

# Building capacity in health-related rehabilitation services for health emergency responses December 2016 – November 2018

## Final Report Attachments and Supplementary Material

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# Executive summary

## Project approach

This project collected and analysed information about rehabilitation during health emergency responses, with the aim of identifying ways to support better response to a health emergency thus strengthening rehabilitation capacity for health emergencies.

The project was conducted by way of three desk reviews, two in-country field visits including interviews and consultations with key stakeholders, and interviews with disaster management/ health emergency personnel from the Western Pacific Region of WHO, including the Regional Office in Manila. The outcome of the project was the development of three products to offer guidance to rehabilitation services and personnel to strengthen their capacity to respond to health emergencies.

For the desk reviews we accessed and analysed the scientific and grey literature in three topic areas: disaster management and place of rehabilitation; contribution of rehabilitation to the health emergency response/ disaster response; and, impact on people with NCDs in disasters and implications for health emergency responses.

The in-country field visits to the Philippines and the Solomon Islands provided the opportunity to identify rehabilitation capacity for health emergency responses *in situ* and to consult with a variety of health officials, rehabilitation personnel, disaster management personnel, and people with disabilities, to identify first-hand the current status of rehabilitation involvement in health emergency/ disaster responses.

The consultations with experts across the Western Pacific Region of WHO were informative given their deep expertise as health personnel in disaster/ health emergency responses or disaster management/ emergency preparedness experts from national and international agencies involved in disaster and humanitarian response efforts. The combined knowledge gained from all these activities led to the development of guidance to build rehabilitation capacity to better support health emergency response. This consists of three guidance products which are provided in this project report.

## Project products

The first product is the *Framework for strengthening rehabilitation capacity at local country level for health emergency responses*, based on the initial desk review, two country visits, and consultations

with key stakeholders in the region. (This framework is provided in the main body of the report in Section 1.4, p. 9). The second product is a briefing document for rehabilitation services and personnel that details what rehabilitation services need to do at each phase of a health emergency. This guidance document provides the information needed to support strengthening of rehabilitation capacity to plan for and respond to a health emergency. (This briefing document is provided in the Supplementary Material Part 1, pp. 78-85). The third product is a curriculum module to develop the capacity of the rehabilitation workforce to engage effectively in all phases of a health emergency response. (This curriculum module is provided in the Supplementary Material Part 2, p. 86). The latter two products were developed in 2018 based on the Framework (developed in 2017), the additional desk reviews, further consultations with key stakeholders in the region, and analysis and synthesis of all project materials. All three products complement the *Emergency Medical Teams. Minimum Technical Standards and Recommendations for Rehabilitation*. (WHO, 2016).

#### [Rehabilitation and Health Emergency Response and NCDs and Health Emergency Response](#)

The three desk reviews undertaken for this project uncovered similarities in health emergency response approaches to people in need of rehabilitation and those with NCDs. These include, for example, the inadequacy of the health emergency response when the focus is only on immediate trauma; the needs of those with chronic conditions requiring ongoing medication, potentially equipment and health status monitoring which are not considered in a trauma focused response; the critical importance of preparedness of local services with stockpiled medication and equipment and agreed processes in place to facilitate rapid replacement when supplies are lost, damaged or interrupted; the preparedness of the local rehabilitation and public health workforce to respond in a timely and effective manner; and, the need for health service personnel whether in rehabilitation or NCD services to work collaboratively with first responders and disaster management personnel.

There are also some differences: there is a dual role for rehabilitation in the health emergency response. On the one hand, their contribution extends to those with pre-existing disabilities in similar manner to NCD personnel working with those already diagnosed with NCDs. On the other, rehabilitation is also an essential component of the acute trauma response for example in field hospitals and linking with community rehabilitation services (where available) for discharge and ongoing rehabilitation and recovery beyond the immediate disaster response period.

## Gaps identified

The primary focus in all the materials collected for this project was noted to be on health personnel and their roles, and the governance mechanisms and processes put in place for preparing for and responding to health emergencies. An obvious gap is information about one-on-one preparedness planning with people with existing health conditions and/ or rehabilitation needs and/ or disabilities. This has been noted as an essential component to assist in building community resilience to natural disaster events as documented in the *Hyogo Framework for Action 2005-2015: Building the resilience of nations and communities to disasters*. Communities comprise individuals: building community resilience requires individuals to work together at the community level, community leaders to work together, and sectoral agencies to come together to develop, support and implement community based, inclusive health emergency response/ disaster preparedness plans. This approach is especially critical for those in the community who are most vulnerable in a natural disaster or health emergency, including those with ongoing health needs (NCDs) and those in need of rehabilitation, people with disabilities, children, and the elderly. Policy and emerging practices elsewhere in disaster preparedness internationally, including in Australia, are addressing this area of building individual and community resilience.

Our recent award winning project, The *Person-Centred Emergency Preparedness (PCEP)* is a process tool and framework for enabling disaster preparedness with people with chronic health conditions and disability. The *User Guide* is available for free download on line at [http://sydney.edu.au/health-sciences/cdrp/projects/UOS\\_PrepNSW\\_user\\_guide\\_FINAL\\_v2.pdf](http://sydney.edu.au/health-sciences/cdrp/projects/UOS_PrepNSW_user_guide_FINAL_v2.pdf). There are also videos which show the *PCEP* in action available at <http://collaborating4inclusion.org/prepare-nsw/>. Although developed in the Australian context, its foundational principles are applicable in other contexts. We recommend that consideration be given to developing, at the local country level, adapted versions of the *PCEP* suitable for the particular geographic location and social and cultural context including governance structures and processes and availability and distribution of resources relevant to planning and preparedness for health emergencies and natural disaster events.

# 1. Introduction

## 1.1 Purpose/ Specific Objective of the Activity

The overall purpose of this Activity was to collect and analyse information related to health and rehabilitation services during a health emergency, to support better response to a health emergency.

### Key Questions

1. What is the extent and capacity of rehabilitation workforce for mobilisation and action in a health emergency response?
2. What is the available rehabilitation infrastructure, and stockpiled equipment, governance and referral mechanisms to support mobilisation and action in a health emergency response?
3. What is the capacity of the available workforce and resources as per 2 to work in tandem with Emergency Medical Teams?
4. What short term and long term planning is required to improve the capacity of health-related rehabilitation services to provide an effective response in future health emergency situations?

### Work Activities

1. Selection of two countries, the Philippines and the Solomon Islands to base the data collection tasks.
2. Development of a methodology for collection of data on health, rehabilitation and disability services that relate to the *Minimum Technical Standards and Recommendations for Rehabilitation Emergency Medical Teams* (WHO, 2016) technical guidance.
3. Identify ways in which the information collected could support rehabilitation services in planning and responding to a health emergency, for that particular country, but offer options for transfer and use in other countries.
4. Produce a final report that synthesizes the information from both countries that complement the technical guidance in the *Minimum Technical Standards and Recommendations for Rehabilitation Emergency Medical Teams* (WHO, 2016).

## 1.2 Sequence of work in 2017 and Interim Report November 2017

An Interim Report was submitted in November 2017 which detailed the activities to date and presented a conceptual framework for strengthening rehabilitation capacity for health emergency responses. For completeness, this Interim Report is included as Attachment 2. A brief summary is provided here.

On approval of the Work Plan in December 2016, the first step involved a *desk review* of the completed scientific and grey literature of rehabilitation in the health emergency response which was completed in March 2017 and is included as Attachment 2, p. 47. The stand-out findings were that:

- Typically, local rehabilitation services would not be sufficient to meet anticipated increased need for rehabilitation in health emergencies
- Local rehabilitation staff need specific disaster training and knowledge to work collaboratively with and EMTs and to provide ongoing rehabilitation
- Assistive devices need to be available locally due to increased need and limitations on equipment capacity of EMTs
- UN agency documents on health emergency responses identify the critical importance on strengthening and building local services. However currently there is no guidance available about exactly what is needed and how to do this

The second step involved *consultation with external rehabilitation personnel* involved in health emergency responses in the region. The names and positions of those consulted are available in the Interim Report in Attachment 1, p. 38.

The third step involved *field visits to two designated countries*, the Philippines and the Solomon Islands in the third and fourth quarter of 2017. Reports of the Field Visits are included as Attachments 3, p. 56 and 4, p. 68.

In brief, in the Philippines, the frequency of natural hazard events resulting in disasters, the well-established (public and private) rehabilitation workforce, and multiple DPOs and CBR programs, has led to both more formal involvement of rehabilitation professionals in emergency preparedness, as well as informal involvement such as a roving voluntary team of rehabilitation professionals in

Typhoon Hainan specifically serving more isolated areas; active engagement of DPOs in emergency response; and, an emergency response training module for one rehabilitation profession, occupational therapy, already operational and endorsed at national professional accreditation level with more training modules anticipated.

Currently in the Solomon Islands, there is no formal involvement of rehabilitation personnel (National Referral Hospital) in the Honiara National Referral Hospital-based EMT or by the CBR Unit and its associated Field Officers more broadly in health emergency response or disaster management. At the time of flash flooding in Honiara in 2014, the CBR Unit carried out voluntary checking of former and current clients to ensure their welfare and identify any rehabilitation needs, for example, wheelchairs washed away during the flood. Rehabilitation staff at the National Referral Hospital have not been involved in recent WHO and MOH led initiatives on developing EMTs. The DPO, People with Disabilities Solomon Islands (PWDSI) is aware of the critical importance of involving people with disabilities in disaster preparedness and management due to members' experiences during the Honiara flash flooding in particular.

### 1.3 Findings reported in November 2017

- 1) No formally recognised rehabilitation capacity available for health emergency response in relation to workforce, training, structures, processes, equipment, referral pathways, or developing and utilising networks in either country. Rehabilitation responses are voluntary, *ad hoc* and 'stand-alone', and are not linked to or coordinated with government or non-government disaster responses. Overall there is no systematic or structured approach for rehabilitation services to contribute to health emergencies.
  - We noted there is an opportunity to leverage from the commitment and experience of a small group of rehabilitation professionals in each country to systematically build capacity for health emergency response in the rehabilitation sector.
- 2) Little engagement by rehabilitation personnel with the ministries and teams responsible for disaster preparedness planning and emergency management operations. To achieve effective responses requires inter-sectoral collaboration and knowledge sharing at all levels with concentrated effort at the community level, where individuals, their families, neighbours and community members are the 'first responders' when a disaster/ health emergency hits. Inter-sectoral collaboration requires a foundation of legislation and/ or regulation, policy

documentation, guidance documents, and standard operating procedures to work effectively and efficiently at all phases of the health emergency/ disaster event cycle.

- We noted the lack of governance structures to support inter-sectoral collaboration and knowledge sharing as a barrier to effectively leveraging the capacity of local rehabilitation personnel to contribute in the immediate response phase, to work collaboratively with the EMTs, and to follow up and continue to provide rehabilitation to health emergency survivors.

## 1.4 Proposed Framework to Strengthen Rehabilitation Capacity

Building on the findings from each of the three steps described briefly above, and the detailed information on rehabilitation relevant to Emergency Medical Teams in the *Minimum Technical Standards and Recommendations for Rehabilitation* (WHO, 2016), we proposed the following framework (See Figure 1) as a *virtuous cycle of action* needed to strengthen rehabilitation capacity at local country level to contribute effectively to health emergency responses.





Figure 1. Framework for strengthening rehabilitation capacity at local country level for health emergency responses

With the submission of the Interim Report (December 2017), we concluded that developing inter-sectoral collaboration and knowledge sharing at community level is an area for further development and planning with the potential for developing and trialling a community level, inter-sectoral approach in one or more countries in the Pacific region. In December 2017, the project’s terms of reference were revised to extend the work to include capturing the involvement and capacity of personnel in non-communicable disease programs. Although initially anticipated that a pilot project on developing processes for inter-sectoral collaboration and knowledge would be undertaken in the

1<sup>st</sup> and 2<sup>nd</sup> quarters of 2018, this was not achieved due to limited capacity at country level to support such a project.

Instead, an additional desk review was undertaken to capture materials related to NCDs and health emergency responses. Perhaps not surprisingly, there were commonalities between materials addressing rehabilitation and those addressing NCDs, as rehabilitation personnel are involved in preventive and rehabilitative programs with people with NCDs, for example, with diabetes, cardio-respiratory diseases, stroke and mental health. These commonalities and mutual focus including disability accompanying NCD and the provision of assistive devices by rehabilitation, there would be merit in collaboration at regional and country level between rehabilitation and non-communicable diseases staffing and units to ensure close cooperation in relation to training, equipment, infrastructure, governance and referral pathways prior to, during and following a health emergency.

## 1. April to November 2018

Following discussion with Mr Darryl Barrett, Technical Officer, Disabilities and Rehabilitation it was agreed to focus on developing guidance to best support rehabilitation services in planning and responding to a health emergency, and that this would complement the technical guidance in the *Minimum Technical Standards and Recommendations for Rehabilitation. Emergency Medical Teams* (WHO, 2016).

The guidance developed from this project comprises three products. The first product is the *Framework for strengthening rehabilitation capacity at local country level for health emergency responses* developed in 2017 based on the initial desk review, consultations with key stakeholders in the region, and the two field visits. The second is a briefing document to support strengthening of rehabilitation capacity to plan for and respond to a health emergency and the third product is a curriculum module to develop the capacity of the rehabilitation workforce to engage effectively in all phases of the health emergency response. These two products were developed in 2018 based on the Framework developed in 2017, the additional desk reviews, further consultations with key stakeholders in the region, and analysis and synthesis of all project materials. The latter two products complement the *Framework for strengthening rehabilitation capacity at local country level for health*

*emergency responses* presented in Figure 1 above, and the *Emergency Medical Teams. Minimum Technical Standards and Recommendations for Rehabilitation* (WHO, 2016).

## 2.1 Background

To recap from the Interim Report (December, 2017):

- *there is a lack of guidance documents on how to build rehabilitation capacity at the local level to effectively contribute to the disaster/ health emergency response through all phases of preparedness, immediate response, recovery and longer-term sustainability and the resources required*
- *rehabilitation contributions that exist are primarily voluntary, ad hoc, and unstructured which augurs poorly for building capacity and sustainability. As yet, there are no structured approaches to developing rehabilitation capacity for health emergency response ahead of time, that is, in relation to workforce, training, structures, processes, equipment, referral pathways, or networks in either country*
- *effective inter-sectoral collaboration and knowledge requires a rehabilitation workforce well-trained, knowledgeable and appropriately prepared to engage effectively with the ministries and teams responsible for directing disaster preparedness and response.*

These findings pointed to the need to focus attention on building capacity in the rehabilitation workforce at the same time as building capacity in local country health systems to strengthen their rehabilitation involvement in health emergency responses. The three products from this work are designed to be used in tandem with *Minimum Technical Standards and Recommendations for Rehabilitation. Emergency Medical Teams* (WHO, 2016). Additionally, the WHO (2013) *Guidance Note on Disability and Emergency Risk Management for Health* provides specific information on appropriately and effectively managing the needs of people with disabilities in health emergencies.

### *Curriculum model for rehabilitation and health emergency response*

The work to produce the curriculum model for strengthening capacity in the rehabilitation workforce was conducted in four phases: an additional desk review on the contribution of rehabilitation to the health emergency response; a descriptive map of the literature; textual analysis to identify curriculum areas and competencies; and, the development of a curriculum module. The curriculum

module is considered applicable to the two designated countries and also offers options for transfer and use in other countries as befits the knowledge base from which this model has been developed. The desk review for the development of this product is presented immediately below. The curriculum document is titled *Curriculum areas and competencies for rehabilitation personnel to engage in health emergency response*. This is included as Part 2 of the Supplementary Material.

### *Briefing document on strengthening rehabilitation capacity for health emergency response*

The work to develop a briefing document to assist local country health systems to strengthen their rehabilitation capacity for health emergency responses is built on analysis of the findings from the desk review (above), two desk reviews, additional consultations, and field visits. This document is titled *Briefing document Strengthening rehabilitation capacity for health emergency response*. This is included as Part 1 of the Supplementary Material. We are indebted to Sheila Purves, Rehabilitation Consultant, Hong Kong Society for Rehabilitation, for her insightful comments and thoughtful responses to earlier drafts of both these guidance documents.

## 2.2 Desk review of rehabilitation contribution to health emergency response

### 2.2.1 Summary

The purpose of this desk review was to map the scientific and grey literature to address the following question:

*What does the literature say about the contribution of rehabilitation personnel to disaster management/ health emergency response and the lessons learned that can be applied to preparing for future disasters?*

Key terms related to 'rehabilitation' and 'disaster' were used to search 4 scientific literature databases and the AskSource repository. The term 'health emergency' produced limited results; an initial screening found disaster to be more commonly used, so this term was then employed. Papers sourced covered rehabilitation interventions for the survivors of natural disasters, proposed contributions of rehabilitation personnel to natural disaster (and conflict) situations, the activities and experiences of rehabilitation personnel in natural disaster situations, and preparing/training of rehabilitation personnel for one or more of three phases of disaster management. Current thinking

defines four phases of emergency management: mitigation, preparedness, response, and recovery. The literature sourced does not pay attention to the first phase, that is mitigation, so for the purposes of this review the three phases of disaster management are: preparedness, response and recovery.

## 2.2.2 Search Method

### Ask Source search

A keyword search of the AskSource repository was completed using 'rehabilitation' and 'disaster' as search terms. (The term disaster was chosen rather than health emergency as previous searches identified materials on health emergencies such as hospital infrastructure shutdown following a natural hazard event would be picked up by the broader term). The AskSource repository was set up in 2000/2001 year and includes materials prior to this time as well as regularly updated contributions and sourcing undertaken by the AskSource data custodians. The results were hand searched and any publications relevant to rehabilitation professionals working in disaster settings were retrieved.

### Key website search

The websites of key organisations relevant to the topic areas of rehabilitation and disaster management were hand searched and relevant publications or online materials were retrieved.

