

Outcome-based Approach in Development of a Disaster Management Course for Healthcare Workers

Kremlin Khamarj Wickramasinghe,¹*MBBS*, Mohamed Hassim Ishara,² Pramil Liyanage,²*MBBS*, Indika Mahesh Karunathilake,³*MBBS, MMedEd*, Dujeepa Samarasekera,⁴*MBBS, MPHE*

Abstract

Introduction: The Faculty of Medicine, University of Colombo, Sri Lanka provided voluntary healthcare services during the aftermath of the 2004 tsunami. At that time the faculty recognised the need to prepare the healthcare system for future disasters by enhancing the capability of healthcare workers. The development and implementation of a disaster management course for healthcare workers was identified as a priority. **Method:** An outcome-based approach was used to develop the curriculum. Qualitative and quantitative methods were used to identify the core competencies and outcomes that healthcare workers need to achieve at the end of the course. The content, teaching learning methods and assessments were aligned with the course outcomes. The course consists of 9 core modules and an elective research module. Formative and summative assessment methods were included. **Conclusion:** Training is an important component of disaster management. The outcome-based approach provides a useful framework for developing such training programmes and ensures that needs are addressed.

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Introduction

Sri Lanka is an island nation in the Indian Ocean with a population of 20 million. It is a multi-ethnic country with 82.7% Sinhalese, 9.4% Tamils and 7.9% Muslims.^{1,2} It has faced many man-made and natural disasters in the past. The war in the northern and eastern provinces of the country could be considered as the most serious man-made disaster during the last two decades. Nearly 60,000 people have died due to the war and many more are disabled. Among the natural disasters, the most common are floods during the monsoon period.

The management of disasters requires collective responsibility along with coordinated efforts from all levels of society.³ There are many government and non-governmental organisations (NGOs) including the Ministries of Disaster Management, Health and the Department of Social Services. The prominent NGOs

involved in disaster management efforts in Sri Lanka are the International Committee of the Red Cross and its local counterpart, the Sarvodaya movement and United Nations agencies such as United Nations Development Programme (UNDP), World Health Organization (WHO) and UNICEF. Majority of them provide humanitarian services to displaced people.

The damage caused by the 2004 Asian tsunami could have been minimised if proper disaster preparation had been in place.^{4,5} The healthcare delivery system is one of the main areas which requires preparation. After the 2004 tsunami, there has been a great deal of attention drawn to this in many countries in their effort to increase the preparedness to tackle such disasters.⁶ Providing training for healthcare teams is an essential component of a disaster preparedness.⁷ The Faculty of Medicine at the University of Colombo, Sri Lanka is one of the first organisations that

¹ Core Group for Disaster Relief, Medical Education and Development Research Centre, Faculty of Medicine, University of Colombo, Sri Lanka

² Core Group for Disaster Relief, Faculty of Medicine, University of Colombo, Sri Lanka

³ Medical Education and Development Research Centre, Faculty of Medicine, University of Colombo, Sri Lanka.

⁴ Medical Education Unit, Dean's Office, National University of Singapore, Singapore

Address for Correspondence: Dr Kremlin Wickramasinghe, Medical Education and Development Research Centre, No. 25, Kynsey Road, Faculty of Medicine, Colombo 08, Sri Lanka.

Email: kremlinkw@gmail.com

volunteered to provide healthcare services for tsunami survivors. During this exercise the faculty realised that there was a need to prepare the healthcare teams for future disasters by enhancing the capabilities of healthcare workers. The available literature further emphasises the need for such a training programme as the majority of tsunami survivors in the southern part of Sri Lanka have stated that they were not satisfied with the provision and quality of healthcare after the first month of the tsunami.⁸

Such training programmes should be based on the specific requirements of the community and outcomes of the programme should be aligned with the identified needs. Such a programme needs to bring different healthcare professionals together and promote a multi-disciplinary approach that leads to the provision of optimum healthcare.⁹⁻¹² Therefore, the programme should aim at developing the knowledge and skills capabilities of a range of healthcare workers including doctors, nurses and community-level public health officers. The training of community leaders is also an important aspect as they could coordinate with the healthcare workers and ensure high quality service to the victims in the community according to their needs and wishes. This shows the necessity of a programme to enhance the capacity of the community at the same time as training healthcare workers.¹³

Therefore, the necessity to develop a disaster management training programme, which is outcome-based and community-based was highlighted during the immediate aftermath of the tsunami disaster in Sri Lanka. In this approach, the identification of exit outcomes provides the basis for the planning of a curriculum.¹⁴ These outcomes must ultimately relate to the professional role of healthcare workers and improvement of the quality of healthcare provided in future disaster situations.¹⁵

This paper describes the curriculum development process of the disaster management course conducted by the Faculty of Medicine at the University of Colombo and illustrates the social accountability of universities in preparing a country for disaster management. This is the first attempt by a Sri Lankan university to develop a capability building programme for healthcare workers with joint efforts from key institutions and expert individuals in the field. The objective of this course is to enhance the capability of the community by mobilising them to self-governing organisations that cope with disasters and to strengthen local bodies.

