2010, the remoteness of the area and lack of communication facilities delayed immediate and adequate response to assist the survivors.

4. Best Practices during Medical Disasters

Example of Israel:

A good example of a country that swiftly and effectively responds to medical disasters is Israel. When disaster strikes, Israel's government, army, and aid agencies are always among the first to send material and expert assistance. If local hospitals are out of commission or overwhelmed, the Israel Defense Forces (IDF) can get a field hospital functioning within 12 hours of arriving at the setup site, an awe-inspiring feat of logistics unmatched by other countries. Each time Israel completes a medical relief mission, the operation is analyzed, and the processes tweaked so that the next mission can be even more successful.

According to Prof. Kobi Peleg, a world-renowned expert on disaster management and veteran of numerous Israeli medical aid missions, Israel's capability is possible owing to the combination of experience, systematic precision, and extraordinarily motivated and qualified personnel of the IDF (The Tower, 2016; Gross, 2016).

5. Best Examples of Responses to Medical Emergencies/Disasters

Example of Ebola outbreak in Isiro, Democratic Republic of the Congo, August 2012:

Ebola outbreaks in various parts of the Democratic Republic of the Congo are frequent but they are normally quickly curbed through rapid intervention by stakeholders (the local population, World Health Organization (WHO), local Ministry of Health, the United Nations Mission). This is made possible because response is normally made without much external help and therefore swift.

A good example of coordination, teamwork and population awareness in a medical emergency or disaster situation is evidenced in the response to the Ebola outbreak in Isiro,

Democratic Republic of the Congo in August 2012. When the UN Mission in the Democratic Republic of the Congo was informed of the outbreak, the Force Medical Officer and the Regional Medical Officer were asked to put in place precautionary measures against Ebola to avoid its spread to the UN military force (military observers, police and contingents) and other staff in Isiro. They also assisted the local Ministry of Health in the Ebola outbreak response with the aim of limiting the spread of the disease and lowering the mortality rate.

To achieve this target, an Ebola awareness meeting of UN staff (UN military observers, contingent doctors and some local staff) was held immediately upon the arrival of the medical officers in Isiro. They were briefed on precautionary measures (limit human contacts, ensure that people know the source of their food, especially meat, and make judicious use of antiseptics, avoid all handshaking, etc.), and symptoms and early signs of illness in a person suspected to have Ebola were elaborated. Although these measures may appear to be simple, not implementing them can lead to the spread of the disease with devastating effects.

After the briefing, the UN staff joined the main team which comprised local doctors, nurses, and coordinators from WHO, the Ministry of Health and local and international NGOs. Situation briefings were initially held three times a day but were gradually reduced to once a day as the situation improved.

As the meetings continued to be held, it became obvious that the spread of disease and the mortality rate were being quickly contained and decreased. This was achieved through rigorous awareness campaigns in the population and vigilant surveillance. These campaigns explained the symptoms and early signs of the illness for a person infected with Ebola.

Schools were among the main targets of the campaigns so that school children were able to report suspected cases. Report centres were set up in various areas of the town and patients isolated and cared for in designated compounds. Blood samples were taken from all suspected cases and sent to the laboratory in Kinshasa, which normally returned results within a week.

In those cases where results were negative, patients were discharged to return to their homes, but those with positive results were quarantined and treated by specialized and well-trained staff. Thus, each participating organization contributed to the response in its own way, according to need and capability, but the contributions were coordinated to avoid duplication of use of supplies and effort. The result was a rapid containment of the disease and decreased mortality rate.

Example of Cuba:

Over 50,000 Cuban health professionals are currently working overseas in 67 different countries. They work in conjunction with local health professionals and the majority work in primary care in deprived areas (Cuba Annual Health Statistics, 2014). Their aim is not only to reduce morbidity and mortality but also to improve health in the long term by training local health professionals and building both institutions and a structure to deliver sufficient health care, alongside educating the local population.

Cuba is a small, middle-income country and it has, however, made a significant international contribution through such medical collaboration. Cuba's international collaboration is based on the principles of social justice and equity for all. It has set an example for other countries to emulate, both for general medicine and disaster medicine (Milne, 2014).

Cuba's large number of overseas health professionals is greater than those working for Médecins Sans Frontières (MSF), the International Red Cross and UNICEF combined. The majority work in 25 different Caribbean and Latin American countries. Cuba also has a large presence in 30 different countries on the African continent, and a smaller presence in the Middle East, Asia and Portugal.