These are:

- World Health Organization
- World Confederation for Physical Therapy
- World Federation of Occupational Therapists
- International Society of Physical Rehabilitation Medicine
- International Society of Prosthetics and Orthotics
- Humanity and Inclusion (formerly Handicap International)
- CBM International
- International Federation of Red Cross and Red Crescent Societies

Many of the same documents were identified in the Ask Source search and the hand search of key websites hence these findings are presented together below.

## Scientific database search

Four scientific literature databases – Medline, CINAHL, Proquest and Scopus - were searched using search terms related to rehabilitation and disaster. The time limits set were from 2005 – 2018, to capture all papers published since the *Hyogo Framework for Action 2005-2015: Building the resilience of nations and communities to disasters* was endorsed by the UN General Assembly. Full search strings used in each database are available from the authors on request. The searches produced n=827 papers. These were exported to an EndNote library where titles and abstracts were screened in phase 1. A total of n=82 papers were identified as relevant to rehabilitation or the involvement of rehabilitation personnel in disaster situations and kept for full text review. During full text review, a further 10 papers were removed as they were either not published in English or not specifically about rehabilitation in disaster situations. The 72 remaining papers were sorted into topics related to the disaster management cycle – see results section 2.2.3 below.

### 2.2.3 Results

The first part of this results section presents material sourced through AskSource. For convenience, this is in two sections: international rehabilitation professional organisation resources, and resources available from international non-government organisations. Following this the findings from the scientific literature are presented.

#### Ask Source and key website documents

##### International rehabilitation professional organisation resources

International professional organisations in rehabilitation collaborated to produce a guide titled *Responding internationally to disasters: A do's and don'ts guide for rehabilitation professionals* (Skelton & Woo, 2016). This guide is endorsed by the World Confederation for Physical Therapists (WCPT), World Federation of Occupational Therapists (WFOT), International Society for Physical Rehabilitation Medicine (ISPRM), International Spinal Cord Society (ISCoS) and the International Society for Prosthetists and Orthotist (ISPO). This guide is aimed at rehabilitation professionals travelling internationally to support a disaster response. It is primarily aimed at rehabilitation professionals from high income countries and is focused on the response phase. There is some attention to the recovery phase but no guidance or information about incorporating preparedness into responses to disaster situations.

Some rehabilitation professional organisations have developed resources to support building capacity to become involved in disaster management. WFOT have developed an online course titled

*Disaster Management for Occupational Therapists* which is available online for a registration fee of US\$99 at <https://volunteerrus.wfot.org/>. The learning outcomes for the course cover the disaster management cycle, the role of occupational therapists in emergency response and long term recovery, identifying local disaster management efforts, existing tools for preparedness and working in humanitarian situations.

The WCPT have published a report titled *The role of physical therapists in disaster management* (Skelton & Sykes, 2016). This report aims to demonstrate the need for physiotherapists in emergency response and provides information to physiotherapists interested in working in disaster situations. This report is structured around preparedness, response and recovery as the most relevant phases of disaster management for physiotherapists. The role of physiotherapists in each phase is discussed. Each section also includes guidelines for physiotherapy involvement and a brief review of the evidence of rehabilitation in that phase of disaster management. Training is discussed in the preparedness section, which states that physiotherapists need to have the relevant clinical skills for the injuries they are likely to encounter in a disaster response situation, as well as completing accredited training courses in humanitarian core competencies (p. 25).

This report attends to preparedness by noting that physiotherapists are often able to link community services to hospital services and that their day to day work means they are linked with people who are more vulnerable in times of a disaster such as children, elderly, people with chronic illness and people with disability. As such they have a role to play in advocating for and enabling their inclusion in community disaster preparedness activities.

The section on response includes a brief review of the literature of what roles physiotherapists have filled in disaster response situations. These include assessing the need for rehabilitation, mapping available rehabilitation services, providing direct patient rehabilitative services, coordinating discharge, identifying those at increased risk, training others to identify people at risk (e.g. identifying functional limitations), preventative rehabilitation services, manual handling training for other health staff or disaster responders, training others in specialised care such as spinal cord injury or amputee management, and environmental assessment for accessibility – e.g. of evacuation centres. The report includes case studies from Nepal, Japan, and the United Kingdom.

The Disaster Rehabilitation Committee (DRC) of the International Society for Physical Rehabilitation Medicine (ISPRM) provides technical resources and advice to national governments, WHO, disaster

management stakeholders and professional groups to advance the inclusion of physical rehabilitation medicine across the disaster management cycle. They have particular emphasis on severe disabling injury in large scale disaster events. In September 2017 the committee launched the [\*ISPRM Recommended humanitarian competency framework with online educational resources for PRM disaster responders\*](#). The framework is intended for use by rehabilitation professionals to prepare themselves through self-directed learning to be involved in a coordinated humanitarian response to a disaster. It includes 8 areas of humanitarian competencies; 1) humanitarian ethics and law in disasters, 2) humanitarian architecture and coordination, 3) disaster management, 4) disaster management for disability and rehabilitation, 5) humanitarian health in disasters, 6) personal management, 7) team leadership, and 8) cultural awareness. The framework recommends online courses against each of these competencies most of which are delivered by *DisasterReady* (<https://www.disasterready.org/>) and the *Red Cross Red Crescent (IFRC) Learning Platform* (<http://www.ifrc.org/en/get-involved/learning-education-training/learning-platform1/>).

#### International Non-Government Organisations

Handicap International (now Humanity and Inclusion) published an educational resource titled *Rehabilitation in sudden onset disasters* (Harvey & Skelton, 2015). This was developed to support volunteers on the UK International Emergency Trauma Register (UKIETR) with the intended audience being physiotherapists and occupational therapists. The content includes a chapter on rehabilitation after sudden onset disasters (e.g. earthquake or cyclone) and six chapters which cover the management of a specific condition or injury likely to be encountered after a disaster. These are amputations, spinal cord injury, peripheral nerve injury, fractures, acquired brain injury, and burns/soft tissue injury. This guide is most relevant for therapists from high income countries travelling internationally as part of a national disaster response team. It also serves as a useful clinical resource for providing rehabilitation in the conditions found after disaster where limited resources and infrastructure may be available.

#### Scientific literature

This section briefly describes the 72 papers sourced and mapped using the disaster management cycle of preparedness, response and recovery (mitigation excluded). This section describes the papers that addressed rehabilitation or rehabilitation personnel (including physiotherapy, occupational therapy, rehabilitation counselling, rehabilitation nursing) in disaster situations. (There



were a significant number of papers on one profession alone, social work and these are briefly discussed at the end of this section).

The papers were mapped to the three phases of disaster management in the framework titled 'Virtuous cycle for rehabilitation in health emergency response' developed for the *Interim Report Building capacity in health-related rehabilitation services for emergency health responses November 2016 – December 2017* submitted to WPRO, December 2017. (The framework is included in Appendix 2). The framework we developed is based on the knowledge, networks and actions required by rehabilitation personnel and services prior to a health emergency (preparedness), at the time of the disaster situation (response), and after the disaster situation (recovery).

### Preparedness

Papers relevant to preparedness fall into two categories. The first is about training on, or curricular development for disaster preparedness. There were two papers in this category, both of which addressed curriculum for pre-service students undertaking rehabilitation studies. Curtis (2015) conducted an internet-based survey of allied health college educators in the US. A total 51 allied health educators completed the survey. The results found that while educators considered it important to include disaster related competencies, very few had already incorporated it into the curricula for their allied health discipline. The second study focused on four health disciplines at Linda Loma University in California (Kim et al., 2017). In this study, a learning curriculum for critical event training developed by an inter-professional group was trialled with 402 students from nursing, pharmacy, allied health and medicine. Evaluation occurred pre and post-course. The students reported that they learnt useful skills through the training and that the interprofessional nature of the program was particularly positive. The post course outcome measures showed increased critical event knowledge as well as improved attitudes to working collaboratively in these situations.

The second category of papers (n=8) related to the role (conceptualised in the framework as actions and networks) of rehabilitation personnel in preparing for disasters. Two of these papers focused on occupational therapy, two on rehabilitation nursing, one on rehabilitation counselling, and two papers addressed preparedness for allied health professionals more broadly. As an example, a literature review on the effectiveness of preparedness of health personnel (Gowing, 2017) found significant gaps, as often allied health and other 'support staff' were not included in preparedness activities. The authors note being unable to reach generalisable conclusions about content and

methods for disaster preparedness training for allied health professionals due to methodological weaknesses in the studies located.

#### Response

Papers relevant to response also fall into two categories. The first category includes papers (n=10) that argue for the inclusion of rehabilitation in the immediate response. These papers are primarily position or discussion papers from various standpoints for example a perspective piece in the *Journal of Rehabilitation Medicine* describes the WHO EMT guidelines for including rehabilitation (Amataya et al., 2017). Mills, Durham & Packirisamy (2017) discuss the practical issues related to integrating rehabilitation in disaster management in a WHO Bulletin piece.

The other two papers in this category present evidence for the contribution of rehabilitation in disaster response. The first of these by Keshkar, Kumar and Bharti (2014) provides epidemiological data on health conditions or injuries sustained in disasters to argue for the important contribution of rehabilitation in emergency medical response. The remaining paper by Khan et al. (2015) is a systematic review of clinical studies of the effectiveness of disaster medicine. This paper presents evidence for the effectiveness of inpatient rehabilitation as part of emergency health response, despite the difficulty of conducting methodologically sound research in disaster situations.

The second category (n=6) includes papers investigating or discussing the clinical needs of individuals with specific injuries or conditions in disaster settings. For example, this section includes three studies on the outcomes of spinal cord injury rehabilitation in disaster settings – one from Sri Lanka (Armstrong, 2014), two from Pakistan (Chisthie et al., 2018; Rathore et al., 2008).

#### Recovery

The two categories of papers relevant to recovery are outcomes of rehabilitation in the longer-term health response, and 'lessons learned' experiential papers from providing rehabilitation in disaster settings.

Three countries are represented in the 5 papers in the first category. These papers report on the outcomes of individuals who sustained injuries in disaster and the place of rehabilitation in the longer-term health response from, China (Chung, 2017; Qiang et al., 2014), Bangladesh (Villanueva et al., 2017), Australian survivors of Bali bombing (Edgar, Wood, & Goodwin-Walters, 2006) and a literature review of studies from Pakistan, China and Haiti on longer term outcomes and service development for spinal cord injuries sustained in disasters (Gosney et al., 2013).

In the second category of 'lessons learned' there were 10 papers aiming to present discussion of experiences in providing rehabilitation into the recovery phase. Eight of these papers are descriptive accounts of the experiences and activities of rehabilitation services and/or personnel in disaster situations including the Pakistan earthquake 2005 (Rathore, & Gosney, 2015), Sichuan earthquake 2008 (Lee, 2014), Haiti earthquake 2010 (Landry et al., 2010), The Great East Japan Earthquake 2013 (Liu et al., 2012), Typhoon Haiyan in Philippines 2013 (Beningno et al., 2015) and Nepal earthquake 2015 (Nepal Physiotherapy Association, 2015; Sheppard, & Landry, 2016; Landry, et al, 2016). The final two papers are qualitative research papers investigating the perspective of physiotherapists working in Haiti after the 2010 earthquake (Mulligan, Smith, & Ferdinand, 2015) and the Canterbury earthquakes in New Zealand 2010/2011 (Klappa, Audette, & Do, 2014).

#### Lessons learned in scientific and grey literature

- Building capacity for engagement in health emergency response through training and preparedness activities is important, not only for providers interested in volunteering as part of an emergency response team but for rehabilitation providers working in high risk areas
- Treatment of injured survivors is an important role of rehabilitation professionals involved in health emergency response, hence obtaining clinical skills relevant to injuries most likely to be sustained in injuries before a disaster is important
- Outreach into communities, evacuation centres and tent cities is recommended as not all people who require rehabilitation will present to hospital. This includes people with pre-existing disability, those with health conditions including NCDs who are at risk of developing further complications which rehabilitative intervention could prevent, as well as people with new injuries that do not require acute medical intervention, but for which rehabilitative intervention can promote recovery of function and prevent long term impacts of the injury
- Working in a post disaster situation requires skills and experience in working in an austere environment and at the edge of the scope of practice
- Disasters will cause an increase in the number of individuals with long term or permanent disability as a result of injury and hence there will be a gap in supply given the demand for rehabilitation. This is particularly true in countries with limited services before a disaster, and at the community level when people discharged from acute facilities require ongoing support in the community. Disaster responders therefore need to plan for providing and building

capacity for longer term rehabilitative services at community level. Community-based rehabilitation is recommended as a model

- Discharge planning emerged as a key contribution to health emergency and disaster response, and it is recommended this role be clearly defined and included in health emergency response plans and guidance
- The importance of working in partnership with local providers and in a manner that is consistent with their systems and protocols was repeatedly emphasised
- Skills in providing emotional and psychological support during the provision of rehabilitative services emerged as another key contribution
- Networks of rehabilitation professionals, through professional bodies at local, national and international level can be used to provide support to colleagues who live or work in areas affected by disaster
- Advocating for the inclusion of people with disabilities in health emergency response and disaster preparedness is an important role of rehabilitation professionals. In particular, advocating for the long term needs of injured survivors after discharge from acute treatment facilities.

These research findings and experiences form an emerging knowledge base about the potential contribution of rehabilitation personnel in health emergency and disaster situations and point to content and activities that could be included in health emergency response and disaster preparedness training and resources.

#### 2.2.4 Commentary

Almost half of the papers (n=29) in the scientific literature papers were about social work in disaster situations. Of these papers, nine were original research articles and two were case studies – one about educating graduate social workers in disaster response (Findley, Pottick, & Giordano, 2017) and the second about delivery school social work in China after the Sichuan earthquake (Liang & Zhang, 2016). The remaining 18 papers were perspective pieces, editorials or descriptive papers focusing on the roles and experiences of social workers in disaster, and the implications for the profession. The full text of six of the original research papers (we were unable to source full text for three of these papers) was reviewed. All the six research papers reviewed came from the US context and focused on the emotional impact on social workers and/or social work students of being involved

in disaster response work, or working in areas affected by disaster including Hurricane Katrina (Plummer et al., 2008; Tosone, McTighe & Bauwens, 2015) and the World Trade Centre Disaster (Matthieu, Lewis, André & Conroy, 2007; Colarossi, Heyman, & Phillips, 2005; Adams, Figley, & Boscarino, 2008) and conflict areas in Israel (Baum, 2016).

Of the 74 papers in the scientific literature, two were identified that addressed rehabilitation and/or allied health professionals working in and with military services. These included a paper discussing the work of army occupational therapists in the US (Smith-Forbes, Najera & Hawkins, 2014) and a second discussion paper on the role of dietitians in the US military (Story, Bukhari & Bovil, 2016).

The findings from the papers sourced from the scientific literature suggest that the primary focus is on hypothesised contributions of rehabilitation personnel with much less evidence on the actual contribution and how this is realised and the outcomes of the contribution. Clinical studies demonstrating patient outcomes from rehabilitation interventions in disaster situations are starting to appear. There is an emerging preparedness literature addressing the need to prepare rehabilitation professionals for health emergency response and disaster situations building on findings from 'real world' experiences and 'lessons learned' to define the roles of rehabilitation professionals (which appear to be multiple) and to consider training and orientation programs to prepare rehabilitation professionals to fulfil those roles. In the latter case, only three papers were located, two on pre-service curricula, and one resource developed by WFOT designed specifically as an on-line course in preparation for this work in contrast to, for example, the WCPT text guidance which focuses on clinical interventions.

In summary, the findings from this desk review point to the need to develop a curriculum module for preparing rehabilitation personnel to contribute to the health emergency response.

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## 2.3 Desk Review on impact of disasters on NCDs and implications for health emergency response

The purpose of the review on the impact of disasters on NCDs and implications for the health response was to identify: i) major issues that face people with NCD or chronic illness in times of disaster and, ii) the current actions and strategies used to address the issues faced by people with NCD or chronic illness in disaster events. The desk review was completed in two phases.

### 2.3.1 Phase 1 – Google Scholar Search

#### Method

The first phase of the search involved a Google Scholar to scope the peer reviewed and grey literature repositories with a broad range of sources including academic publishers, professional societies, online repositories, universities. The following search terms were entered in to the Google Scholar search field: [\('chronic disease' or 'chronic illness' or 'non-communicable disease' or 'cardiovascular disease' or cancer or diabetes or 'chronic respiratory disease'\)](#) and [\(emergency or 'emergency health response' or disaster or 'disaster response' or 'disaster management'\)](#)

The first 10 pages of results (10 items per page) were hand searched. The titles and abstracts, or introductory text if the abstract was not available were reviewed and publications relevant to managing, responding to, treating, or preventing NCDs in an emergency response/disaster context were exported to a Mendeley Library for full text review.

In addition, the websites of the following professional or peak body organisations were hand searched for reports, position papers, or guidance documents that specifically focused on health emergency response or disaster events.

- International Diabetes Federation
- World Stroke Association
- World Heart Foundation

### 2.3.2 Results – Phase 1

In total 15 papers were retrieved for full text review from the results of the Google Scholar search. The hand searching of key websites identified one publication on the International Diabetes Federation website.

### World Health Organization publications

The Google Scholar search identified several publications related to initiatives and actions the World Health Organisation (WHO) has taken in relation to NCDs in emergencies. WHO nominate four major NCDs: cardiovascular diseases, diabetes, cancer and chronic lung disease.

[Noncommunicable diseases in emergencies](#) published by WHO and United Nations High Commission for Refugees (UNHCR) (through the UN Interagency Task Force on NCDs) in March 2016 outlines risks to health for people with NCDs in emergencies and key actions for providing appropriate care.

Compromised health comes from: i) physical injuries and the exacerbation of existing conditions as a result; ii) displacement and the loss of access to services, medication or equipment; iii) degradation of living conditions which adds to physical and psychological strain of someone already living with chronic illness; and iv) the interruption of care for individuals who receive regular treatment e.g. dialysis, chemotherapy.

Advice is provided in ‘initial response’ and ‘continuing response’ categories to ensure that the services such as standard procedures for pain and symptom relief, referral to secondary and tertiary care facilities ,and stocking medication required for managing common NCDs are included in health emergency response efforts.