Method

Curriculum development needs rigorous planning to identify community needs, develop course outcomes, identify content areas and plan teaching/learning and assessment.¹⁶ A curriculum development committee was

appointed with experts from different fields. The first step of the curriculum development process was to identify the core competencies and outcomes that disaster management team members should acquire.¹⁵

A stakeholder analysis was conducted to identify core competencies. The identified stakeholders were volunteer healthcare workers, tsunami survivors and government health officials. The government health care officers and other organisations such as the Sri Lanka Red Cross, the International Labour Organization (ILO), the WHO, the International Organization for Migration (IOM) and the Medical Relief International (MERLIN) were identified as main stakeholder agencies. The volunteer healthcare workers who were involved in the relief activities were requested to list the competencies that they felt they should be equipped with when working in similar situations in the future. Tsunami survivors were interviewed to identify their expectations regarding the services provided by healthcare workers. Government health officials were interviewed to identify the key areas that healthcare workers should be trained in before being sent into the field.

The healthcare statistics of Sri Lanka were also taken into account. This is important considering the fact that albeit being a developing county, Sri Lanka has achieved very impressive health indices. For example, infant mortality rate was 11.2 per 1000 live births and life expectancy was 76 for females and 70 for males.²

After triangulation of the data, which were collected by qualitative and quantitative methods, core competencies and outcomes were developed. The course outcomes that were developed are listed in Figure 1. The course content was developed to achieve these outcomes. The content was arranged in 10 core modules and an elective research module. The core modules are listed in Figure 2.

Overview of the Content

The first module provides an overview of disaster management, as this is a new field for most healthcare workers in Sri Lanka. It discusses the current status of disaster management in the country through various topics such as the government structure of disaster management, services available in disaster management, disaster management authorities, health services, other associations: (NGO, social services), national and international collaborations and the basics of disaster planning.

Basic concepts such as disaster preparedness, disaster response and recovery, disaster mitigation and risk communication are discussed in the second module.

The third module is aimed at enhancing capabilities of the healthcare workers in leadership, team development working, organisational skills, problem prioritisation and

- Identify his/her roles and responsibilities in disaster management.
- Apply the key concepts and principles of disaster management.
- Design public education, awareness and training programmes and materials.
- Provide an overview of the role of the public health system in disaster preparedness, planning, response and management.
- Develop the necessary skills in providing emergency and trauma care, including CPR, first aid, triage and initial casualty management in disaster situations.
- Develop skills for enhanced team leadership, teamwork and communication
- Manage human and material resources available for health disaster management.
- Establish the basic requirements for effective health management at a disaster site.
- Provide rehabilitation through sustainable long-term programmes.
- Develop specific disaster management plans in different situations and implement them effectively.
- Manage medico-legal, psychological and ethical issues that may arise in disaster situations.
- Identify opportunities for further personal and professional development in the field of disaster medicine.

Fig. 1. Exit outcomes of the course.

1. Introduction to Disaster Management
2. Concepts in Disaster Management
3. The Role of Healthcare Workers in Disaster Management
4. Creating Community Resilience
5. Skills Necessary in Providing Emergency Care
6. Management of Internally Displaced Persons
7. Economic Recovery
8. Medico-legal Aspects of Disaster Situations
9. Special Situations
10. Special Topics and Special Skills to be Developed

Fig. 2. Core modules of the course.

identification, resource management, information management and public relations.

Control of communicable diseases, immunisation, rehabilitation of the community, rehabilitation of the victims and environmental health are topics covered under the Creating Community Resilience module.

The fifth module sharpens the skills necessary for providing emergency care such as providing first aid, triage, conducting evacuation drills, cardio pulmonary resuscitation (CPR), warning protocols and on-field management of the critically injured.

Topics covered under the module on the Management of Internally Displaced Persons (IDPs) include the management of refugee camps, screening, providing basic facilities, secondary disease prevention, health promotion, rehabilitation and livelihood restoration.

Under the Economic Recovery module, discussions on the conceptual framework of economic recovery, process of economic recovery in a post-disaster situation, major

components of livelihood development plans and their implementation support and monitoring occur.

In the eighth module, medico-legal aspects of disaster situations are discussed. The management of Special Situations module covers common situations in Sri Lanka such as: war, gunshot, bomb blasts, fire and floods.