Cuba has always offered disaster medicine expertise to help neighbouring countries following natural disasters. Thus, in 2010 it played a key role in the provision of health care, including disaster medicine, following the earthquake in Haiti (de Vos, et al., 2007). It also offered assistance to the USA following Hurricane Katrina in 2005. The same year, following the earthquake in Pakistan, Cuba sent over 2000 disaster medicine health professionals who stayed longer than any other international group. Cuba disaster medicine expertise was also in the forefront of the response to the recent Ebola outbreak in Africa. A key feature of the work of Cuban health professionals overseas is that, like MSF, they work in the areas of greatest need.

6. Recommendations on improving disaster medicine in Kenya

The examples given above clearly demonstrate that teamwork and coordination among the stakeholders in the areas of logistics, planning and accommodation are essential to avoid duplication and ensure the efficient use of resources. Situation briefings, population campaigns, surveillance, isolation of suspected cases and specialized treatment all contribute to a rapid control of the outbreak of a contagious disease. Awareness-raising and involvement of the local population in any disease outbreak is crucial and helps in reducing the spread of disease, while disease surveillance is a vital component of the medical emergency and disaster response.

It should be stressed that the response strategy to the Ebola outbreak can also be applied to other medical emergency and disaster situations and can be used, adapted and improved upon, depending on the type of medical emergency in question.

From this, several lessons may be learned by East African countries in relation to disaster medicine, including:

- a) The necessity for a clear government policy to be in place to provide a swift and coordinated response if a disaster occurs; various government agencies, the military and aid agencies should be trained to respond in a coordinated and efficient manner;
- b) As demonstrated by the response to the Ebola virus outbreak in the Democratic Republic of the Congo, it is vital to involve the local stakeholder communities in disaster management through awareness campaigns and training. To save lives, property and the environment, while reducing costs, it is important that local communities be made aware and involved at all levels of disaster management planning;
- c) No one wants to believe that disasters will occur, but it is an unfortunate fact of life in today's world that vigilance and preparedness are essential to avoid being taken by surprise when disaster does strike. It is vital to address the issue of medical emergency and disaster management so that, in the event of a disaster, casualties and mortality can be kept to a minimum;
- d) Although Kenya prepared an overall comprehensive "all hazards" disaster management plan in 2010, this has yet to be legalized. This is an action plan that guides stakeholders in the preparedness, mitigation, response and recovery phases of disaster management;
- e) Rigorous investment is required to reduce mortality during disasters. Infrastructure improvement, strengthening of healthcare systems, upgrading of regional hospitals and healthcare facilities, stockpiling of emergency medicines and supplies and training of medical and administrative staff are all essential;
- f) Disaster medicine is a crucial component of disaster management, which specifically deals with treatment of the injured during disasters. Specialists make pre-

disaster preparations, oversee treatment at the disaster scenes and ensure transportation of victims to hospitals for further treatment. It is, therefore, essential that emergency and disaster plans include wide regional coverage. Investment is therefore of paramount importance to ensure an efficient emergency response;

- g) In order to involve local stakeholders, it is imperative to provide training and conduct awareness campaigns among local communities at all levels of disaster management planning.

7. Conclusions

From the above, it is clear that disaster medicine is part of a strong healthcare system that requires hospitals for to be prepared for mass casualty incidents and necessitates investment in infrastructure and the mobilization of resources to enable swift and efficient access to disaster victims. Moreover, disaster medicine ensures leadership in medically related aspects of disaster preparedness, planning, response and recovery. In view of the increase in the frequency and intensity of medical disasters, such as outbreaks of cholera, typhoid, yellow fever and Ebola virus, there is need to streamline the healthcare system to overcome the constraints that lead to poor response to disasters. In addition, urgent action is required to review, update and legalize the draft disaster management policy of 2010 (which includes disaster medicine), since Kenya is constantly challenged by both acute and slow onset disasters. Regardless, we must remember that disasters can occur at any time and be prepared for them when they occur.

8. AFICS-Kenya Participation

The AFICS-Kenya Consultancy offers a team of multi-disciplinary experts with a wealth of knowledge and experience at both the national and international level in a wide range of fields. Of particular relevance to this brief are the services which AFICS-Kenya offers in the area of humanitarian crises and disaster management. In this connection, AFICS-Kenya has on its roster a highly resourceful expert in disaster medicine and in emergency medical evacuations with both national and international experience.

We would welcome the opportunity to provide our expertise to assist in this field.

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