The [Non Communicable Diseases Kit 2016](#) supplements the Interagency Emergency Health Kit for meeting health needs in humanitarian emergencies and disasters (WHO, 2016). This was proposed by the UN Interagency Task Force on NCDs to include medications and equipment with quantity based on Global Burden of Disease data (Tonelli et al., 2016). This NCD kit is aligned with the *WHO Package of essential noncommunicable disease interventions (WHO PEN) for primary care in low-resource settings* and the *WHO mhGAP humanitarian intervention guide for mental health management* (WHO Regional Office for the Eastern Mediterranean, 2017).

### Position/opinion pieces/models for responding to NCDs

Two opinion pieces were identified, the first by Demaio, Jamieson and Horn (2013) aimed to bring attention to the lack of recognition of issues faced by people with NCDs in WHO and Interagency Standing Committee (IASC) publications. The documents detailed above have appeared since the time of this opinion piece. More recently, a paper published in the *Lancet* (Slama et al. 2017) written by representatives from WHO, Medecins Sans Frontiers (MSF), United Nations High Commission for Refugees, Imperial College London, Royal Marsden Hospital and University of Calgary outlines a “minimally adequate response to NCDs in emergencies” (p1). The recommendations are presented

according to preparation and mitigation, emergency response and post-emergency phases. The preparedness phase requires stockpiling medications and accurately profiling NCD needs based on data; the focus in the emergency phase is on identifying individuals with NCDs, ensuring NCD services are included within the health response and supporting self-management. Post-emergency requires updating primary health care and prevention programs in light of lessons learned from the disaster.

### Scientific literature

There is a recent systematic review titled *Identifying and Describing the Impact of Cyclone, Storm and Flood Related Disasters on Treatment Management, Care and Exacerbations of Non-communicable Diseases and the Implications for Public Health* (Ryan et al. 2015). In total 5 publications related to this paper were identified after handsearching the reference lists and a further Google Scholar search using the first author's name in combination with keywords 'NCD' and 'disaster'. The review authors systematically searched 4 databases and analysed the full text of 48 papers focused on the four major NCDs as defined by WHO in disasters caused by floods, cyclones, storms. Phase 2 of this desk review involved repeating the literature searches as documented by Ryan (2015) covering the relevant time period 2014 – 2018 (March).

The following is a summary of the findings of Ryan et al. (2015). People with *cardiovascular disease* are at increased risk of exacerbation of symptoms of their disease such as high blood pressure, heart attack and even death. This increased risk can continue for weeks after the event. Contributing factors are limited access to medication and care in post-disaster setting, medical noncompliance during the disaster period, and physical exertion related to clean up and recovery.

A similar picture presents for those with *chronic respiratory disease (CRD)*, who face risk of acute exacerbations of their disease (and increased risk of death) in situations where access to medication and appropriate medical care is limited. For those reliant on power respiratory equipment (e.g. oxygen or nebulizers), disrupted power supply is another contributor. Specific features of disaster situations also contribute: overcrowding in evacuation centres, increased likelihood of catching airborne infection, and high levels of mould and other allergens.

People with *diabetes* face risks associated with disrupted medical services and medication supplies, and nutritional risks dependent on availability of appropriate foods, challenges in storing insulin, and changes in physical activity and daily patterns. These increased risks can continue for several months

after a disaster, with those dependent on insulin most at risk. Disrupted care for people with *cancer* occurs due to damaged health infrastructure, transport disruptions and access to clinics, medication, or appropriate specialists which can extend well into the recovery phase.

## 2.4 Phase 2 – Scientific database search

### 2.4.1 Method

#### Search strategy

The searches as documented in Ryan et al. (2015) were repeated in the five databases originally searched: CINAHL, Medline, PsychINFO, Scopus and ScienceDirect, and limited to 2014 – 2018 (March). The papers were exported to an EndNote Library and abstracts and titles reviewed. Ryan et al (2015) inclusion criteria were used to determine inclusion/ exclusion except for literature reviews which were retained for further analysis (see Table 1). Papers from the Great East Japan Earthquake were also included because damage to infrastructure due to the tsunami and flooding (as opposed to tremors) could be related to other findings on storm, floods and cyclone damage.

<b>Inclusion</b>	<b>Exclusion</b>
Storm, cyclone, flood related disasters impact on people with NCDs	No focus on NCDs
Descriptive papers (describing a situation or a specific disaster)	Conference abstracts
Mixed methods	Literature reviews (original research included in literature reviews were sourced and reviewed)
Qualitative methodology	
Quantitative methodology	

Table 1: Inclusion and exclusion criteria applied in Ryan et al. (2015)

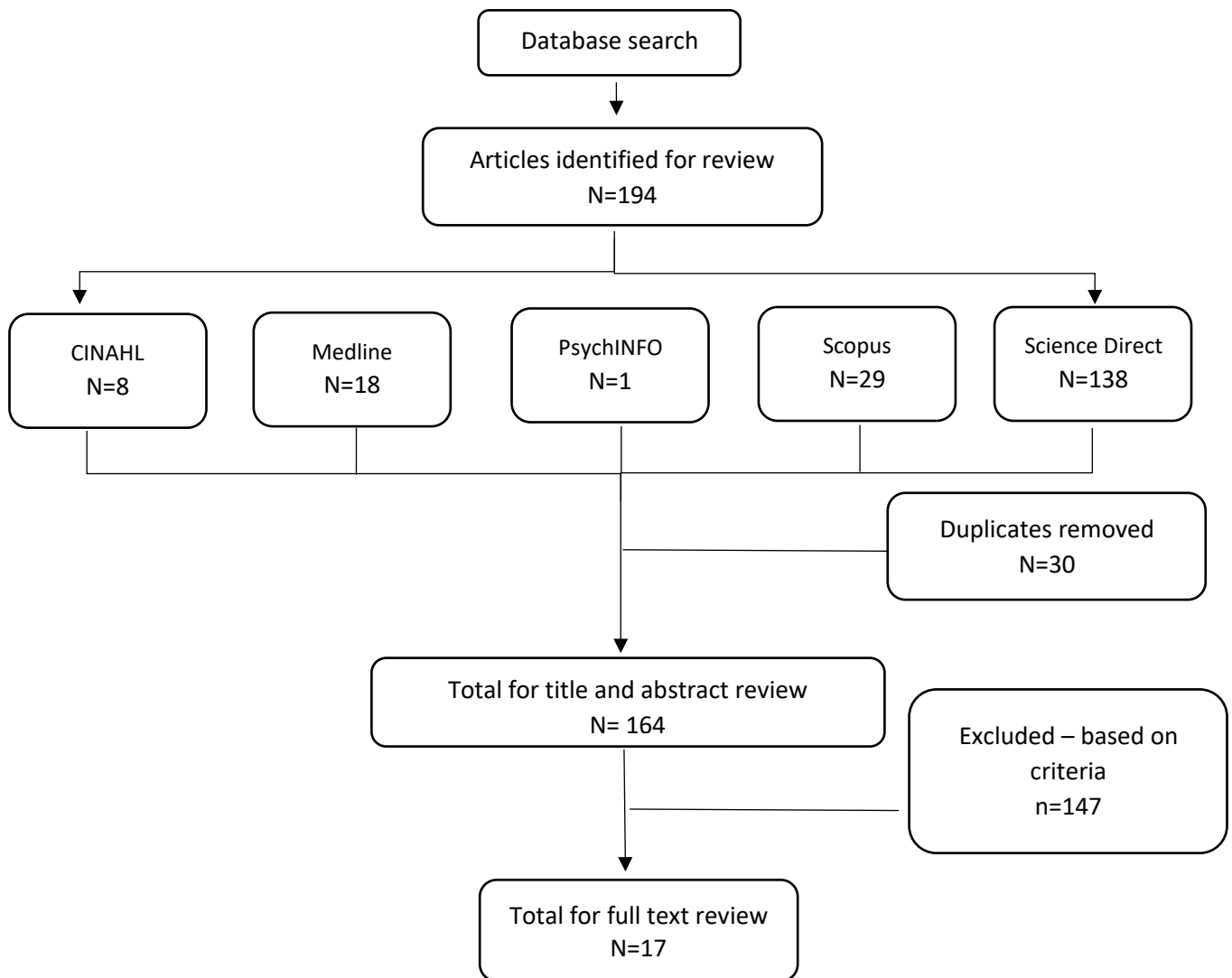


Figure 1. Flow diagram of scientific database search results and screening phases

During full text review of the 17 papers, five (n=5) were excluded due to their emphasis on impacts on health more broadly rather than NCDs specifically.

#### 2.4.2 Analysis

We replicated the analysis method used in Ryan et al. (2015) which resulted in an Excel spreadsheet with columns for impact of disaster, type of research paper (qualitative, quantitative, mixed methods), type of disaster event, and NCD(s) investigated. The three (n=3) papers that focused on strategies and actions to reduce the negative impact of disasters on people with NCDs are reported in section 2.4.3.2 titled *Actions and strategies identified in the literature*. The findings from the nine

papers addressing impact of disasters on treatment and health outcomes for people with NCDs are presented in section 2.4.3.1.

### 2.4.3 Results

#### 2.4.3.1 Impacts on health and treatment

##### *Acute exacerbations of vascular disease*

Three papers were relevant to acute exacerbations of vascular disease. A retrospective hospital record case study from Iwate prefecture in north east Japan found a statistically significant increase in the incidence of decompensated acute heart failure (Nakamura et al., 2016), with positive correlation between areas most affected by tsunami damage. A retrospective medico-administrative record study investigating incidence of acute cardiovascular disease post-flood compared to one year earlier in Saint Jean-sur-Richelieu in Quebec, Canada in 2011 (Vanasse et al., 2016) found an increase in incidence however this was not statistically significant. The third paper also retrospectively analysed medical data in tsunami affected areas in Japan and found a statistically significant increase in the incidence of cerebrovascular events in areas most affected by the tsunami (Omama et al., 2014).

##### *Diabetes during and after disasters*

An increase in emergency room visits by people with a primary diagnosis of Type II diabetes was found in New Jersey during the period of Hurricane Sandy 29 October – 4 November 2012 (Velez-Valle, Shendell, Echeverria, & Santorelli (2016). A study in Louisiana examined possible changes in maintenance tests and complication rates in children with juvenile diabetes enrolled on Louisiana Medicaid after Hurricane Katrina (Quast & Mortensen, 2015). There was no significant reduction in frequency of maintenance tests or increase in complications when compared with the control group (children from a county not designated as a disaster zone).

##### *Impacts on public health infrastructure and NCD treatment and management*

According to Ryan, Franklin, Burkle, Watt, Aitken, Smith, & Leggat (2015) cited in Ryan et al. (2015) the impact of Cyclone Yasi (2011) in Queensland on public health infrastructure compromised NCD treatment due to communication between health facilities, evacuating an entire hospital from Cairns to Brisbane, and potential relocation and evacuation of a renal dialysis unit due to threats to clean water supply.

Kobayashi et al. (2016) investigated the impact of the Great East Japan Earthquake on children with epilepsy and found that just over one quarter (28.6%) lacked sufficient medication for the period



after the disaster and most were unable to access the treating hospital to get more medication. Reasons for this lack of access included flood damage to roads and transport infrastructure or inability to get gasoline to travel. The children and parents had to present to hospitals or medical facilities where they were not known and often without a prescription. Despite this happening, most were able to get the medication they needed and only 5.6% experienced worsening seizures.

#### *People with pre-existing chronic health conditions presenting to hospitals during and after disasters*

Two papers used hospital data during disaster periods to examine representation of people with pre-existing NCDs among those presenting to the hospital during the disaster period. In New York, Lee et al. (2016) found that those with pre-existing chronic conditions were more likely to present to emergency departments after Hurricane Sandy, and in many cases for difficulties experienced in managing the chronic condition in the disaster setting rather than because of a newly acquired medical complication. In the field hospital established by the Israeli Defence Forces in the City of Bogu, northern Cebu Island after Cyclone Yolanda Lin, Marom, Dagan, and Merin (2017) found that a significant proportion (400 of 2688) of patients seeking treatment presented with advanced complications of chronic disease (diabetes, cancer, vascular disease) and congenital deformities requiring surgery. The authors surmised the reason for the advanced nature of their conditions in both cases was due to the lack of appropriate medical services in the area prior to the disaster. Given that field hospitals are intended for and equipped for the acute care of disaster-related injuries, the authors discuss the ethical and moral dilemmas in making treatment decisions including available (or not) expertise and prioritisation. A workable solution was proposed as an 'elective surgery package' including plastic surgeons, ophthalmologists and pathology laboratory equipment that could join a field hospital in the second week if not overwhelmed by individuals immediately affected by the disaster. They note however that all emergency medical teams particularly in low resourced settings need to be prepared to address non-urgent medical needs as well as acute injuries.

#### *2.4.3.2 Actions and strategies identified in the literature*

Three papers focused on response actions and strategies for NCDs and chronic illness in disaster situations. In a qualitative study using a key informant approach, representatives of 14 organisations providing health services to disadvantaged individuals in the Mississippi and Alabama Coast area were identified and interviewed about actions their organisation had taken in response to their experiences during Hurricane Katrina (Icenogle, Eastburn & Arrieta, 2016). A baseline study had been undertaken in 2006-7 and the interviews followed, being undertaken between 2009 and 2012. The

interviews examined changes made by organisations and implemented during the cyclones in 2005 (Ike) and 2008 (Gustav). These included providing pre-disaster training in both one-on-one and group settings, providing survival packs to clients, creating individualized disaster plans with their clients, distributing disaster preparedness materials through hospitals and treating specialists offices, evacuation support at the time of disaster and providing patients with contact details for providers in other areas in case they are relocated during or after a disaster event. Most of the organisations had made changes to their processes around medical records and medication making it easier for patients to access necessary care in a post-disaster setting. For example, organisations introduced advanced prescriptions for medications and have policies for extending the period on these advanced prescriptions in the days before a hurricane hits (e.g. from three weeks to six weeks). Issues with availability of medication were still identified as pharmacies often did not have the stock to supply extended periods of medication, particularly for expensive or less widely used medications. The interviewees identified the primary barrier to effectiveness of these strategies was lack of compliance to preparedness strategies, particularly for those diagnosed after Hurricane Katrina disaster without experience of managing a chronic condition in disaster settings. The most effective strategy identified was to invest time in one-on-one preparedness plans and discussion, given the limited change of behaviour from general awareness strategies such as distribution of brochures.

The final papers come from Ryan and his colleagues work in Australia. In one paper (Ryan et al., 2016) reports responders' experience (from in Northern Queensland -Cairns, Townsville and Darling Downs) of damage to public health infrastructure related to poor health outcomes for people with NCDs. To mitigate this, the authors propose closer collaboration between disaster responders and public health infrastructure and services to improve outcomes for people with NCDs. Specific examples included using telemedicine, pre-planning with medical suppliers, town planning, linking health providers with evacuation shelters to bring needed services to evacuees, ensuring evacuation centres have sufficient power for medical equipment, evacuating high risk people before a disaster, mapping people with NCDs and information sharing between agencies.

Ryan et al. (2018) document the experiences of people with NCDs and disaster responders and the rankings and priorities they gave to mitigation strategies. A key priority was sustained availability of safe water to maintain treatment and care of people with NCDs during a disaster period, which requires back up power supply at water plants. A second key priority was consistent and clear messages about where people with NCDs need to go for treatment. Participants also prioritized

healthcare hubs and specific services for NCDs as part of the disaster response. The authors suggest the health emergency response needs to be expanded from its current immediate trauma and communicable diseases focus to include specialist health services for people with pre-existing NCDs and chronic illness.

## 2.5 Commentary

The recent increase in attention to the impact of disaster events on people with NCDs mirrors the increasing interest in the contribution of rehabilitation to the emergency health response. There are similarities: the inadequacy of the health emergency response when the focus is only on immediate trauma; the needs of those with chronic conditions requiring ongoing medication, potentially equipment and health status monitoring which are not considered in a trauma focused response; the critical importance of preparedness of local services with stockpiled medication and equipment and agreed processes in place to facilitate rapid replacement when supplies are lost, damaged or interrupted; the preparedness of the local rehabilitation and public health workforce to respond in a timely and effective manner; the preparedness of the local rehabilitation and NCD workforce to work under disaster conditions as well as maintaining services over time in the post-recovery period; and, the need for health service personnel whether in rehabilitation or NCD services to work collaboratively with first responders and disaster management personnel.

There are also some differences: there is a dual role for rehabilitation in the health emergency response. On the one hand, their contribution extends to those with pre-existing disabilities in similar manner to NCD personnel working with those already diagnosed with NCDs. On the other, rehabilitation is also an essential component of the acute trauma response for example in field hospitals and linking with community rehabilitation services (where available) for discharge and ongoing rehabilitation and recovery beyond the immediate disaster response period.

## 2.6 Conclusion

This desk review of the impact of disaster on NCDs and appropriate mitigation and response strategies highlights, as did the desk review on the contribution of rehabilitation in the health emergency response, the need to have clear guidance for local health services on best practice for rehabilitation in health emergency responses. This project developed three products to address this need. The Framework which specifies the knowledge, actions and networks model needed for each phase of the health emergency response. This is contained in the main body of this report (p. 9) and in Attachment 1. Interim Report, p. 38. The Briefing Document provides detailed information,

utilising the Framework, to guide rehabilitation services and personnel to better prepare and support health emergency responses. This is included in the Supplementary Material Part 1, pp.78-85. The Curriculum Module specifics curriculum areas and competencies with essential knowledge and skills needed for rehabilitation personnel to engage effectively in health emergency responses. This is included in the Supplementary Material Part 2, p. 86.