The last module aims at developing special skills and increasing the knowledge of related topics such as counselling, communication skills, psychological aspects and human rights issues. The information collected from the community during the stakeholder analysis was used to develop the content of this module. Characteristics of Sri Lankan culture such as acceptance of traumatic situations based on religious beliefs, and supporting neighbours who are in need of help were considered.

After developing the content areas, resource persons were identified for each module. Experts from the Disaster Management Centre (DMC), ILO, WHO, Sri Lanka Fire Department, Sri Lanka Army and clinical staff of the National Hospital of Sri Lanka were involved in content development.

The next step was to identify teaching and learning methods and to initiate the development of course materials. The course handbook provided an overview of all the modules. A range of teaching/learning methods were introduced, varying from didactic lectures to student-centred small group discussions, workshops and community field activities.

Field visits and focused activities to link and apply the theoretical knowledge learnt in the classroom setting were the salient features of this course. The field visits included the following: a visit to the emergency operations room of the DMC, participation in a community evacuation drill conducted by the DMC, a session on hospital disaster preparedness programme at the National Hospital of Sri

Lanka (NHSL) and a fire drill organised by the fire brigade. WHO consultants and IOM provided training at camp level. Basic standards that should be maintained in setting up a camp for IDPs were shown during these visits. Focus group discussions were organised with public health officers sharing their experiences. Participants visited the rehabilitation sites to critically evaluate the existing programmes. In addition, they were also exposed to programmes that would be developed and sharpen their leadership and communication skills.

Practical training in CPR was provided at the skills laboratory of the Faculty of Medicine.

The outcomes, content, teaching and learning methods and assessment methods were aligned using a curriculum blue print. A range of assessment tools were selected to ensure achievement of curricular outcomes.^{15,17} Both summative and formative assessments were included. Summative assessments included end of module assignments. It is mandatory for the participants to pass all the summative assessments in order to be awarded the certificate. Formative assessments were incorporated to provide feedback on participants learning.

Course evaluation occurred mainly through feedback from participants, obtained at the end of each module.

Issues and Challenges

As with any other programmes, the course management faced many challenges. Although many local and international organisations promised various support, it dwindled as the situation improved. Hence, the course managers had to search and invite relevant resource persons and institutions from different places and localities. The local DMC assisted the course managers to identify such institutions and helped them to establish sustainable collaborations. Since disaster management is a new area of academic study in Sri Lanka, many resource persons were not available in the local setting.

Another challenge was that more than one institution is involved in a single module hence the coordination among these institutions needed to be meticulous. First, each resource person at each institution prepared a draft outline for the topic. Next, the curriculum development committee was empowered to take decisions on time allocation and resource utilisation based on the content and the resource requirement of the module. Finally, a meeting was arranged with all the resource persons involved to plan the lectures and field activities. Each resource person was requested to develop teaching learning materials which were to be included in the module folders and the handbook. The resource persons assisted by the course managers also designed the assignments.

To circumvent the issue of obtaining leave to attend the

classroom activities, the course organisers decided to schedule the lectures to Saturday afternoon and field visits were conducted on Sundays. When assessing the outcomes, both direct and indirect observation of trainees were done.¹⁷ This was, however, not possible in some instances as it was not practical to create authentic disaster situations for teaching purposes. Students often do not recognise the worth of community experience.¹⁸ To overcome this issue, more interactive sessions were organised with community and grassroot leaders. This also helped the participants to improve their community awareness and enjoy their learning.

Success of the Programme

This programme was highly appreciated by the Sri Lankan government. The Ministry of Disaster Management offered their complete cooperation as the course helps immeasurably to achieve the national objectives of disaster management.

The content expertise for the first 2 modules were provided by the DMC. The contributions of many experts and other institutions were sustained through individual follow-ups and regular meetings.

Future Scope of the Programme

Successful participants will be given a university certificate and they will be further trained as members of a rapid deployment team in future disasters. They will participate as resource persons for future community training programmes all over the country. A Memorandum of Understanding (MOU) is to be signed between the University of Colombo and DMC to expand the training programmes.

The University of Colombo plans to develop this programme at the diploma level first and later, based on the success of this diploma programme, to a Masters level course.

The funding for this programme was mainly from the university, and the DMC had provided their human and physical resources free of charge. The other institutions had also offered their services free of charge and only the travelling expenses of the resource persons were reimbursed.

Conclusion

A university, through its primary responsibility as a training provider, can play a major role in disaster management in a country and in ensuring that the service it provides serves the community needs. This is on par with the concept of the social accountability of universities. An outcome-based approach provides the framework to develop a curriculum that caters to the needs of the community. These course participants will be used as resource persons to train other healthcare workers at local settings. DMC will use their services for workshops at local settings. This

strategy will mainstream this programme with the national disaster management plan of the country.

Even with limited funding University of Colombo could implement this programme using existing physical and human resources by effective coordination.

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