The desk review also highlights that, as yet, with one exception (Icenogle et al., 2016), there has been little attention given to the importance of one-on-one pre-planning with people with existing health conditions and/ or rehabilitation needs and/ or disabilities. This is in contrast to policy and emerging practices elsewhere in disaster preparedness internationally, including in Australia, where it is understood that the most effective strategy to counter the widespread impacts of natural disasters/ health emergencies is to build community resilience as endorsed by the *Hyogo Framework for Action 2005-2015: Building the resilience of nations and communities to disasters*. This requires individuals to work together at the community level, community leaders to work together, and sectoral agencies to come together to develop, support and implement community based, inclusive disaster preparedness plans. This approach is especially critical for those in the community who are most vulnerable in a natural disaster or health emergency, including those in need of rehabilitation, people with disabilities, children, and the elderly.

A recent award winning project in Australia has addressed this area of building individual and community resilience. The *Person-Centred Emergency Preparedness (PCEP)* is a process tool and framework for enabling disaster preparedness with people with chronic health conditions and disability. The *User Guide* is available for free download on line at [http://sydney.edu.au/health-sciences/cdrp/projects/UOS\\_PrepareNSW\\_user\\_guide\\_FINAL\\_v2.pdf](http://sydney.edu.au/health-sciences/cdrp/projects/UOS_PrepareNSW_user_guide_FINAL_v2.pdf). There are also videos which show the *PCEP* in action available at <http://collaborating4inclusion.org/prepare-nsw/>. Although developed in the Australian context, its foundational principles are applicable in other contexts. We recommend that consideration be given to developing, at the local level, adapted versions of the *PCEP* suitable for the particular geographic location and social and cultural context including governance and availability and distribution of resources relevant to planning and preparedness for health emergencies and natural disaster events.

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# Attachment 1

## Building capacity in health-related rehabilitation services for emergency health responses November 2016- December 2017, Interim Report

Professor Gwynnyth Llewellyn

Alexandra Lewis Gargett

November 2017



WHO Collaborating Centre in Health  
Workforce Development in  
Rehabilitation and Long Term Care

## Purpose/ Specific Objective of the Activity

The overall purpose of this Activity is to develop capacity profiles of rehabilitation services in the Philippines and the Solomon Islands that could be mobilised in health emergency responses.

## Key Questions

5. What is the extent and capacity of rehabilitation workforce for mobilisation and action in a health emergency response?
6. What is the available rehabilitation infrastructure, stockpiled equipment, governance and referral mechanisms to support mobilisation and action in a health emergency response?
7. What is the capacity of the available workforce and resources as per 2 to work in tandem with Emergency Medical Teams?
8. What short term and long-term planning is required to improve the capacity of health-related rehabilitation services to provide an effective response in future health emergency situations?

## Work Activities

5. Selection of two countries, the Philippines and the Solomon Islands to base the data collection tasks.
6. Development a methodology for collection of data on health, rehabilitation and disability services that relate to the *Minimum Technical Standards and Recommendations for Rehabilitation Emergency Medical Teams* (WHO, 2016) technical guidance.
7. Identify ways in which the information collected could support rehabilitation services in planning and responding to a health emergency, for that particular country, but offer options for transfer and use in other countries;
8. Produce a final report that synthesizes the information from both countries that complement the technical guidance in the *Minimum Technical Standards and Recommendations for Rehabilitation Emergency Medical Teams* (WHO, 2016).

## Sequence of work

### Desk review

Following approval of the project work plan In December 2016, the first step involved a desk review submitted to the Technical Officer, Disabilities and Rehabilitation in March 2017. The desk review identified contributions from International Non-Government Organisations (INGOs) with experience in humanitarian responses and specifically natural disaster and conflict situation responses; position papers by international health



professional organisations involved with disaster responses; peer-reviewed scientific literature; and, policy frameworks and guidance documents from the relevant UN agencies. The major points from the analysis of the suite of documents are as follows:

- Rehabilitation professionals need to be included in health emergency response teams (EMTs) as it is unlikely that local rehabilitation services will be sufficient to meet anticipated increase in rehabilitation need at time of the disaster/ humanitarian response.
- Rehabilitation professionals working in EMTs need to have specific training, knowledge and experience in health emergency/ disaster response situations.
- Local rehabilitation staff need to have specific training and knowledge for working collaboratively with and assisting EMTs in health emergency/ disaster response situations.
- Assistive devices need to be available locally if possible due to limitations on the equipment capacity of EMTs.
- Mapping and connecting between EMTs and local rehabilitation services is vital. Connecting as early as possible allows local knowledge sharing and access to available local resources. Connecting is also critical for early discharge planning to local services.
- Local rehabilitation services are needed for ongoing rehabilitation interventions and community support as this is not the purview of EMTs. However, referring to and utilising local rehabilitation services as frequently recommended assumes capacity in these services exists which may not be the case.
- UN agency documents on health emergency responses identify strengthening and building local services during the emergency response as a key role of teams specifically set up or brought in to manage health emergencies. No guidance documents were located on how this ought to happen and the resources required.

### Consultation with external rehabilitation personnel involved in health emergency responses in the region

Over the course of the project we have consulted with personnel involved in health emergency response with knowledge and experience relevant to rehabilitation and people with disability.

- Wes Pryor, Senior Technical Advisor, Disability Inclusion for Health Development, Nossal Institute for Global Health. Wes' previous role as a Technical Adviser on Rehabilitation with Handicap International included experience in the 2015 Nepal earthquake response. Key learnings from this experience were that having a pre-determined role for rehabilitation personnel and relevant training for those

individuals is key to embedding rehabilitation personnel in emergency response teams and effective collaborations between EMTs and in-country rehabilitation personnel.

- Dr Leong O, Emergency Medical Team Coordinator, WPRO: the EMT initiative is focused on rolling out training and support for developing and supporting medical teams in the WPRO region to meet the standards to be registered on the list of approved WHO EMTs.
- Sean Casey, Health Cluster Coordinator Pacific, WPRO Suva Office, Fiji. Sean has extensive experience (approx. 30 years) in emergency health response and has recently taken up the Health Cluster Coordinator role from his previous position in WHO Iraq. Sean raised the importance of extending the focus from short term medical support to save lives (often concentrated in the first 2 weeks) to more consideration for long term care needs, including rehabilitation and in the absence of significant funding from donors which focuses on the immediate response phase.
- Sally Baker, Disability Inclusive Specialist Consultant discussed experiences in Vanuatu after Cyclone Pam. Advocacy for disability inclusion has effectively raised awareness about the inclusion of people with disability in DRR activities and preparation for response however DPOs often do not have capacity to provide the appropriate technical advice. The experience of people with disability in Vanuatu was that they were not included in mainstream responses (e.g. food handouts, inaccessible evacuation centres) and the loss of assistive devices was a significant issue.
- Dr Alex Robinson Head, Disability Inclusion for Health Development, Nossal Institute for Global Health with previous experience director for ASB Indonesia providing primary health care in disaster responses and DRR programs including disability inclusive DRR. From Alex's perspective establishing networks and working relationships before a disaster is crucial for coordinating an effective response. The UN cluster structure provides a framework to build these networks.

### Field visits to Philippines and Solomon Islands

Field visits were arranged through the disabilities and rehabilitation focal point in the two country offices of WHO. Two field visits were undertaken, firstly to the Philippines in August 2017 and then to the Solomon Islands in November 2017. When available, consultations were held with the health sectors, hospital based rehabilitation professionals, community based rehabilitation workers, and ministry of health personnel responsible for health emergencies; the emergency management sector; and, people with disabilities through their representative DPOs. The full reports of the field visits and consultations will be presented in the final report for this project in April 2017.

In brief, the field visits were instructive in understanding the level of awareness of each sector about the need for inclusion of rehabilitation in national emergency response discussions and governance structures; planning

and operational activities; the interface between both international and national Emergency Medical Teams (EMTs) and in-country rehabilitation services and their networks including DPOs and NGOs; and, the need for capacity assessment and subsequent building capacity in emergency preparedness and response in workforce, equipment, and processes in the rehabilitation sector.

In the Philippines, the frequency of natural hazard events resulting in disasters, the well-established (public and private) rehabilitation workforce, and multiple DPOs and CBR programs, has led to both more formal and voluntary rehabilitation involvement in emergency preparedness, including a roving voluntary team of rehabilitation professionals in Typhoon Hainan; active engagement of DPOs in emergency response; and, an emergency response training module for one rehabilitation profession already operational and endorsed at national professional accreditations level with more anticipated.

In the Solomon Islands, currently there is no formal involvement of rehabilitation at the National Referral Hospital in Honiara or the CBR Unit and its associated Field Officers in disaster management preparedness and response. At the time of flash flooding in Honiara in 2014, the CBR Unit carried out voluntary checking of former and current clients to ensure their welfare and identify any rehabilitation needs, for example, wheelchair washed away during the flood. It is not clear due to lack of documentation whether similar actions occurred by provincial CBR Field Officers for example in Makira after the 2014 earthquake. Rehabilitation staff at the National Referral Hospital have not been involved in recent WHO and MOH led initiatives on developing EMTs. The DPO, PWDSI is aware of the critical importance of involving people with disabilities in disaster preparedness and management due to members' experiences during the Honiara flash flooding in particular. PWDSI is working with several INGOs to seek funding from Australia for beginning disability awareness raising at the community level in relation to people with disabilities and disasters.

### Findings to date

- 3) There is increasing attention in the international scientific and grey literature to the rehabilitation contribution in health emergency responses. This comes primarily from position statements from professional organisations, case studies derived from specific natural disaster responses, and internal documents from INGOs that work in rehabilitation and disability. There are also now minimum technical standards and recommendations for rehabilitation within EMTs (WHO, 2016). However, as yet there is no guidance for building capacity in local rehabilitation services to meet rehabilitation needs in health emergencies.
- 4) The mapping of rehabilitation capacity *per se* in the two countries is available in limited form in the *Pacific Health Rehabilitation Health Workforce*<sup>1</sup> and in the recently released Rehabilitation and Disability

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<sup>1</sup> Llewellyn, G., Gargett, A., Short, S. (2012) *The Pacific Rehabilitation Health Workforce* (Draft submitted to World Health Organization Western Pacific Regional Office)

benchmark report for WPRO (2017). This report also includes a mapping of the Community-Based Rehabilitation Field Officers in the Solomon Islands and a recent presentation by Elsie Talofiri National CBR Coordinator, Ministry of Health and Medical Services, Solomon Islands in August 2017 complements this work. This latter information will be updated for the final report to include National Referral Hospital rehabilitation personnel including rehabilitation professional volunteers. There is also a useful recent document which is an extensive mapping of rehabilitation capacity in the Philippines<sup>2</sup>.

- 5) These mapping documents are an important first step in understanding rehabilitation capacity in the Pacific more broadly however none specifically address rehabilitation capacity for health emergency responses. The field visit consultations in both countries suggest there is no formally recognised rehabilitation capacity for health emergency response, that is, in relation to workforce, training, structures, processes, equipment, referral pathways, or networks in either country. Instead, the information gathered in the field visits demonstrates that some rehabilitation professionals in times of disaster have responded to apparent rehabilitation need, either as individuals or as part of voluntary teams, including 'checking up' on current and former clients. Responding in this way derives from their concern that people with disabilities are overlooked or neglected in disaster responses, and therefore vulnerable to increased morbidity. These voluntary responses are *ad hoc* and 'stand-alone', and are not linked to or coordinated with government or non-government disaster responses. There is an opportunity to leverage from the commitment and experience of this small group of rehabilitation professionals in each country to systematically build capacity for health emergency response in the rehabilitation sector in the Pacific.
- 6) A significant challenge in the field visit phase was to engage with emergency management personnel in both countries, and with the ministries responsible for disaster preparedness planning and emergency management operations. These meetings did not eventuate. This is unfortunate however understandable given the relatively recent status of the roll out of initiatives such as the WHO Emergency Medical Teams and Minimum Technical Standards and Recommendations for Rehabilitation and the newly appointed position taken up by Sean Casey in October 2017 as Health Cluster Coordinator at WHO Sub-regional Office in Fiji.
- 7) The contribution of local rehabilitation services to health emergency responses as noted in the literature and cited in field visit consultations is:
  - through identification of the needs of current and former clients in a health emergency situation;
  - collaborating with and supporting DPOs in identifying needs of known persons with disabilities in a health emergency situation; and,

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<sup>2</sup> Powerpoint provided by Dr. Josephine Bundoc, University of Philippines Department of Physical Medicine and Rehabilitation

- collaborating with first responders to leverage networks and local knowledge such as access to stockpiled equipment.

These three activities in the immediate phases of the health emergency response require prior close collaboration, planning and networking with government disaster management structures and processes. Disaster preparedness cross-sectoral collaboration contributes to the other four components of the rehabilitation contribution to health emergency responses which are:

- preparing for transitioning people treated by EMTs to local rehabilitation services whether newly injured or people with disabilities sustaining additional injuries;
- providing rehabilitation services into the recovery phase for people with rehabilitation needs identified as per (d) and also for those who are identified later in the months following the initial health emergency response;
- evaluating structures and processes and preparing lessons learnt to inform ongoing local rehabilitation preparedness and to inform disaster management operational agencies to ensure more effective subsequent responses.

In summary, the well-accepted disaster management cycle of mitigation, preparedness, response, and recovery requires a comprehensive preparedness phase to ensure an effective response. The 2015 *Sendai Framework for Disaster Risk Reduction* offers guidance on what constitutes preparedness, noting that individual and community resilience are key. To achieve resilience requires inter-sectoral collaboration and knowledge sharing at all levels with concentrated effort at the community level, where individuals, their families, neighbours and community members are the 'first responders' when a disaster/ health emergency hits. Developing inter-sectoral collaboration and knowledge sharing at community level is an area for further development and planning with the potential for developing and trialling a community level, inter-sectoral approach in one or more countries in the Pacific region.

### Next phase building on work to date

#### 1. Framework to strengthen rehabilitation capacity for health emergency response

Building on the findings to date, we propose the following preliminary framework (See Figure 1) to consider the contribution of rehabilitation and the components needed to strengthen rehabilitation capacity in health emergency responses. The framework does not address the finding from the literature and document analysis that: 'Rehabilitation professionals working in EMTs need to have specific training, knowledge and experience in health emergency/ disaster response situations'. The training, knowledge and experience required of rehabilitation professionals who will work in EMTs is currently outside the scope of this project.

## 2. Selection of 'trial site' in one of the field visit countries to implement framework at community level

In consultation with WPRO Technical Officer Disabilities and Rehabilitation determine suitable trial site at the community level in the Solomon Islands to trial implementation of the framework. with health services, disaster management services, people with disabilities self-help groups, and disaster management processes, e.g., disaster management committee to identify knowledge, action and networks needed to strengthen rehabilitation capacity for preparedness phase prior to health emergency response. The Solomon Islands is recommended for this 'trial site' given enthusiastic support from Dr Nemia Bainvalu Undersecretary for Health Improvement, Ministry of Health and Medical Services Solomon Islands the high motivation of PWDSI, the keenness of the CBR Field Officers, and the Emergency Medical Teams initiative in the Ministry of Health and Medical Services.

## 3. Develop a phased approach over the following (anticipated) two-year period

Following on an additional visit to the Solomon Islands in the first quarter of 2018, and planning to develop a process at the trial site (see point 2 above), develop a phased approach over the following (anticipated) two-year period to prepare for, implement and evaluate a cross sectoral capacity building process at the community level.



Figure 1. Preliminary framework for strengthening rehabilitation capacity for health emergency responses

# Attachment 2

## Rehabilitation in Emergency Health Response

A targeted desk search was conducted to identify publications on rehabilitation in emergency health response.

### 1. Search Method

Hand searched websites of key organisations involved in emergency response, rehabilitation or disability in development contexts.

- WHO website
- Ask Source
- UNOCHA repository
- WPRO IRIS
- Handicap International
- CBM
- International Society of Physical Rehabilitation Medicine (ISPRM)
- World Congress for Physical Therapy (WCPT)
- World Federation of Occupational Therapists (WFOT)
- International Society for Prosthetics and Orthotics (ISPO)

#### 1.1 AskSource

In the Ask Source repository the search terms 'rehabilitation' and 'emergency' were used. This returned 1725 records. To achieve better specificity, a targeted search of the AskSource 'key lists' facility was conducted. The AskSource key lists are thematic groupings of relevant publications. There are 6 web pages of key lists (approx. 20 per page) in the AskSource repository. The relevant key list is titled: Emergencies and disability. At the search date, early March 2017, this key list had 5 sub categories:

- Introductory
- Manuals and guides
- Mental health in emergencies
- Inclusive education in emergencies
- Case studies

Each category was hand searched and any titles that appeared relevant to rehabilitation as part of emergency health response were downloaded and folder filed ('inclusive education in emergencies' is about schooling and so not relevant).

#### 1.2 Disability and Rehabilitation Organisations

The publication and resources section of the websites for

- Handicap International <http://www.handicap-international.us/publications>
- CBM <http://www.cbm.org/Publications-252011.php>
- ISPRM – Disaster Response Committee <http://www.isprm.org/collaborate/who-isprm/drc/>
- WCPT <http://www.wcpt.org/>
- WFOT <http://www.wfot.org/ResourceCentre.aspx>



- ICRC <https://www.icrc.org/en>
- ISPO <http://www.ispoint.org/publications>

were hand searched. Publications with titles relevant to health emergency response were downloaded and folder filed.

### 1.3 UN Agencies

Searches were conducted of the following UN Agencies:

- WHO: Health, emergencies and response programme: <http://www.who.int/csr/en/>
- IRIS Repository: <http://apps.who.int/iris/>
- UNOCHA: <http://www.unocha.org/>
- UNISDR: UNISDR disaster reduction information web platform *Prevention Web* <http://www.preventionweb.net/english/>. Initial search terms rehabilitation and health produced over 4000 results. A narrower search within the ‘Health and Health Facilities’ theme returned 2940 publications (14/3/2017). Search term rehabilitation alone returned 321; further narrowed by type to ‘documents and publications’ produced 185 publications, then hand searched. Search term disability alone produced 127 publications which were then hand searched.

## 2. Results

In total 25 publications were retrieved and reviewed. These were sorted into three groups: emergency health response; rehabilitation and disability in emergency; integrative approach to rehabilitation in the emergency health response linking with current and future national rehabilitation capacity. (See Tables 1, 2, 3 for publications).

**Table 1.** Emergency health response publications

	<b>Publisher/ Author</b>	<b>Title and Year</b>	<b>Type of Publication</b>	<b>Hits using ‘rehabilitation’ key word search in document</b>
1.	WHO	Emergency Response Framework 2013	Policy	No hits
2.	WHO	Emergency Risk Management for Health Overview	Fact Sheet	No hits
3.	WHO	Strengthening national health emergency and disaster management capacities and resilience health systems 2011	World Health Assembly resolution	No hits
4.	WHO	Humanitarian response 2015: Summary of health priorities and WHO projects in interagency strategic response plans for humanitarian assistance to protracted emergencies	Report	4 hits – 2 related to health-related rehabilitation 2 related to recovery of health services

5.	WHO	WHO's Six Year Plan to Minimize the Health Impact of Emergencies and Disasters 2014	Strategic Plan	No hits
6.	WHO & United Kingdom Health Protection Agency	Disaster Risk Management for Health - People with Disabilities and Older People	Fact sheet (2 pages)	4 hits – recommendations to provide health-related rehabilitation in each phase
7.	WHO & United Kingdom Health Protection Agency	Disaster Risk Management for Health - Mental Health and Psychosocial Support	Fact sheet (2 pages)	No hits
8.	WHO & United Kingdom Health Protection Agency	Disaster Risk Management for Health – Non – Communicable Diseases	Fact sheet (2 pages)	1 hit – rehabilitation is one of the health strategies used to manage NCDs (*note there is no recommendation for rehabilitation in disaster response)
9.	WHO WPRO	Western Pacific Regional Framework for Action for Disaster Risk Management for Health	Strategic Plan	1 hit – general comment that individuals require rehabilitation
10.	International Recovery Platform (IRP) and United Nations Development Program India (UNDP-India)	Guidance Note on Recovery – Health	Guidance Note – 48 case studies from around the world including one on providing long term rehabilitation services to Tsunami survivors in South-east Asia	27 hits –related to general recovery and rehabilitation of health facilities after a disaster. 14 – were in the health-related rehabilitation case study.

**Table 2.** Rehabilitation and disability publications

	<b>Publisher/ Author and Year</b>	<b>Title and Year</b>	<b>Type of Publication</b>
<i>Rehabilitation as essential part of disaster response</i>			
1.	Reinhardt et al (2011)	Disability and health related rehabilitation in international disaster relief - 2011	Peer-reviewed publication (Global Health Action journal)
2.	Knowlton et al (2011)	Consensus statements regarding the multidisciplinary care of limb amputation patients in disasters or humanitarian emergencies: report of the 2011 humanitarian action summit surgical working group on	Peer-reviewed publication (Prehospital and Disaster Medicine journal)

		amputations following disasters or conflict - 2011	
3.	Farooq et al (2012)	Medical rehabilitation after natural disasters – why, when and how? - 2012	Peer-reviewed publication (Archives of Physical Medicine and Rehabilitation)
4.	Zhang, Reinhardt, Gosney & Li (2013)	The NHV Rehabilitation Services program improves long term physical functioning in survivors of the 2008 Sichuan Earthquake: A longitudinal quasi experiment - 2013	Peer-reviewed publication (PLoS One journal)
5.	Handicap International & UKAID	Responding internationally to disasters: A do's and don'ts guide for rehabilitation professionals	Guidelines
6.	World Congress for Physical Therapy	The role of physical therapists in disaster management 2016	Report
<i>Disability inclusive emergency response</i>			
7.	Handicap International	Humanitarian Response: How to include everyone 2015	Advocacy briefing paper
8.	UKAID	Ageing and Disability in Humanitarian Response	Humanitarian Guidance Note
9.	WHO	Disasters, Disability and Rehabilitation 2005	Fact sheet
10.	WHO	Guidance Note on Disability and Emergency Risk Management for Health 2013	Guidance Note
11.	ADCAP	Minimum standards for age and disability inclusion in humanitarian action (pilot version)	Practice standards
12.	Handicap International	The Philippines Program: Annual Report 2014	INGO Annual Report
13.	CBM	Typhoon Haiyan – One Year Report 2013	Report

**Table 3.** Integrative approach to rehabilitation in emergency health response

	<b>Author/Publisher</b>	<b>Title &amp; Year</b>	<b>Type of Publication</b>
1.	WHO	Emergency Medical Teams Minimum	Practice standards

		Technical Standards and Recommendations for Rehabilitation	
2.	Handicap International	The Disability and Vulnerability Focal Points, 2014	Practical guide

## 2.1 Emergency health response

The 10 publications are policy papers, frameworks, and guidelines for implementing an emergency health response. A basic key word search of the term ‘rehabilitation’ within these documents indicated that it occurred quite infrequently – see Table 1. When included, rehabilitation was more likely to refer to reconstruction and rehabilitation of systems and services; occasionally, the term refers to rehabilitation as a health service that may be needed but with no detail on contribution of rehabilitation.

## 2.2 Rehabilitation and disability in emergency literature

There are two distinct areas within the 13 publications. The first is rehabilitation as an essential component of the comprehensive emergency health response. The second is rehabilitation as one part of a disability inclusive emergency response.

### 2.2.1 Rehabilitation as an essential component of the comprehensive emergency health response.

These 6 papers argue for the inclusion of rehabilitation in essential medical care after an emergency. Much of the discussion is about the care needed after traumatic injury and surgical management and medical stabilisation. This literature comprises reports and research papers. The research papers included here were downloaded from the International Society for Physical Rehabilitation Medicine where they are listed as official publications from the Sub-Committee on Rehabilitation Disaster Relief.

### 2.2.2 Disability inclusive emergency response.

These 7 publications comprise reports, briefing notes and guidance on providing a disability inclusive disaster response. Rehabilitation is mentioned as a specific inclusion measure that a person with disability may need to access, particularly for replacing assistive devices damaged or lost in the disaster event. Advice and strategies for ensuring access to mainstream emergency services such as WASH facilities, food distribution and essential health services are given more prominence than access to rehabilitation. There is also consideration of the ongoing needs of people with disabilities for community participation and for those with disaster – acquired disability.

## 2.3 Integrative papers for emergency health response and current and future national rehabilitation capacity

Two documents were located that integrate the ‘how to’ approach of the emergency response publications with guidance on when rehabilitation is needed, who could benefit and, the inclusion of people with disabilities. Both documents also map out linkages between rehabilitation within emergency response and ongoing need in the community. They also use a broad definition of who may need rehabilitation. These documents address meeting the rehabilitation needs of those with existing disability, those with newly acquired disability as a result of the event, and those who experience temporary impairment as a result of injuries sustained.

2.3.1 Emergency Medical Teams Minimum Technical Standards and Recommendations for Rehabilitation – World Health Organization, 2016

<https://extranet.who.int/emt/sites/default/files/MINIMUM%20TECHNICAL%20STANDARDS.pdf> . This

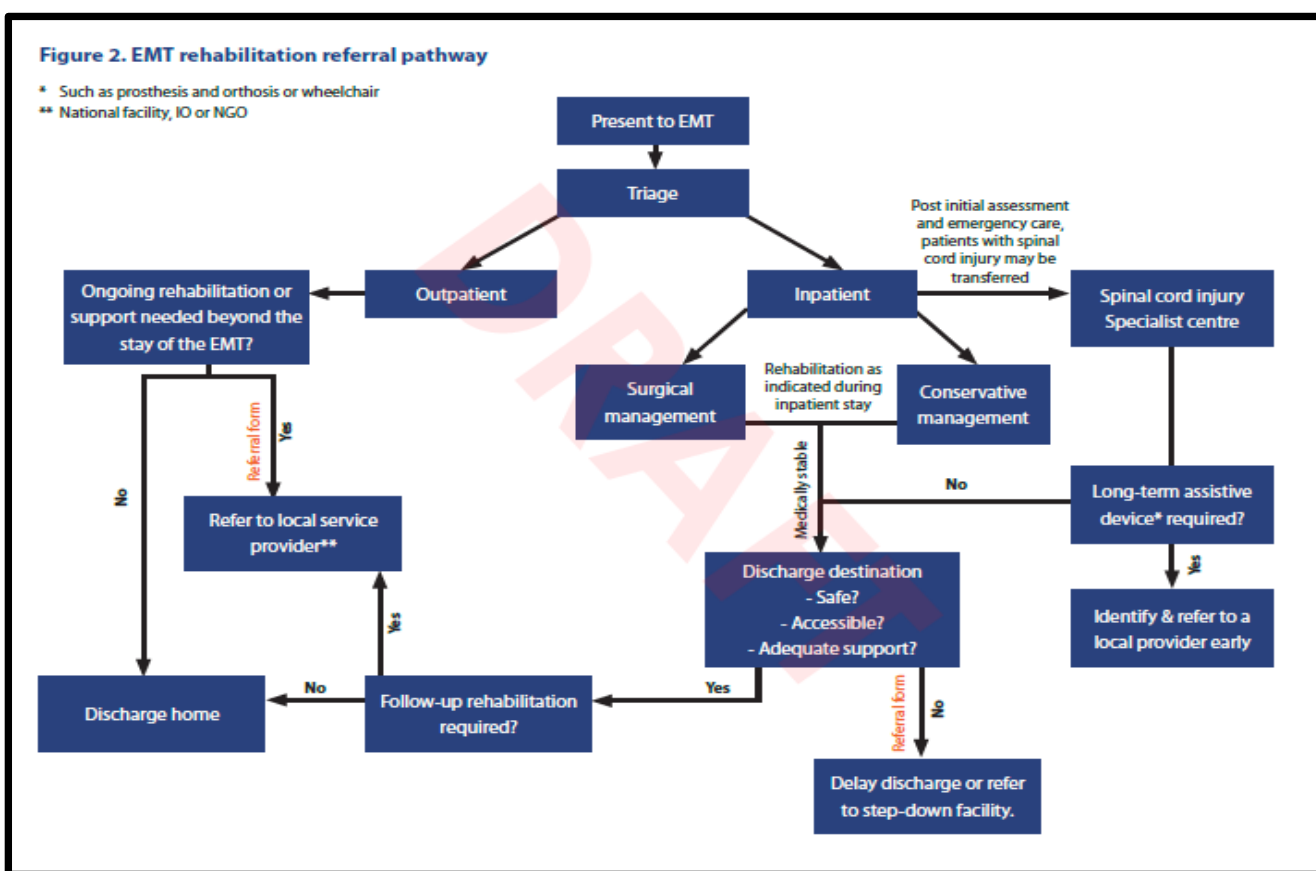
document is an accompaniment to the *Classification and Minimum Standards for Foreign Medical Teams in Sudden Onset Disaster* World Health Organization, 2013

[http://www.who.int/hac/global\\_health\\_cluster/fmt\\_guidelines\\_september2013.pdf](http://www.who.int/hac/global_health_cluster/fmt_guidelines_september2013.pdf). It extends the minimum standards for Emergency Medical Teams to include provision of physical rehabilitation.

The 2016 document contains numbers of rehabilitation professionals and equipment that an EMT must include for verification on the Global Classification List (2016, p.5). It also includes advice for step-down services, including that as acute and surgical needs decrease some emergency hospitals could transition to rehabilitation facilities (2016, p.15).

There is also advice for connecting with existing services and ongoing care (referral pathway 2016, p.27). It is suggested that acute inpatient management can be provided by visiting teams; assistive devices and community follow up should be done by local services. (p.27). This figure taken from the document (p.27) illustrates this process.

Part of EMT role is to assess existing services and identify gaps to Ministry of Health early in the emergency health response. There is a short section on building rehabilitation capacity (2016, p. 29) that specifies partnering with local services and exchanging rehabilitation knowledge with other personnel as part of the role of EMTs. The document also includes specific advice for 'common' injuries – spinal cord injury, amputation, traumatic brain injury, fractures, burns, and pre-existing disability.

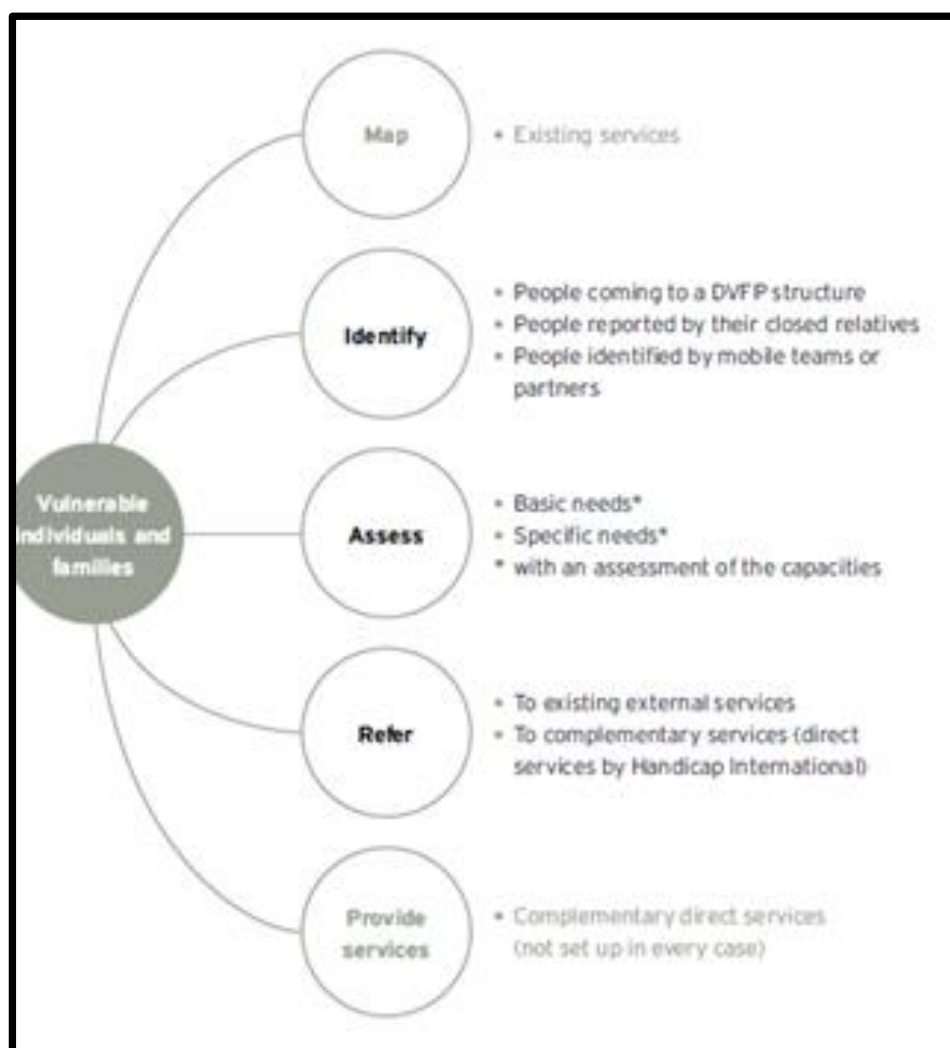


**Figure 1:** Referral pathway from WHO (2016) *Emergency Medical Teams Minimum Technical Standards and Recommendations for Rehabilitation* (p.27) – labelled as Figure 2. in original document.

### 2.3.2 Disability and Vulnerability Focal Points, Handicap International, 2014

[http://www.hiproweb.org/uploads/tx\\_hidrtdocs/PG14\\_DVFP.pdf](http://www.hiproweb.org/uploads/tx_hidrtdocs/PG14_DVFP.pdf)

In this practical guide, Disability and Vulnerability Focal Points (DVFP) are described as a mechanism for identifying vulnerable people in the community and linking them with existing services. Handicap International based this approach on their experience in humanitarian responses since the 1990s. In the 5 years leading up to this publication Handicap International used this model in their emergency responses including in the Philippines after Typhoon Haiyan (Handicap International, 2015)<sup>3</sup>. The first section of the guide explains the principles of the mechanism and the second section describes 6 phases of implementing a DVFP. The four infographics below are taken from the guide (pages 15, 17, 19 and 44 respectively) and explain the mechanism in practice.



**Figure 2.** This figure (from p.15) depicts the key actions of the DVFP mechanism, which is a network of focal points integrated into the community. Essentially their role is to identify people in the community who are

<sup>3</sup> Handicap International (2015). Handicap International Philippines Program Annual Report. Makati, Philippines.

more vulnerable, assess their need, and link them to services. At the time of the disaster event, the DVFPs are publicised for example in local media, community newsletter, and by pamphlet distribution.

### 3. Summary

Common points from WHO and Handicap International documents:

- Rehabilitation specialists should be included in emergency health response as it is likely that existing services will not be enough for rehabilitation need in emergency situations
- Rehabilitation staff who are working the disaster response services need to have training and knowledge relevant to emergency response situations
- Assistive devices should be provided by local services if possible
- Mapping and connecting to existing services are vital. This is particularly to assist with early discharge planning from health rehabilitation services, specifically those established at the time of the disaster response
- Existing services should be used for ongoing community support as this is not the purpose of disaster response services. This assumes that existing services can provide rehabilitation outside of acute and inpatient settings. Neither publication provides guidance for situations where there are no or limited rehabilitation services
- Strengthening and building existing services during the emergency response is a key role of extra/international/temporary services. Detail on how to do so and resources required are not included.

#### 3.1 Discussion

The two publications discussed above provide a useful blueprint for how rehabilitation and the needs of people with disability can be integrated into the emergency health response. That said, both publications recommend activities or approaches that would be difficult if not impossible to implement in situations with little or no existing rehabilitation capacity. There appears to be an assumption that local services will be available to provide community level rehabilitation support. Both publications contain mechanisms for providing rehabilitation services as part of the emergency response phase, including having personnel to provide acute, inpatient rehabilitation management. The EMTs have limited capacity to provide follow up in the community and to provide and maintain assistive devices. Emergency response is not intended as an ongoing service. Training staff and building capacity is considered a key part of the visiting emergency team role. What is not documented are the resources required and practical strategies to ensure this happens.

##### 3.1.1 Areas for further consideration

- Mapping existing services in the very early phases of response. What happens if there is little or no capacity for ongoing community support and assistive device provision? This clearly has implications for EMTs and the community particularly in the post-emergency and recovery phases of disaster response
- EMTs focus on acute inpatient rehabilitation management. This leaves a gap in community level rehabilitation services including community-based rehabilitation and assistive device provision, all of which are critical to ongoing functional recovery and return to daily life.

- Training staff and building capacity at the local level is one role of EMTs. However, given their limited duration, workload and potential unfamiliarity with local conditions and workforce there is a question about likely capacity to provide training.

In summary, innovative approaches will be needed to ensure integration and the best outcomes possible from the presence of EMTs and whatever capacity is available at the local level.



# Attachment 3

## Field Visit to Philippines August 28 – September 1 2017

### Report of Consultations

During the one-week field visit to the Philippines (August 28 – September 1 2017) Professor Gwynnyth Llewellyn and Ms. Alexandra Lewis Gargett conducted three 2 hour group interviews. Potential participants were identified by colleagues at the University of Philippines and the WHO Philippines Country Office and the Office of the Western Pacific Region of WHO. Participants were invited by e-mail to attend the group interview according to the stakeholder group they represented:

- Interview 1 – rehabilitation professionals - including professional bodies and education institutions
- Interview 2 – emergency responders – agencies involved in emergency health response
- Interview 3 – disabled peoples’ organisations

A list of participants of each interview and organisations they represented are included in Appendix 1.

At the end of the interview participants were provided with the contact details of the researchers and encouraged to share any further information that they felt was relevant or hadn't been covered during the discussion.

### Findings

A summary of key points discussed in each of the three interviews is provided below.

## Rehabilitation Professionals

### 1.Experiences

The rehabilitation professional participants described the following activities in rehabilitation in emergency health response.

- Self-initiated teams of rehabilitation professionals who are volunteers and formed using their own networks and alumni networks . These teams operate separately from the government response. Funding for these volunteer teams is sourced through NGOs, fundraising.
- The benefits of this type of approach was illustrated with an example in which these volunteer teams could also act as a roving team. This is not usually the case for national or international emergency medical teams. The roving multidisciplinary team worked with local rehab providers/clinics to visit affected villages and check on people they already knew in the community and to look for people who may need rehab. This was considered really important to for identifying those who needed replacement assistive devices which are very likely to get blown or swept away in emergencies.
- The Philippine Academy of Occupational Therapists has developed a continuing professional development course in disaster preparedness and response which has been approved by the Board of Physical Therapy and Occupational Therapy.
- DPOs are important in the emergency health response. The volunteer rehabilitation professionals teams have worked in partnership with local DPOs for example including them in the roving teams or DPOs referring members for wheelchairs/assistive devices. The experience of the rehabilitation professionals teams however is that DPOs and other people with disabilities do not usually ask for rehab; their focus is on essentials of daily life such as housing, food, livelihood. Also, DPOs often only have a few very active members so they may be limited in capacity and may not represent all members of the community who might benefit or need support from rehabilitation.
- The rehabilitation professionals teams regard psycho-social first aid or support as a very important part of the activities that they have provided, particularly by the OTs. They have even been asked to provide psycho-social debriefing for local emergency health teams. This is not always successfully integrated with whatever other debriefing is being provided.
- The rehab professionals teams also regard their response as broader than just health response. For example, these teams have provided child friendly spaces and occupation for

children during emergency response. Often schools are used as emergency response or evacuation centres, education staff are re-deployed for community assessments and so children are left with nothing to do and nowhere to go in a chaotic and disrupted environment.

A shortcoming of this volunteer rehabilitation professionals teams approach is that they get involved in the emergency health response but once this is over the members of the team 'go back to usual business'. This means that currently time is not invested in learning from the teams' experiences and translating them in to planning for better responses in the future and 'evolving the professions' to be integrated into emergency health response.

## 2.Barriers

- The barriers described by the rehabilitation professionals focused largely on coordination and governance. They described a lack of coordinated response at a national level, as with the devolved system of government, local governments are responsible for planning and response. This means that the extent to which rehabilitation professionals are included in the response varies and depends on the local government initiatives or the availability and capacity of the rehabilitation personnel in the affected area..
- Some local EMTs may include rehabilitation professionals but again this is not standard practice across EMTs. The participants were not aware of a centralised register or database that would have this information recorded. Their understanding was that this information would only be known at the local level, probably the municipality.
- The participants felt there is a lack of understanding amongst disaster management authorities and emergency response planners about the skills that rehabilitation professionals could offer in emergency health responses. Representatives from the professional groups are not included in planning committees. The participants also mentioned that people with disability, who may raise issues related to rehabilitation need, are also rarely included as members of planning committees
- In terms of assistive devices and inventories of stockpiled equipment that could be used in emergency response, hospitals are usually in short supply of equipment such as wheelchairs or mobility aids for their day to day operations. It is unlikely that there would be sufficient stored items to meet the extra need that may arise post-disaster. There is a division between the delivery of rehabilitation services by the Ministry of Health and provision of assistive devices by

Ministry of Social Welfare and Development. Therefore Ministry of Social Welfare and Development at municipality level should have records of any stockpiled equipment.. Availability is limited and waiting time for assistive devices is extensive. There are currently no local manufacturers of wheelchairs in the Philippines.

### 3.Opportunities

- The devolved health system, while creating inconsistencies across the country also creates opportunities for local or community level initiatives to be incorporated into municipality government plans and activities.
- All communities are mandated to have a plan. Participants described how they are encouraging local rehabilitation clinics to make themselves known to local emergency response planners so they will be included. This approach could be particularly successful if representatives from disabled people’s organisations and rehabilitation professionals in local NGOs or government health services approached local government together with common message about the rehabilitation and assistive device needs of people in emergency response as well as the skills and services that rehabilitation professionals can bring to emergency response.
- Effective response that includes everyone involved drawing on local community knowledge. A devolved system enables local community driven initiatives to be incorporated into local policy.
- The presence of motivated rehabilitation professionals who are already active in emergency response as volunteers self-organised in their own EMTs offers a starting point for engagement between emergency health response planners and rehabilitation service providers. It was suggested that emergency response teams could draw on the local knowledge of these rehabilitation professionals to: 1.) identify people in the community who may be in need of rehabilitation services but are unable to access a health facility or field hospital and 2) connect people who need ongoing rehabilitation beyond the emergency response timeline with existing services. There is opportunity to evaluate the skill sets of those who have already engaged in disaster response, learn from their experiences and consider the experiences of those who have used their services. These learnings could inform the development of formal roles of rehabilitation personnel in emergency health response.
- The continuing professional development course on disaster preparedness that has been prepared by the Philippine Academy of Occupational Therapists sets a precedent for building

skills and knowledge for disaster response amongst the health rehabilitation professions. This also offers a foundation for developing training opportunities in disaster preparedness and response for other professions and potentially in other countries across the region. There is opportunity to learn from the experiences of rehabilitation professionals in the Philippines. The participants suggested that the traditional roles of the health rehabilitation professions need to be expanded to include greater emphasis on the skills that are required in emergency health response (e.g. greater needs for psycho-social first aid and counselling). This suggests the need to not only maximise existing competencies for use in a disaster response setting but also to extend core competencies to adapt these as needed to be relevant to disaster response setting.

## Emergency Responders

### 1. Experiences

- There is usually a large investment and influx of resources to the immediate response phase which lessens over time. There is usually less workforce on the ground in the rehabilitation phase and often the organisations involved in each phase operate in silos from each other. The focus in the immediate response phase is usually on saving lives. The long-term outcomes of individuals who receive health services is not a high priority at this time.
- The Philippines has depth of experience to draw on (every 2 years there is significant disaster) and compared to other countries in the region, governance for disaster response is considered strong. The Philippines has the *Philippine Disaster Risk Reduction and Management Act of 2010* Republic Act No. 10121 which was legislated in May 2010, the *National disaster risk reduction and management plan (NDRRMP) 2011 - 2018* and a National Disaster Risk Reduction and Management Council has been established
- The devolved function of government in disaster response presents some challenges and results in differences between emergency response approaches across the Philippines. The decisions made at each local government level influence the approach taken to response. A local government can declare a state of calamity which enables them to access a central government pool of local calamity funds. If severity of the disaster requires a response beyond the capacity of local government, the National Office of Civil Defense assesses the situation.

- A representative from CBM described how they have worked in partnership with DPOs in the Typhoon Haiyan response. This involved using the networks and membership lists of DPOs to identify people with disabilities and link them to essential services such as food and shelter.
- It was generally thought that the involvement of rehabilitation services in emergency response was later – after the initial health response – and in some cases months down the track. In addition, these services tended to focus on physical rehabilitation with limited psycho-social rehabilitation services included. It was considered that support for psycho-social needs are often supplementary to other rehabilitation services. In situations where psycho-social support was the primary presenting need it is difficult to access the appropriate services.

## 2.Barriers

- Pillars of government responsible for different phases work in silos and do not coordinate well with each other either vertically within a government level or horizontally across sectors.
- Physical rehabilitation excludes psycho-social disability; as well as the psycho-social needs of people with physical rehabilitation needs being taken into account.

## 3.Opportunities

- Longer term thinking needs to be incorporated into planning and immediate emergency response. Rehabilitation professionals are able to bring this longer-term thinking, with particular skills and focus on the long-term health and functioning outcomes of individuals. . A number of suggestions were made for incorporating rehabilitation knowledge and skills into the emergency health response:
  - Consulting or reviewing the extent to which medical management of acute injuries takes into consideration the long term functional outcomes of the individual (e.g. suture techniques that will minimize contractures)
  - Training in essential rehabilitation skills for all emergency health responders. This would involve deciding what essential, long-term outcomes knowledge could be passed on to all EMT members or health staff involved in emergency health response
  - Include rehabilitation professionals, especially rehabilitation doctors, in all emergency response teams.

## Disabled People's Organisations

### 1. Experiences

The participants from Disabled People's Organisations had personal experiences of emergency response. These included

- Wheelchair user evacuating their home during a flood and not knowing the best route to reach dry land. With earlier warning or if relevant personnel had known there was a person in a wheelchair in that house appropriate planning could have been made for a safe and smooth evacuation. e.
- Interactions with emergency responders who did not have the skills, knowledge or resources for supporting people with disability. For example, emergency responders carrying people to safety but leaving their wheelchair behind or assisting a person with vision impairment by physically taking hold or pushing them to a safe environment. This increased the stress and anxiety of the person with vision impairment. As the participants explained this is not simply about what is most convenient or safe in an emergency situation, but about providing appropriate support that enables the person to remain safe and well throughout emergency response phases. Separating a person from a wheelchair limits their independence and mobility and accessing an appropriate replacement device may take many months.
- People with disability are not only a burden or vulnerable at times of disaster but can be active members of the community and support others to evacuate. One participant who is vision impaired explained that he is a radio operator and was able to direct emergency teams to stranded residents during the Typhoon Haiyan response. Participants also suggested that through telling their stories of they could help others in the community to recover and rebuild after a disaster..
- Limited access to services that are able to provide rehabilitation and assistive devices after disaster. Particularly in in rural and regional areas. The group discussed challenges in accessing assistive devices that may have been lost or damaged during disaster or people who acquired injuries as a result of a disaster being unaware of the services for rehabilitation and assistive devices that are available.
- Evacuation centres are usually not accessible for people with disability. In fact, the group reported that in their opinion 99% of the evacuation centres (usually local schools) would be physically inaccessible.

- Psychosocial support is often overlooked both for those who may have a psycho-social condition triggered by the disaster or supporting access to psycho-social needs of people with disability. The comment was made that there is often a lot of focus on the symptoms of trauma and depression which are displayed by survivors. These are natural consequence of experiencing trauma and it was suggested that those involved in response need better skills at identifying people experiencing a significant psycho-social event that requires medical intervention as opposed to psycho-social support post trauma. In addition, the issue of access to psycho-social support for people with disability was raised. The issues for the deaf community accessing counselling in particular were raised.
- The importance of local community involvement and engagement was frequently raised through the discussion. Planning and response is coordinated at the barangay level and the participants were unanimous that successful approaches and strategies that do exist have been initiated at this level through partnerships with local government and community groups. Participants referred to examples of people with disability included in planning committees, or local evacuation drills including people with disabilities. The participants did note limitations such as using actors to represent people with disability or planning to separate children from their parents/carers during evacuation.

## 2.Barriers

- The most frequent barrier that was raised during the discussion was lack of engagement with people with disability from authorities, agencies, committees or organisations involved in emergency response. Several reasons for this were suggested by the participants:
  - A lack of awareness amongst personnel involved in planning and implementing emergency response about the issues of disability
  - Logistics associated with accommodations for the participation of people with disability in consultations and meeting such as accessible buildings and payment or availability of sign language interpreters, payment of personal carers, transport.
  - The National Disaster Risk Reduction and Management Council is separated in to four clusters each focused on their own work and not coordinating well with each other. This means widespread changes to include disability are unlikely and advocacy is difficult.



- Lack of continuity of staff and personnel. Members of the NDRRMC change frequently and local staff will frequently turnover. Training or skills they may have developed will not be continued or handed on.
- Evacuation centres and warning systems are not accessible and inclusive.
- Lack of reliable and accessible data about people with disability. The National Council for Disability Affairs (NCDA) hosts a registry of every person issued with a disability ID. There are known and recognised limitations with the issuing of IDs as this is the responsibility of local government and systems for identifying and issuing the ID cards vary between municipalities. The register is not available at the barangay level and there are issues related to administrative process and privacy which would limit rapid access to the data as would be required in an emergency situation.
- There was a strong feeling among the participants that there is currently no universally adopted system for knowing where everyone is and associated processes and plans for addressing individual needs.
- Certain groups (for example the deaf community and those with psycho-social needs) are under-represented within the inclusive initiatives or consultations that do take place.

### 3.Opportunities

- DPOs can play a role not only in the planning phase but also response. Their knowledge and networks of people in the community could be useful for the coordinating response and rescue.
- The suggestion was made that rather than focusing on disability only, it would be more powerful if DPOs joined with other groups who are also considered vulnerable in emergency. In other words, expand focus beyond just the needs of people with disability.
- The purok system was raised – described by one participant as the approach that is used in her community. At this level, everyone knows each other and therefore are are conscious of who may require support during an emergency. This includes children, elderly, people with disability. Some brief online research since the consultation has identified that this is a DRR strategy used in some parts of the Philippines.

Dr. Pratima Singh was also present in Manila for a WHO Regional meeting and agreed to share her experiences with rehabilitation in emergency response in Fiji. Dr. Singh is a Rehabilitation Specialist and her previous role was managing the medical rehabilitation program in Fiji, from the rehabilitation hospital in Suva, Fiji.

Dr. Singh shared her experience during the Cyclone Winston (2016) response. The rehabilitation service through the National Hospital did not receive any referrals or formal requests to be involved. Out of concern for previous patients and service users, the rehabilitation staff independently set up an outreach team. As reported by Dr. Singh, the formal emergency response included teams of roving psychologists and mental health professionals, and there were reports that the Spinal Injury Association of Fiji were contacted for assistance with sourcing wheelchairs for injured victims. Both of these examples were viewed by Dr. Singh as opportunities for rehabilitation staff to play a role and contribute to the formal response.

Dr. Singh felt the immediate focus in emergency response is on saving lives and as such the long term outcomes for people are not a priority. There are no referral pathways built in to emergency response. A key role that rehabilitation professionals can offer during emergency response is identifying who needs follow up and rehabilitation, both in the community and those being treated at other health facilities after the disaster. Without personnel designated to the role of identifying rehabilitation need in disaster affected communities, and with the relevant skills and knowledge to do so, people are reliant on appropriate referrals from others involved in emergency health response.

## Appendix 1 Participant Lists – Rehabilitation in Emergency Health Response Group Interviews

### Philippines Field Visit 28 August – 1 September 2017

The following participants attended group interviews with Professor Gwynnyth Llewellyn and Ms. Alexandra Lewis Gargett from the University of Sydney, WHO Collaborating Centre in Health Workforce Development in Rehabilitation and Long Term Care

#### Monday 28 August 10:00 – 12:00 (WHO Western Pacific Regional Office) – Rehabilitation Professionals

Organisation	Name	Contact address
Philippine Physical Therapy Association	Mr. Royson Mercado	<a href="mailto:president@philpta.org">president@philpta.org</a> <a href="mailto:secretary@philpta.org">secretary@philpta.org</a>
Philippine Society of Wheelchair Professionals, Inc & College of Allied Medical Professions	Ferdiliza Dandah Garcia (President)	<a href="mailto:pswp2015@gmail.com">pswp2015@gmail.com</a>
College of Allied Medical Professions & Philippine Academy of Occupational Therapists	Penafrancia Ching	<a href="mailto:peching@up.edu.ph">peching@up.edu.ph</a>
Philippine Academy of Rehabilitation Medicine & Psychiatrists for Peace	Professor. Josephine Bundoc	<a href="mailto:pennybundocmd@yahoo.com">pennybundocmd@yahoo.com</a>

#### Monday 28 August 13:30 – 15:30 (WHO Western Pacific Regional Office) - Emergency Responders

Organisation	Name	Contact address
CBM South East Asia Office	Dr. Dinah Nadera (Mental Health Consultant)	<a href="mailto:dnadera@gmail.com">dnadera@gmail.com</a>
United Nations Office for the Coordination of Humanitarian Affairs (OCHA) Philippines	Ms. Agnes Palacio (National Disaster Response Advisor)	<a href="mailto:palacio@un.org">palacio@un.org</a>

#### Thursday 31 August 14:30 – 16:00 (Waterfront Manila Pavilion Hotel and Casino) – Disabled Peoples' Organisations

Organisation Invited	Name (Position)	Contact address
National Council on Disability Affairs	Carmen Reyes Zubiaga	<a href="mailto:carmenzinfodesk@gmail.com">carmenzinfodesk@gmail.com</a>
Life Haven	Abner Manlapaz	<a href="mailto:abner.manlapaz@gmail.com">abner.manlapaz@gmail.com</a>

Psychosocial Disability Inclusive Philippines (PDIP)	Janice Cambri	<a href="mailto:jancambri@gmail.com">jancambri@gmail.com</a>
Philippine Blind Union	Art Letim (Area Vice President for Luzon)	<a href="mailto:vidart1@yahoo.com">vidart1@yahoo.com</a>
Philippine Federation of the Deaf	Carolyn Dagani (President)	<a href="mailto:carolyn.dagani@gmail.com">carolyn.dagani@gmail.com</a>
Las Pinas Persons with Disability Federation	Jeana Manalay	<a href="mailto:jeana.manalaysay@yahoo.com">jeana.manalaysay@yahoo.com</a>
Deaf Disaster Assistance Team – Disaster Risk Reduction	Maria Rowena Rivera (Project Support Officer)	<a href="mailto:maria.robarivera22@gmail.com">maria.robarivera22@gmail.com</a>
Makati PWD Federation	Lalaine M. Guanzon (Vice President)	<a href="mailto:lalaineguanzon69@gmail.com">lalaineguanzon69@gmail.com</a>
Psoriasis Philippines	Paul Mendoza	

#### Other meetings/consultations during field visit

Organisation/Unit	Name/Title	Date/Venue
Health Emergencies Division, Western Pacific Region WHO	Anthony Kolbe	Mon 28 2017, Western Pacific Regional Office
Emergency Medical Team Initiative, Health Emergencies Division Western Pacific Region WHO	Dr. Leong O	Mon 28 2017, Western Pacific Regional Office
Ministry of Health Fiji	Dr. Pratima Singh, Acting Medical Superintendent	Tues 29 2017, Waterfront Manila Pavilion Hotel and Casina (Meeting on Rehabilitation in UHC)

# Attachment 4

## Field Visit to Solomon Islands November 2017

### Report of Consultations

During the one-week field visit to Honiara, Solomon Islands (6-10 November 2017) Professor Gwynnyth Llewellyn and Ms. Alexandra Lewis Gargett conducted two 2-hour group interviews with rehabilitation personnel and DPO members. Potential participants were identified by colleagues at the WHO Country Office in Honiara, the Solomon Islands National University and the Ministry of Health and Medical Services. Participants were invited by e-mail to attend the group interview according to the stakeholder group they represented:

- Interview 1 – rehabilitation professionals - CBR Workers and rehabilitation staff at the National Hospital including international volunteers from Japan and Australia
- Interview 2 – members of People with Disabilities Solomon Islands, the peak DPO in Solomon Islands.

A consultation schedule for the visit is included in table 1.

At the end of the interview participants were provided with the contact details of the researchers and encouraged to share any further information that they felt was relevant or hadn't been covered during the discussion.

In addition to the formal interviews above, informal consultations were also held with local stakeholders from the rehabilitation and health sectors. See the meeting schedule attached.

### Findings

A summary of key points discussed in each of the interviews is provided below.

## Rehabilitation Professionals

### 1.Experiences

The rehabilitation professional participants described the following activities in rehabilitation in emergency health response.

- During the Honiara floods in 2014 CBR staff went to check on clients they knew in areas that had been affected. Found that some people had lost equipment however they had trouble sourcing equipment as they had very limited stockpile available. This meant some people had to wait months for their replacement assistive technology.
- People with disability were missing out on food and water relief handouts by the disaster response services. The participants were able to assist them to access these services.
- One participant described being trapped for three days during the floods with children with disability who attend the Bethesda Disability and Training and Support Centre. They were all underprepared and unable to contact emergency responders (attempted to call the NDMO) or families of the children. They also realised in hindsight a decision to move downstream to another facility with an accessible bathroom placed them at greater risk of further inundation.
- After the floods, NDMO arranged travel to outer islands; rehabilitation staff were not included as part of relief team. Instead, they communicated with the doctors and nurses who visited the outer islands and sourced equipment e.g. wheelchairs. That said, it took up to 6 months before the sourced equipment could be transported to the island.

### 2.Barriers

The barriers described by the rehabilitation professionals focused on disaster knowledge and coordination with emergency responders/disaster management personnel.

- Although many participants were hospital staff, they did not know there was a hospital disaster response team or who the members were.
- They reported not having training and knowledge in disaster preparedness and/or response – this was also demonstrated in the experiences described by the participants. For example, knowledge to move upstream rather than downstream, who to contact in emergency, how to access information etc.

- There was limited follow up following the CBR workers activities in the Honiara floods. No preparedness activities for future disaster such as addressing the lessons learned, expanding scope of practice or establishing links with the emergency response team at the hospital.
- Overall participants reported that rehabilitation is a low priority in terms of emergency health response; further that with limited knowledge in the community and by health professionals about CBR it is unlikely that disaster response personnel, emergency health responders or survivors themselves would refer or seek out rehabilitation services.

### 3.Opportunities

During the second half of the interview the participants were divided into groups with representatives from hospital, CBR program and the university in each group. They were asked to identify key actions to strengthen the involvement of rehabilitation in emergency health response in the Solomon Islands before (preparedness) and at the time of (response) a disaster event. Each item was recorded on an individual sticky note, and participants were invited to post preparedness items on the wall on one side of the room, and response items on the other side of the room giving all participants the opportunity to review each other's responses.

The below is a summary of the suggested action items organised around common topics. Where appropriate action items from different groups that were very similar have been condensed into one item.

#### *Preparedness:*

##### Communication, networking and collaborating with other disaster actors

- Better communication with emergency medical teams in the hospital and the Ministry of Health and Medical Services
- Including rehabilitation workers on disaster response teams, and disaster management committees

##### Data on clients and their associated risks

- Identifying clients who live in geographically hazardous areas
- Ensuring data is up to date and accurate to assist with locating clients during disaster response
- Standard data form for use in disasters

### Training and knowledge before a disaster

- Training for rehabilitation personnel on preparedness, first aid and disaster response.
- Up to date evacuation plans that are documented, available to staff. Regular drills to ensure staff, clients, families, communities know the plans and are able implement them at the time of a disaster.
- Communication plans and appropriate equipment in place – phones, radios.

### Equipment stockpiling

- Stockpiled assistive devices and other equipment set aside for disaster situation.

### *Response*

#### Disaster response teams

- Rehabilitation division of the hospital establish a disaster response team.
- Rehabilitation personnel included in disaster response health teams and work with the National Disaster Committee.

#### People with disability in disaster response

- Identify people with disability as part of disaster response, including access to disability registration data.
- Strategy for evacuation that prioritizes some individuals.

#### Roles during disaster response

- Support medical staff to treat and manage injured patients in the hospital.
- Check on clients who are living in affected communities. This could include checking on assistive devices, assessing for other needs, accessibility of evacuation centres.
- Outreach into evacuation centres to provide rehabilitation services and therapy.

#### *Other comments during the discussion:*

- The participants reported being willing and able to be more involved in disaster preparedness and emergency health response activities and initiatives.
- The suggestion to build referral networks through the emergency medical teams at the national and provincial levels was made.



- One participant from Solomon Islands National University has been involved in first aid training and disaster response training through St. John International, which did include community level engagement and linkages with the National Referral Hospital.

## Disabled People's Organisations

### 1.Experiences

The participants from Disabled People's Organisations had personal experiences of emergency response. These included:

- Being trapped in the DPO office during flood. Choosing to stay in the DPO office rather than being carried through flood waters by emergency responders as the evacuation centre had been set up in a school without an accessible bathroom.
- Red Cross and the DPO had been involved in conversations before the 2014 floods in Honiara, as a result the Red Cross knew that the DPO was there and who would need support to evacuate.
- Deaf members noticing flood waters rising and but not realising they were in danger and needed to evacuate. Instead tried to rescue food in their gardens from the rising floodwaters. Other members of their local community saw this but did not pass on messages to evacuate.
- During heavy rainfall avoiding going to homes that are in areas that are geographically prone to flooding. More of the DPO members are living in higher risk areas as they are economically and socially disadvantaged.
- Schools are used as evacuation centres however they are usually not accessible.

### 2.Barriers

The DPO members described limited knowledge and resources in community as barriers to effective and inclusive emergency response. These fell into two main categories.

- General knowledge and resources about disaster management in the broader community. Participants described a need for a base level of knowledge in community, including for

people with disability, about disaster risks, preparedness and response. Some specific examples

- Schools and churches are often used as evacuation centres as they are often the strongest buildings. This is appropriate during storms and cyclones where risks are associated with high winds and buildings/trees collapsing, however during the Honiara floods 2014 people ran to the local school rather than seeking to get to higher ground.
  - During a disaster people try to call the National Disaster Management Office rather than reaching out to emergency responders such as police, ambulance, Red Cross.
  - In rural areas families often don't have radio or mobile phones, and if they do, it is likely they only have one per family. As such the reach of radio and mobile phones for communicating emergency messages is limited.
  - Limited availability of medication – while it is free through the hospital pharmacy, stock is often low. There are private pharmacies in town – access depends on whether the pharmacy remains operational and roads are open to reach it (e.g. not cut off due to flood waters).
  - An opinion that people are listening to radio less than they used to so public service announcements and emergency messages delivered by radio are less effective.
  - As there had been no previous experience of flooding in Honiara people were unable to believe it was happening and did not know what to do.
- The participants also described limited knowledge and resources in community that were specifically related to disability.
    - Without mobile phones deaf members of the community require an interpreter to hear messages delivered via radio
    - There is no stockpile of assistive devices in the Solomon Islands e.g. wheelchairs and crutches. All wheelchairs and crutches are distributed by the Ministry of Health and Medical Services. INGOs working in disaster response should have access to supplies of assistive devices for injured survivors and people with disability who have lost their equipment.
    - Schools and churches are often used as evacuation shelters however these are usually inaccessible buildings.

- While there are buildings that are accessible and can be used for people with disability, this raises logistical issues for transport, separating them from family members who they rely on for care (particularly children).
- Barriers to engagement with disaster management agencies and actors
  - A lack of awareness by personnel involved in planning and implementing emergency response about the issues of disability
  - A lack of awareness by health staff about disability; less likely to consider their needs or consult people with disability in their health emergency response planning/training

### 3.Opportunities

- The CBR program and DPO in Solomon Islands have history of strong partnership. There is opportunity to build on this for considering disability in emergency response. For example, CBR and DPO could work together to contact clients and members in affected areas. The CBR workers could include preparedness in their programs.
- Working with local communities to consider evacuation centres that are accessible. These decisions can be made by local community leaders with input from people with disability.
- Participants thought that Isobel Province disaster management committee included a person with a disability.
- Due to recent funding proposals for projects under the Australian Humanitarian Partnerships Scheme (DFAT), connections between international NGOs such as World Vision, Red Cross and CBM and the DPO have been established.
- Training for deaf people in areas such as first aid and disaster management -this could be possible through the deaf schools, including in outer provinces through texting and Skype.
- Linking CBR data with geographical hazard mapping to understand where people with disabilities are living in Honiara and the risks they face.

### Emergency Responders

Unfortunately, we were unable to meet with representatives of the emergency response and disaster management sector in Solomon Islands. Mr. Loti Yates, Director, National Disaster Management

Office, Solomon Islands was invited to attend an interview, however this was not possible to arrange in the time frame.

We were able to conduct skype interviews with three people who have experience in Solomon Islands disaster management sector. These are Chief Superintendent Ben Millington (former Disaster Management Specialist, Pacific Region with Australian Department of Foreign Affairs, Suva Fiji on secondment from the NSW Rural Fire Service where he is currently Manger, Emergency Management Co-ordination), Ms. Gina Jones (current Regional Disaster Management Specialist with SPC, served as Australian Volunteer working with the NDMO on Standard Operating Procedures Oct-Dec 2017) and Ms. Vini Tala (UNDP Honiara).

The below is a summary of these conversations

- The National Disaster Management Plan was with cabinet at the time of our field visit
- NDMO operates as coordinating agency for disaster management and works through committees that link to each sector including health
- Currently, NDMO remains focused on high level national strategy, and are not yet at stage of community implementation
- With regard to the EMT model:
  - there was concern that this fits with the disaster management governance system in Solomon Islands to ensure appropriate balance between global strategies and national response mechanisms
  - EMT model has great value for large scale emergencies with high fatalities and injuries however in Solomon Islands the primary challenges appear to be public health rather than clinical/medical demands.
- Health cluster in Solomon Islands includes lots of stakeholders with INGOs being more active in communities particularly where government services have limited reach. UN agencies, World Vision, Red Cross, Caritas and Oxfam are all actively involved in disaster response/preparedness.

Appendix 1 – Consultation Schedule Solomon Islands Field Visit

6 November – 10 November 2017

Table 1. Consultation schedule

<b>Day</b>	<b>Interviews/Consultations</b>
Tuesday 7 Nov 2017	<p><b>AM</b> National Rehabilitation Hospital Group Interview (n=22)</p> <ul style="list-style-type: none"> <li>- Rehabilitation staff from National Rehabilitation Hospital</li> <li>- Community-Based Rehabilitation Field Officers</li> <li>- Teaching staff, Solomon Islands National University</li> </ul>
Wednesday 8 Nov 2017	<p><b>AM</b> WHO Country Office Honiara Informal consultation meeting:</p> <ul style="list-style-type: none"> <li>- Dr. Nemia Bainvalu – Undersecretary Health Improvement (Acting) Solomon Islands Ministry of Health and Medical Services, Chair National Disaster Operations Committee – Health</li> <li>- Ms. Barbara Daufanamae, Emergency Medical Teams Coordinator, WHO Honiara.</li> <li>- Ms. April Batchelor, NCD Representative, WHO Honiara</li> </ul>
	<p><b>PM</b> National Rehabilitation Hospital Informal consultation meeting</p> <ul style="list-style-type: none"> <li>- Ms. Goretta Pala, Lecturer &amp; CBR Course Coordinator, Solomon Islands National University</li> </ul>
Thursday 9 Nov 2017	<p><b>AM</b> People with Disabilities Solomon Islands (PWDSI) Office Group Interview (n=11)</p> <ul style="list-style-type: none"> <li>- PWDSI executive leadership and office staff</li> <li>- Members of PWDSI</li> </ul>

## Supplementary material

*Building capacity in health-related  
rehabilitation services for health emergency  
response*

December 2016- November 2018

# Part 1

*Briefing document*

*Strengthening rehabilitation capacity for  
health emergency response*

Cover page with title, photographs, logo



## Briefing document

### Strengthening rehabilitation capacity for health emergency response

Rehabilitation is an essential health service to ensure people with a health condition achieve and maintain optimal functioning, by improving their health and by increasing their participation in life. As stated in the *Minimum Technical Standards and Recommendations for Rehabilitation. Emergency Medical Teams* (WHO, 2016) rehabilitation is a core function in trauma care settings, by optimising surgical and long-term outcomes and subsequent quality of life. Rehabilitation is also core to management of cardiorespiratory conditions, acute and chronic pain, deconditioning, fatigue and sensory and cognitive impairments all of which may be present in disaster situations. Rehabilitation also contributes to the return to stable health status of those with non-communicable diseases who are likely to experience disruption to their medical regimes in the health emergency response, through management of functional activities and physical and psychological sequelae. The *Minimum Technical Standards and Recommendations for Rehabilitation. Emergency Medical Teams* (WHO, 2016) details the role of and requirements for rehabilitation in emergency medical teams.

In the recovery phase following a health emergency rehabilitation provides longer term interventions for individuals in their community context to speed recovery and their return to work and daily occupations. The purpose of this briefing document is to offer guidance on strengthening local rehabilitation capacity for all phases of the health emergency response. This is essential so that local rehabilitation services:

- Are effectively prepared for health emergencies
- Work effectively with and complement Emergency Medical Teams using their local knowledge, skills and resources with during a health emergency
- Ensure follow up care and rehabilitation services in the community in the recovery phase and over the longer-term
- Employ the virtuous cycle detailed in this document to strengthen local rehabilitation capacity for health emergency responses and to maintain and sustain this enhanced capacity over time

## Strengthening rehabilitation capacity for health emergency response cycle

Strengthening rehabilitation capacity for health emergency response requires a *virtuous ongoing cycle* of attention. This requires a focus on knowledge, actions and networks as illustrated in the top (orange) box in the graphic below. Rehabilitation capacity needs to be strengthened prior to, at the time of the emergency, and after the health emergency. This constitutes a virtuous cycle of ongoing attention to ensure rehabilitation contributes effectively and efficiently to the health emergency response and this contribution is maintained and sustained over time.



## PRIOR TO THE HEALTH EMERGENCY

### Knowledge

Ensure all rehabilitation personnel:

- Have up to date knowledge on the policies and standard operating procedures of their employing organisation in relation to health emergencies including referral pathways in place during a health emergency response
- Have up to date knowledge on the policies and standard operating procedures of the disaster management agency at relevant levels: national, provincial, district
- Have undertaken training on rehabilitation skills and knowledge required for health emergency response including sub-acute and longer-term community management expertise
- Are knowledgeable about accessibility in relation to buildings, communication, and information in their local community
- There are identified rehabilitation personnel with specific expertise in immediate trauma management (ICU)

### Actions

Map, document and keep up to date details of the following:

- Rehabilitation workforce including government services, private personnel, NGO contribution, and related workforce (e.g. CBR personnel) including gender, type of rehabilitation personnel, specific areas of expertise, previous health emergency experience, and location
- Likely rehabilitation needs relevant to type of likely disaster event in area served
- Previous rehabilitation patients, current rehabilitation patients and waiting list patients, as well as children and adults in institutions: orphanages/ residential care/mental health hospitals and wards all of whom are likely to be at increased risk or may be overlooked during a health emergency
- Assistive equipment stockpiled by type, adult and paediatric, location, and how to access in health emergency. Stockpile to include: variety and quantity of mobility devices, movable ramps, cushions for wheelchairs, incontinence pads
- Ensure standardised treatment protocols and patient handouts are available and up to date

### Networks

Develop networks to activate for health emergency response:

- Within health sector networks for example with other rehabilitation agencies including those providing disability support and/or assistive devices
- Across sector networks for example with disaster management sector, by being on local disaster management committees: with education sector in relation to children with special needs; with community services and the elderly
- Networks for recovery phase to build back better and support return to community
- Test preparedness plans with networks, including referral pathways to rehabilitation services

## AT TIME OF EMERGENCY: LOCATING PEOPLE WITH POTENTIAL REHABILITATION NEED

### Knowledge

- Up-to-date database with details of previous rehabilitation patients, current patients, and waiting list patients to be assessed for any disability related or new disaster caused rehabilitation need
- Established networks to identify survivors at risk of complications requiring rehabilitation from health emergency, e.g. children with special needs, the elderly, people in institutional care

### Actions

Identify and respond to:

- Immediate injury and new rehabilitation needs of current, previous and waiting list rehabilitation patients including repairing/ replacing assistive devices, mental health support
- Barriers for people with disabilities in disaster protection responses for example, distribution of basic resources such as food and water
- Accessibility barriers in evacuation centres, camps, temporary housing for people with injuries and disabilities
- Work with and teach others in evacuation centres, camps, and temporary housing about transfers, mobility to prevent immobilisation and functional deterioration
- Communicating about rehabilitation capacity and referral pathways with other health providers working in the health emergency response

### Networks

- Utilise networks established in preparedness phase to identify current situation of current, previous and waiting list rehabilitation patients
  - DPOs to contact their members
  - Family, neighbours and local support groups
  - NGOs and INGOs providing rehabilitation services or supports and services to the community
- Utilise networks established in preparedness phase with disaster response agency and emergency personnel to identify current situation of rehabilitation patients in isolated physical situations or with few or no supports in the community
- Act as referral point for health and other sector networks for people found with rehabilitation needs e.g., damaged or lost assistive devices, at risk of skin damage or deterioration through immobilisation
- Refer through networks established in preparedness phase for patients located without basic resources or who need social services or specialist psychological support

## AT TIME OF EMERGENCY: WORKING WITH EMTS

### Knowledge

- Utilise knowledge from preparation stage to collaborate effectively with EMTs at all locations including mobile, outreach, field hospital, and specialized units

### Actions

- Assist with safe transfer and transport to and from EMT locations
- Assist EMT with triage ensuring appropriate instructions, support, and equipment to prevent secondary complications
- Assess rehabilitation need when medically stable and develop rehabilitation plan for discharge
- Make rehabilitation resources available to EMT as requested e.g. supply of assistive devices from stockpile, working with local producers or suppliers
- Assist with discharge to decompress overflow in EMT location using local knowledge to ensure capacity to function, safe place to go, and available supports in community
- Arrange referral and follow up in local community based on local knowledge e.g. availability of rehabilitation, CBR, primary care

### Networks

- Utilise previously developed networks as required including DPOs, local community, social services, NGOs, INGOs
- Provide advice and training on basic rehabilitation techniques and assistive devices, exercise and activity training, and home modifications to NGOs and INGOs working with survivors on psychosocial or educational needs or livelihood issues

## AFTER HEALTH EMERGENCY

### Knowledge

From lessons learnt in health emergency, review usefulness of preparedness phase and update or revise as needed:

- Mapping, documenting and planning activities and revise and update as needed
- Consolidate networks and develop additional networks if required
- Review confidence and capacity of rehabilitation personnel to work effectively in health emergency response

### Actions

- Provide rehabilitation where it is needed e.g. mobile clinic, shelters, hospital setting
- Short term follow up on rehabilitation outcomes and refer as needed for specialist care and/ or social services
- Link discharged survivors with existing community level services such as CBR for ongoing support
- Train disaster survivors, families and local nurses/ assistants in basic acute and sub-acute rehabilitation techniques
- Develop peer mentoring schemes to ensure ongoing support at community level
- Implement community based and patient self-education to prevent likely recurrent complications (e.g. skin breakdown)
- Longer term follow up on rehabilitation outcomes and refer as needed for specialist care and/ or social services
- Revise existing or develop new standardised treatment protocols and patient education handouts based on experience of health emergency

### Networks

- Work in partnership with all health providers once EMTs have finished to ensure all survivors with rehabilitation needs are identified, assessed and provided with rehabilitation
- Work with community to organise training opportunities for those unable to return to livelihood
- Advocate for the inclusion of people with disabilities in disaster preparedness training in their communities

## Part 2

*Curriculum and competencies for  
rehabilitation personnel to engage in health  
emergency response*

CURRICULUM AREAS	COMPETENCIES - ESSENTIAL KNOWLEDGE AND SKILLS
<b>Clinical and technical skills and knowledge</b>	
<i>Immediate response</i>	
	Knowing about likely injuries specific to variety of disaster events and contexts <sup>8</sup>
	Technical capacity for providing care to acute trauma cases; spinal cord injuries, amputations, acquired brain injuries, burns, complex fractures, soft tissue injury, nerve injury, respiratory conditions, crush syndrome <sup>12,14,15,16</sup>
	Essential clinical skills for disaster response: splinting, positioning and patient mobilization including early mobilization, provision of psycho-social support e.g. psychological first aid, respiratory care <sup>16</sup>
	Understanding likely new injuries seen in disaster survivors and emergency teams including repetitive strain injuries, cardiomyopathy, severe levels of anxiety and distress <sup>10</sup>
	Assessing for rehabilitation need in survivors in community in response phase <sup>14</sup>
	Identifying non-injured survivors in disaster zone at risk of further complications e.g. elderly, people with disability, children <sup>14</sup>
	Having the technical skills relevant to most likely clinical sequelae in acute and sub-acute phases (e.g. SCI: UTI, pressure sores, bowel problems) <sup>2</sup>
	How to safely immobilize, evacuate and transport people with SCI <sup>11</sup>
	Effective and efficient triage and referral skills to decompress overflow <sup>8</sup> and ensure safe discharge <sup>5,14</sup>
	Safe discharge; safe place to go to, and capacity to function <sup>12</sup>
	Working with individuals and communities to be prepared to survive without help for at least 72 hours <sup>4</sup>
	Knowing about the impact of disasters on people with chronic health conditions and their potential rehabilitation needs <sup>15</sup>



	Documenting and collecting data in disaster response—following national or global standards and integrating data collection with health systems <sup>13, 14, 15</sup>
	Assessing the environment including temporary housing, evacuation centres, and camps for accessibility for people with injuries and disability including intellectual disability, autism, mental health conditions <sup>14</sup>
	Providing preventative care for people with disability, elderly, chronic health conditions <sup>14</sup>
<i>Discharge and support in the community</i>	
	Capacity to be sensitive to local social, cultural and religious practices <sup>4</sup>
	Developing individualised program with patient and caregiver in hospital/ clinic setting or at home <sup>1,2</sup>
	Learning discharge planning skills for disaster situation including referring to other facilities/services in community as appropriate, assessing discharge environment, follow up in community <sup>14, 16</sup>
	Teaching others about mobility/ transfer/ positioning to enable safe discharge <sup>12</sup>
	Learning about how to prevent immobilization and progressive functional deterioration in shelters <sup>9</sup>
	Providing high levels of psychological first aid/ psychological support (not usually an existing core skill) or networking with specialist organisation to provide this <sup>1, 10, 14, 16</sup>
	Education and re-training patients, families and care providers in ADL, functional retraining local aides/ volunteers as essential to success and sustainability <sup>7, 14, 15, 16</sup>
	Ensuring capacity to use local transport options prior to discharge <sup>1</sup>
	Working with local materials for transfers/ mobility in absence of wheelchairs or unsuitability of terrain <sup>2</sup>
	Providing assistive device prescription fitting and training, education and re-training patients and care providers in ADL <sup>10</sup>
	Prescribing equipment in disaster affected areas using local equipment providers if possible, networking to source equipment, assessing donated equipment and complying with administrative requirements for procuring or importing new equipment (in international context) <sup>13, 14</sup>
<i>Team work in health</i>	
	Working in multidisciplinary team with regular meetings to review and change care plan <sup>1</sup>

	Working together with other members of the team to overcome barriers to providing care in community <sup>1</sup>
	Communicating about referral pathways and rehabilitation capacity to other health providers working in the disaster response <sup>14, 15</sup>
	Working with the nationally agreed reporting data sets, multi-disciplinary team treatment protocols, patient education materials to maintain consistency between providers, particularly important for short term volunteers <sup>15, 16</sup>
	Learning skills for interdisciplinary training <sup>14, 16</sup>
<i>Networking with other organisations in community</i>	
	Working in partnership with specialised organisations (prosthetics, DPOs) to ensure continuing support once EMTs (FIFO/ national or local) finished <sup>1</sup>
	Working across multiple disciplines (e.g. housing, agriculture) to meet pre-disaster needs in recovery phase <sup>4</sup>
	Linking injured survivors with existing CBR services and/or DPOs for ongoing support after discharge from acute facilities <sup>15</sup>
	Referring to local providers for assistive devices <sup>16</sup>
	Collaborating with local academic institutions and services to conduct research <sup>16</sup>
<i>Building community capacity</i>	
	Developing peer mentoring scheme to ensure ongoing support to disaster survivors irrespective of place of residence (for example, remote villages) <sup>1,2</sup>
	Developing community-based self-education and CBR approaches to prevention of recurrent complications for disaster survivors (e.g. pressure ulcers) <sup>2</sup>
	Engaging in capacity building rather than doing to or for <sup>4</sup>
	Building community resilience as a critical preparatory activity for local decision-making about ongoing emergency preparedness <sup>4</sup>
	Working with community to provide vocational or educational training opportunities for disaster survivors <sup>1</sup>

	Planning for handover and training local health staff that is consistent with local practice and standards <sup>13, 14, 15, 16</sup>
	Establishing local services or CBR programs in communities after a disaster event <sup>14, 15</sup>
<b>Foundational knowledge</b>	
<i>Knowing the critical dimensions of disasters and their aftermath</i>	
	Being knowledgeable about and what to do about most vulnerable in affected communities, e.g. children, elderly <sup>4</sup>
	Learning about issues of masculinity, alcohol, DV and sexual harassment, the impact of which may be heightened in disaster situations <sup>4</sup>
	Understanding risk/s for discrimination that humanitarian environments create for vulnerable groups such as children, women, people with disability, elderly, chronic health conditions <sup>13</sup>
	Being knowledgeable about shock and grief response and how to support survivors <sup>4</sup>
	Being trained in humanitarian protection issues and mechanisms <sup>13</sup>
	Being knowledgeable about humanitarian principles and codes of conduct <sup>13, 14</sup>
	Being aware of the vulnerability of country/region to disaster <sup>15</sup>
	Understanding natural hazards, and most likely injury patterns associated with natural hazards <sup>14, 15</sup>
	Understanding likely consequences of disasters – impact on services, infrastructure, injuries, disease, psychological impacts and social impacts <sup>15, 16</sup>
	Learning about the impact of disease outbreaks on health infrastructure, long term sequelae of outbreaks and consider the role of rehabilitation <sup>16</sup>
<i>Rehabilitation input to overall disaster response</i>	
	Stockpiling essential equipment and assistive devices <sup>8,15</sup>
	Working within the system to develop Mass Casualty Management Plans which include rehabilitation <sup>8</sup>
	Mapping available rehabilitation services and/or specialists in area affected by disaster in response phase <sup>14</sup>

	Mapping capacity beyond specialist facilities, for example in hospitals <sup>8</sup>
	Emergency rehabilitation training taking into account the natural hazard and social-cultural context <sup>8</sup>
	Advocating at government/ cluster level for the needs of rehabilitation patients and people with disabilities in situations of stretched resources <sup>8</sup>
	Working with Building Back Better (BBB) or Building Back Safer (BBS) approach <sup>8</sup>
	Contributing to development of capacity among rehabilitation professionals globally <sup>8</sup>
	Working in shelters <sup>9</sup>
	Offering practical support to survivors <sup>10</sup>
	Networking with community services to meet needs of frail and elderly <sup>10</sup>
	Being confident about specific roles and communicating these in disaster response <sup>10</sup>
	Working to ensure first aid/evacuation centres, temporary housing is accessible <sup>11</sup>
<i>Preparedness</i>	
	Disaster preparedness training for all including in rural areas <sup>8</sup>
	Advocating for the inclusion of vulnerable people (e.g. people with disabilities) in emergency preparedness in communities <sup>15</sup>
	Contributing to disaster risk reduction efforts in local community <sup>15</sup>
	Reducing vulnerability of populations through community development programs including CBR <sup>15</sup>
	Mapping rehabilitation services and establishing a skills register of providers in the preparedness phase <sup>15</sup>
	Developing and testing preparedness plans with other disciplines and agencies and that include referral pathways to rehabilitation <sup>15</sup>
	Assessing likely rehabilitation need relevant to type of likely disaster before a disaster event <sup>15</sup>
	Developing standardised treatment protocols and patient education handouts before a disaster event <sup>15</sup>
	Being knowledgeable about physical accessibility in buildings – e.g. ramp, doorway, WASH facilities <sup>15</sup>
<i>Professional roles and responsibilities</i>	
	Defining discipline's scope of practice and roles and knowing when necessary to refer for specialist expertise <sup>3</sup>

	Providing care to national or international standards in disaster situation <sup>5</sup>
	Performing on standards such as wearing protective clothing and masks <sup>5</sup>
	Learning structural disaster management information – knowing lines of communication, how to source resources <sup>5</sup>
	Learning likelihood that disaster circumstances may be unprecedented <sup>9</sup>
	Learning from prior experiences reported in the literature <sup>9</sup>
	Having experience in managing conditions and adapting clinical skills in resource-constrained environments –building it before disaster by working in resource constrained environments before disaster <sup>13, 14, 15</sup>
	Assessing likely skill requirements following a disaster and planning training accordingly <sup>15</sup>
	Considering registration and regulation requirements of international rehabilitation professionals who choose to respond to a disaster <sup>15</sup>
	Learning about the different roles of rehabilitation professionals across the phases of the disaster management cycle (preparedness, response, recovery) and considering at which point your skills/knowledge/personal capacity means you can make the most contribution (often there are many volunteers in immediate response, but not as many in recovery phase) <sup>15</sup>
	Lobbying government for funding to establish or strengthen rehabilitation services to in local area affected by disaster <sup>15</sup>
	Working in partnership with and respecting existing rehabilitation services in areas affected <sup>13, 14</sup>
<i>Good practice in humanitarian work</i>	
	Being knowledgeable about humanitarian principles and global frameworks (e.g. EMT minimum standards) <sup>14, 15</sup>
	Undertaking accredited education and training in humanitarian core competencies <sup>14</sup>
	Registering with INGOs or EMT or registering as a recognized EMT before the disaster <sup>13, 14, 15</sup>
	Being knowledgeable about the EMT minimum standards for rehabilitation including the team configuration, qualification and experience, equipment, length of stay, essential clinical skills, specialized clinical skills <sup>16</sup>
	Registering with local humanitarian response coordination body and relevant professional association <sup>13</sup>

	Choosing to work for teams led by experienced humanitarian providers <sup>13</sup>
	Working within scope of clinical practice and with same clinical and equipment standards as expected in usual role/home country/ international standards <sup>13, 14, 15, 16</sup>
	Understanding difference between general aid worker roles and clinical worker roles <sup>13</sup>
	Recognising what can be achieved in terms of changes to existing practice <sup>13</sup>
	Being knowledgeable about the ethical issues of using social media in humanitarian situations – e.g. consent of survivors featured in photos, blogs/ portrayal of survivors/ accuracy of information included <sup>13</sup>
	Being knowledgeable about the ethical issues of conducting research in disaster situation – e.g. relevance to local setting, participatory principles of research design, informed consent, appropriate methodology and data collection and analysis methods, local skill required to collect data <sup>13, 14</sup>
<i>Self-management in disaster zone</i>	
	Need for physical fitness and psychological stability (in relation to managing in the disaster zone and remaining in contact with family and friends if also in disaster zone or remote from disaster zone) <sup>5</sup>
	Managing work and family responsibilities at time of disaster <sup>10</sup>
	Being supported with own needs to attend and carry out usual work if living in disaster zone: organisational support for risks; family supported and not at risk <sup>5</sup>
	Learning to deal with the fragmentation of services and personal life <sup>10</sup>
	Learning to deal with overwhelming tiredness <sup>10</sup>
	Personal disaster planning to be prepared <sup>5</sup>
	Having a personal preparedness plan in place that is integrated with the health service disaster management plan <sup>15</sup>
	Being aware of and understanding that you can never be fully prepared <sup>7</sup>
	Being prepared for times of fear and uncertainty, shock, and feelings of accomplishment or lack of accomplishment <sup>7</sup>

	Learning how to debrief and exchange stories to manage emotions and avoid burnout <sup>7</sup>
	Being aware of need for support, rest and debriefing after involvement, as well as negative coping strategies such as alcohol and drug abuse <sup>13</sup>

	Learning skills to manage and over time in a disrupted and austere environment <sup>5</sup>
	Critically examining ability to cope with sustained stress and living conditions in disaster zone <sup>13</sup>
	Recognizing capacity to adapt to emergency environment <sup>13</sup>
	Being aware of ethical issues in disaster zones and how in the local context how decisions are made about who gets treated; discharge decisions; and follow up <sup>7</sup>
	Anticipating and coping with lack of resources, cultural differences, language barriers, reality of devastation and working at edges to scope of practice <sup>7</sup>
	Being aware of one's own reasons for contributing – being able to identify strengths and achievements in situation <sup>7</sup>
	Learning to deal with the 'lack of understanding' by others of working in disaster zones; difficulty in coming home for EMTs that are FIFO; dealing with own privileged situation <sup>7</sup>
	Making arrangements in personal life to be ready to work in disaster area by discussing decision with family, organizing emergency contacts, making a will <sup>13</sup>
	Being medically prepared with appropriate vaccinations, medications and medical insurance to work in disaster area <sup>13</sup>
	Being professionally prepared with appropriate indemnity insurance <sup>13, 15</sup>
	Being financially independent to support self to volunteer and be involved <sup>13</sup>

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